

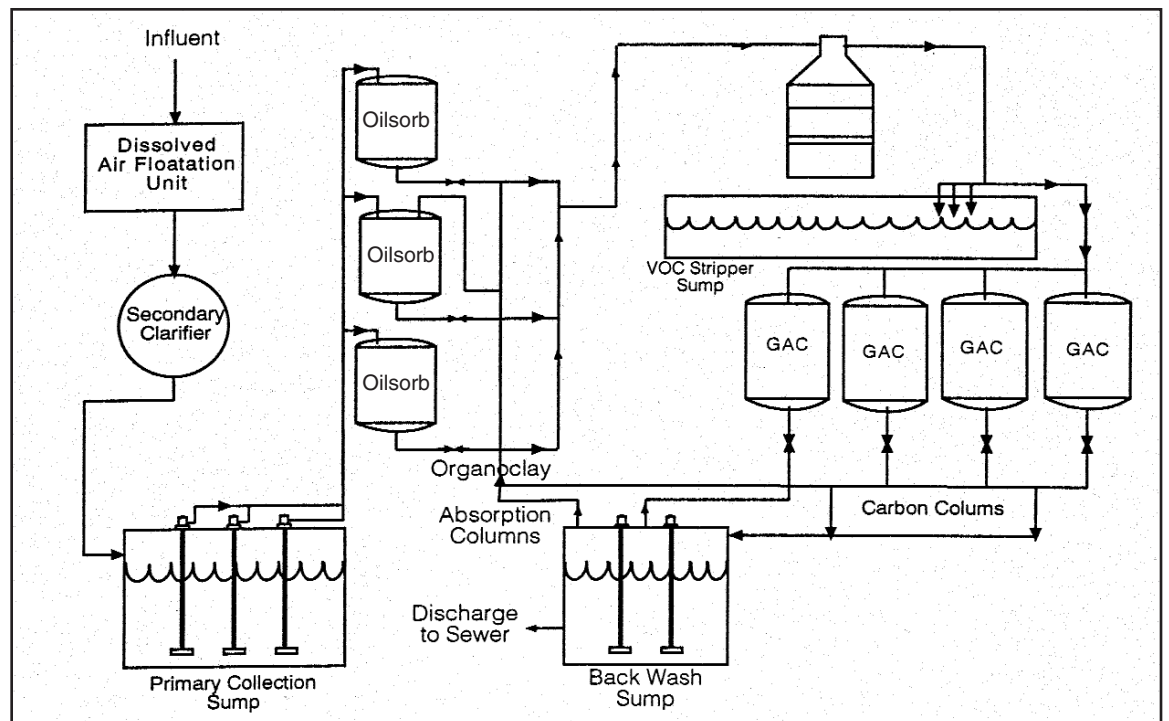
Case History

Use of Oilsorb Organoclay in Water Treatment System at Airforce Installation

An Airforce Base in the Midwest United States has installed a waste water treatment system to treat water from various operations around the base as well as runoff from precipitation. The base has several operations that generate substantial amounts of pollutants that require reduction to very low levels for discharge under their NPDES permit. These operations include paint stripping, degreasing and electroplating operations. The paint stripping and degreasing operations generate a number of chlorinated solvents that include Methylene Chloride; 1,1-Dichloroethane; Chloroform; 1,1,1-Trichloroethane; Trichloroethene; 1,1,2-Trichloroethene; and oil and grease. The electroplating operation generates heavy metals such as Chromium, Nickel, Zinc, Copper and Cadmium.

The treatment system at the base consisted of Alum Flocculation to remove the heavy metals followed by removal of residual organics by a combination of Oilsorb and activated carbon. (See Figure 1.)

Figure 1
Use of Oilsorb in
Water Treatment
Systems at Military
Installation.



The flow rate through the system is approximately 350 gpm. The average influent concentration of oil and grease to the Oilsorb columns is 10 ppm with the spikes reaching 30-50 ppm. The Oilsorb consistently reduces the oil and grease levels to the detection limit. The cost of Oilsorb to operate the system is approximately 70 cents/1,000 gallons treated. In addition to the oil and grease removal, the Oilsorb removed significant quantities of the chlorinated organics. A typical waste stream concentration (November, 1989) is shown in Table 1.

The activated carbon and Oilsorb are changed annually. If carbon alone were utilized in the system, it is estimated that the usage rate for carbon would increase five fold. This would be an approximately 50% increase in material cost, excluding the additional transportation, disposal, and labor cost associated with the additional change outs of the carbon.

Table 1
Typical Waste Stream
Concentrations.

	Maximum	Minimum	Average
Oil & Grease Influent	85.0 (eff 0)	3.0	28.0
Oil & Grease Effluent	11.0	0.0	2.0
Phenols	3.3	0.0	0.3
COD's Influent	464.0	26.0	252.0
COD's Effluent	352.0	0.0	145.0
Cyanide Influent	0.96	0.00	0.11
Cyanide Effluent	0.04	0.00	0.00
Manganese Influent	1.42	0.01	0.14
Manganese Effluent	0.07	0.01	0.03
Iron Influent	74.22	0.11	0.725
Iron Effluent	0.92	0.01	0.12
Barium Influent	3.48	0.07	0.45
Barium Effluent	0.14	0.01	0.12
Total NPDES discharge limitation:			
Total VOC's	1.92		
* Total Oil & Grease	100.00		

* **Alert:** To remove organic hydrocarbons and heavy metals, oil and grease must be totally removed prior to activated carbon.