

A Fuel Spill Caused by a Truck Rollover in Montana Receives No Further Action Following PetroFix Application

BTEX is Reduced to Non-Detect and Total Petroleum Hydrocarbons to Below Action Levels, Protecting the Yellowstone River

Highlights



No Further Action
Received



Potential Impacts to Scenic River
Eliminated

2,400

Pounds of PetroFix
Applied to Fuel Spill
Excavation

Site Details

Site Type

In Situ Spill Response
Agricultural

Contaminants of Concern

Gasoline and Diesel

Mitigation Approach

PetroFix used in conjunction with
soil excavation to reconstruct
impacted irrigation ditch

Excavation polish design
performed online using PetroFix
software

Project Summary

A semi-truck hauling gasoline and diesel overturned into a dry irrigation ditch in Montana. The diesel tanks ruptured and released fuel into the ditch, impacting the shallow water table with petroleum hydrocarbons (PHCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX). The irrigation ditch feeds a larger irrigation canal that empties into the Yellowstone River.

In response, an area of approximately 2,500 square feet area was excavated and approximately 800 tons of the grossly impacted soils were removed.

Following the emergency response effort, Pioneer Technical Services, Inc. (Pioneer) reviewed the emergency response report, completed a site inspection and met with the property owner to discuss the emergency response clean-up reconstruction methods and materials to be used.

During the meeting Pioneer was informed that the ditch reconstruction effort needed be completed quickly to allow irrigation water to flow before the spring planting season (i.e., within 45 days). The reconstruction effort also needed to prevent the further spread of diesel fuel into the larger irrigation ditch and beyond.

With consideration of this time constraint and discussions with the Montana Department of Environmental Quality (DEQ) and property owner, Pioneer proposed a PetroFix® remediation fluid application into the ditch to rapidly reduce residual PHCs in groundwater. This rapid reduction would allow the irrigation ditch to be reopened while preventing further spread of the diesel fuel plume.



PetroFix is spray-applied into the excavated irrigation ditch.



PetroFix is delivered to the site.



Backfilling of irrigation ditch following PetroFix application.



New irrigation pipe installed following PetroFix treatment and backfilling.



Completed installation of the pipe section.

Application

In April 2020, Pioneer spray-applied PetroFix onto the sidewalls and mixed it with an excavator into the bottom 4 feet of saturated soils in the excavation using an electric-powered pump with a 2-inch diameter hose and an adjustable spray nozzle. PetroFix is comprised of small, activated carbon particles, readily mixes and dilutes with water, and allows for easy spray application. Following the PetroFix application, the irrigation ditch was reconstructed with irrigation piping installed in place of the open ditch beyond the length of the spill-affected area.



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Results

The PetroFix application was effectively applied to the impacted excavation and existing groundwater. Following application, the irrigation ditch was successfully reconstructed to the specifications of the Huntley Project Irrigation District (HPID) and is fully operational.

The remediation effort reduced BTEX to non-detect and all other PHCs below action levels in groundwater and soils. This effort eliminated potential impacts to the Yellowstone River, allowed the ditch to be reopened for irrigation use, and led the Montana DEQ to grant a no-further-action status for the site.

Key Benefits

PetroFix Remediation Fluid

- ✓ Fast, Safe, Affordable and Reliable Results
- ✓ Excellent Distribution Properties
- ✓ Simple Online Design Assistant and Full Customer Support

Technology

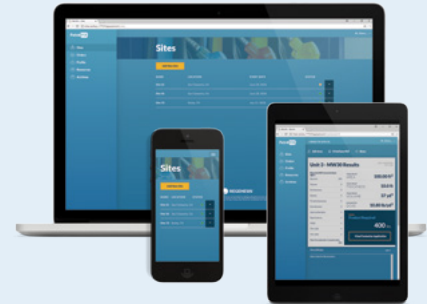
PetroFix® is a cost-effective solution for petroleum spills that equips environmental professionals with tools to take control of the remediation process. This technology works hand-in-hand with the PetroFix Design Assistant™, an online tool that enables users to design and apply individually-tailored remediation plans.

A Dual-Functioning, Activated Carbon Remedial Technology for Treating Petroleum Hydrocarbons

PetroFix has a dual function: it removes hydrocarbons from the dissolved phase by adsorbing them onto activated carbon particles then stimulates hydrocarbon biodegradation by adding electron acceptors. The environmentally-compatible formulation of micron-scale activated carbon (1-2 microns) is combined with both slow and quick-release inorganic electron acceptors. Practitioners can select between a sulfate and nitrate combination blend (recommended) or sulfate only for the additional electron acceptors required.

PetroFix Design Assistant: You Design

Use our Online Software to Generate an Estimate When you Need it.



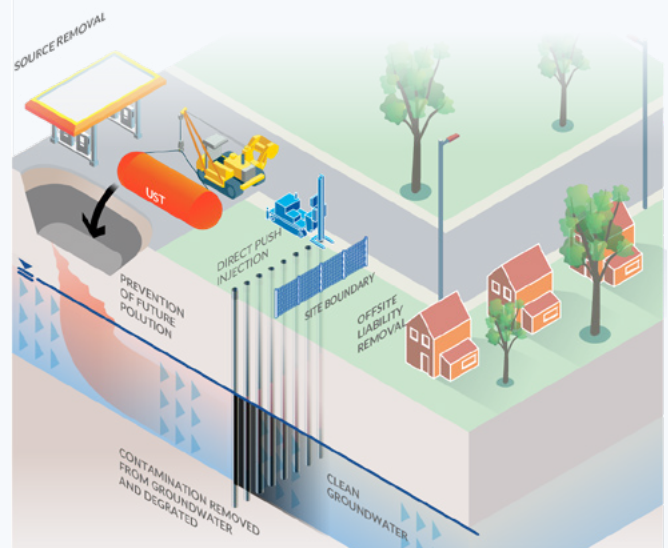
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Flexible
Designs Tailored
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Fast
No Waiting
for a Design



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