

Project: Permeable Reactive Barrier using DCL Biosolv

Client: Chemical Distribution Company

Location: Fareham, Hampshire

Duration: 18 months

Works

- Design of the treatment solution
- Discussions with the Environment Agency
- Installation of a biological permeable reactive barrier arrangement
- Injection of hydrogen release bioremediation substrate (DCL Biosolv)
- *In-situ* monitoring and groundwater sampling
- Validation and reporting



Synopsis

The site was an operational chemical storage depot contaminated with chlorinated solvents, principally tetrachloroethene (PCE), due to a spillage several years ago. Contamination was migrating off-site and measures were required to prevent the contamination affecting adjacent properties.

Telluric Land Remediation addressed the problem by installing a permeable reactive barrier arrangement, which involved the injection of a hydrogen release substrate (DCL Biosolv) to a depth of 5.5m close to the southern site boundary.

DCL Biosolv promotes the natural biodegradation of target contaminants by a process known as reductive dechlorination. It essentially acts as nutrient source for microbial growth and as an electron donor for energy generation. The end result is that chlorinated solvents such as PCE are biologically degraded into non-toxic end products.

DCL Biosolv was introduced into the ground using injection rods installed by small tracked direct push drilling rigs. A mixing / injection unit was then connected to the rods and remediation product injected into multiple locations simultaneously. Dissolved phase chlorinated solvents were degraded as they passed down hydraulic gradient through the treatment zone. Site visits were undertaken quarterly to ensure correct operation of the system and to recover groundwater samples for chemical analysis.

The permeable reactive barrier provided our Client with an economic and practical solution. The barrier will remain active for several years and provides ongoing protection to adjacent properties from contaminants migrating in the groundwater.

