

DECONTAMINATION OF A FINGER TYPE SLUG CATCHER

Project

ZymeFlow® Decon Technology partnered with a major gas processing plant in the Middle East to successfully decontaminate a Finger Type Slug Catcher. This slug catcher is large diameter piping structure utilizing several kilometers of piping in a network that separates sour natural gas from liquids. ZymeFlow Decon was asked to engineer and safely execute a highly innovative process to remove hydrogen sulfide (H₂S) and pyrophoric iron sulfide (FeS) from a slug catcher.

Challenges

A gamma scan of the pipe work revealed deposits of scale and sand (most likely debris from sub-sea pipeline feeding the slug catcher) in sections of 48 inch pipe. This debris acts like an absorption cell for H₂S and posed a personnel hazard upon entry. The H₂S needed to be decontaminated to acceptable limits for personnel entry (<10 ppm) before the 24 inch manways could be opened. Temperature limitations meant that ZymeFlow Decon's Vapour-Phase® process could not be used to decontaminate the vessel.

Past Procedure

The standard practice for decontaminating a slug catcher includes flushing the unit with water and nitrogen. This practice is time consuming and produces large amounts of waste.

Engineered Solution

ZymeFlow Decon's engineering team determined that Zyme-Ox® Plus combined with an anti-foaming agent would

be the most efficient and effective method for the decontamination of the slug catcher. The chemistry would be applied with high pressure aqua milling equipment used by the in-house contractor.

Results

The slug catcher was de-pressurized, isolated, and flushed with water to push all remaining gas out of the system over a five day period. Zyme-Ox Plus was injected into the aqua milling stream. The Zyme-Ox Plus chemistry oxidized all H₂S and FeS exposed by the aqua milling process on contact. All H₂S, pyrophoric material, and 40 cm of sludge were removed from the slug catcher. During the aqua milling process the contractors were able to come out of breathing apparatus due to the decreased levels of contaminants. The job was completed three days ahead of schedule with no safety issues.

