USE OF HIGH-RESOLUTION TOOL TO REFINE DATA FOR APPLICATION IN REMEDIATION PROJECT

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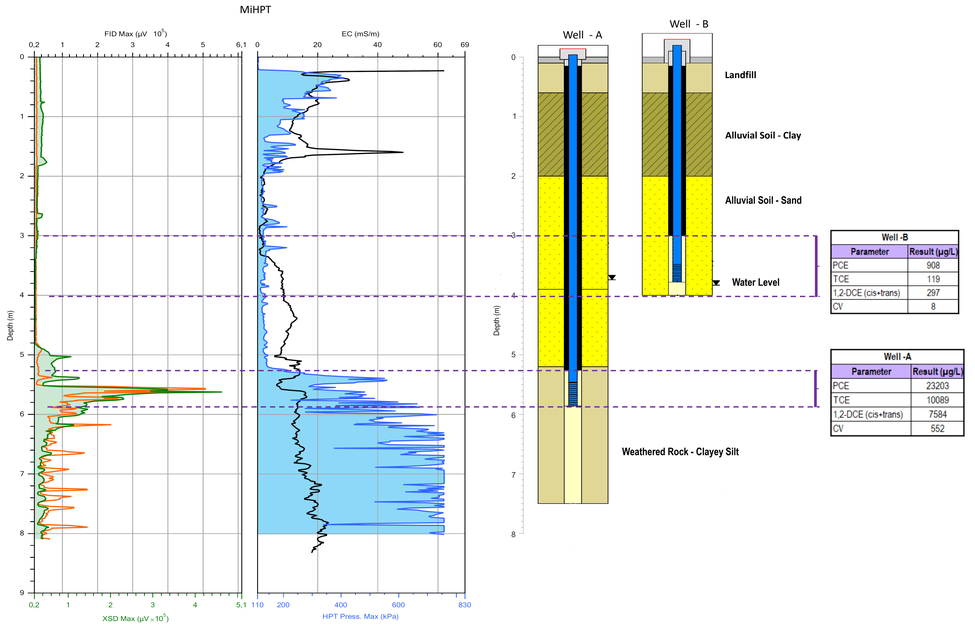
STEP 1: TRADITIONAL INVESTIGATION 2014

Results:
Estimated area for thermal remediation: 4,100m^2
Expected volume: 40,500 m^3

STEP 2: HIGH RESOLUTION INVESTIGATION 2018 - EXPLORATORY ANALYSIS



Well -B	
Parameter	Result (µg/L)
PCE	908
TCE	119
1,2-DCE (cis+trans)	297
CV	8

Well -A	
Parameter	Result (µg/L)
PCE	23203
TCE	10089
1,2-DCE (cis+trans)	7584
CV	552

STEP 3: HIGH RESOLUTION INVESTIGATION 2018

Results:
Estimated area for thermal remediation: 3,180m^2
Expected volume: 34,000 m^3

Results: As expected the 3 detectors MiHPT (PID, FID and XSD) showed similar responses, reflecting the existence of halogenated (chlorinated) compounds, as well as aromatic compounds and/or compounds from the alkene family. It was also noted that detections in the alluvial soil were less frequent than those in weathered rock (interval ~7.0 m bgs - 8.0 m bgs), with lower intensity peaks. The chemical analyses made in the soil and groundwater confirmed the MiHPT signals, therefore assuring a different scenario in terms of potential risks exposure/mass flux when compared to the previous one, which was based solely on traditional tools.

Lesson Learned: Revision of the site's conceptual model and a new design of the initial remediation project promoted a significantly decrease in the area initially estimated for remediation. It also changed the area of concern and action of a future remediation system, since current findings suggest that the highest concentrations are concentrated in a deeper and less permeable layer of the aquifer (weathered rock).

FINAL PRODUCT

High resolution investigation allowed to determine the target remediation area and volume, promoting the reduction in 25% of the area and 20% of the volume previously estimated.

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