



Former Auto Service Site Achieves No Further Action (NFA)

Former Automotive Service Facility Effectively Remediated Using PetroFix





Highlights

Site Type

Former automotive service facility

Contaminants of Concern

Petroleum hydrocarbons as diesel-range (TPH-D) and oil-range organics (TPH-O)

Geology/Hydrogeology

Dense glacial till with shallow groundwater and variable flow direction

Project Driver

Close remaining groundwater and groundwater-to-vapor exposure pathways and achieve unrestricted site closure

Remedial Approach

Targeted PetroFix injection with electron acceptor blend following prior excavation and source removal

Results

No Further Action

Project Summary

At a former automotive service facility in the Pacific Northwest, a historic hydraulic hoist release resulted in localized petroleum impacts in soil and shallow groundwater. Multiple rounds of investigation, excavation, and source removal addressed the primary impacts, but residual dissolved-phase petroleum remained in a limited groundwater zone, preventing regulatory closure.

To address the remaining groundwater exposure risk pathways, Antea Group and REGENESIS Remediation Services (RRS) implemented a targeted application of PetroFix®, a colloidal activated carbon amendment specifically designed to quickly address a wide range of petroleum-based contaminants.

- ✓ The remediation reduced the TPH impacts below the risk-based action levels, supporting a No Further Action determination.

Project Background and Remedial Objective

The site formerly operated as an automotive service facility with multiple underground hydraulic hoist systems. Petroleum impacts were first identified during hoist removal activities, which triggered additional investigation and remedial excavation. [Figure 1](#)

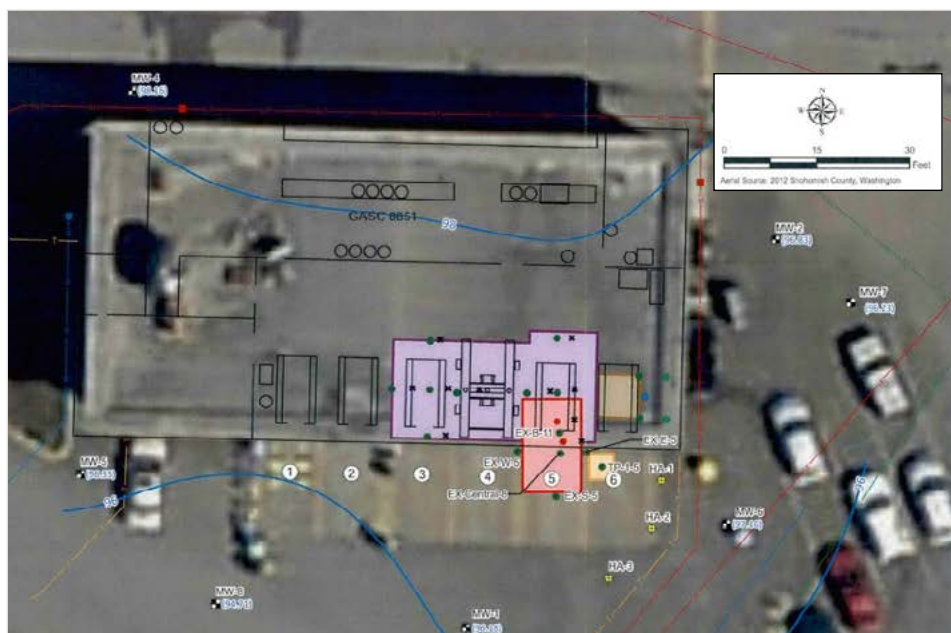
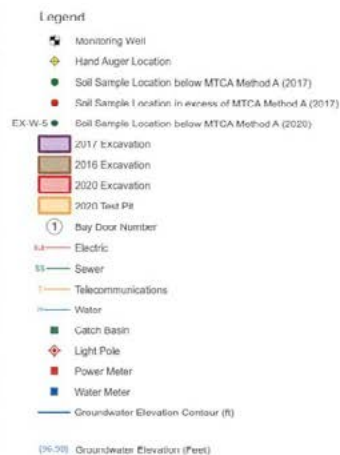
Over several years, site work showed that impacts were largely limited to former service bay areas, with soil impacts reduced through excavation and the broader monitoring network generally below cleanup criteria. Despite this progress, residual dissolved-phase petroleum impacts remained in a localized groundwater plume outside the current building footprint. In response to an earlier closure request, the regulator concluded that site characterization was sufficient, but that the remaining groundwater and groundwater-to-vapor exposure pathways had not yet been fully addressed.

