SENSING EXCELLENCE

Multisensor

CASE STUDY

Protecting RO Membranes at a Pet Food Manufacturer

Application Dossier: No. III

Application

Protecting RO Membranes at a Pet Food Manufacturer

Product

MS1200 – Standard version, 4-20 mA

MS1200
Oil in Water Monitor

Application

Monitoring of a river water intake to a RO treatment process that provides water for a pet food manufacturer.

Customer

Pet Food Manufacturer, UK.

Problem

Accidents with hydrocarbon contamination in the river meant that the customer could have to replace a new RO membrane installation at a very high cost.

Product

MS1200 – Standard version, 4-20 mA .

Installation Facts

The instrument was installed within the factory. The manufacturer abstracts water from a river and has its own small water treatment plant. As the water is used in the preparation of food for pet animals, they need a high degree of purity and an RO system is paramount.

The river has a history of accidents involving hydrocarbons.

This means that the RO membranes could need replacement on a regular, unplanned basis. Now, when a contamination event is detected, that water is discarded, and the system is protected.

The unit installed on site has been protecting the RO membranes for many years.

Did you know?

Oil contamination in water can have a significant impact on reverse osmosis (RO) membranes in water treatment plants (WTPs), leading to increased operational costs.

When oil enters the feed water, it adheres to the surface of the RO membranes, causing **fouling** that reduces membrane efficiency. This results in decreased water flow, increased energy consumption, and more frequent cleaning cycles. Cleaning a single RO membrane impacted by oil fouling can cost anywhere from £300 to £1,000, depending on the severity of the contamination and the cleaning method used.

If the oil damage is extensive, **membrane replacement** becomes necessary, with

Before the installation of the MS1200 on-line VOC analyser this is the kind of damage that was often done to the membranes.

individual membrane elements costing between $600 and $2,000. In large-scale WTPs, where **hundreds of membranes** are installed, these costs can quickly escalate, significantly impacting the plant's overall budget.

Beyond direct cleaning and replacement costs, oil contamination in RO systems also leads to indirect economic impacts. Increased energy consumption due to higher pressure requirements for fouled membranes can raise operational expenses by 10-15%, potentially adding thousands of dollars annually for larger facilities.

Additionally, unplanned downtime caused by oil fouling can disrupt water production schedules, potentially incurring penalties for not meeting contractual supply agreements. Preventative measures, such as monitoring oil levels in feed water and installing oil-in-water analyzers, are essential to minimize these risks. Advanced online analysers can detect oil concentrations as low as 1 ppb, helping operators take timely action to protect their membranes and avoid costly repairs.

When installing a Multisensor Systems analyser is extremely important to follow the specifications on the installation manual. Flow in and out the sampling tank must be always according to specifications.

Why Multisensor?

The MS1200 provided turnkey protection, simplicity of installation and low cost of ownership.

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For more information

Visit: www.multisensor.co.uk
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Front Image Credit: Florida Water Daily, Tarpon Springs Reverse Osmosis Water Treatment Plant (Not the customer described in this case study)

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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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