



## **CASE STUDY: Remediation: In-Situ Chemical Oxidation**

**Client:** Regional Convenience Store Retailer

**Site:** Former Vehicle Dealership, Maintenance Garage and Petrol Filling Station in Yorkshire



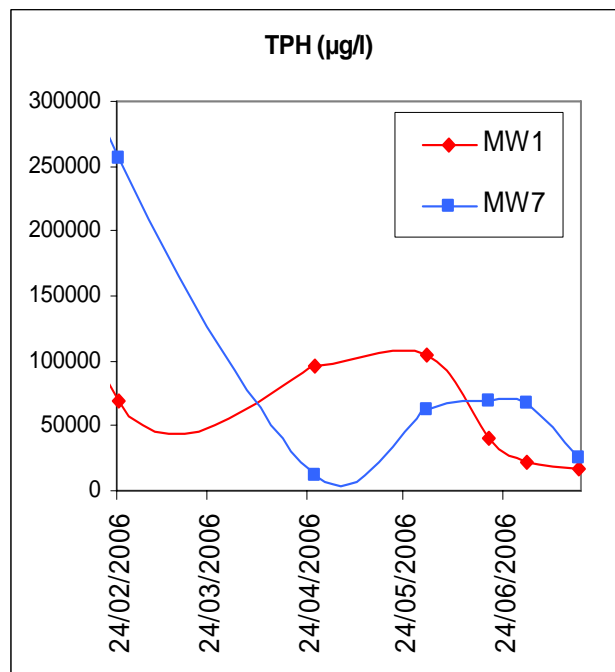
The former use of this site as a petrol filling station had left a legacy of hydrocarbon contamination within the soils and groundwater across the forecourt. GEO<sup>2</sup> were tasked to provide rapid results, required to facilitate redevelopment of the entire site into a modern residential development.

Combined with decommissioning of the former petrol filling station infrastructure (including tank removal) GEO<sup>2</sup> targeted the hydrocarbon impacted areas with a specifically targeted Chemical Oxidation remediation program. GEO<sup>2</sup> use recently developed advanced chemical oxidants, which

were directly injected into the highly contaminated porous sands and groundwater producing powerful, yet controlled chemical reactions to rapidly and effectively destroy target contaminants in high concentration source areas. The oxidant breaks the hydrocarbon bonds producing harmless by-products – CO<sub>2</sub>, H<sub>2</sub>O and O<sub>2</sub>.

Pumping the reagent into impacted zone under pressure ensures maximum contact between the contaminants and the oxidant across a large surface area, thus reducing the number of injection points required whilst ensuring the entire source zone can be attacked.

Two chemical injections, one month apart, succeeded in supplanting 5000 litres of oxidant into the groundwater and soil pore spaces across the impacted area. This triggered a rapid reaction observed in subsequent monitoring two weeks later. Within this period the concentrations of TPH in the groundwater dropped from 1250mg/l to 25mg/l across the impacted areas. Follow up validation monitoring observed no significant rebound and regulatory signoff was achieved.



This technique is ideal for the treatment of soil sorbed and dissolved phase hydrocarbons, works can be conducted rapidly with results typically seen within weeks of the first injection. GEO<sup>2</sup> consider this direct dosing system of chemical oxidation far more cost effective compared to traditional ChemOx technology and a rapid means of treating a wider range of contaminants than many rival technologies. With potentially rapid mobilisation, comparatively little onsite disturbance and no ongoing installation or maintenance costs, GEO<sup>2</sup> anticipate to see higher demand for this highly successful treatment option.