The remedial objective was to eliminate the final localized groundwater risk and support closure under the Model Toxics Control Act cleanup levels for the applicable pathways. This required reducing the sum of TPH-D and TPH-O concentrations below 500 micrograms per liter ($\mu\text{g/L}$).

Figure 1

Site Map

Site map depicting utilities, former service station features, monitoring wells and previously excavated areas. Prior to PetroFix injection, a localized groundwater plume remained outside of the southeast corner of the building.



Remedial Approach



A focused in situ treatment program was developed to address residual petroleum impacts in groundwater near the remaining area of concern. Baseline sampling at the target well showed TPH-D and TPH-O concentrations that individually were below Method A cleanup levels for unrestricted land use, but together exceeded the combined cleanup threshold.

To address this final condition, the project team designed a targeted PetroFix application around the affected monitoring well. The remedy included injection of 800 pounds of PetroFix together with 40 pounds of an electron acceptor blend to support treatment of residual dissolved-phase petroleum constituents. The design focused treatment only where residual groundwater impacts remained, creating an efficient polishing step following earlier source removal and excavation work.





Application

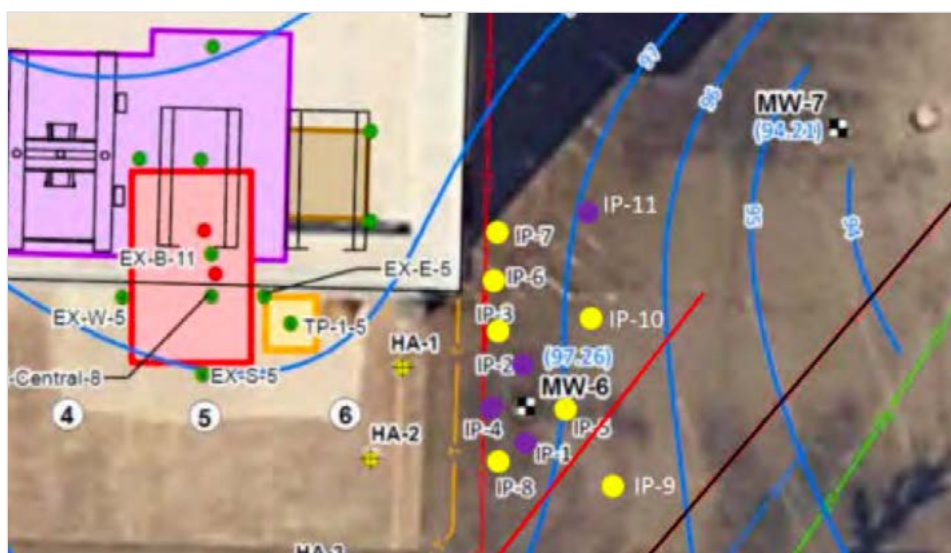
The application was completed by REGENESIS Remediation Services (RRS) over two days in late September and early October 2024. Challenging field conditions, including shallow groundwater, dense glacial soils, drilling refusal, and amendment surfacing, required modifications during implementation.

To maintain effective treatment, the team narrowed the injection interval, adjusted the injection point layout in the field, and increased product concentration to reduce injection volume and improve placement. Despite these challenges, RRS successfully delivered the full amendment mass to the target treatment area and completed the application on schedule. [Figure 2](#) shows the application layout.

