

Site Investigation | Risk Assessment

Risk-based Remediation at a Former Petrol Station in Surrey

Ecologia were appointed to perform a site investigation and to produce a Human Health and groundwater risk assessment for a proposed residential development at a former service station located in Woking, Surrey.

The presence of high levels of hydrocarbon contamination had been detected during a previous site investigation undertaken by another consultant. The property developer had purchased the site without a full understanding of the implications of developing a potentially contaminated site, and required urgent assistance from the main contractor, EDS Ltd, and Ecologia Ltd. Ecologia were contracted to better identify the extent of the contamination, to liaise with the regulatory bodies with respect to clean-up targets, and to propose a remediation plan.

Ecologia worked in liaison with the Environment Agency and the Local Authority (Woking Borough Council) throughout the duration of the site investigation and remediation works. Ecologia were subsequently appointed by the property developer to provide additional guidance and specifications for the construction phase of the new development.

Ecologia carried out a detailed site investigation using our own Site Investigation Unit and drilling rig. Data from the site investigation showed that significant hydrocarbon contamination had impacted the site and that a contaminant plume was moving in a northerly direction in accordance with the direction of the groundwater flow. A detailed human health risk assessment was carried out for specific TPH fractions using the software RISC₄ and the results were accepted by the Local Authority and the EA

A P20 groundwater risk assessment was also performed in order to assess the risk that contaminated groundwater could pose to water quality in a nearby canal. An additional dilution calculation showed that, even assuming the worst case scenario, the canal was unlikely to be at risk. This assessment was discussed with the Environment Agency, who accepted the report and requested that Ecologia continue with groundwater monitoring.

Remediation works consisted of the excavation of the most heavily contaminated material, validated against the risk assessed target levels. A total of 1500m³ of soil were excavated, transported to a suitable landfill site and disposed of in accordance with Waste Regulations.



Post remediation validation monitoring demonstrated that the excavation associated with the source removal was successful. Residual TPH concentrations were found to be below the conservative remediation targets calculated using RISC₄.

Groundwater monitoring undertaken following the remediation work indicated that the contamination in the shallow groundwater at the site had decreased significantly and the quality of water in general had improved.

At the request of the Environment Agency, groundwater monitoring was undertaken over a period of 6 months. The updated information collected during the monitoring were used to validate the output of the HH and groundwater risk assessment indicating that further remedial action was not required.

Ecologia also provided the specifications for the protective barriers for the building basement required as part of the planning consent. Ecologia was also involved in the QA/QC assessment undertaken during the installation of the gas protective membrane.