

Treatment of a Widespread Plume Beneath a Metropolitan Area, Italy

PlumeStop provides rapid treatment of low concentration chlorinated solvent plume



Summary

A widespread plume of chlorinated solvents has been monitored for more than a decade underneath a metropolitan area in Italy. The chlorinated solvent concentrations are low (100 µg/l) but persistent, with no effective natural attenuation occurring. This plume had previously been considered as practically untreatable, due to the low concentration, location and size. However, the creation of our PlumeStop technology allows for the effective treatment of widespread, low concentration plumes using a combination of in situ adsorption and enhanced biological degradation. This provides a rapid and sustained treatment to very low concentration targets from a single, simple and safe injection into the subsurface.

The intention on this site is to treat all of the accessible 'hotspots' present within the plume, with the first area being used as a pilot test to confirm dose and distribution.

Treatment

Regenesis installed 6 multi-level injection wells and applied specific doses of PlumeStop at the target depths. On-site works were completed in 3 weeks and have included the execution of a range of tests and trials in order to obtain useful information for a detailed full scale design and a confirmation of treatment effectiveness.

What's Special?

- PlumeStop Liquid Activated Carbon is an *in situ* technology with unprecedented capabilities; able to rapidly remove contaminants from the groundwater and degrade them within a few months.
- It had been considered impossible to treat this site due to the low starting concentration and remediation targets, how widespread the plume is and its location under a city centre. PlumeStop makes the treatment simple and cost-effective.
- Thanks to the self-regenerating process of the matrix provided by the enhanced biodegradation, there is no need for re-application, even when contamination continues to enter the treatment zone from upgradient areas.

Remediation Details

Site Type:

Urban Area

Project Driver:

Regulatory Requirement

Remediation Approach:

Enhanced Adsorption and Biological Degradation

Technologies:

PlumeStop® and HRC®

Geology

	Bedrock
	Gravel
X	Sand
X	Silt
	Clay

Medium

X	Groundwater
	Saturated Soil
	Vadose Zone

COC

	Petro HCs
	Petro LNAPL
X	Chlorinated VOCs
	Metals

COC Concentration Levels:

PCE and TCE up to 100 µg/L

Treatment Level: 2 Aquifers - 4-11 m BGL and 17-20 m BGL

Treatment Area: 50 m²

Injection Points: 6 Injection Points in Pilot Area