



CLEAR SOLUTIONS for complex fluids

Ultra-fine Filtration: Control Line Fluid Remediation



CHALLENGE

- Off-Specification particulate count in hydraulic fluid



SOLUTION

- Engineered and implemented a procedurally controlled filtration process producing Class 3 effluent



RESULTS

- Remediation of the fluid and contaminated umbilicals on time

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CHALLENGE

In the age of digitalization, high resolution objective devices are replacing subjective observation practices. Our client is no different in their efforts to evolve with the times. The transition was driven by previous communication failures of their subsea control lines due to particulates collecting at downhole termination points. The MP Filtri LPA3 particle counter was brought into service to analyze SAE AS4059E Table 2 Class 6 particulate count on the TransaquaHT hydraulic fluid. The fluid ordered from the manufacturer to be Class 6 did not arrive in specification. Their initial efforts to remediate the fluid decreased the quality of fluid and contaminated the umbilical lines. CETCO Energy Services (CETCO), was contacted to remediate the fluid prior to loading various umbilicals for deepwater offshore completion in Gulf of Mexico (GOM).

AS 4059E Table 2 Class 3 A-F 3A/2B/0C/000D/00E/0F	
um(c)	/100ML
>4	4001
>6	846
>14	36
>21	0
>25	0
>38	0
>50	0
>70	0

CETCO SOLUTION

CETCO's solution was two-staged. First was to ensure the fluid could be remediated in a low pressure, high rate circulation process prior to entering the umbilical. Second, to ensure the fluid entering the umbilical was in-spec and free of any contamination that could have been picked up from HP pump system. Through previous successes with our CIP Unit - Ultrafine Filtration and Hydraulic Flushing Unit, we had a solution on hand that included a combination of low and high pressure components.

RESULTS

Within 48 hours of notification, CETCO had the ultra-fine filtration solution on the ground. Further refinement of the process was developed as the system was calibrated against the accuracy and resolution of MP Filtri LPA3 particle counter. In the end, CETCO exceeded client requirements by filtering the fluid to Class 3. The cost effective solution was mobilized offshore as precautionary measure in event of further contamination in transit. This operation prevented an unknown magnitude of downtime and loss of production.

