RTI upstream

CASE STUDY

Slug Catcher Cleaned in 4-Day Window with Zero Lost Production

THE CHALLENGE

RTI Upstream was asked to clean a 12,000-barrel slug catcher located in Southern Louisiana, which is operated by a third party that takes in gas from several offshore platforms operated by major oil producers in the Gulf of Mexico. The slug catcher, which has a temperature limit of 140° F, consists of 12 fingers that are 48" in diameter by 500' long. The slug catcher had never been removed from service and cleaned, so it had years of asphaltene buildup toward the liquid outlet header. The operator estimated that the slug catcher was 30% full of asphaltene, thus reducing its capacity to process liquid slugs by 30%. To add to it, a new platform was coming online, which increased the capacity required of the slug catcher. This slug catcher consists of a new side (6 fingers) and an old side (6 fingers). The new side had valves that could isolate it without requiring a shutdown of the old side, allowing for continuous operation, but with reduced liquid handling capacity during the shutdown.

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THE SOLUTION

RTI Upstream took samples of the asphaltene foulant and ran tests to see which chemistries were most effective at dissolving the foulant. It was discovered that nearly all of RTI's line of solvents showed great success dissolving the foulant. RTI Upstream then worked with the operator through its equipment and logistical limitations to develop a plan that could be put in place to remove this foulant in a timeline that would not affect the upstream assets given the reduced capacity of the slug catcher during the cleaning process. The solution employed was a liquid circulation of LCO and Uppercut®.

- The desired concentration of LCO/Uppercut® at <140° F effectively dissolved 95% of the foulant in lab samples.
- Given the location of the facility and the relationship with a local refiner, the LCO could be sourced and delivered via barge at an economical price point.
- The liquid circulation could be carried out at temperatures well within the equipment limitations.
- All effluent from the clean could be returned and reprocessed at the facility that generated the LCO, so there was no waste.
- The timeline to circulate the equipment fell well within the 3- to 4-day window that the facility could operate without that side of the slug catcher.

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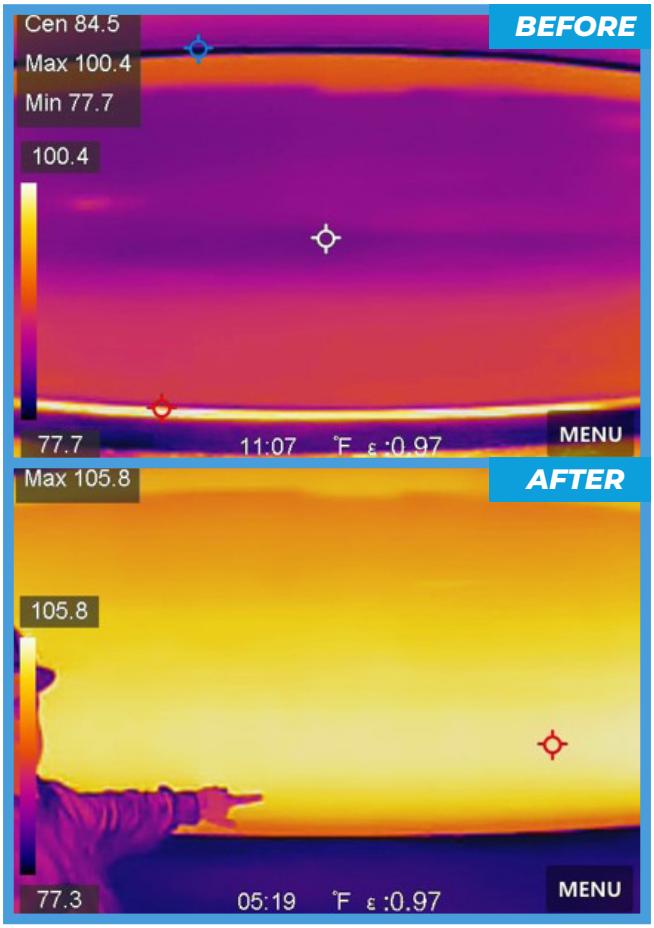
THE RESULTS

- RTI Upstream saved the client from needing a 30-day shutdown (at 300,000 to 400,000 bbl/d).
- With great collaboration between RTI Upstream, the operator, and the upstream assets, the RTI Upstream plan was employed successfully and without any environmental or safety incidents.
- The clean was completed within the 4-day window and allowed the upstream assets to operate at full capacity throughout the duration of the clean.
- Nearly 400 barrels of foulant were removed from the slug catcher (calculated via material balance changes on barge of neat solution to cleaning effluent).
- Post-cleaning infrared scans of the slug catcher show a consistent temperature profile, leading to believe that there is no insulating liquid/ foulant present.
- There were 0 barrels of lost production during the clean and in the months following the clean due to capacity issues in the slug catcher.



Slug catcher infrared scans before and after the clean. The uniform profile following the clean shows that all foulant has been removed.

SHUTDOWN AVOIDED

RTI Upstream saved the client from a 30-day shutdown (at 300,000 to 400,000 bbl/d)

CLEANED OUT

Nearly 400 barrels of foulant removed

ZERO LOST PRODUCTION

0 barrels of lost production

QUICK CLEAN

Completed in 4-day window with slug catcher still online

CONTACT

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