Step Change Safety Alert Template

Alert Title

Hydrocarbon Leak from Prover Loop Sphere Door

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

Incident Date

22nd March 2013

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

Location Type

Fixed Installation

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

Specific Equipment Involved

Meter Proving System

Give as much detail as possible about the equipment involved

Description of What Happened

During nightshift, a Trainee Operator (TO) was performing his routine area readings and inspections; this included 'G Module' which houses the export metering systems and the meter proving system. When entering G Module the TO detected a strong smell of gas. He observed a crude oil leak coming from the meter prover door seal. He turned back and advised the Lead Ops Tech and Ops Tech of the situation and all three Techs returned back to the G Mod to investigate with gas detectors. The Techs proceeded to locally isolate the prover loop and depressurise it into the closed drain system.

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

Cause of Incident

- **Equipment** – **Mechanical Failure** – the failure of the door seal was the immediate cause of the oil release
- **Equipment** – **Wearout** – it is thought that the door seal may have been subject to excessive wear and / or corrosion due to the high frequency of opening and exposure to high pressure fluid
- **Equipment – Other** - although it could not be established beyond reasonable doubt, it is thought possible that the seal may have had an undetected defect at the time of change-out
- **Procedural** – **Deficient Procedure** – prover loop operation procedure did not provide instruction on the door seal integrity or seal replacement periodicity
- **Operational mode in area at time of release** – Normal Production

Incident Consequences

- Minor property damage

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

Lessons Learned

- The master prover procedure is a standard procedure that gives general instruction to calibrate a pipe prover but does not state a specific timescale for the operation; nor does it specify door seal replacement requirements
- Although a stock of the seals is maintained on-board as part of the export streams prover critical spares, the manufacturing date and shelf life of seals is not clear
- The leak was detected manually with no actuation of the fixed gas detection system
- Although the leak on the prover door was manually isolated without incident it is not good practice for the operations team to be exposed to any hydrocarbon leak in view of escalation potential

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

Recommendations/Actions

- The master prover procedure to be revised to state that the door seals must be removed and replaced and this along with the reinstatement of the door is to be carried out by a competent technician
- Storage requirements and shelf life of seals to be confirmed by the manufacturer.
- Module G fixed gas detection system to be reassessed by the onshore TA team.
- Although the prover door seals are pressure-rated and fit for purpose, consideration should be given to isolating the prover loop on completion of any prover activity, in order to minimise the exposure time to a potential leak path. Procedure to be amended to reflect any operational change
- Formal recording of when prover door seals are replaced to be instigated and should include recording of the manufacture date and batch number of seals for audit purposes.

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

Contact Details (Optional)

Kirsty Hart – Health & Safety Adviser – EnQuest

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