Creating a new incident alert

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Record Number:

Alert Title:

Hydrocarbon release from 'operational' dead leg

Summary: *

A hydrocarbon release occurred from a 1/4" hole at the 6 o'clock position on an elbow associated with a 6" line from the test seperator oil outlet.

Incident consequences (potential or actual): *

Hydrocarbon Release

Location Type: *

Fixed Installation

Generic Activity: *

Production Operations

Cause of accident or incident: *

Uncontrolled release of a flammable gas or liquid

Priority Areas:
Click the most relevant Step Priority bar below and drag to drop. Arrange others in descending order of importance or remove.

- RHRR
- POS
- AI
- LCC

Incident Date: *

04/12/2011

Specific Equipment:

Oil outlet pipework from test seperator.

Description of what happened:

Whilst well testing the fire and gas panel detected gas in the module at 10% and 20% lower explosive limit (LEL). On checking it was confirmed by an operator that a smell of gas was apparent so the plant was shutdown and blowndown carried out. Further investigations revealed a 1/4" diameter hole on the oil outlet pipework of the test seperator.

Lessons Learnt:

The corrosion circuit which this pipework was included on was regularly inspected from 2000 until 2008 with minimal wall thickness loss observed. A dramatic increase in wall thickness loss occurred (6.5mm) in the following 3 years until this failure occurred (2.2 mm/yr).

Planned inspection in 2010 did not take place on this failed line, and only selective ultrasonic testing and radiography took place on 30% of 2" lines, and none of the 6" lines due to previous history of minimal wall thickness loss.

Metallurgy confirmed perforation at 6 o'clock was due to through-wall corrosion pitting, initiated by under deposit corrosion, corresponding with build up of thick deposits during slow flowing, or stagnant conditions.

The test seperator was only used for intermittent well testing. Therefore process pipework not routinely flushed, or purged after well testing, creating dead legs with stagnant conditions.

Test seperator was used to gross flow fluids due to an issue with instrumentation on the produced water side therefore oil outlet was wet, and stagnant fluid was not purely dry oil.

An operational risk assessment (ORA) was in place for the defective instrumentation, but it did not take account of impact on integrity of associated pipework.

There was no 'operational' dead leg register.

No chemical management took place on this 'operational' dead leg (i.e. corrosion inhibitor or biocide)

There was a lack of notification to the integrity group of the existence, or longevity of operational deadlegs.

Recommendations: *

Improve management of 'operational' dead legs.

Identify periods of significant stagnant operation on vunerable systems.

Ensure Risk Based Inspection (RBI) assessments, inspection coverage recommendations and recommended inspection techniques are appropriate where deadleg conditions exist, and highly localised corrosion mechanisms are possible, or have previously been observed

Ensure integrity personnel are consulted on operational risk assessments affecting the way pressure systems equipment is operated.

Consider review of material selection for known problem areas.

Review chemical management of test seperators.

Information Source:

PFM

Company Reference:

Task Description (a simple description of the task being performed): *

Using test seperator which has had infrequent operation for long periods of time.

Contact Details: *

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* These fields are required

Priority areas:

- RHRR – Recognise hazards & reduce risks
- POS – Personal ownership for safety
- AI – Asset integrity
- LCC – Leadership and involvement at all levels