

Treatment of Oily Wastewater for Sewage Discharge

A metal textile company, an expert in the design and processing of knitted wire mesh for end users in industrial, automotive, petrochemical, military, and aerospace markets worldwide for over forty years, generates oily wastewater primarily through mop water and some from machine wash-down. These wastewater streams are piped to a wastewater sump, in which a meshed screen strainer is installed before and cartridge filters are installed after the sump. The wastewater is then pumped to a level-switch controlled oily wastewater holding tank. This wastewater contains high solids of dirt and metal particles mixing with oils used in metal wire processing. A typical oil concentration level is estimated between 500 to 800 ppm in emulsified form.

To meet the local regulation for discharging the wastewater to sewage, the company included a Wastewater Recycling System (WRS) from Filtration Solutions, Inc. (FSI) to their wastewater management system. The oily wastewater effluent is processed through the WRS before being discharged with a constant oil and grease (O & G) level less than 30 ppm and total suspended solids (TSS) less than 5 mg/liter, which are well within the regulated allowable limits based on either best practicable control technology (BPT) currently available or the average of daily values for 30 consecutive days.

The WRS acquired by the company has a process capacity of 150 gallon per day and has the following features:

- Compact and portable
- Fouling-resistant membrane filter
- Processing free and emulsified oily wastewater
- Integrated cleaning tank
- Simple and easy to operate
- Low maintenance and operation cost

The company has the WRS in operation for 7 hours a day on average. More than 90% of the oily wastewater was able to be discharged through the process. With the oily wastewater hauling cost of \$1 per gallon (a conservative estimate), the return of investment (ROI) from the savings of the hauling cost for the company is less than a year. More importantly, this greatly relieves the company's liability in wastewater management. Purchased in 2002, the system shown in the picture is still working diligently after 18 years. Realizing what the system can do, the company purchased an identical unit for their other operation the following year. In 2013, a second unit with a double capacity was purchased for the other facility to meet their increasing process demand.



WRS System shown in foreground with two 150 gallon holding tanks in background; top tank for oily wastewater and bottom tank for clean effluent