SENSING EXCELLENCE

Multisensor

CASE STUDY

Monitoring of a River Water Intake for Petroleum Contaminants

Application Dossier: No. I

Application

Monitoring of a River Water Intake for Petroleum Contaminants

Product

MS1200 – Standard version with 4-20 mA output, sampling system, alarm, and fault relays

MS1200
Oil in Water Monitor

Application

Monitoring of river water intake to detect hydrocarbon contamination from accidental spills.

Customer

Water Company, North of England.

Problem

In early 2013 there was an oil spill into the river from a local petrochemical plant. The water company that abstracts water from the same river was hit with high levels of hydrocarbons, leading to a halt in the production and to high costs due to the replacement of filters, pipes and cleaning operations.

Product

MS1200 – Standard version with 4-20 mA output, sampling system, alarm, and fault relays.

Installation Facts

The instrument is installed in an outbuilding around 70 m from the river from where the water is taken. Water is analysed for hydrocarbons and VOCs every 15 minutes and, if there is an increased level, an alarm is triggered, and action is taken.
Since the installation, the system has protected the water plant on various occasions.

As per time of writing (December 2024) the instrument is still in operation and is serviced every 6 months by Multisensor Systems service engineers.

A picture of the unit installed in the out-building. The unit is connected to a PLC that records the data and, in case of an accident, triggers an alarm that switches off the intake pumps.

Did you know?

UK rivers often contain a variety of volatile organic compounds (VOCs), primarily due to industrial activities, urban runoff, and agricultural processes.

Common VOCs include **benzene**, often derived from vehicle exhaust, industrial discharges, and fuel storage leaks and toluene, widely used in paints, thinners, and adhesives.

Xylenes (o-, m-, and p- forms) and **ethylbenzene**, both commonly found in petroleum products and solvents, also appear frequently and can be harmful to aquatic organisms, causing bioaccumulation in fish.

Additionally, **trichloroethylene** (TCE) and **tetrachloroethylene** (PCE), both used extensively in industrial solvents and degreasing agents, have been detected in rivers, posing risks due to their persistence and potential carcinogenic effects.
1,2-Dichloroethane, another industrial compound involved in plastics and vinyl chloride production, also affects river systems, endangering aquatic life and impacting ecosystem health. Similarly, styrene, which enters waterways from plastics and rubber manufacturing, poses risks to fish and invertebrates.

Methyl tert-butyl ether (MTBE), a gasoline additive, is also found in river water, especially near urban areas where gasoline spills or leaks can lead to contamination.

The origins of these compounds vary widely but commonly trace back to industrial discharge, accidental spills, landfill leaching, and urban and agricultural runoff.

A view of the outbuilding together with some other testing equipment. Very often Multisensor Systems oil in water monitors are installed in existing structures alongside other instruments.

Why Multisensor?

The customer needed a reliable way to measure hydrocarbons in a river with changing levels of turbidity. The MS1200's measurement system is immune to high turbidity issues.

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For more information

Visit: www.multisensor.co.uk
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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

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