Case Study: Oil & Gas

Hydrogen Sulfide - EVOLUTION®

PROBLEM

An operator of an established Oil field in the UAE approached GPT after encountering the same persistent problem with its flange isolation gaskets (kit) across two sites. Two years after the initial installation of the isolation gasket the flanges began to leak. On closer inspection, this was not a unique incident. It was found that the conventional GRE (Glass Reinforced Epoxy) flange isolation kit (FIK) installed was experiencing a leak that was attributed to permeation of the media through the GRE retainer of the isolation gasket. The permeation was mainly attributed to the H_2S that was present in the media.

SIGNIFICANCE

The combination of H_2S , steam and Carbon Dioxide along with the high pressures and high temperatures subjected on the FIK, compromised the GRE retainer as well as the stainless steel core . It was further identified that with the application being a blind flange, two gaskets were used as means of sealing, one of which being a spiral wound gasket (not recommended). The inclusion of the spiral wound resulted in the wrong torque values being applied during the installation process, which only compounded the problem. While the gasket failure was being assessed, a fire broke out within the pipeline, the FIK selected wasn't fire safe enabling the fire to spread more quickly.

OPERATING CONDITIONS

Temperature:	350°F (180°C) - 430°F (220°C)
Pressure:	275 psi (19 bar)
Media:	H_2S, Steam, Crude Oil, Vapor (Carbon Dioxide)
Size:	Multiple sizes ranging from 4" - 18"

SOLUTIONS

The only viable option and the recommend solution was EVOLUTION® isolation gasket (kit). The unique design of EVOLUTION® eliminates GRE from the design, avoiding the permeation issues encountered in the application. The addition of the unique ID seal in the EVOLUTION design prevented the H_2S from degrading the metal core. EVOLUTION® comfortably met the temperature and pressure ratings of the application, as well as providing a fire safe sealing element.

For more information, please visit: http://www.gptindustries.com

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