

Well Fluid Management  
Water Treatment & Filtration  
Pipeline Fluid Management  
Temporary Process Equipment & Technologies  
Well Intervention & Flowback Applications

# CLEAR SOLUTIONS

## for complex fluids

### Flowline Intervention, Asphaltene Remediation & Flush for Abandonment



#### CHALLENGE

- Asphaltenes remediation of major flowline in preparation for abandonment



#### SOLUTION

- Offshore Construction Vessel (OCV) based remediation and flushing packages. Offshore Supply Vessel (OSV) waste management and vessel-to-vessel waste transfer



#### RESULTS

- CETCO Energy Services (CETCO), successfully cleared and flushed Asphaltene plugged flowline for abandonment

## SUCCESS STORY

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# Flowline Intervention, Asphaltene Remediation & Flush for Abandonment

## CHALLENGE

An offshore customer needed to clear a major flowline of an extensive asphaltene blockage to satisfy government decommissioning requirements. The blocked flowline, located in 3,000 ft water depth, needed to be flushed & abandoned in compliance with United States (US) and Gulf of Mexico (GOM) regulations. Asphaltenes caused the blockage of a 17.5 mile, 12" x 8" pipe-in-pipe flowline. Before the regulatory flush proceeded, flowline communication needed to be established by clearing the asphaltene blockage. The remediation operations would occur subsea, via coil tubing. Due to the limited reach of the coil tubing string, the flowline would need to be cleaned in 20k-30k foot sections. Each section would have the asphaltenes cleared and then flushed with 2x volume of seawater prior to abandonment. The cost of waste fluid disposal is ~\$63/bbl., CETCO filtration was used to limit project disposal costs.

## CETCO SOLUTION

After a detailed project planning phase, CETCO designed a closed-loop system that was located onboard an Offshore Construction Vessel (OCV) within an overall length of 160m and a 30m beam. The CETCO system supplied the asphaltene remediation medium, captured the remediation fluid returns, and filtered them for reuse. Once the blockage was cleared from each flowline section, seawater was used to flush the section in compliance with abandonment regulations. As a result of the OCV having limited on-deck storage capacity for waste fluids, an Offshore Supply Vessel (OSV) was needed to haul the excess waste onshore for disposal. To address this, CETCO designed a waste transfer and storage system onboard the OSV. After each flowline section was cleaned and flushed on the OCV, the waste fluids were transferred to the OSV for disposal onshore.

Once communication was established, the flowline was flushed in accordance with decommissioning regulations. Flowline flushing return operations were located onboard a second Offshore Construction Vessel, with an overall length of 130m and beam of 25m, positioned nearby an offshore drilling and production tension-leg platform (TLP). CETCO designed a system to transfer the flushing fluids from the platform boarding valve onboard the TLP, down to the returns system located on the back deck of the second OCV. The returns system was designed to capture, filter, and discharge the flowline flushing fluids in compliance with NPDES requirements.

## RESULTS

Using CETCO's solution, over 92,000 ft of asphaltene packed flowline was cleaned and the single longest coil tubing run with a tractor to date (~27,000 ft.) was completed. CETCO filtered and discharged 1,900 bbls of flowline flushing fluids in compliance with NPDES Permit regulations and completed the Vessel-to-Vessel Transfer of 12,800 bbls of waste without environmental release. We also limited the client's waste cost to 13,500 bbls for the entire project. CETCO supplied equipment and personnel for simultaneous operations on-board three separate offshore vessels and one TLP. Over 2,000 project hours of continuous operations were logged safely with no lost time.

