SENSING EXCELLENCE

Multisensor

CASE STUDY

Monitoring of a Borehole to Detect Potential Fuel Contamination

Application Dossier: No. IV

Application

Monitoring of a Borehole to Detect Potential Fuel Contamination

Product

MS1200 – Standard version, 4-20 mA and relay output

MS1200
Oil in Water Monitor

Application

Monitoring a borehole after a diesel spill to ensure the aquifer was not contaminated.

Customer

Water Company, England.

Problem

The water company used a diesel-powered pump, and this led to a spill from the storage tank. The company wants to ensure that the area has been properly isolated.

Product

MS1200 – Standard version, 4-20 mA and relay output.

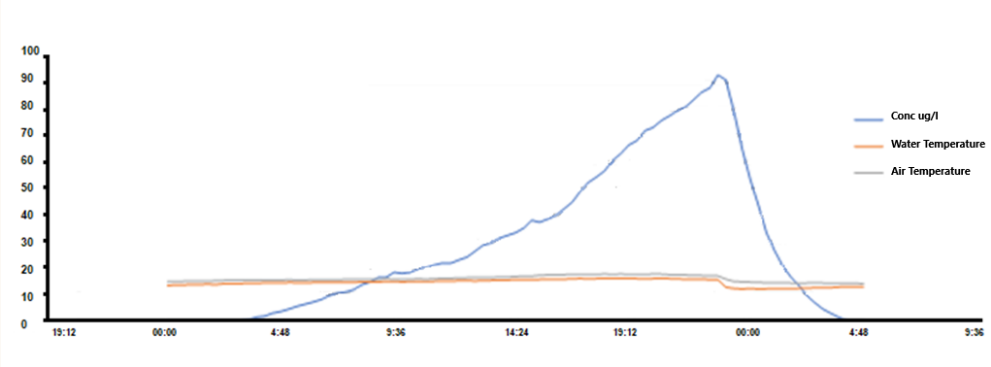
Installation Facts

After the spill, the area was isolated with a barrier and the water company wanted to be sure that no diesel had reached the aquifer.

A few months after the installation, the system started to give high readings of VOCs, however, no diesel was found. After extensive research, two other specific solvents were identified in the aquifer (4-chloro-2-methyl butanol and 2-methyl-4-bromo butanol).

An extract from the official email:

“I can now confirm that our last two rounds of sampling on Borehole 4 have come back clear of Hydrocarbons. We have however had something come through on the GCMS samples collected on the Tuesday of the site visit.



A graph provided by the customer showing the data later correlatedwith their GCMS analysis

Both the sample from the Borehole 4 sample tap and the sample collected from the outlet of the Hydrocarbon monitor came back with large peaks of what appear to be 4 chloro 2 methyl butanol and 2 methyl 4 bromo butanol, which I'm told are solvents. "

At the time of writing the site is still protected by the MS1200

A picture of the unit installed in an out-building next to the borehole.

Did you know?

Boreholes can become contaminated with volatile organic compounds (VOCs) through various pathways, often linked to human activity and environmental factors.

Industrial spills, leaks from underground storage tanks and improper disposal of chemical waste can introduce VOCs into the soil and groundwater near boreholes. Agricultural activities, such as the use of pesticides and fertilisers containing VOC components, can also seep into the aquifer through runoff or percolation.

Additionally, boreholes located near urban areas are at risk from contamination by sewage leaks and stormwater carrying VOCs from roads and industrial sites. Poorly constructed or maintained boreholes further exacerbate the risk, allowing surface contaminants to bypass natural filtration layers and directly enter the water source.

Regular monitoring and protective measures, such as proper borehole sealing and siting away from contamination sources are essential to safeguard water quality.

4-Chloro-2-methylbutanol and 2-Methyl-4-bromobutanol are halogenated alcohols with distinct chemical properties and industrial relevance.

These substances are typically used as intermediates in organic synthesis, particularly in the production of pharmaceuticals, agrochemicals, and specialty chemicals and are not naturally occurring.

This means that their presence in the water source is because of human action and this emphasises the importance of online monitoring of boreholes.

Why Multisensor?

The customer had used Multisensor at another site and due to the positive experience gained there knew that the product was reliable and accurate.

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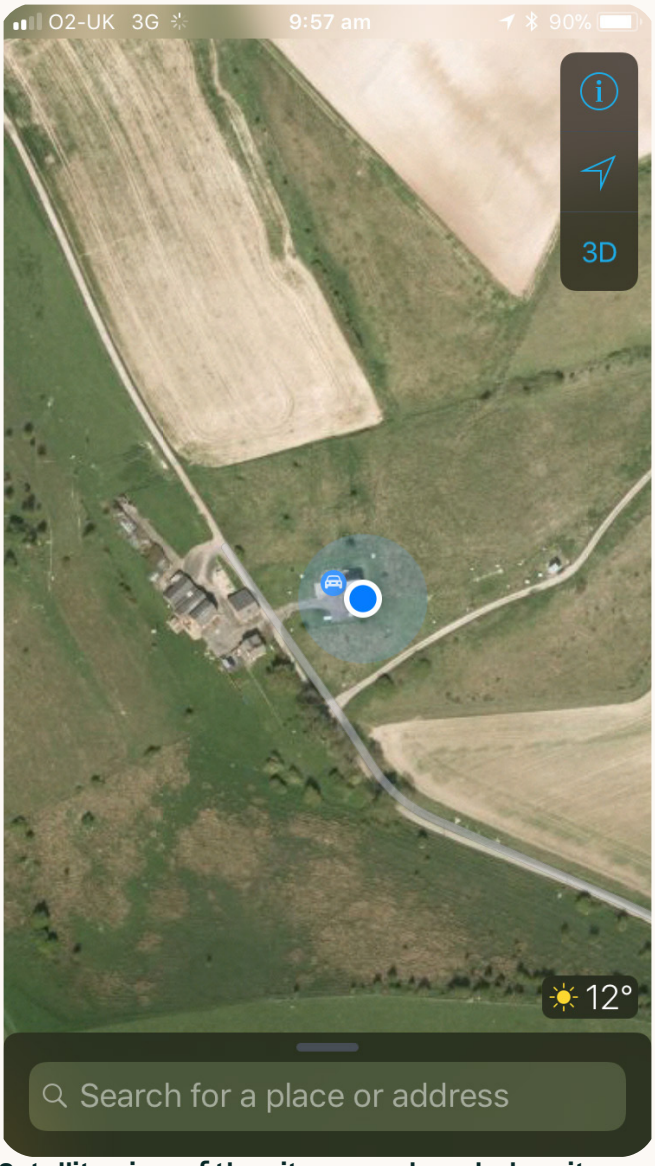

Satellite view of the site; many boreholes sites are away from rivers or reservoirs.

For more information

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Multisensor Systems is a developer and supplier of Water and Gas Analysers specialising in oil in water and hydrocarbon analysers, oil in water detectors, VOC monitors and THM analysers based in the United Kingdom.

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CHANGELOG

MSS DOCUMENT CHANGE RECORD
Document Ref 1-000189

Date	Version	Changed By	Checked By	ECN
26/02/2025	1.0	GO	LR	0225-06