

CASE STUDY: Remediation: Air Sparge / Vacuum Extraction

Client: Car Dealership Owner

Site: Operational Dealership Site in North West England

GEO² were commissioned to design a remediation system to be installed and operated within an operational vehicle dealership and maintenance garage, formerly a petrol filling station, following a leak from a fuel line resulting in gross soil and groundwater contamination.



To minimise disruption at the site a treatment program was designed that once installed would not hinder the use of the site as a commercial property throughout the life of the remediation system. The installation itself was conducted concurrently with a tank removal program at the site to further minimise impact to the business.

The system was designed to treat volatile hydrocarbons identified within the soils and groundwater by combining two symbiotic processes-

Vacuum Extraction- The removal of impacted vapour from soil and groundwater under a vacuum gradient. This directly removes contamination, whilst encouraging air movement through the ground.

Air Sparging- Clean air is diffused through impacted groundwater at depth causing release of volatiles into the vapour phase and encouraging natural biodegradation.

This system was commissioned in January 2005 and run 24 hours a day, consecutively for 12 months. High concentrations of volatiles were consistently removed from the environment, slowly tailing off towards the end of the treatment period. This trend was reflected in the significant reductions in hydrocarbon concentrations identified in the groundwater monitoring.

This period was then followed by a three month validation period to ensure no significant rebound occurred that might suggest a continued contaminant source at the site prior to granting of regulatory sign off at the site.

This technology has proved itself to be a cost effective method of remediating hydrocarbon contamination in the soils and groundwater. The different processes used in the treatment work well together and can be optimised to concentrate on the most heavily impacted 'target areas' across a site as treatment progresses.

