

Remediation of the former Defence pumping station using ISCO

Schaarsbergen



The soil and the groundwater at the site of the former high pressure pumping station belonging to the Ministry of Defence in Schaarsbergen were polluted with mineral oil. The polluted source area (the smear zone) was more than 1,000 m² in size. The contamination had a volume of 2,300 m³ that was causing a plume of about 400 metres. The mineral oil was threatening the extraction of groundwater so that the contamination had to be reduced to an acceptable level.

ISCO and soil air extraction

In-Situ Technieken carried out the remediation. The LNAPL at a depth of about 14 metres below ground level was removed first using multi-phase extraction. This technique involves the specific extraction of water, air and pure contamination. More than 100 filters were then put in position at depths varying from 3 to 18 metres below ground level. Filters were also fitted at an angle underneath the concrete bunker present in the area. Fenton's reagent, a substance that breaks down mineral oil by chemical oxidation (ISCO), was injected through the filters. Soil vapor extraction was employed in the unsaturated zone, the area above the level of the groundwater, to capture the gases released during the remediation process.

Result

After four months of active injecting about 90% of the BTEXN and about 60% of the mineral oil has been removed. In-Situ Technieken will continue to monitor the area at Schaarsbergen for five years in order to be able to show that a stable end situation has been achieved. The quality of the drinking water pumped up at a distance of three kilometres from the site will not be endangered.

In-Situ Technieken has state-of-the-art knowledge of innovative remediation techniques at its disposal for treating contaminated soils and groundwater. Many of these techniques have been developed within the company itself and have been patented. We use an own laboratory and a large library and work closely with the scientific world in order to continually improve our innovative techniques. We can almost always offer you a suitable solution for any contamination. In-Situ Technieken - a trade name of ARCADIS - is fully certified for carrying out soil remediation projects and is active worldwide.

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