

Remediation

Air Sparging – Gloucestershire

Following a loss of a diesel from an above ground storage tank in Gloucestershire, Ecologia was initially contracted to remove free phase oils from the surface of the groundwater. This work was successfully undertaken by Ecologia but a significant residual concentration remained which was in excess of the agreed groundwater remedial targets.

The initial assessment of the situation favoured a monitored natural attenuation approach because there was a high dissolved oxygen content within the groundwater and in situ bioremediation was demonstrated to be in progress. However, following the commencement of natural attenuation monitoring the groundwater was impacted with a large quantity of milk, rendering the groundwater anoxic and removed the possibility of monitored natural attenuation.

Ecologia suggested the use of an air sparging system to introduce oxygen to the groundwater and overcome the increased oxygen demand posed by the increased organic carbon content of the groundwater. Ecologia was able to agree this approach with the Environment Agency and the works were instructed by the client.

A total of 12 sparging wells were installed into the remediation area. The wells were drilled to 4 metres below the water table using Ecologia's own drilling equipment. The air feed lines were cut into the concrete hardstanding, allowing normal business to continue unhindered.

The sparging equipment was designed and manufactured by Ecologia in Sittingbourne. The equipment was telemetrically controlled and allowed automated monitoring of the dissolved oxygen concentration in the groundwater. The inclusion of genuine two way telemetry allowed Ecologia to greatly reduce the quantity of site visits required.

The sparging system created oxidic conditions and increased the Redox potential to over 50 mV and the dissolved oxygen content to 4ppm within three weeks. The oxidic conditions were maintained over 12 months until the remediation target was achieved under a fixed price contract to attain the remediation targets.



Sparging system during operation