Step Change Safety Alert Template

Alert Title

Hydrocarbon Release – Crude oil leak from small bore pipework

What leaked and where from? E.g.: "Lube oil leak from compressor system open vent"

Incident Date

07/05/2013

The date on which the incident occurred, not when this form was completed

Location Type

Fixed Production

E.g. Floating/Fixed Production, Drill Rig, Vessel, etc.

Specific Equipment Involved

Small bore instrument tubing

Give as much detail as possible about the equipment involved

Description of What Happened

Failure of small bore instrument tubing (12mm diameter, thick wall, stainless steel) forming part of a flow transmitter arrangement on the oil export system. The tubing was tied in to the oil export line on the LP side of the flow transmitter orifice plate. Between the tie in point and the leak point there was a double block and bleed arrangement. The tubing had cracked around 50% of the circumference. PLine operating pressure of 80 bar at the time of failure. The process was shut down and there were no injuries to personnel.

Be as detailed as possible. Give equipment history and approximate time(s) of actions/occurrences related to the incident

Cause of Incident

The stainless steel was seen to have extensive minor pitting, which was most severe in the vicinity of the fracture point
Corrosion was exacerbated by elevated excitation levels caused by control valve surging issues, which has led to vibration of the adjacent pipework.

Build from OIR/12 checklist

Incident Consequences

As a consequence of this incident, a small amount of crude oil leaked to deck, where it was contained and cleaned, and there was deferred production. There was a potential for personnel injury had the tubing failed completely and people had been in the vicinity.

Include the release itself and any subsequent emergency actions/dangerous occurrences

Lessons Learned

- *Management of change – During installation in 2007 management of change failed to identify a requirement for more frequent maintenance routines.*

Include a few bullet points clarifying what was learned from the incident

Recommendations/Actions

- Maintenance and inspection requirements within the Management of Change procedure should be considered to determine whether further clarification is required when changing small bore tubing
- The installation of additional clamps/supports to the replacement instrument tubing should be considered when installing small bore tubing
- To reduce the risk of instrument tubing failures due to pitting and stress corrosion cracking, consideration should be given to the use of 6Mo stainless steel instead when replacing small bore tubing
- The management of small bore tubing integrity at facilities should be reviewed
- Facilities should give due consideration of the development of a comprehensive vibration/fatigue management strategy that includes:
- small bore tubing

- periodic comprehensive review/update to address addition/ modification/removal of equipment, changes to the asset condition, changes to process fluids, operating conditions, etc.

Include a few bullet points stating any recommendations/actions that will be made/taken as a result of the lessons learned

Contact Details (Optional)

If you would like your submission to be anonymous, leave this section blank