

## OIL STORAGE TANKS WITH A FLOATING ROOF

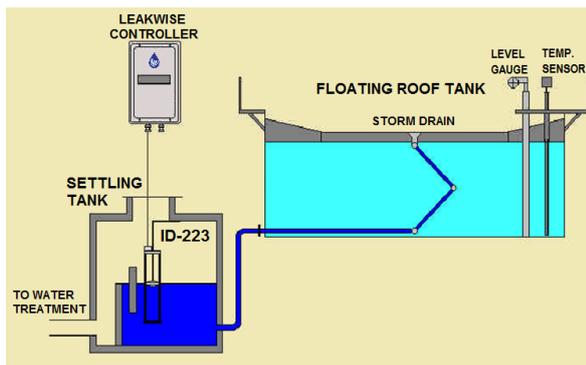
### Floating Roof Drainage Operation

Storm water accumulated on a concave floating roof of an oil storage tank may affect its floatation, making it necessary to immediately drain the water. This is usually done through a flexible pipe, running from the floating roof down the tank, with an outlet above the ground near the bottom of the tank.

### Problems in Roof Drainage Operation

The following problems may occur in the operation of a floating roof drainage system:

- Small or large volumes of the product from the tank can penetrate the flexible pipe through pinholes or cracks due to ageing. The product will then drain through the water drainage system unnoticed.
- Product from the tank might run over the floating roof through the roof's seal during overfill, and exit through the water drainage pipe unnoticed.
- Sometimes the flexible pipe is bent or clogged preventing water from the roof to pass through. In this case, water remains on the floating roof and this may disturb its floatation capability.



Monitoring the Draining System of a Floating Roof Tank



### Monitoring Applications:

#### 1. Detection of Oil Leaks / Spills

A Leakwise ID-223 Oil Sheen Detector should be installed in a settling tank (or in a sump or a separator) collecting the water drainage from the roof. The settling tank will settle the liquid flowing in from the roof to allow oil separation and detection by the ID-223 sensor. Normal indication of the Leakwise Controller should be water on rainy days, or air during the dry season. An alarm will be triggered if the ID-223 sensor detects oil or oil on water, indicating that oil is seeping through a fracture in the roof drainage pipe.

#### 2. Detection of Clogs in Roof Drainage

If air instead of water status is indicated during a rainy day, it means that the flexible roof drainage pipe is bent or clogged, and no water is running through it. This is an early alert that the roof will get too heavy and sink in the tank.

#### 3. Water Treatment Costs Savings

The ID-223 Detection System can be used to control valves, pumps and sump gates, thus storm water from tank's roof can be discharged directly to the sea, river or public drainage system. Only the oily water will be diverted to treatment. This reduces the load on the local treatment system and brings substantial cost savings.

