REGENESIS®

SourceStop Soil Treatment Effectively Mitigates PFOS

PFOS Reduced by More Than 99% at Former Flooring Manufacturer



Highlights

Site Type
Former flooring manufacturing facility

Site Conditions
Former drum storage area at an industrial facility with nearby residences

Contaminants
PFOS as the primary PFAS contaminant, with lower concentrations of PFOA and other PFAS compounds

Project Objective
Reduce PFAS leaching potential from impacted soil and limit future source-area discharge

Remedial Approach
PFAS enhanced retention using SourceStop

Results
Greater than 99% reduction in PFOS leachate concentrations

Summary

Historical handling of materials containing PFAS at a former flooring manufacturing facility created a source zone requiring action under the New Jersey Industrial Site Recovery Act (ISRA). A former drum storage area was identified as the primary source area, with PFOS as the dominant contaminant of concern. Following treatability testing, SourceStop® was applied across five target remediation areas, reducing PFOS in soil leachate by more than 99%. Engineered for easy handling and reduced wind-borne product loss, SourceStop provided an effective treatment approach for an active industrial facility near residential receptors where dust control was essential.

Background

A former flooring manufacturing facility in an industrial area of New Jersey was undergoing investigation and remediation under NJ ISRA. The primary area of concern was a former drum storage area, where PFAS impacts were suspected to be associated with the historical use of stain-resistant products. Site characterization identified the target remediation areas Figure 1 and indicated that PFOS was the primary PFAS constituent in soil, with PFOA present at lower concentrations.



Soil data from the source area indicated that PFOS was concentrated in shallow soil and decreased with depth, supporting the interpretation that the former drum storage area acted as the primary source zone Figure 2.

Figure 1 Aerial View of Soil Blending Areas

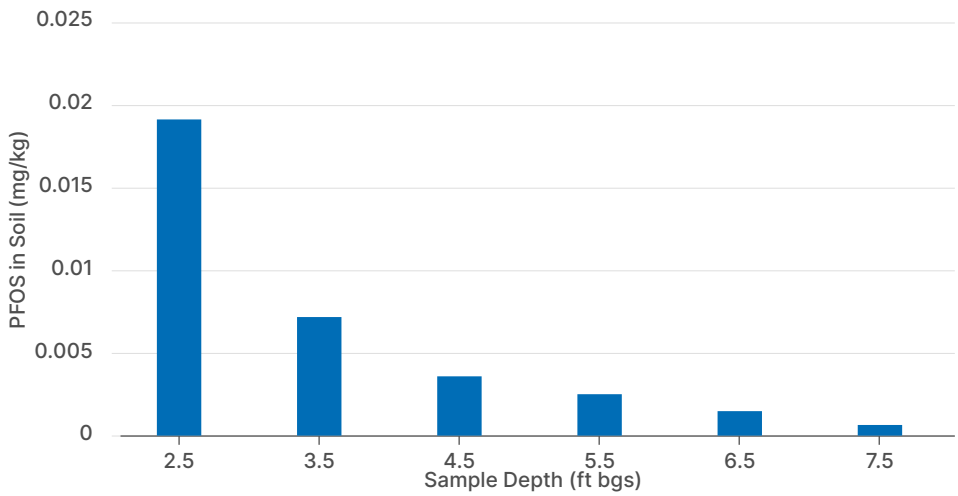
Identified PFAS soil blending areas within the former drum storage/source area at the New Jersey industrial site.



Figure 2 Vertical PFOS Distribution in Soil

Soil sampling from the former drum storage area identified PFOS as the dominant PFAS constituent, with the highest concentration observed in shallow soil and concentrations decreasing with depth.







Remedial Objective and Approach

The remedial objective was to limit future PFAS migration from impacted soils without generating waste for off-site disposal. Because the site is an active industrial property located near a residential area, maintaining dust control during treatment was also a critical project requirement.

PFAS Enhanced Retention with SourceStop

The selected strategy focused on PFAS Enhanced Retention (PER) by applying SourceStop to impacted soil. This approach builds on the PFAS Monitored Retention framework, which recognizes that retention processes such as sorption, matrix diffusion, and plume dispersion can reduce PFAS mobility and mass discharge.

Where natural retention alone is not sufficient to meet site objectives, PFAS Enhanced Retention adds an engineered step to increase the soil's retention capacity and reduce PFAS leaching. SourceStop increases the soil's retention capacity by adding activated carbon surfaces that bind PFAS and help immobilize them within the treatment zone.

