



ENVIRONMENTAL TECHNOLOGY

## **AESSEAL® system eliminates danger of H<sub>2</sub>S release**

A system installed at a US refinery has helped to eliminate a risk to personnel caused by the periodic release of hydrogen sulfide (H<sub>2</sub>S).

The problem originated because of an insufficient margin between the seal chamber vapor pressure and the process fluid vapor pressure. The refinery was using an Overhung OH2 API 610 pump for H<sub>2</sub>S Stripper Overheads. Process fluid was Naptha (4% H<sub>2</sub>S) 145°F (63°C).

With unpressurized dual seals, the inner seal faces were being lubricated by the process fluid. Light hydrocarbon fluids have poor lubrication properties, which can cause the liquid to vaporize between the seal faces. The result was face contact, wear and chipping, bellows fatigue failure, and a seal life of barely two months.

Draining down the contaminated Plan 52 system was a safety risk due to the H<sub>2</sub>S contamination. The seal pot needed to be depressurized on a monthly basis, releasing H<sub>2</sub>S to the atmosphere. In some instances the H<sub>2</sub>S release set off the alarms on personnel gas monitors.

The solution proposed by AESSEAL® was to retrofit the pump with an AESSEAL® CAPI-TXS™ and compact 53B system with python cooler. This was installed in August 2018, and is still in operation over four years later. With the new Plan 53B, the barrier fluid is at a higher pressure than the seal chamber. This means that the inner seal faces are being lubricated by the barrier fluid, solving the problem of low vapor pressure. In addition, the process fluid cannot get back into to the seal system to contaminate the barrier fluid, which eliminates the danger of an H<sub>2</sub>S release.

The AESSEAL® CAPI-TXS™ API 682 cartridge seal was fitted to the legacy pump without modifications, and the 53B was sufficiently compact that it could be installed even in the limited space around the pump. The AESSEAL® system has not only eliminated the risk to personnel from the release of H<sub>2</sub>S associated with the previous arrangement, but has also saved the company upwards of \$200,000 in seal repairs in the four years since its installation.

## **‘MTBF increased from 2 months to >53 months’**

<b>Industry:</b>	Oil & Gas
<b>Product:</b>	CAPI-TXS™ Dual & Compact 53B system
<b>Application:</b>	H <sub>2</sub> S Stripper Overheads
<b>MTBF Increase:</b>	2550% (and counting)
<b>Savings:</b>	>\$200,000
<b>Reference N.O:</b>	TD3085488



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