LEAKWISE
OIL ON WATER DETECTION SYSTEMS

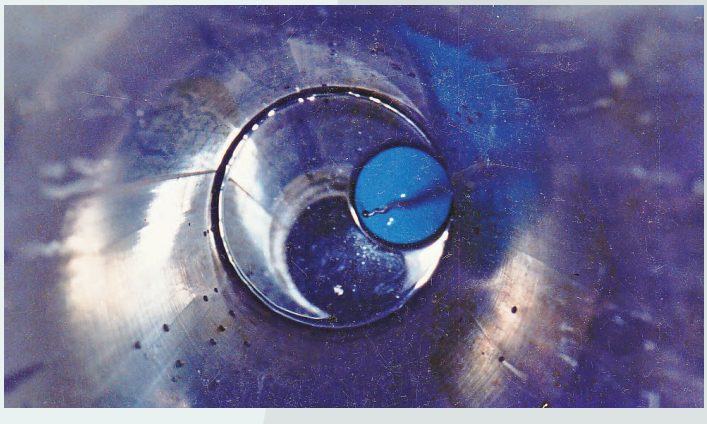
APPLICATION NOTE

ABOVE GROUND OIL STORAGE TANKS

Leakwise Oil Spill and Leak Detection systems are installed in many oil/fuel storage facilities all over the world. The systems are being used in a variety of applications to address health and safety directives, environmental regulations and economic necessity.

GROUNDWATER MONITORING

Even sophisticated tank gauging systems cannot detect small leaks of oil or fuel from large tanks. Current health standards allow drinking water to contain less than 1 ppm of hydrocarbons. This means that an undetected leak of 1 liter/gallon of hydrocarbons can contaminate more than 1 million liter/gallons of ground water. Managers of contaminating facilities risk personal prosecution, huge remediation costs, severe fines, adverse publicity and potential fire hazard. An ID-221 Leakwise Oil Sheen Detector installed in a monitoring well near the tank will give a reliable warning on hydrocarbon seepage into the ground water much earlier than any periodical manual sampling.



FLOATING ROOF DRAINAGE PIPE MONITORING

Storm water accumulated on a storage tank's concave roof may affect its floatation, making it necessary to drain the water. This is usually done through a flexible pipe running from the floating roof down through the inside of the tank, with an outlet above ground near tank's base.
This solution has some drawbacks:

- Product from the tank can penetrate the flexible pipe through pinholes or cracks and be discharged through the water drainage system unnoticed.
- Corrosion in the built-in floats that keep the roof floating above the stored product can cause roof tilt, resulting in product drain through roof's water drainage pipe.
- Sometimes the flexible pipe is bent or clogged preventing water from theroof to pass through. In this case, water remains on the floating roof and this may disturb its floatation capability.

Monitoring the drain exit of an individual tank with an ID-223 Sensor, installed in a retention tank or separator, is the most reliable way to detect leaks and inform the management immediately.
This way it is clear which tank leaks. Monitoring only at the final water treatment or discharge is not informative for indicating which tank leaks and needs to be repaired.

TANK RAMPART AREA MONITORING

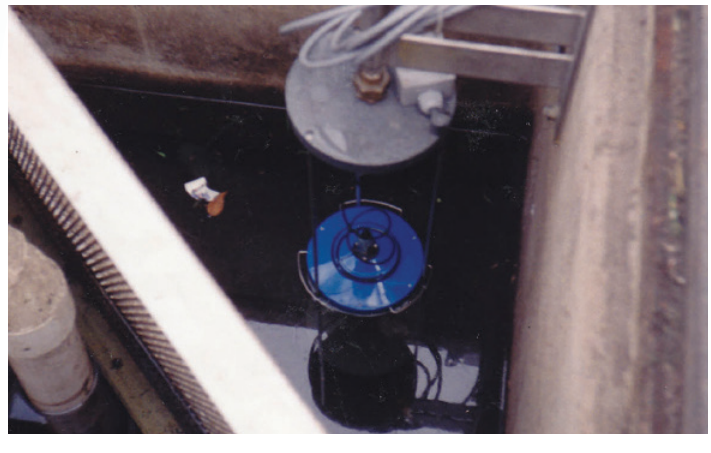
Drainage channels and sumps around storage tanks collect and drain storm water. However, they also collect any hydrocarbons from leaking pipes, valves, or pumps. Also, accidental tank overflow is contained in the bunded area. These sumps, which can be wet or dry, should be continuously monitored for the following reasons:

- Health and Safety: Undetected buildup of flammable liquids in the bunded area risks harmful vapors and possible fire or explosion.
- Environmental: Leaks or spills should be detected before they are released from the contained area or penetrate deep in the soil.
- Economic: Product loss is a direct cost against the business. However, an additional cost can be incurred when clean storm water from the bunded area is sent for treatment. Having the ability to monitor for oil sheens lets the operator send only oily water through the treatment process, potentially saving money on the size of the treatment area and treatment costs.

A ID-223 Oil Sheen Detector installed in the collecting sump will continuously monitor its water outlet. If water is detected, it can be diverted into retention tanks or directly discharged into the sea, a river, or public drainage. If oily water is detected, an alarm will be set off and the Leakwise controller will close the water outlet valve. The oily water could then be manually or automatically diverted into an API separator or other oily water treatment system.

MONITORING IN OIL / WATER SEPARATORS

In many tank storage facilities, water is collected and then sent to a separator or interceptor, where oil is separated and clean water is discharged directly to the sea, river or public drainage. In other cases, water from the tank area could be treated in an API separator. An ID-225 Oil Layer Thickness Monitor will continuously monitor the thickness of the accumulated oil layer and inform the operator when to skim the oil. Oil skimmers can be automatically controlled by the ID-225 Sensor, starting the skimming at a user-set oil thickness, and stopping before water is removed with the oil. This can result in considerable savings in treatment and disposal costs.



ID-223/500 Monitoring Water Discharge from a Gravity Separator

WATER TREATMENT DISCHARGE MONITORING

Installing an ID-223 sensor in the final retention tank will continuously monitor the discharged water and ensure treatment is running smoothly. A treatment failure condition will be detected and the operator notified, or the system can automatically stop the discharge and contain the spill, allowing the operator time to take appropriate action.

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