

Remediation

Ozone Sparging - Staffordshire

Ecologia has completed a project in Staffordshire to remediate petrol contamination to groundwater following a substantial loss from an underground storage tank (UST).



Internal view of the Ozone Unit



Installation of the gas distribution and SVE lines

The petrol contamination was found to have migrated beneath several domestic properties, leading to an indoor vapour inhalation risk pathway.

Ecologia's drilling division installed a total of 42 sparging points arranged into 4 sparge curtains perpendicular to the flow of groundwater and 35 associated Soil Vapour Extraction (SVE) wells to remove vapour liberated from the groundwater by the action of the sparging and to prevent the escape of fugitive emissions of ozone. The ozone sparging and SVE systems were designed and fully manufactured by Ecologia at our workshop in Kent.

The use of ozone provides a chemical oxidative effect as well as supplying a source of oxygen for in-situ bioremediation. The data from the project showed that the technique was able to reduce the concentration of MTBE as well as the light molecular weight hydrocarbons associated with petrol by a several orders of magnitude. This enabled Ecologia to reach the agreed remediation targets within the proposed timeframe.

The system was left inoperative for a period of 3 months for 'rebound' monitoring and the hydrocarbon concentrations in groundwater remained below the remedial targets.

The use of ozone sparging and SVE provided an effective and relatively unobtrusive technique that allowed the properties affected by the treatment to remain occupied as normal throughout the process, with the exception of one of the residential property that had to be vacated during the works due to the use of ozone sparging directly beneath the house. The installation works were completed within 2 weeks and upon completion of the 9 month programme (including rebound monitoring) the decommissioning and re-instatement was completed within one week.

The overall project was completed within a lump sum contract with the programme being part of the contract.