

Case study: North America

Passivation with LIFESHIELD inhibitor provided refiner 412% ROI

A refiner in North America was completing a turnaround of one of their cooling towers that supported a key hydrotreating unit that was also in turnaround. When two key components such as these are taken offline, it can be difficult to ensure startups without interruption.

The refiner contacted Baker Hughes to determine a possible solution to accelerate the rate at which they can enter the cooling tower and passivate the cooling tower with heat load to ensure that the cooling tower startup would not impact the schedule of the hydrotreater startup.

The experts at Baker Hughes consulted with the refiner to develop a clear plan to execute the filtration of water out of the cooling tower to minimize impacts to the wastewater treatment plant. Baker Hughes recommended its Contaminant Extraction Services (CES) filtration group be utilized to provide rapid and efficient solids removal from the tower basin.

In addition, Baker Hughes also recommended the **LIFESHIELD™ non-phosphorous corrosion inhibitor** to reduce corrosion rates in the cooling tower.

This plan was successfully implemented allowing the refinery to clean their cooling tower basin 3 days faster than historical results, improving overall turnaround time.

After completion of turnaround of this cooling tower, Baker Hughes completed an online passivation of the cooling water system. Heat load was applied to the tower as the passivation process was being completed. Results showed a successful passivation of the cooling water circuit which allowed for the startup of the refinery's hydrotreater a day ahead of schedule.

This overall cooling tower turnaround solution allowed the refinery to realize an ROI of 412%.

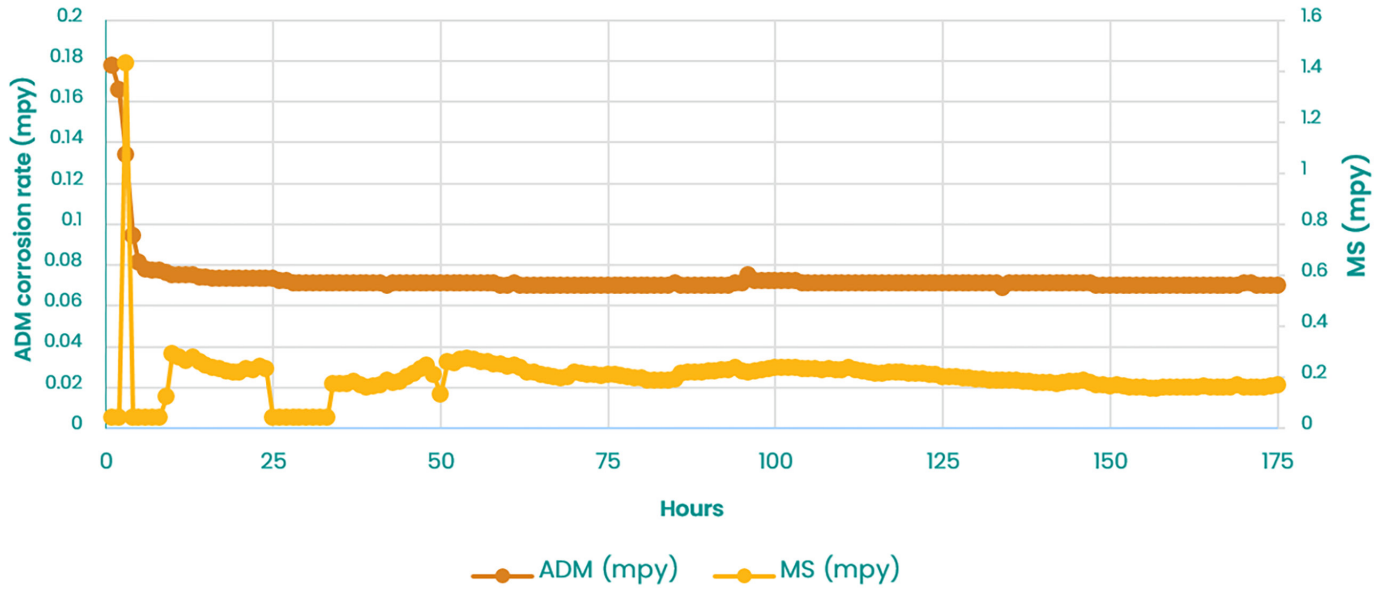
Challenges

- Ensure cooling tower was available from turnaround at the startup of key hydrotreating unit
- Typical passivation of cooling tower systems post turnaround would take 3 to 4 days before heat load could be added to the system and avoid phosphate fouling

Results

- Reduced cooling tower basin cleaning time by 3 days
- Accelerated unit startup by 1 day
- Provided customer with an ROI of 412%

Cooling tower passivation data (online corrator results)



Corrosion rates were monitored both during and post passivation. Baker Hughes's recommendation of CES filtration equipment combined with the **LIFESHIELD inhibitor** program allowed the refiner to realize an ROI of 412%.