



CLIENT

Environmental consultant

LOCATION

Former petrochemical site

SITE AREA

0.3 Hectares

CONTINUOUS MONITORING OF THE THICKNESS OF OIL ON GROUNDWATER UNDER TIDAL CONDITIONS

CHALLENGE

Geostream UK was contracted to provide detailed information on the thickness of Light Non Aqueous Phase Liquid (LNAPL) on a site situated next to an estuary.

elevations as the tide rose and fell. This ensured it could capture high resolution data that showed exactly how groundwater and LNAPL interacted with the estuary levels.

Redundant for over a decade, the site had previously been used to store petroleum products and there were multiple groundwater monitoring wells containing LNAPL. In addition, the site's position meant the thickness and elevation of LNAPL was affected by the tide of the estuary, so it was difficult to determine the quantity of free product.

The client planned to develop an innovative technique to remediate the site, but first required in-depth information on site characterisation to fully understand its condition. Traditional means of measuring LNAPL manually on site could not provide the level of detailed, accurate information needed for this project.



SOLUTION

Working closely with the client, Geostream UK installed its remote, continuous monitoring system, NAPLsense, into three wells onsite. The system uses microwave technology to detect groundwater and LNAPL.

RESULTS

- Production of detailed, accurate information on LNAPL thickness in a tidal situation, enabling site characterisation to inform the remediation strategy
- Remote data collation
- Long term cost savings achieved, as no operatives had to go out on site during the monitoring period
- Provided uniquely reliable, consistent means of measuring LNAPL than could be achieved via a traditional interface probe
- NAPLsense still operational after a year of use

Geostream UK designed each NAPLsense detector to the exact depth and size of the well it was installed in, including allowing for a solar power supply, and all devices were operational within three days. Detectors were connected to a data processing unit - providing real-time information on the thickness of free product - and data collation was carried out remotely. This meant no personnel were required to visit site other than for long term maintenance.

The team configured the NAPLsense devices to transmit data via the 3G/4G network at specific times, providing the client with a clear view of how the LNAPL was behaving in the tidal situation. The data logging function was set to account for the rapid fluctuations in groundwater and product



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