Red Eye® 2G Water-Cut Meter

Measures Water Skimmed from North Sea Oil Spill Within 1.26% of Reference

Objectives

- Measure oil emulsion in seawater as part of an annual exercise to test the effectiveness of oil-spill skimmers. The client—an oil-spill pump supplier—wanted to prove the capability of its skimmers to fulfill the test criteria by independently measuring the amount of oil emulsion collected. The Norwegian Coastal Administration and Norwegian Clean Seas Association for Operating Companies (NOFO) organized the test.

Our Approach

- The oil-spill test required sensor technology capable of handling the salinity of seawater and oil emulsion with 63 to 64% water. Weatherford recommended the Red Eye water-cut meter because of its insensitivity to salinity levels and its accuracy in measuring the full range of water cut.
- The Red Eye meter was easily mounted on the vessel pulling the skimmer and was calibrated for oil emulsion and water measurements.
- The testing group purposely discharged 706 ft^3 (20 m^3) of oil emulsion into the ocean.
- The oil skimmer collected 636 ft^3 (18 m^3) of fluids in storage tanks on the vessel while the Red Eye water-cut meter provided online measurements that eliminated the need for manual sampling.
- The collected fluids were transported to onshore stock tanks for the purpose of taking a reference measurement. After the fluids settled and separated, the emulsion was analyzed and measured. Approximately 494 ft^3 (14 m^3) of the fluids were emulsion, which amounted to 22% water cut.
- The Red Eye water-cut meter recorded an average water cut of 21% with an absolute accuracy of 1.26% in respect to the reference.

Value to Client

- The Weatherford Red Eye water-cut meter provided accurate measurements of oil emulsion in seawater within 1.26% of the benchmark. These real-time measurements eliminated the need for less accurate and more time-consuming manual sampling.
- In an actual oil spill, the real-time Red Eye measurements enable vessel operators to control the fluids that fill limited-capacity tanks. Pumping the tanks full of oil rather than water delays the need to stop and empty water from the tanks, which reduces the time needed to collect oil spills.

The above photo shows an offshore supply vessel pulling an oil skimmer. Mounted on the vessel, the Weatherford Red Eye water-cut meter measured the collected water and oil emulsion before the fluid was pumped into storage tanks.

LOCATION
Offshore Norway

FLOW RATE
353 to 1,059 ft^3/hr (10 to 30 m^3/hr)

FLUIDS
Oil emulsion and seawater

PROVEN ACCURACY
Within ±1.26% of reference measurement

PRODUCTS/SERVICES
Red Eye 2G water-cut meter

Weatherford®

* Red Eye is a registered trademark of Weatherford in the US and the UK.