CASE STUDY

Refinery Saves $90K and 5.6M Gallons of Water Annually with RO Monitoring Enhancements

Background

A refinery on the Gulf Coast was experiencing performance issues in their reverse osmosis (RO) system. The RO was struggling to provide sufficient water to run through the boilers, and any further decreases in performance would have required the refinery to reduce production rates.

Solution

The local ChemTreat team began inspecting the refinery's RO units monthly to track issues and identify improvement opportunities.

During one of these inspections, the ChemTreat team noted a dramatic increase in the permeate conductivity in several pressure vessels. Refinery personnel repaired the vessels, lowering the total conductivity from 122 to 52 µmhos, a 57% decrease.

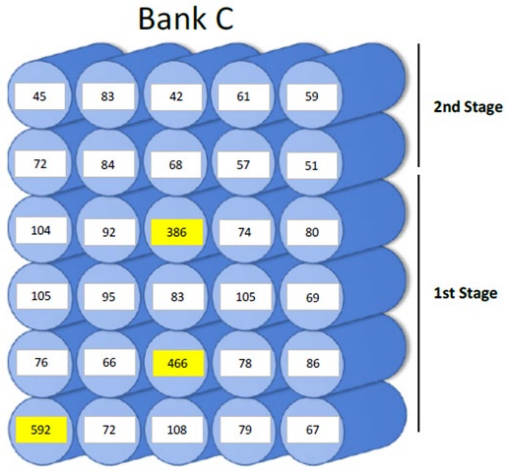
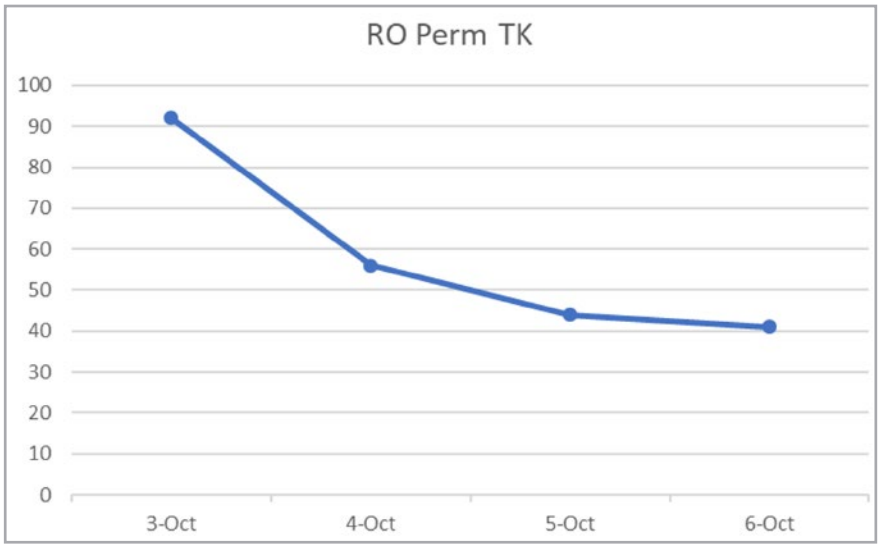


Diagram showing the pressure vessels with high conductivity.

