

ORGANOCLAY™ - F CASE STUDY - IMPROVING GAC EFFICIENCY

BACKGROUND

Superfund Site located in the Northeast United States was previously used for reclaiming and re-refining waste oils from 1945 – 1985. A TSCA inspection uncovered the presence of PCB's in several lagoons onsite. The site had seven lagoons containing over 9,000,000 gallons of water and oil. Due to heavy rains, the lagoons fill frequently. Therefore, several emergency removal actions have been taken to drain and treat the water and oil in the lagoons.

SOLUTION

A major environmental firm was given the task of designing, fabricating, installing, and operating a mobile wastewater treatment system to accomplish this task. The system consisted of an oil/water separator to remove any free oil, and a mix tank where the pH was adjusted with caustic soda and alum was added to flocculate the heavy metals, followed by three clarifiers to remove the flocculant. The clarified water was then pH adjusted to 6.5-7.0 with sulfuric acid and passed through a sand filter prior to being treated with **ORGANOCLAY-F**, followed by activated carbon. The system operated at approximately 200 gpm. The influent water from the lagoons contained >1,000 mg/l of oil and grease, 1 to 6 mg/l volatile organics, 1 to 10 mg/l of heavy metals, and 100 mg/l of suspended solids. Discharge limits of the system are given below:

Parameter	Effluent Limitation
Benzene	5 ug/l
1,1,1-TCE	200 ug/l
Toluene	2 ug/l
Trans-1,2-Dichloroethene	6 ug/l
Xylene	440 ug/l
1,1-Dichloroethene	7 ug/l
Phenol	3500 ug/l
Copper	23 ug/l
Lead	40 ug/l
Chromium (TTL)	54 ug/l
PCB	<.001 ug/l
NH3-N	13 mg/l
Dissolved Oxygen	4 mg/l
Oil and Grease	10 mg/l

During the treatment of over 20,000,000 gallons in three separate removal actions, these limits were never exceeded.

CONCLUSION

The most cost-effective, offsite disposal option including transportation was \$0.25/gallon. On-site treatment with **ORGANOCLAY-F** accomplished the same quantity of treatment for \$0.12/gallon. The most expensive expendable material in the system treatment was the granular activated carbon (GAC). By utilizing **ORGANOCLAY-F** as a pre-treatment step to the GAC, the operating firm was able to significantly extend the lifetime of the material, resulting in a reduction of overall cost while maintaining effluent quality.