

Successful Remediation of Asphaltenes in Ultra-Deepwater



THE CHALLENGE

The complex nature of ultra-deep reservoir fluids, combined with rapid pressure and temperature changes during production, exacerbates asphaltene instability, posing a major challenge to maintaining optimal and safe production performance.

A deepwater production facility targeting reservoirs with extreme temperature and pressure conditions experienced operational issues due to the buildup of asphaltenes on the topsides in the inlet separator. This phenomenon led to a range of production problems, including reduced flow rates and increased maintenance requirements. Traditional remediation methods of utilizing xylene soaks were mostly ineffective, and vessel entry for manual cleaning would have resulted in extended downtime.

THE SOLUTION

A combination of steam and chemical treatment was utilized to remediate asphaltene-related fouling within the fluid separation vessel while preventing re-deposition or plugging downstream, which would have led to production losses and reduced reliability of critical safety devices. The cleaning process included:

- **Steam injection:** High-temperature steam was cycled to soften and dislodge asphaltene deposits, enhancing the impact of chemical treatments.
- **Chemical treatment:** OutRigger, a tailored solvent-dispersant blend, was injected with steam to dissolve asphaltenes and keep solids suspended, preventing re-deposition.
- **Isolation and containment:** A temporary drain header captured dislodged material, protecting downstream equipment during remediation and start-up.

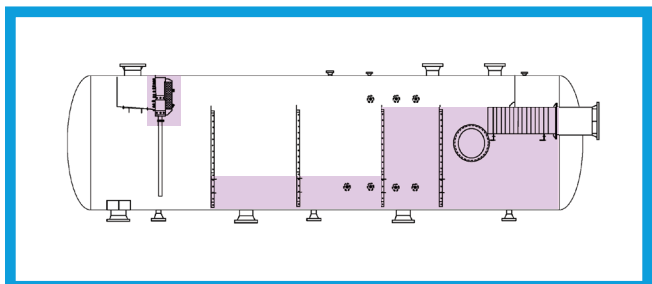
RTI Upstream's non-invasive cleaning method successfully removed heavy asphaltenes from the vessel, restoring maximum production rates and stabilized process level controls.

THE RESULTS

The cleaning was completed over a 14-hour duration and completely avoided the need for intrusive maintenance. Legacy cleaning methods would have required:

- Full vessel entry, with distribution baffles heavily blocked by asphaltenes.
- A projected turnaround of 4–6 days.
- Simultaneous operations (SIMOPS) challenges due to the vessel being opened on a live platform.

Our solution resulted in an estimated deferred production savings of approximately \$25 million. Additionally, no immediate fouling issues were observed post-cleaning. The purple shading illustrates the location of major asphaltene deposition inside the inlet separator.



EFFICIENT CLEANING EXECUTION

- Completed in 14 hours versus a 4- to 6-day turnaround
- Avoided full vessel entry with blocked baffles and SIMOPS risks



COST SAVINGS

- Estimated \$25M in deferred production savings
- No immediate fouling post-cleaning



CONTACT

For more information, scan the QR code or visit RTIUpstream.com.