The project team, led by TTI Environmental, Inc., selected SourceStop for bench testing and field application based on the site objectives, PFAS soil conditions, and the need for a low-dust amendment suitable for use near residential receptors. SourceStop's colloidal activated carbon particles, which are less than 2 microns, help the amendment penetrate fine-grained layers and coat soil particles, improving contact with PFAS-impacted media.

Adamson, D. T., Newell, C. J., Kulkarni, P., & Stroo, H. (2025). PFAS monitored retention: A framework for managing PFAS-contaminated groundwater sites. *Groundwater Monitoring & Remediation*.

https://doi.org/10.1111/gwmr.70001

Treatability Testing

Treatability testing was performed on untreated site soil to establish baseline total PFAS concentrations and SPLP leachability. Across the tested dosages, Synthetic Precipitation Leaching Procedure (SPLP) results declined sharply relative to untreated soil, reducing leachable PFOS concentrations by more than 99% — from approximately 300 nanograms per liter (ng/L) to less than 3 ng/L. These results demonstrated that SourceStop could substantially reduce PFAS mobility in site soil.



Overhead view of SourceStop application and in situ blending using a rotary mixing head attached to an excavator

Field Application

Following treatability testing, the remedy was implemented in the field within the identified target treatment zones. SourceStop was mechanically blended into onsite soil using standard earthwork equipment, including an excavator equipped with a rotary mixing head. Care was taken to promote even distribution through the impacted soils.

Approximately 11,200 pounds of SourceStop was applied. The product was designed to minimize dust during primary soil blending, support cleaner field operations and reduce wind-borne product loss.

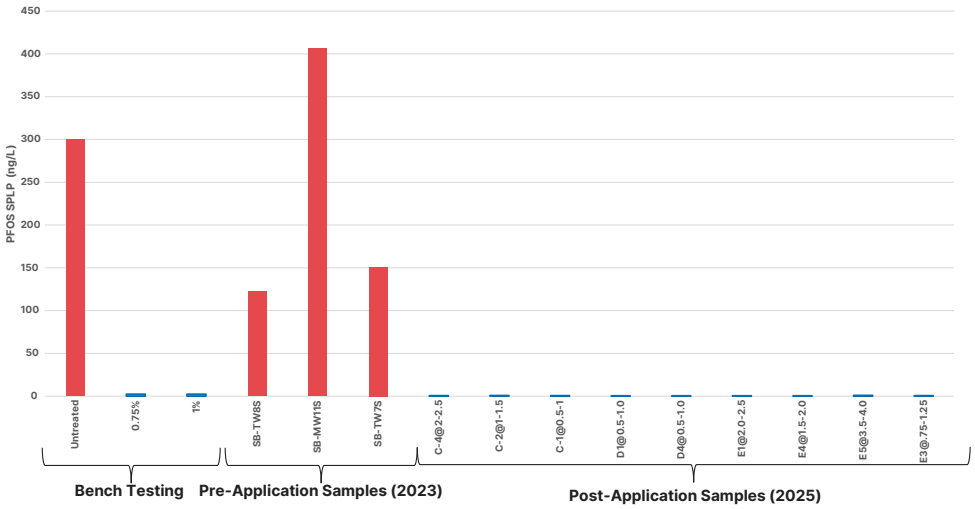


Results

Following SourceStop application, PFOS concentrations in soil leachate were reduced by more than 99% compared to baseline, with post-application samples below 1 ng/L (Figure 3). These field results confirmed the performance observed during treatability testing and support the use of SourceStop as a practical source-area stabilization approach for PFAS-impacted soils at industrial sites.

Figure 3 Summary of PFOS SPLP Results

Bench and field SPLP results show more than 99% reduction in PFOS leachate concentrations following SourceStop treatment, confirming effective PFAS retention in the treated source-area soils.



