

CASE:

Clean Sealing Fluid increases Mean Time between Failures in Barrier Seal Systems

Our customer in Qatar was experiencing problems with low mean time between failures (MTBF) at the barrier sealing systems. They were recommended to change the sealing fluid tubing to a more optimal construction in order to improve the MTBF. The changes increased the MTBF significantly; however, it still left room for improvements.

Ocean Team examined the systems in order to identify other solutions, which could improve the MTBF even more. First step was to extract a sample of the sealing fluid (hydraulic oil). The analysis of the sample showed clearly, that the fluid was heavily contaminated with solid wear particles, corrosion, sand, water and sludge.

Does the Contamination Level of the Sealing Fluid have impact on the MTBF?

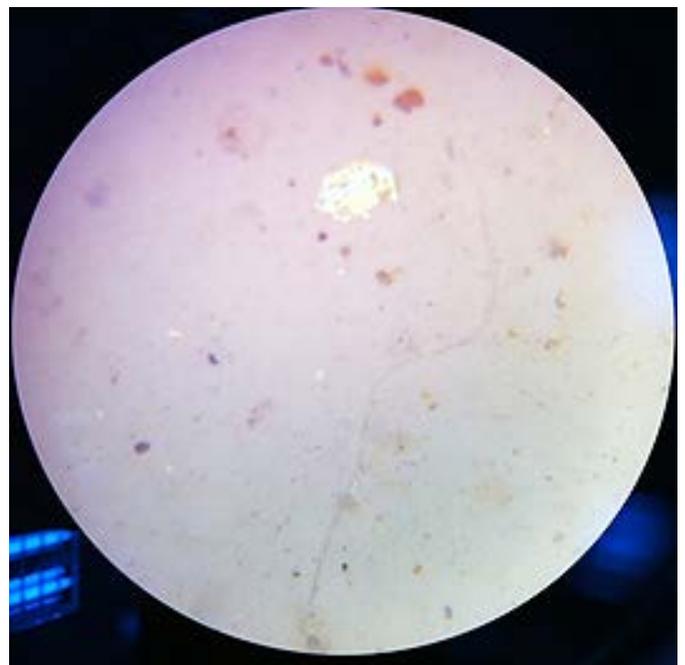
In order to test how great impact the contamination level of the sealing fluid had on the MTBF, a test-flushing was performed at the barrier sealing systems for three of the customer's crude oil export pumps.

By means of Ocean Team's customized flushing techniques with turbulent flow conditions, the sealing fluid was brought down to an optimal contamination level. The result was a significant increase of the MTBF and it could then be concluded, that the contamination level of the sealing fluid have a great impact on the MTBF of barring seals.

MTBF Increase

To further emphasize the effect and success of the test, the customer afterwards hired Ocean Team to conduct flushing of barring sealing systems at all of their crude oil export pumps, produced water disposal pumps, water injection transfer pumps and auxiliary heating medium pumps.

The different sealing systems had different sealing fluid such as hydraulic oil, diesel oil and polyglycol, but common for all systems was that the flushing resulted in a significant increase of the MTBF.



Picture - Microscopic section of the contaminated sealing fluid sample extracted from the barrier sealing system.