

Asset Integrity for Oilfield Operators

Unexpected Microbiological Souring: Establishing the Viability of Shut-In Reservoirs

CHALLENGE

In light of consistently stable oil prices, a leading operator wished to ascertain the viability of bringing one of its previously shut-in North Sea assets back into service. Having reopened a number of reservoirs in recent years, the operator was aware of the risk of sudden, unexpected microbiological souring. With the potential for topside souring control to run to many millions of dollars, the operator wanted to ensure that reopening the asset in question would prove cost-effective.

SOLUTION

Desktop Souring Study

The effect of oilfield shut-ins on microbial hydrogen sulfide generation is not well documented. As the world's leading specialist in souring forecasting and simulation, Rawwater is experienced at forecasting the likelihood of significant, unexpected H_2S production (often known as an 'H₂S burst') upon reopening an asset.

This phenomenon occurs when the temperature within the shut-in asset remains at favourable conditions for the growth of sulfate-reducing microorganisms following water injection cessation, and in advance of natural reservoir rewarming.

Using its industry leading DynamicTVS[®] souring forecasting model, supported by asset field data, Rawwater completed a detailed evaluation of the reservoir in question. By factoring in historical injection water treatment scenarios, Rawwater was able to provide the operator with the predicted future pattern of souring, to enable an informed decision regarding asset viability, degree and duration of increased souring, and the most appropriate treatment strategies for the field.



BENEFITS

H₂S production following shut-in is no-longer unexpected

- Low-cost desktop study gives operator confidence to reopen shut-in asset
- Insight into severity and duration of H₂S burst, and necessary chemical treatment
- Unexpected souring control avoided, and value of shut-in asset accurately calculated

