

Importance of maintaining well-test flow-lines

What happened?

Prior to use of a well testing package on a semi-submersible MODU, pressure tests were conducted on the permanently installed, but infrequently used, oil and gas lines from the separator to the burner booms. The pressure test on the oil line failed and a visual inspection revealed that the line had washed out at an elbow. The permanent oil and gas lines were installed underneath the MODU's stern walkway and could only be inspected from a basket suspended over the side of the MODU.

A decision was made to install temporary flowlines to enable the well test to proceed. The temporary flowlines were run along the stern walkway at the main deck level. A welded line was used for oil and a chiksan line was used for gas.

Gas testing checks were carried out along the line at regular intervals, using portable gas testing equipment, and on two occasions gas was detected leaking from chiksan connections. Instead of shutting down the well test with the ESD as instructed, the gas-tester chose to consult with the well test supervisors on how to handle the gas leak.

What could go wrong?

As the permanently installed lines were only tested immediately prior to the commencement of the well test, their failure meant that a number of compromises were made in completing the well test.

Although the area was barricaded during actual testing, running a number of temporary lines along dedicated walkways could have caused significant delays or injury if people were required to respond to an emergency.

Detection of leakage from the temporary oil and gas lines was reliant on hand held gas sensors or a visual sighting during the regular walk-through, as the lines, being virtually open ended, could not be fitted with high or low pressure sensors.

Key Lessons

Facility operators must ensure that all safety critical equipment is managed under an effective inspection and maintenance programme. The permanent well testing flowlines on the facility were not subject to any inspection or examination and had not been included in the planned maintenance system of the facility.

Management of change processes must ensure that appropriate levels of hazard identification and risk assessment are made and that appropriate information is available to supervisors and to the workforce. Task level risk assessments may

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not always be appropriate when complex circumstances such as hydrocarbon leaks are involved.

Finally, crews must have clear instructions and clearly stated authority to act decisively when hydrocarbon leaks are detected.

Who is responsible?

- (i) The operator of an offshore facility has the general duties of care under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* to ensure all work and activities are safe and the risk to people is as low as reasonably practicable. Specifically, the operator must implement and maintain a safe system of work for any plant and equipment.
- (ii) Any titleholder and service contractor who is in control of any particular work carried out at a facility has similar duties as the operator for that particular activity.

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