

rawwater

Complete Souring Services for Oilfield Operators

Souring Forecasting and Laboratory Simulations Save Operator in Excess of \$100 Million

CHALLENGE

Having been advised that a vastly expensive sulfate removal unit (SRU) was essential to prevent future microbiological oilfield reservoir souring at one of its West African offshore assets, the operator turned to Rawwater, the leading name in oilfield souring services, for a second opinion. As its platform had been set up for sweet service and would be unable to receive sour fluids, the operator wanted independent verification that the downhole conditions would support sufficient microbiological activity to cause problematic levels of H_2S and necessitate an SRU.

SOLUTION

Desktop Souring and High-Pressure Bioreactor Simulation

Rawwater used its industry leading DynamicTVS© souring forecasting model, supported by asset field data, to complete a detailed souring evaluation of the reservoir in question. The model considers reservoir cooling, the growth of sulfate-reducing microbiology, the transport of sulfide through the formation, and the partitioning of H_2S at the production facilities.

The study concluded that downhole field and injection conditions would not support the formation of a competent thermal viability shell (TVS). In other words, problematic microbiological sulfide production would not occur within the asset.

To support and validate the forecast, Rawwater conducted a high-pressure bioreactor study at its advanced oilfield souring laboratories in the UK. Using asset crude oil, and carried out under field pressure and temperature (PT) conditions, the study confirmed that the crude oil would not support significant microbiological activity at the high PT conditions existing within the field.



BENEFITS

\$100 million saved on unnecessary plant infrastructure

- High PT conditions downhole shown to mitigate significant microbial souring
- Costly SRU was not necessary for downhole souring control
- Low-cost monitoring and chemical control at the topside facilities would minimise problematic microbial issues

