

## Project Data

**Region:** Hertfordshire, England

**Client:** Tesco Stores PLC

**Involved Units:** Eneotech Environmental Ltd

**Execution Time:** September 2008 - May 2011

**Contract Value:** £850,000

## Work Performed

Design and permitting

Removal of UST tank farm

Excavation of impacted shallow soils

Ex-situ bioremediation

Free product recovery and groundwater treatment

Soil vapour extraction

In-situ bioremediation (ORC<sup>®</sup> injection)

Verification

Backfill



# Soil and Groundwater Remediation - Hertfordshire

Combined Remediation Services

Contaminated Soils and Groundwater

## Soil and Groundwater Remediation — Hertfordshire, England

Eneotech Environmental Ltd is currently working on a former industrial site which has been acquired by one of the leading supermarket chains in the UK. The site is proposed for mixed use redevelopment. Elevated levels of volatile organic compounds had been detected locally within the made ground and deeper soils which had in turn had impacted the groundwater. Through thorough site investigation and risk assessment this led the consultant to recommend that the client carries out a voluntary remediation scheme, prior to planning permission being sought.

The site occupied an area of approximately 0.5 acre and was covered hard standing. There was a tank farm consisting 16no. tanks containing products such as methanol, dichloromethane and naphtha. These tanks and their feed pipes had historically leaked and been identified as the cause of elevated levels of volatile organic compounds within the made ground around the periphery of the tank farm and groundwater .

A cost benefit analysis was carried out by Eneotech Environmental Ltd and an ex-situ onsite bioremediation scheme was determined to be the most appropriate remediation technique to meet the soil clean up criteria within the time constraints of the project. Soil lay down areas with capacity to take 3,000m<sup>3</sup> of contaminated soils were constructed using HDPE liners and geotextile laid over crushed concrete. The crushed concrete is a granular material providing drainage and the passage of air for the soils. The HDPE liner also provides an impermeable base for leachate capture. All soils are to remain on site throughout the works and are to be used as backfill within the tank farm excavation.

A free-phase product plume and significant plume of dissolved phase contamination had been identified across the site and migration offsite had not been ruled out. Eneotech Environmental Ltd designed and installed a 40no. well multi-phase recovery system to target the

recovery of this free product. Eneotech Environmental Ltd deployed numerous items from our modular groundwater plant include 2-stage separators, granular activated carbon and sand filters. All these items ensured discharge to sewer meet strict targets enforced by the utility company. Groundwater flow within the contaminated aquifer had been identified as very low and a possible limiting factor in the remediation. To solve this problem a combined effort of reinjection of water and vacuum pressure was applied to the aquifer to encourage groundwater flow.

In conjunction with the consultant's design for monitored natural attenuation, post remediation, an injection of ORC<sup>®</sup> was incorporated into the design and carried out within the source area.

Eneotech Environmental Ltd. provides a wide range of environmental services to enable the redevelopment of contaminated land. We offer a full range of technologies and services including hazardous waste management, thermal desorption, bioremediation (windrow turning and ex situ static methods), soil vapour extraction, air spraying, soil washing and stabilisation and solidification.

Eneotech Environmental Ltd is backed by decades of experience and interdisciplinary skills amassed by the Eneotech group of companies.

Our company Eneotech Environmental Ltd ranks as one of the most highly skilled and dependable services providers specialising in site rehabilitation, waste disposal and service platform preparation.

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