

Double pilot study treats TPH at redevelopment site in the Netherlands

PROJECT PROFILE

PetroFix[™] injection and excavation applications trialled at former workshop and petrol filling station

INTRODUCTION

An area in the south west of the Netherlands is to be redeveloped into residential properties.

High levels of petroleum hydrocarbons have been found at the site. These are thought to date back to the bombing of underground storage tanks (USTs) here during World War II, when the site was used as a mechanical workshop and petrol filling station.

It was determined that remedial action was required to reduce the risk to potential new residents. The environmental company ATKB decided to complete a double pilot trial with PetroFix™.

PetroFix would be applied through in situ injection and excavation application to provide rapid sorption and long-term biological degradation of the contamination.



Fig 1. Injection of PetroFix using a direct push rig



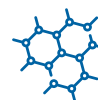
SITE TYPE

Old mechanical garage and fuel station



GEOLOGY

Heterogeneous sand with clayey material and peat layer



CONTAMINANTS

Mixed petroleum hydrocarbons (kerosene/lamp oil/fuel) up to NAPL



PROJECT DRIVER

Human health risk removal to allow residential development



TREATMENT

Pilot: 5 direct push injection points to 2.5-6.0m BGL and a 10m² excavation application



TECHNOLOGIES

PetroFix™

APPLICATION

PetroFix was applied through Direct Push Technology (DPT) into 5 locations in the pilot area. The injection points were spaced approximately 2m apart, located around and an existing monitoring well that would be used for validation monitoring.



Fig 2. Site plan showing pilot activity locations

- Groundwater Contamination (plume extent)
- Soil Contamination
- Pilot Injection Area
- Property Boundary
- Excavation Trial
- Monitoring Point



In the centre of the site an excavation application trial was completed. A slit trench was opened up, with the impacted soils segregated for disposal. The base and walls of the excavation were then sprayed with PetroFix to prevent recontamination of clean backfill. The trial also emulated the use of PetroFix in excavation applications to prevent the further advection of the dissolved phase plume in the full-scale project.



Fig 3. Spray application of PetroFix in a trial trench

CONCLUSION

The pilot injections and excavation applications were found to be easy and safe to apply. The extrapolation of costs from the pilot studies suggests the full-scale treatment is the most cost-effective solution for the site.

The *in situ* nature of the works will result in minimal disturbance to the site. PetroFix will combine a rapid reduction in contaminant concentrations with long-term enhanced biological degradation of the contamination onsite.

The full-scale treatment is planned to commence within 12 months of the pilot application. The process will comprise limited excavation, LNAPL skimming with PetroFix application into excavations and through DPT injection.

FURTHER INFORMATION

For more example of petroleum hydrocarbon remediation projects, scan the QR code below for a direct link to our website. For questions or to discuss options, please get in touch.



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