

Refinery Desalter System

Gulf Coast, USA 2016-2017

Problem

Black powder particulate contamination in the post-desalter water was driving unsustainable consumption of single use filters and operating costs of almost US\$2 million. The related filter waste was excessive – and avoidable.

In order to save costs, the single use Pentair filters were changed from 10 microns to 30 microns in order to move from a 2 to 3 day replacement cycle to 7 days. The cost of each filter element change-out was \$13,000, including disposal.

However, the 30 micron filters were unable to protect the MycelX VOC and crude removal system from the sub-30 micron contamination, rendering it out of service. The crude tainted water was then sent out for deep well disposal at a cost of \$100K/month for 9 months.

Solution

Install 2 magnetic separators – 1 on each desalter water line downstream of the settling tank and upstream of the Pentair filter system.

Results

The Pentair filter elements were subsequently changed to 1 micron finishing filters and the filter element change-out interval went from 7 to 120 days. The solids loading dropped to within allowable limits and the MycelX unit went back into operation, eliminating the need for expensive underground disposal.

Total Annual Cost Savings
\$1,850,000



Black powder collected on the first magnetic separator element after 18 hours of operation.