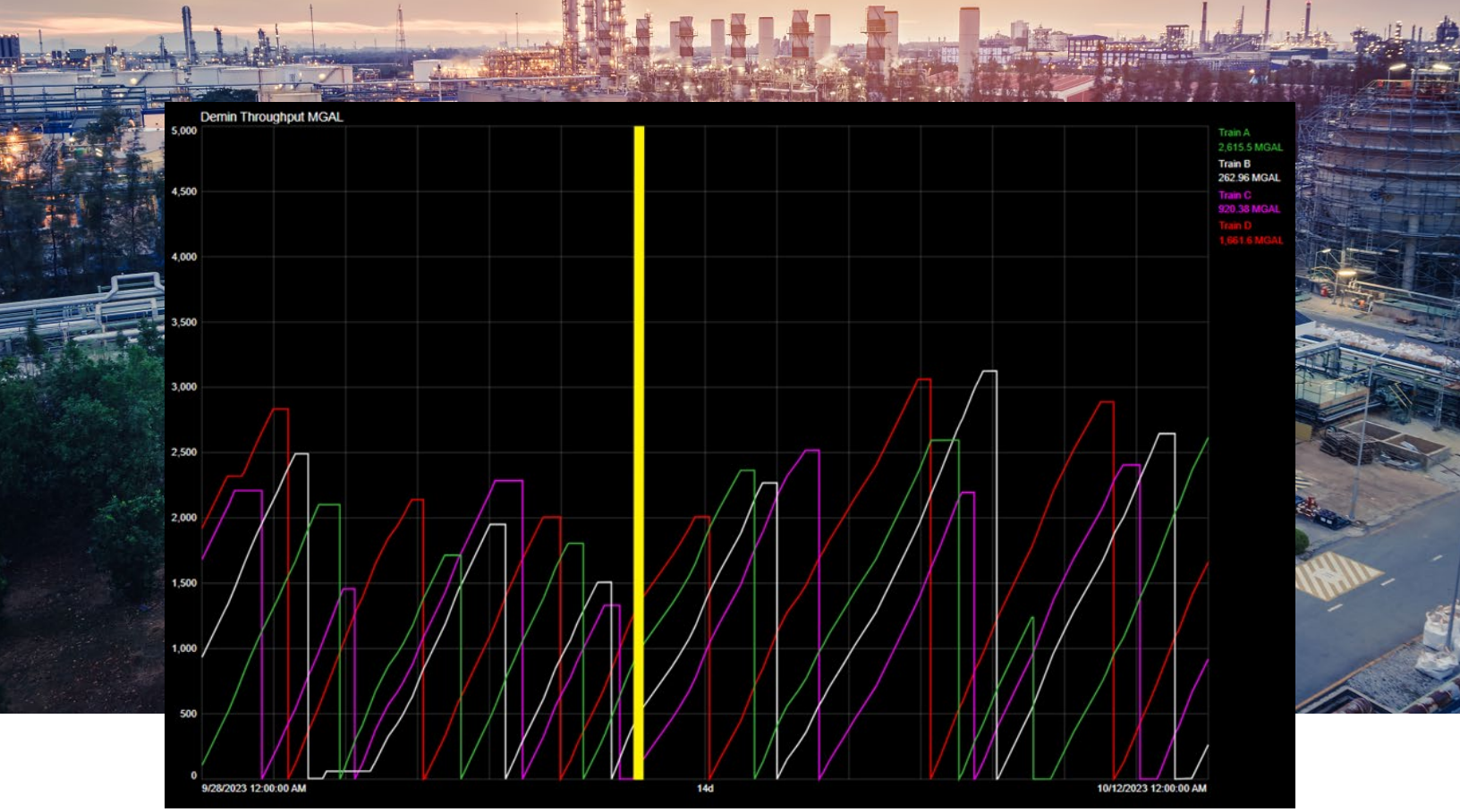
During the same inspection, the RO permeate tank conductivity decreased by 51 µmhos in just three days, showing the positive impact of repairs on water production capability.



Trend chart illustrating the dramatic decrease in permeate tank conductivity.

Results are examples only. They are not guaranteed. Actual results may vary.

CS10-171 ENG
Nov 2023
Copyright © 2023 ChemTreat, Inc.



Trend chart tracking demineralizer throughputs, which is heavily influenced by RO permeate quality. The yellow line indicates the date of repairs, with throughputs increasing after repairs were completed.

Results

By quickly taking action to repair the pressure vessels, refinery operators significantly improved demineralizer throughputs, saving on acid and caustic costs. The reduction in water used for regenerations additionally saved on treatment costs for water being sent to the sewer.

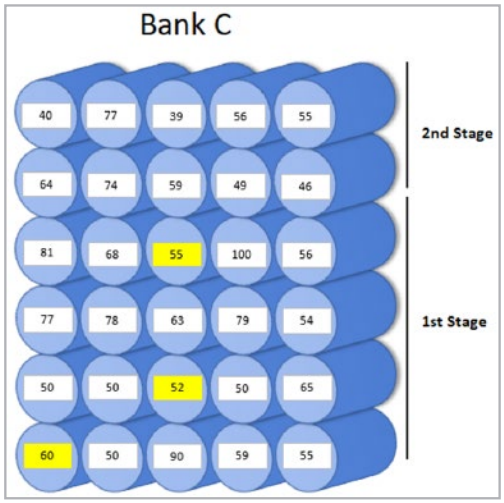


Diagram of pressure vessel conductivity after repairs were made.

The RO system improvements made after ChemTreat's inspection yielded the following benefits to the refinery:

57%
decrease in total RO conductivity

$90k
in approximate annual savings on regenerant chemical costs

5.6
million gallons less regeneration water being sent to the sewer annually

Results are examples only. They are not guaranteed. Actual results may vary.

CS10-171 ENG
Nov 2023
Copyright © 2023 ChemTreat, Inc.