Figure 2

PetroFix Injection Map

PetroFix Injection Map - Injection points are labeled IP-#. MW-6 is the performance monitoring well.



Application Details

Treatment Area	~400 square feet
PetroFix Quantity Applied	800 lbs
Electron Acceptor Blend Applied	40 lbs
Volume	624 gallons
Injection Points	7
Treatment Depth	Designed for 3-13 feet below ground surface, injection depths modified in the field on a point basis

Results

Date	MW-6 TPH D+O Cleanup Goal: 500 µg/L
9/26/23	1260 µg/L
12/29/23	3000 µg/L
9/12/24	520 µg/L
10/1/24	PetroFix Injection
11/20/24	570 µg/L
1/23/25	ND (<275 µg/L)
4/22/25	ND (<275 µg/L)
7/21/25	ND (<275 µg/L)

TPH-D plus TPH-O results from treatment zone monitoring well MW-6 before and after PetroFix application.

TPH concentrations in MW-6 were reduced to non-detect levels within approximately 100 days following the PetroFix application.

During the final (i.e., 9-month post-application) monitoring event, TPH-D was reported slightly above the detection limit; however, the analyte was also detected in the laboratory method blank, indicating the result may have been biased high. A second sample was therefore analyzed using a silica gel cleanup (SGC) method, which removes polar compounds from the sample matrix and allows quantitation of petroleum hydrocarbons only. No petroleum hydrocarbons were detected in the sample analyzed using SGC.

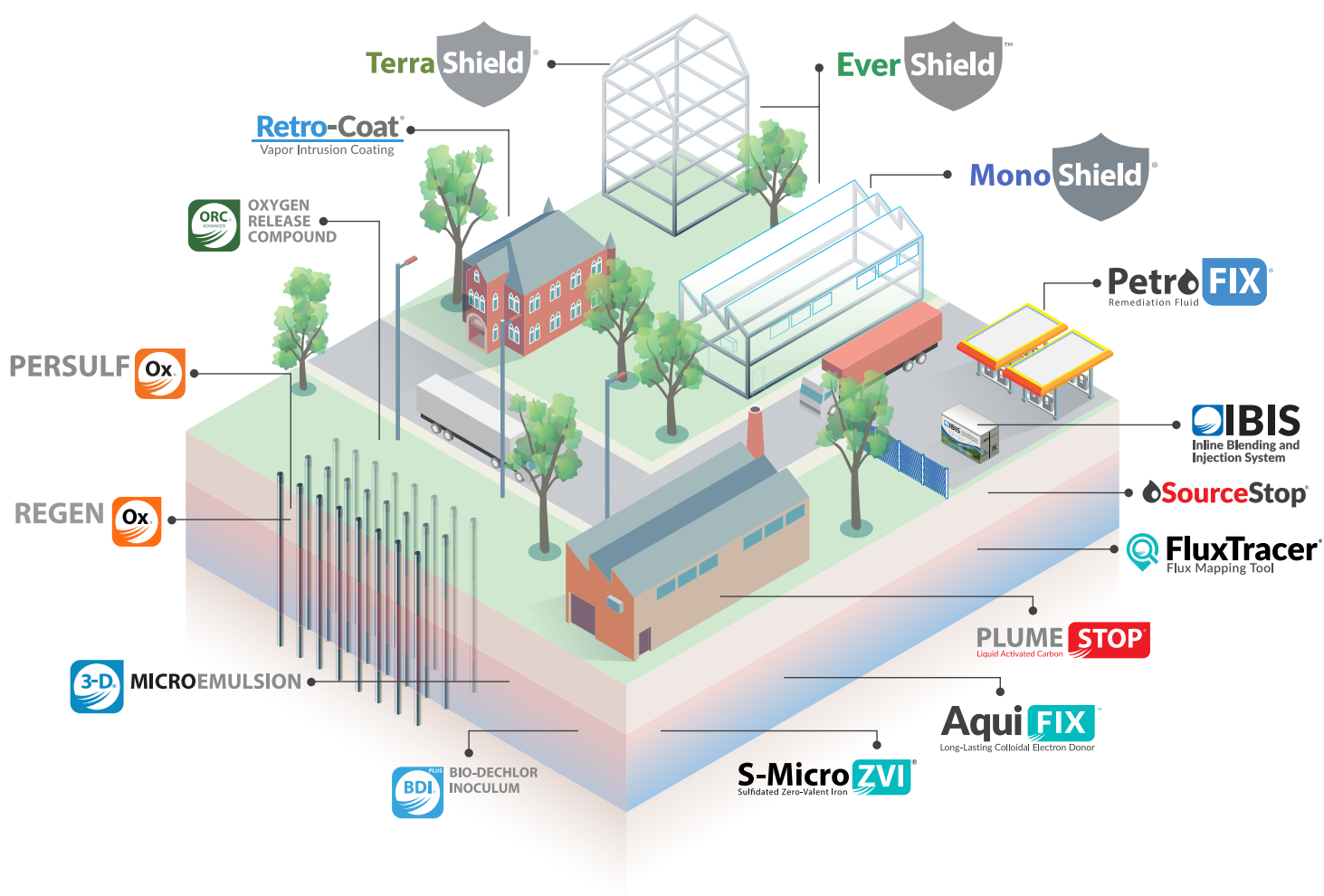
- ✓ With combined TPH-D and TPH-O concentrations maintained below the 500 µg/L cleanup goal, the site was issued a No Further Action determination.

