

Active Pharmaceutical Manufacturing Facility, Northern Italy

Chloroform Contamination Remediation using 3-D Microemulsion



Summary

Historic leakages at an active pharmaceutical manufacturing site in Northern Italy resulted in very high concentrations of chloromethane contamination – chloroform/methane and dichloromethane specifically, up to 200.000 and 70.000 µg/L respectively – impacting the groundwater.

Due to ongoing industrial activity, an in-situ remedial technology, as it causes only minimal or no disruption to site activities, was deemed the only viable option. After several pilot tests Reductive Dechlorination using Regenesi’s 3-D Microemulsion was selected.

Treatment

3-D Microemulsion was applied by Direct-Push into 52 No. injection points in a grid configuration with 5m by 5m spacing. Target treatment depth was 12m to 20m BGL within a silty sand formation. In addition, contamination beneath site structures was also treated. The application works were completed in 9 days.

Results

Very high chloromethane contaminant concentrations were successfully treated at an active site. The remedial works caused no disruption to site activities.

Remediation Details

Site Type:

Active Pharmaceutical facility

Remediation Driver:

Protection of environment

Remediation Approach:

Anaerobic Bioremediation / Enhanced Reductive Dechlorination

Technologies:

3-D Microemulsion®

Geology

| | |
|---|---------|
| | Bedrock |
| | Gravel |
| X | Sand |
| | Silt |
| | Clay |

Medium

| | |
|---|----------------|
| X | Groundwater |
| | Saturated Soil |
| | Vadose Zone |

COC

| | |
|---|------------------|
| | Petro HCs |
| | Petro LNAPL |
| X | Chlorinated VOCs |
| | Metals |

COC Concentration Levels:

Chloroformio - 200 mg/L
Dichloromethane - 70 mg/L

Treatment Depth:

12m to 20m BGL

Remediation Cost:

Approx. €120.000