ISTD/ I-15-01
ISB

Context

The ISB (International School of Brussels) site is built on a 22.4 m² hot spot contaminated area located directly under the existing building at 9 m depth (bgs). It was estimated that over 4,000 liters of fuel oil were lost, apparently leaking from a damaged existing fuel tank.

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Figure 1: The site during and after ISTD treatment

Equipment

The total volume of contaminated soil is estimated at approximately 212 m³. The groundwater is located at 12 m deep (bgs). The soil (silt, sand and clay) is contaminated with mineral oil with maximum concentration of hydrocarbons of 16,000 mg/kg. The expected overall objective was to treat the soil so that the residual concentration of contaminants in soil is lower than 300 mg/kg of hydrocarbons (C10-C40), 1.2 mg/kg of BTEX (Xylenes), 0.8 mg/kg of PAH.

Treatment Target

The ISTD heating took place over 31 days. After treatment, samples were taken over all the contaminated volume of the target zone. The maximum concentration of hydrocarbons (C10-C40) obtained did not exceed 50 mg/kg while the objective of the soil treatment was 300 mg/kg of C10-C40 hydrocarbons. This means that the amount of contaminants in the soil was reduced by more than 99.7% (wt.). No BTEX or PAH were detected in samples after treatment. Additionally, gas emissions standards are widely respected throughout the duration of the treatment.

Key words

Contaminants
TPH, BTEX, PAH

Max. concentration
16.000

Volume
212

Tonnage
363.6

Nb of heating tubes
14

Temperature Target
200°C

Heating duration
31

Treatment targets
<300

Location
Brussels - Belgium

Future Use
School

Client
ISB
(Internation School of Brussels)

Partner
/

Consultant
Arcadis

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Monitoring

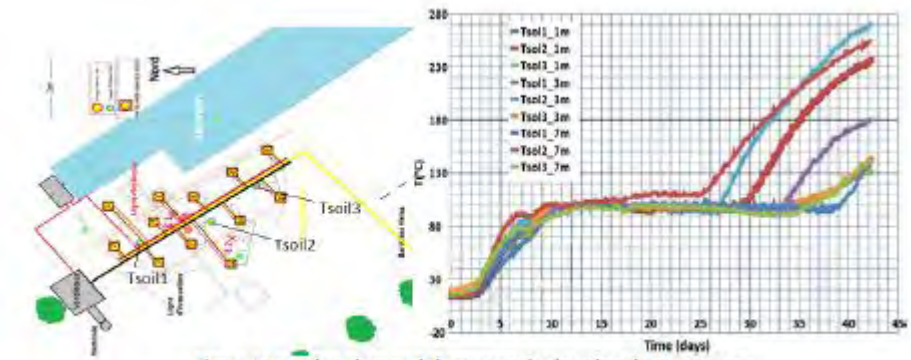

Figure 2 : Heating pipes and thermocouples locations in target zone

Results

The treatment at the ISB site took place as planned, within budget and the objectives were largely met. With urban and confined areas requiring more and more pollutant extraction processes, the ISTD method developed by HAEMERS Technologies shows all its interest.

This localized, adjustable and efficient process is able to significantly reduce a soils pollutant concentration (>99%) while respecting all gas emissions standards throughout the entire process.