

CASE STUDY

A refinery in Canada discharged boiler feed water through a lime softener and desired to recycle the water. The water contained 8 ppm of total organic carbon, of which lube oil was 3 ppm, with spikes of 9 ppm. The remainders were chelating agents and amines used for scale prevention. Several ppm of iron were also present. The water ran at 30 psi, 150 gpm and had a temperature of 176° F.

A vessel with 10,000 lb organoclay was installed. Since this is boiler feed water, extensive backwashing was required to remove any suspended clay fines that add silica, and to remove salts such as sodium chloride, which is commonly associated with bentonite. The silica content then stabilized at 5 ppm, which was acceptable, and the conductivity also decreased to acceptable levels.

After the system was brought back on line, the oil content of the water was less than 0.5 ppm. The iron content was much lower, but not measured. The system has operated for over a year with no changeout. Thus the organoclay not only removes the oil, it also removed the iron. It precipitated onto the anthrazite at a pH of 7.8, causing the clay to turn a bright red, but it did not impede oil removal. This also results in co-precipitation of other heavy metal cations. Because oilsorb organoclay operates at temperatures up to about 180° F, the water does not have to be reheated very much, perhaps by 20° F, which results in an energy cost savings.