

Preventative treatment:

Petrofix coating allows installation of pipeline through contaminated zone, Germany

Highlights



PetroFix prevents recurring contamination



PetroFix application allows installation of new pipeline

Site Details

Site Type

Chemical Plant

Contaminants of Concern

TPH, BTEX

Mitigation Approach

Sprayed Application of PetroFix Onto Walls and Floor of Pipeline Corridor Post Excavation

Project Summary

A new underground pipeline was required to be installed across a complex chemical plant in southwestern Germany. It was found that part of the pipeline would intersect an area of soil and groundwater impacted with petroleum hydrocarbons and BTEX compounds.

The impacted soils and groundwater in the immediate vicinity of the pipe-run would be removed through excavation and dewatering. However, residual contamination would be left in place beside and below adjacent existing structures; where excavation could not be progressed for structural/geotechnical reasons. The residual contamination in these soils represented an ongoing secondary source of contamination, which could diffuse and desorb into the groundwater and re-contaminate the excavated area. This could result in contamination of the clean backfill around the pipeline, plus the granular pipe-bedding material would provide a conduit through which re-contaminated groundwater could spread further across and potentially beyond the site.

Topical application of PetroFix[®] onto the excavation base and sides was completed to prevent recontamination occurring. PetroFix is a dual-function liquid comprising colloidal activated carbon and electron-acceptors. Upon application, PetroFix rapidly adsorbs petroleum hydrocarbon contaminants out of the groundwater and then stimulates their natural biological degradation. The biodegradation regenerates the sorption sites allowing further contaminant influx to be sorbed and degraded.

By applying PetroFix onto the excavation walls and base prior to backfill, a self-cleaning activated carbon filter was created in the subsurface, which would prevent contamination of the granular backfill and stop the infiltration and spread of contaminated groundwater in the pipe-bedding.



A field services applicator spray-applies PetroFix to the walls and base of the excavation.

Application

Excavation was completed to 2.5 meters below ground level (BGL), where it intersected the groundwater table. Soil samples confirmed high residual concentrations in the base and walls of the excavation. PetroFix was sprayed onto the base and walls of the excavation. The coating was completed up the sides of excavation to allow for the variation in groundwater table level, which rises to a minimum depth of 0.5 meters BGL at this location. Coating to this depth will avoid the treatment being 'over-topped' during periods of high groundwater. PetroFix is a non-hazardous, low viscosity liquid and is simple and safe to use. The required quantity of concentrate was diluted with water onsite and then sprayed across all target surfaces using standard equipment. The mixing and application was completed in a single day, immediately after which the pipeline installation and backfilling could be completed.

Technology

PetroFix is a cost-effective solution for petroleum spills that equips environmental professionals with tools to take control of the remediation process.

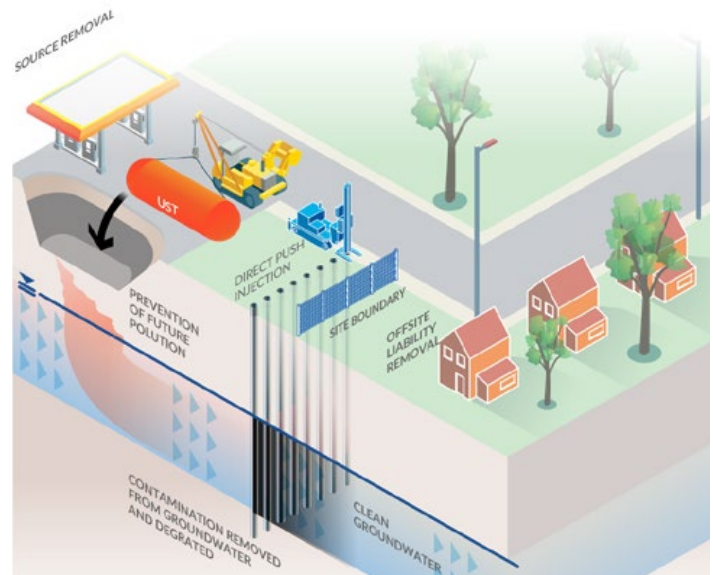
A Dual-Functioning, Activated Carbon Remediation Technology for Treating Petroleum Hydrocarbons

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 combined blend (recommended) or sulfate only for the additional electron acceptors required.

Key Benefits

PetroFix Remediation Fluid

- ✓ Fast, Safe, Affordable and Reliable Results
- ✓ Excellent Distribution Properties



Conclusion

On this site, PetroFix was used to prevent future contamination migration from residual sources. The application was safe, simple and quick. The treatment was cost effective, minimising excavation and allowing the pipeline to be installed without delay to the construction programme. The application is immediately effective and the combination of sorption and biological degradation results in long term protection of the pipeline and avoidance of potential contaminant migration into and along the pipe bedding.

Contact

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