The project provides a strong example of how focused in situ treatment can remove the final barrier to site closure following source removal.



About the Consultant

Antea Group is an international engineering and environmental consulting firm specializing in full-service solutions in the fields of environment, health and safety, and sustainability. By combining strategic thinking and multidisciplinary perspectives with technical expertise and pragmatic action, we do more than effectively solve client challenges; we deliver sustainable results for a better future. With access to more than 3,000 employees in over 100 offices and experience on six continents, we serve clients ranging from global energy companies and manufacturers to national governments and local municipalities. Understanding today. Improving tomorrow. We have experience in: EHS, Sustainability, Health and Safety, Oil and Gas, Food and Beverage, Railroad, Chemical, Manufacturing, Technology, Water, Compliance, Auditing and more.



About REGENESIS

At REGENESIS we value innovation, technology, expertise and people which together form the unique framework we operate in as an organization. We see innovation and technology as inseparably linked with one being born out of the other.

Inherently, innovation imparts new and better ways of thinking and doing. For us, this means delivering expert environmental solutions in the form of the most advanced and effective technologies and services available today.

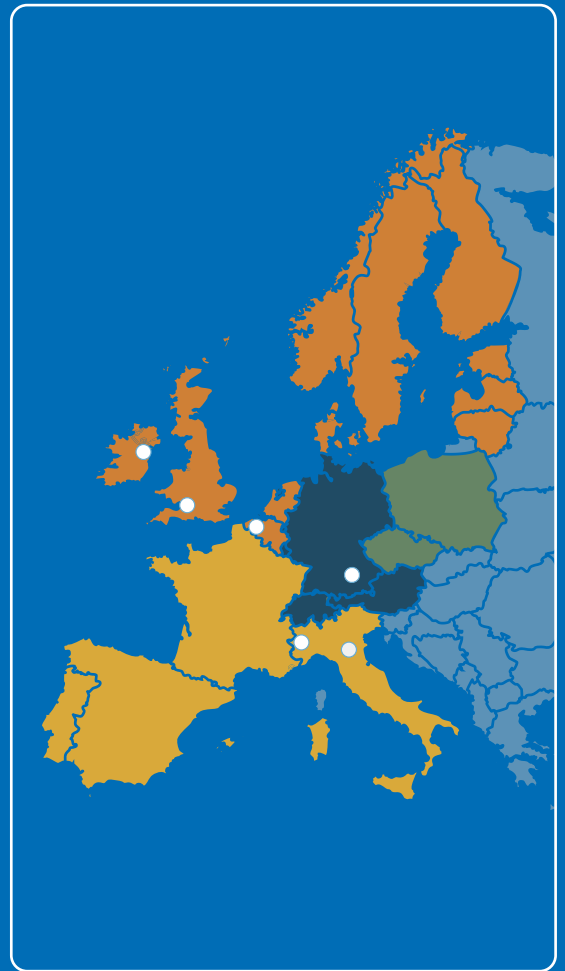
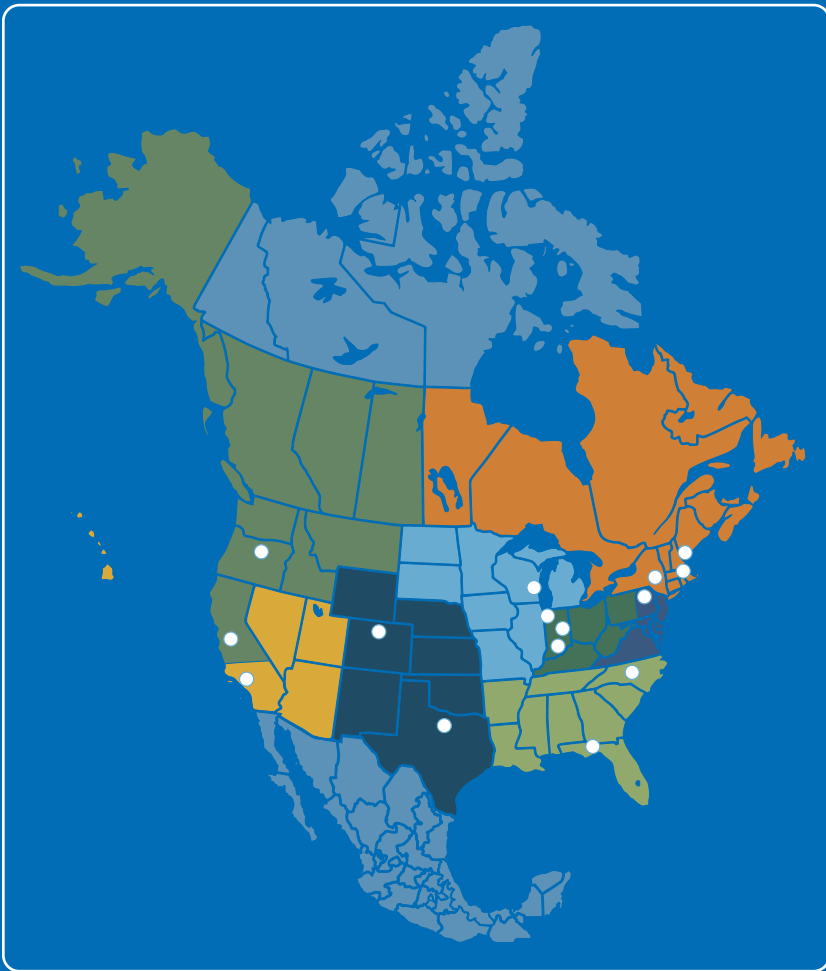
We value expertise, both our customers' and our own. We find that when our experienced staff collaborates directly with customers on complex problems, there is a high potential for success including savings in time, resources and cost.

At REGENESIS we are driven by a strong sense of responsibility to the people charged with managing the complex environmental problems we encounter and to the people involved in developing and implementing our technology-based solutions. We are committed to investing in lasting relationships by taking time to understand the people we work with and their circumstances. We believe this is a key factor in achieving successful project outcomes.

We believe that by acting under this set of values, we can work with our customers to achieve a cleaner, healthier, and more prosperous world.

Have a challenge? Let's solve it together.

Contact us today to discuss your specific needs.



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