

TD-1000C Oil in Water Monitors for Hydroelectric Dam Sumps

Hydroelectric Dams produce electric power via the force of the water flowing through the dam.

There are numerous sources for oil spillage: The hydroelectric turbines are lubricated by standard lubrication oils; The very large water control valves are normally hydraulic powered and are lubricated with various greases and oils; Vehicles including fork lifts, trucks, etc., can spill oils and fuels. Any accidental spillage of oil or grease or intentional wash down water containing minor amounts of oils, greases and detergents, must be collected and treated before discharge to the river.

These fluids along with any water leaks are collected in sumps in the dam and are regularly pumped out. In many cases, the volume of water is substantial. To protect the river environment the sumps at some advanced locations have oil in water separation systems and oil in water monitors. The installation of the TD-1000C in these applications is very simple. All that is needed is a sample of the water at 100mL/min @ 5 psig and a way to drain the water back to the sump.

The TD-1000C with its UV Fluorescence technology is a very strong advantage over any other oil in water instrument for this application:

- They are very high sensitivity to oils in river water - With the ability to detect hydrocarbons as low as 20 ppb (parts per billion), it provides the earliest warning of oil contamination. Its wide operating range to well over 500 ppm allows plant operators to make decisions within the discharge parameters of the facility. No other oil in water monitor can claim this level of sensitivity. High sensitivity allows the end user to alarm well below discharge limits and make corrections to their pumping sequence or to their treatment system. Even other UV Fluorescence competition cannot detect below 1 ppm and light scatter instruments are worthless if there are no oil droplets to scatter the light.
- Very low sensitivity to suspended solids - Typical river water coupled with wash down and drainage water from the dam will have a fair amount of suspended solids. Suspended solids are the downfall of any light scatter instrument because they register a positive signal as oil even when there is no oil present. Note that the TD- 1000C can see as high as 800 NTU (turbidity units) with less than a 10% change in the reading from distilled water.
- Very low maintenance - the only maintenance issue is very fine silt that may settle in the pipe-work. Our customers have found that a periodic flush of the lines with filtered fresh water is sufficient to keep the lines maintenance free.

The pictures below are from a recent visit at the US Army Corps of Engineers dams on the Columbia River in Oregon. At this time they have one TD-4100 installed on "The Dalles" dam and one on order for the Bonneville Dam. We also have instruments installed with BC Hydro in Vancouver, City of Mt. Holyoke, MA Hydro Plant, Danube Hydro in Austria and many others worldwide.