Acronyms Used

CAC	Colloidal activated carbon
ISRA	Industrial Site Recovery Act
PFAS	Per- and polyfluoroalkyl substances
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid
SPLP	Synthetic Precipitation Leaching Procedure

About The Consultant

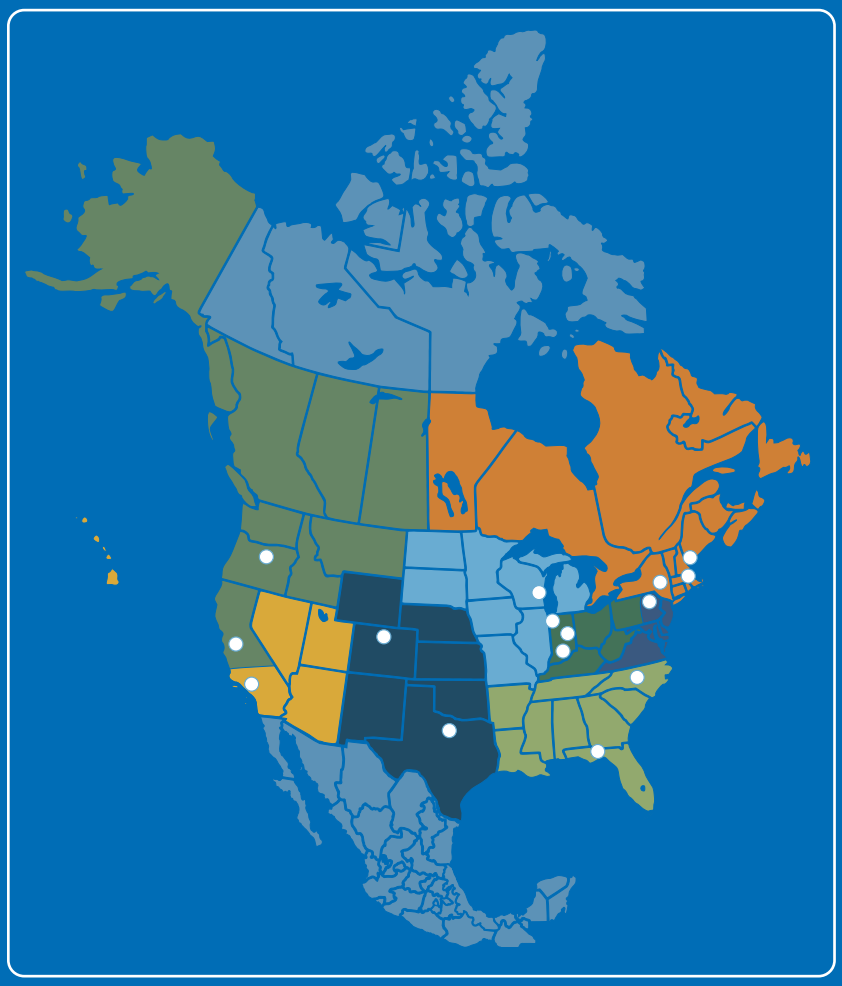
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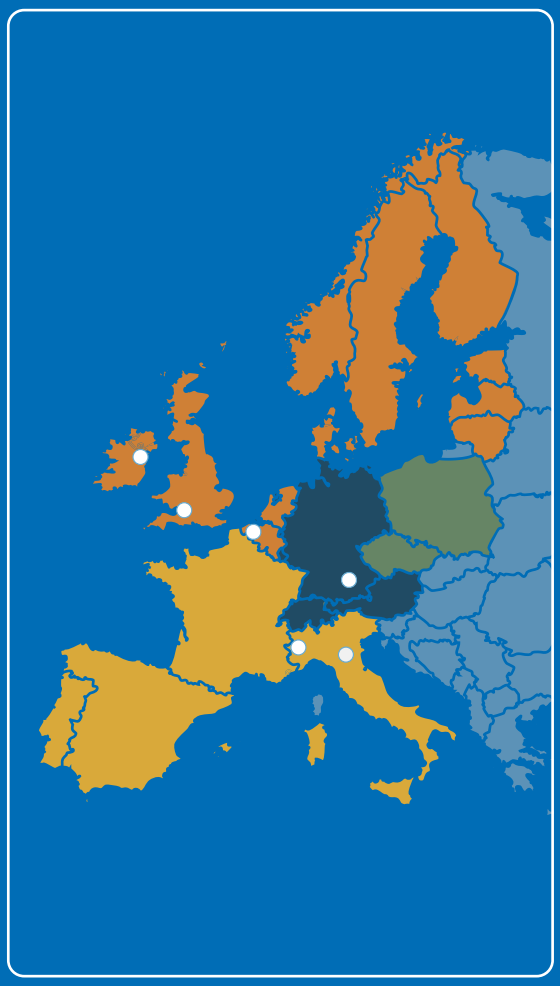
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