

Petroleum Hydrocarbons in Wastewater

A wastewater treatment company established and operates an oil/water separation facility on a multi-acre industrial site in Northern California. Its purpose is to recycle oil products for profit while at the same time provide a wastewater treatment service for industries based in Northern California.

The oily water mixes processed by the company are obtained from tanker bilges, contaminated rainwater runoff, truck spills, oil spills into waterways, crankcase drain oils, hydraulic oils and industrial lubricants, contaminated fuel oils and rinsate from fuel tanks. The water treatment system on this site is designed to treat the water which is separated from the "oily water mixes" before being discharged to the local publicly owned treatment works (POTW).

The Problem

The success of this facility as a profitable enterprise depends on its economical operation. This company chose to avoid the cost of large storage tanks, the associated land mass and more costly equipment used for "batch" treatment and discharge. A significant component to the company's success is its dependence on continuously discharging treated wastewater to the local sewer authority.



The economic advantage of continuous discharge can only be achieved at this location by meeting strict discharge limits for the level of hydrocarbons present in the discharged water. Local ordinances required continuous monitoring for continuous discharge of the company's treated wastewater. Continuous hydrocarbon monitoring verifies removal of hydrocarbons from the water by the wastewater treatment system. The maximum discharge limit for hydrocarbons in water is 10 ppm for this application.

"The local sewer authority would not issue a permit to continuously discharge treated water without verifying treatment with a continuous on-line monitor."

The Solution

Continuous discharge required continuous monitoring. The wastewater treater chose the Turner Designs TD-4100 continuous on-line monitor to meet their monitoring needs. The monitor was a mandatory component of their treatment system. In the words of the sewer authority; "Continuous monitoring of the discharge will let me sleep at night." The Turner Designs TD-4100 was installed to verify treatment of petroleum contaminated water.

The treatment system consists of a dissolved air flotation system (DAF), solids centrifuge and three (3) 2000 lb carbon beds. The TD-4100 monitors treated water between carbon bed 1 and 2. The TD-4100 was configured with a mixed fuel filter kit which permits the detection and measurement of gasoline, diesel, jet fuel and lubricating oils in water. The monitor provides continuous uninterrupted analysis of their treated water. The TD-4100 is calibrated with gasoline to report concentration units and actuates a flashing light if fuel is detected in the treated water above 5 ppm. The TD-4100 serves two functions; a

treatment verification tool to maintain discharge permit compliance, and a carbon break-thru tool to maximize the economics of carbon bed replacement.