



TEXAS TOWER (VCFE) CLEANING ENABLES IRIS INSPECTION AND SAVES \$8MIL+



PROBLEM

Texas Tower (VCFE) fouling is very costly. Traditional cleaning and inspection methods are unable to effectively remove fouling from both internal and external heat transfer surfaces. Failed attempts often lead to serious safety issues.

SOLUTION

Integrated Global Services (IGS) deployed Tube Tech engineered cleaning solution to remove fouling from 2688 tubes across two Texas Towers. 100% of tubes were cleaned to a production standard and 10% of tubes received enhanced cleaning for IRIS inspection.

Texas Tower (VCFE) Fouling

The challenges for owners of fouled combined vertical feed exchangers (VCFE) are numerous. Arguably one of the most critical assets on a plant these challenges include inaccessibility faced by traditional cleaning and inspection service contractors leading to their inability to remove fouling from both internal and external heat transfer surfaces. Failed attempts often lead to serious safety issues.

Why Do Texas Towers (VCFEs) Foul?

VCFEs were originally designed not to foul. However, over several decades these units have often been pushed to the limits or have been subject to inadvertent carry over such as catalyst and oil on the shell side as well as the usual buildup of polycyclic aromatics, gum-like deposits and very hard hydrocarbon coke scale.

Typical duty:	30MW
Cost of MW hr @ 90\$ per barrel:	\$52
If VCFE Fouling is:	40%
Average loss is:	\$5.6Mil per annum



Shell Side Fouling Showing Corrosion and Hard Coke Deposits

Cleaning for IRIS Inspection

In this particular case the refinery based in Canada experienced several failed attempts at cleaning the 60-foot vertical tubes to a standard suitable for IRIS inspection.

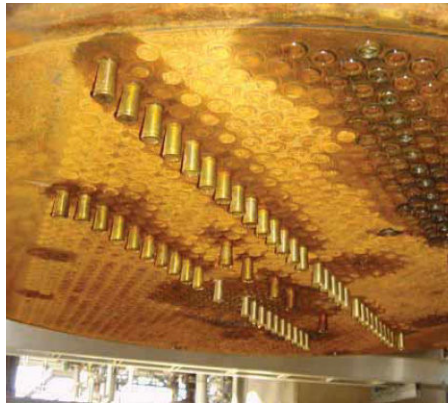
The refinery was recommended to approach Integrated Global Services (IGS) about their Tube Tech engineered cleaning suitable for IRIS integrity assessment. The alternative would have led to substantial capital replacement expenditure up to \$8 million and all the associated costs that replacement entails.

Scope of Work

- 1434 tubes per exchanger, total 2868 tubes.
- 100% of tubes to be cleaned to production standard.
- 10% of tubes to receive enhanced cleaning ready for IRIS inspection.
- Deposit characteristics: rubber, chewing gum consistency, polycyclic aromatics, hydrocarbons, hard inert coke and ferrous oxide scale.



Twin VCFE Texas Towers



Tubes Marked for Enhanced IRIS Inspection Cleaning



Tubes Running Clear After Enhanced Tube Tech Cleaning

Completed Project

IGS set up bespoke Tube Tech cleaning technology to access the tube face to drill, descale, polish and inspect the tubes. During the cleaning, projectiles left behind by previous contractors were identified and removed.

Outcome

This unique service guarantees that all Texas Tower (VCFE) tubes can be simultaneously cleaned and inspected to IRIS standard, allowing asset integrity assurance and minimizing substantial asset replacement and associated costs.

Refinery Feedback on the Project



1. Was the Project Completed to the Required Standard?
 Yes, IRIS standard met.
2. Were Good Levels of Communication Maintained Throughout?
 Excellent!
3. Was the Service Provided Value for Money?
 Yes, no rework.
4. Additional Comments
 Thank you for all your hard work and patience. I hope to be working with you again in the near future, - TA Block Coordinator