

Case Study

Upstream Retooling Yields Significant Savings in a Downstream Process

Overview

Vehicle manufacturing facility operates production on 24/4 schedule. Much of the waste from the manufacturing operations are derived from the facility's paint department and is treated through the on-site permitted wastewater treatment plant. The Clean Harbors InSite team is contracted by the customer to operate the WWTP as well as other waste processes to include recycling and regulatory reporting.



Background

The paint department had a clean-out schedule for their phosphate stages that was based on past business models from previous contractors. The painting process is after the dirtier manufacturing processes, yet those processes had been re-engineered and the plant re-tooled; yet the paint department was still working on the same clean-out schedule from previous business models based on the older processes and tooling.

The alkaline phosphate stage clean-outs were conducted once every 3 weeks. Parts are submerged in the phosphate tanks to remove dirt, debris, oil, etc. The core of the various phosphate stage cleanings is for corrosion inhibiting and paint adhesion.

As dirt, debris, and oil build-up in the phosphate stages the material loses its efficacy, as a result the parts could have quality defects thus requiring re-work or recall. The tanks are re-charged which includes but not limited to discarding of material and water baths, labor to perform the discarding process, addition of new material and water bath re-fill, labor for this as well.



Challenge

Working with other contractors and the manufacturing customer to get all to agree on a trial run.

The InSite team works in unison with the manufacturing customer as well as other contractors employed by the customer. It is vital to maintain a cohesive relationship with all parties. The InSite team had a hunch that the clean-out cycle for the alkaline stages were too frequent so they approached the contractor responsible for this task to review as a team but was turned down. The InSite team took it upon themselves, on their own time, to thoroughly understand the clean-out process.

The InSite team worked independently in providing data to the manufacturing customer to show that a trial, if proven successful would be a significant cost savings to the customer and not to Clean Harbors or to any other party other than the customer.

Approach

Ran the trial. Through support of the customer the InSite team helped manage the clean-out contractor's schedule against the agreed upon trial runs.

Process review meetings with the paint department engineers were held to discuss quality of the process tank stages; their effectiveness to the metal process; and, if any adverse changes were observed to the quality of the final product. All quality inspections for the process showed no failures resulted from the phosphatizing trial runs.

Results

Alkaline cook-outs were reduced from once every 3 weeks to once/quarter yielding an overall reduction of 13 cook-outs annually. The below table illustrates the savings.

Item Reduced / Avoided	Cost / Item	Quantity of Item Used	Annual Cost Avoided
Reduction of chemicals to recharge / re-fill alkaline process tanks after cook-outs	\$795.60 / drum	7 drums / cook-out	\$72,400
Cost to treat wastewater	\$6.84 / 1,000 gals	247,000 gallons	\$1,689
Reduction in sulfuric acid to treat the wastewater	\$4.38 / gal	650 gal / yr	\$2,847
Reduced filter cake sludge disposal from wastewater treatment	\$59 / ton	7 tons / yr	\$413
Reduction in City water used to refill the process tanks	\$0.0025 / gal	247,000 gallons / yr	\$617
Total Annualized Cost Savings			\$77,966

Other benefits include:

- Carbon footprint reduction of at least 1 less van trailer delivery of virgin chemical products
- Health & Safety benefits of reduced chemical/material handling
- Administrative savings in chemical inventory management
- Supports Waste Minimization and Pollution Prevention requirements

