

Case study: China

Team effort solved problems for FPSO startup

A floating production, storage, and offloading (FPSO) startup in China experienced a very tight emulsion that could not be completely treated with chemicals. Each new well brought online resulted in a major system upset.

Investigating the problem, Baker Hughes engineers determined that the pH had a major effect on the oil treatment. Higher pH caused naphthenate to form and stabilize the emulsion. In addition, the drilling mud the operator used made the problem worse, because it also caused high pH conditions.

To resolve the problem, Baker Hughes personnel worked with the operator to modify the procedures for commissioning new wells.

They also developed a more effective demulsifier and a more effective application method. This included pH control of the system and alternative injection points for the best treatment results.

The Baker Hughes team also worked with the mud supplier to reformulate the drilling mud. The reformulated mud greatly reduced the upset effect when new wells were brought online.

Since the same initial mud type had made it difficult to treat emulsions in other fields with naphthenic oils, the customer was able to improve operations worldwide with the same methods used to create the reformulated mud and demulsifier.

Challenges

- FPSO startup offshore China
- Severe oil treating problems
- Tight emulsion not completely treatable with chemicals
- Identify and solve production problems

Results

- Created collaborative partnership
- Reduced costs
- Increased return on investment
- Identified cause of emulsion problem
- Developed more effective demulsifier
- Helped reformulate drilling mud that reduced system upset
- Implemented new application procedures



FPSO vessel.