

Bio-Barrier Installation in Marlstone Aquifer



Project description

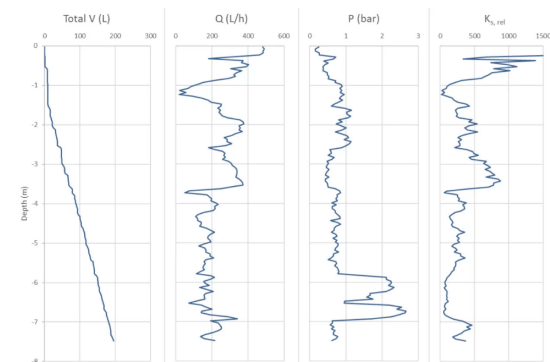
On an active industrial site near the city of Dijon (Fr), a chlorinated solvents plume is migrating in the direction of a residential area. Recently, arrival of low concentrations of tetrachloroethylene (PCE) in the nearest groundwater well at the other side of the road has already been detected. As the geology in this region consists of low permeability marlstone – a mixture of clay and calcium carbonate – it is evident that the pollution is moving relatively fast in the secondary porosity of the aquifer. A previous attempt with the conventional *direct-push* technology on this site has shown that the marlstone is too hard to arrive at the desired depths. Therefore, the *SPIN*[®] Injection Technology has been chosen for this job.

Barrier application

Due to the inaccessibility of the source zone and the dimensions of the plume, it was decided to treat this groundwater pollution by one or more reactive bio-barriers. For a barrier application, a carbon source with relatively low mobility after injection has to be used. In this case, an emulsified vegetable oil (EVO) was selected in combination with a micro-nutrients mixture to stimulate the endogenous dechlorinating bacterial cultures.

Results

With the new Maxi-*SPIN*[®] injection rig in combination with the recently developed Gravel-*SPIN*[®] injection head, the hard and dense marlstone soil did not seem to pose any problems for qualitative injection. During the injection of the EVO-emulsion at 240 l/m between 1,5 and 10,0 m-bgl, arrival of the injection liquid was observed in the adjacent monitoring wells. Further monitoring of this 20-points pilot test will indicate the efficiency and longevity of this bio-reactive barrier. These results, together with the *SPIN*[®] logging data, will be used to design the full-scale bio-reactive barrier(s).





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In situ soil remediation

Location:	Dijon, France
Reaction:	September 2020
Pollutant(s):	CAHs (Tetrachloroethylene: PCE)
Geology:	Marlstone
Surface/length:	45 m
Number of points:	20
Depth interval:	1,5 – 10,0 m-bgl
Application type:	Barrier application
Dosage:	240 L/m

Injectis, your specialist partner for in situ soil remediation

Innovative techniques for cleaning and restoring contaminated soil in its original location.

