

Nalco Water Ultimer Technology Enhances Suspended Solids Removal in a Wet Gas Scrubber, Lower Hazardous Waste and Operational Costs



BACKGROUND

With increased production of high sulfur content crude and tighter control on emissions, effective removal of both gaseous and particulate pollutants is paramount to refinery profitability. Typically, this is achieved in a wet gas scrubber which removes the contaminants by a process of water, filters and separators. The captured particles are then discharged to a conventional clarifier for solids separation prior to discharge to the wastewater treatment plant. Though there are facilities to remove particulates in the wastewater treatment plant, solid waste becomes classified as hazardous, so the impetus is to have a high removal efficiency at the scrubber.

SOLUTION

A comprehensive review of the Mechanical, Operational and Chemical (MOC) aspects revealed optimization opportunities were available in the chemical treatment program. The following changes were then implemented:

- Eliminated the addition of a coagulant - thus reducing the overall solids in the system.

- Replaced the latex flocculant with Nalco Water Ultimer dispersion flocculant that was previously effective at a lower dosage.

RESULTS

The chemical change increased the solids capture efficiency from an average of 92% to an average of 98%, shown in Figure 1. The result was less hazardous sludge in the wastewater treatment plant with a cost benefit to the refinery as shown in Figure 2 on the following page.

CONCLUSION

Implementing Nalco Water Ultimer technology resulted in a more consistent operation of the clarifier providing the following benefits to the refinery:

- Less hazardous sludge to landfill
 - **188 tons per year**
- Lower disposal costs
 - **\$75,000**
- Lower overall chemical treatment costs due to the Ultimer technology superior performance
 - **Approximately \$100,000**

Thanks to these Nalco Water solutions, the customer saved more than \$175,000 annually.

ANNUAL SAVINGS



WASTE

Reduced hazardous waste by more than

188 TONS

per year



ENVIRONMENTAL RESPONSIBILITY

Decreased hazardous waste disposal costs by

\$75,000



COSTS

Chemical savings of

\$100,000

VALUE DELIVERED

\$175,000 ANNUALLY

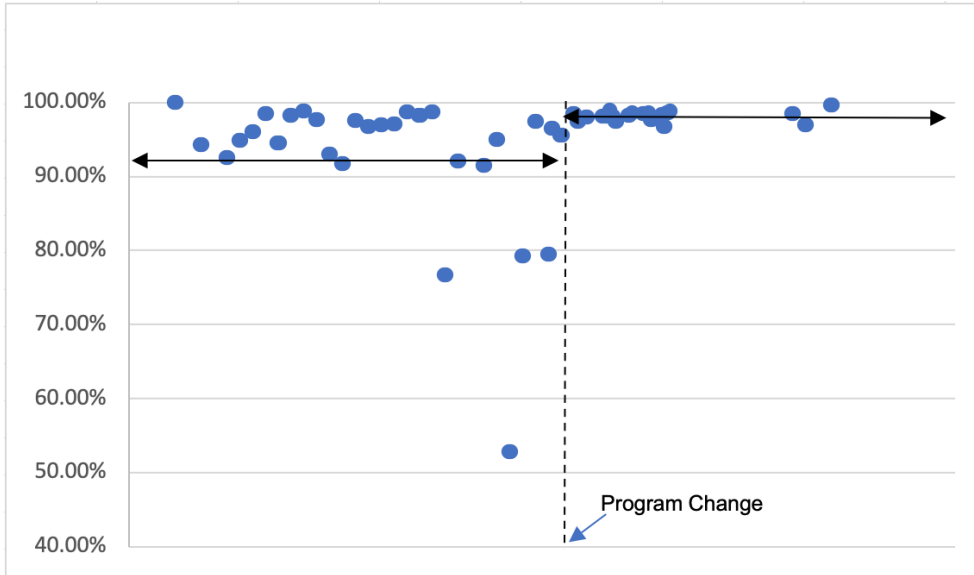


FIGURE 1: TSS SOLIDS CAPTURE EFFICIENCY BEFORE AND AFTER CHEMICAL CHANGE

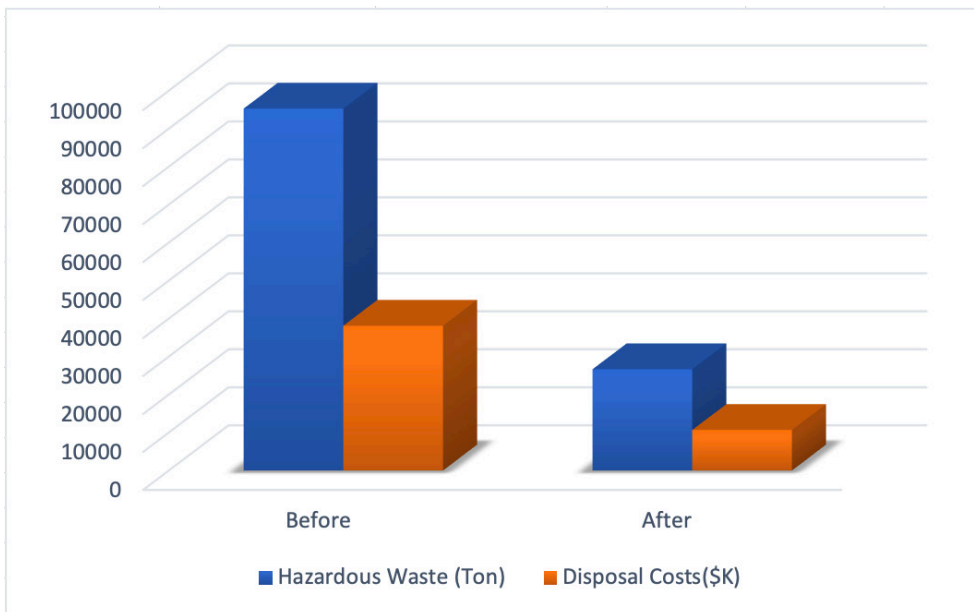


FIGURE 2: DIPOSAL COSTS AND HAZARDOUS WASTE BEFORE AND AFTER CHEMICAL TREATMENT CHANGE

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