

عنوان مقاله:

Internal Corrosion Prevention of Sea Lines for South Pars Phase 2&3

محل انتشار:

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خلاصه مقاله:

For South Pars Phase 2&3 corrosion prevention has a very high priority because of the wet full stream scheme to be implemented. South Pars reservoir fluids contain, in volume 0.5% H₂S and 1.8% CO₂ which when combined with condensed water are known to be corrosive. This Paper is a study on different methods for internal corrosion mitigation of sea lines. With the implementation of the wet full stream scheme, internal corrosion control of the sea line is normally by pH stabilisation, using a mixture of glycol (used for hydrate inhibition) and MDEA. The back-up solution for hydrate inhibition and corrosion inhibitor when the MEG system is not available consists of the injection offshore of Low Dosage Hydrate Inhibitor (LDHI) and Corrosion Inhibitor (CI). The role of MDEA is to capture Wions. thereby increasing the bicarbonate content of the medium and raising the pH. By raising pH corrosive power of fluid is reduced. The advantages is that the pH stabilizer is recalculated with the MEG and since in a steady state regime there is no addition of a consumable. it's is more cost effective. Presence of calcium is due to reservoir acid-stimulation effect wet scheme by CaCO₃ precipitation and enriched MEG loop with salt. To overcome this problem acid cleaning of sea lines has been done but with no satisfactory result and finally a MEG reclaiming unit was installed to remove the calcium and reduced the chlorine content in MEG loop. Corrosion risk in South Pars fluid was known as: 1. CO₂ & H₂S corrosion which contains:)0 Sulfide stress corrosion cracking)0 Hydrogen induced cracking)0 Acid corrosion by CO₂ To overcome any risk of H₂S embrittlement, all carbon steel in contact with same fluids are complied with NACE MR0175. 2. Top of Line corrosion (TOL) TOL corrosion occurs in pipelines transporting wet acid gas at temperature much higher than ambient temperature. It occurs at the top of pipe. where water condenses in contact with a cold pipe wall. TOL corrosion is provoked by massive water condensation, which is controlled below risk limit by:)0 Use of polyurethane heat insulation on doglegs)0 Use of 6mm corrosion coating)0 Concrete weight coating on pipelines. 3. Erosion corrosion It can be happen due to pure fluid velocity and abrasion risk due to solid particle production

کلمات کلیدی:

Corrosion, pH stabilizer, MEG (monoethyleneglycol), MDEA (methyldiethanolamin), CI (corrosion inhibitor), Low Dosage Hydrate Inhibitor (LDHI)

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