LOCATION: US REFINERY

JETTISON Solids Release Agent Improved FCC Unit Operations

A refinery operator had been experiencing high expander vibrations on their fluid catalytic cracking (FCC) unit due to fouling of the expander blades. The expander had to be cleaned about every six weeks, resulting in loss of FCC and refinery throughput. The refinery team believed that fouling of the expander blades was a result of high iron levels on their catalyst.

The refinery operators asked Baker Hughes, a GE company (BHGE) to help reduce the marginal iron (iron added to the catalyst) from the feedstock. The local BHGE refinery support team worked with Baker Hughes technology experts to develop the most effective solution for this problem. After several meetings with the customer, an action plan was developed to implement a customized **JETTISON™ solids release agent** (SRA) program. After the chemical treatment was initiated, optimization of the program to obtain maximum performance was designed, approved, and executed.

Once the JETTISON SRA program was optimized with desalter operations, the refinery saw a step change from 17% to ~100% of the solids removed from the crude, and released into the brine effluent. Additionally, the marginal iron on the catalyst was reduced by more than 20%.

The JETTISON SRA program helped the refiner increase the run length between feed outages from 12 weeks to 22 weeks, saving them approximately $1MM.

Results

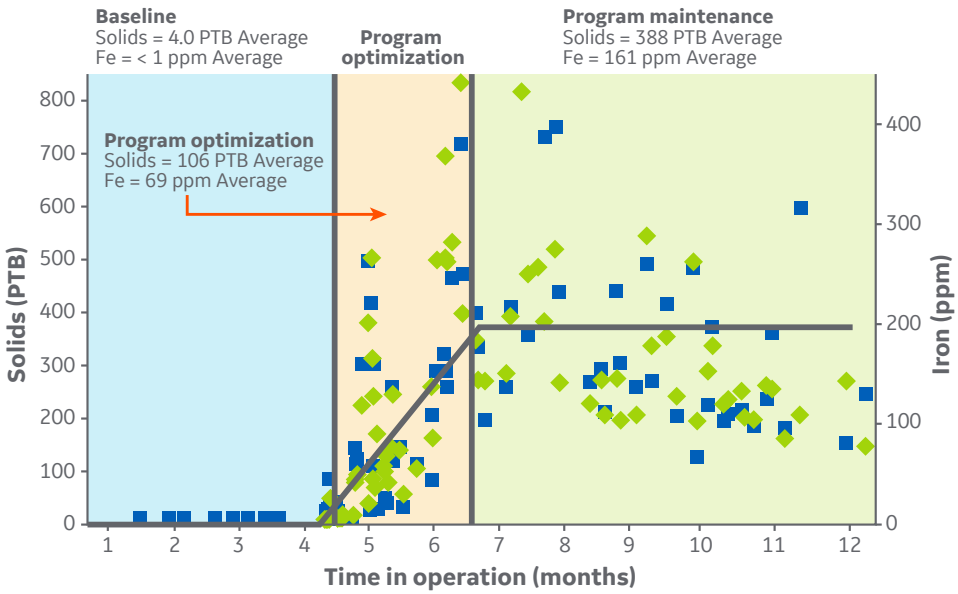
- Improved FCC unit on-stream time and refinery throughput by reducing expander fouling
- Reduction in Fe deposited on the FCC catalyst

Challenges

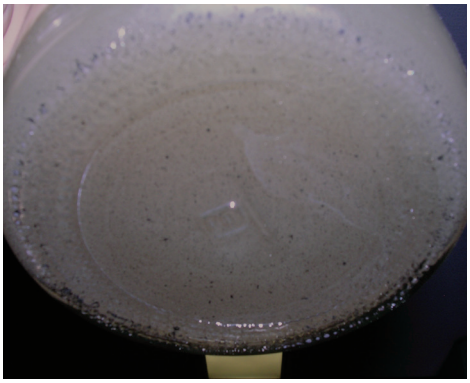
- Expander vibrations on FCC resulted in throughput reductions
- Refinery believed high iron levels on catalyst were causing expander fouling
- Solids and iron levels in desalter demonstrated neutral buoyancy characteristics

BHGE solution

- JETTISON solids release agent
- Majority of solids removed during desalting appeared in brine effluent
- Reduced FCC E-CAT marginal iron by over 20%

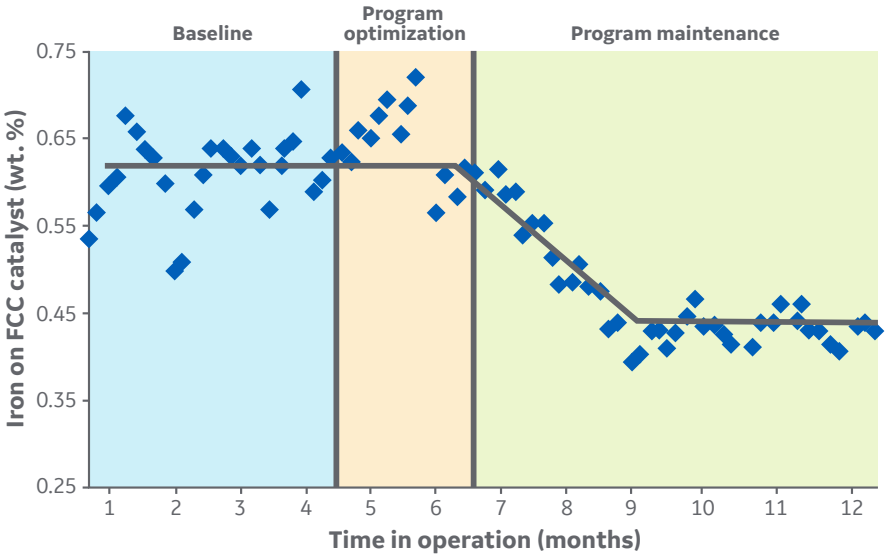


History of marginal iron on catalyst before and after implementation of JETTISON SRA program



Bottom of brine water sample. Baseline, no JETTISON SRA.

Post-implementation of JETTISON SRA



History of filterable solids and iron-in-brine effluent before and after implementation of JETTISON SRA program

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