Step Change Safety Alert Template

Alert Title

Loss of Hydrocarbon Containment from a Valve Sealant Injection Fitting

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

Incident Date

10/06/2013

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

Location Type

Fixed Production Platform

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

Specific Equipment Involved

Ball valve sealant injection fitting

Give as much detail as possible about the equipment involved

Description of What Happened

During steady state operations on 10/06/13 at approximately 15:30hr, a scaffolding operative alerted the Operations Team Leader to a smell of hydrocarbon gas near to the area of his work. The Operations
Team Leader and a Production Technician immediately visited the area with a gas detector and identified that there was a hydrocarbon gas leak emanating from a ball valve sealant injection fitting on a 14" manual
block valve. The Operations Team Leader determined that the leak was sufficient to instruct an immediate controlled shutdown and blowdown. Once all residual pressure had been blown down the valve was checked and no leak detected.

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

Cause of Incident

The failure mechanism for the loss of containment event was quantified to be a double-failure of both the sealant injector unit AND the Internal Check Valve (ICV) which is in series with the sealant injector by design. At the time of writing this report, further investigation into the material failures of these components are ongoing and at present, to be concluded.

Build from OIR/12 checklist

Incident Consequences

At no point did the fixed gas detection within the module identify hydrocarbon gas, and PHAST modelling shows that out with the immediate vicinity of the source the concentration of the hydrocarbon gas was insufficient for ignition or detection. The magnitude of the release has been quantified at a flow of 36kg/hour through a 1mm diameter aperture resulting in c.216kg total release. This is thought to be a worst case scenario based on the complete failure of the two inner check valves. The platform was shutdown and blown down and a formal isolation was applied to the process to prevent hydrocarbon migration to the affected area.

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

Lessons Learned

The investigation produced a list of 9 solutions to implement. Highlights of these solutions are as follows;

perform proactive analysis, maintenance and change out of the sealant injector arrangements installed on BG Groups Assets in line with our revised valve maintenance strategy; BG Group best practice improvements; procedural adherence improvements; valve healthcare contract management improvements.

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

Recommendations/Actions

- Perform proactive analysis, maintenance and change out of the sealant injector arrangements installed on our Assets in line with our revised valve maintenance strategy.
- Improve awareness of thread connection guideline.
- Improve the mechanism to implement guidelines offshore.
- Perform failure analysis on component(s).
- Clarify expectations in the global valve contract around procedures and certification
- Complete the visual inspection of the remaining sealant injectors and explore other inspection techniques to ascertain if it is possible to detect failure of the inner check valve.
- Change design of sealant injector to industry best practice (implement a company global "Best Practice").
- Investigation information to be shared with platform safety reps
- Step Change Safety Alert to be raised.

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

Contact Details (Optional)

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