SPE Aberdeen Well Late Life & Well Abandonment Conference:

Process Safety for Wells

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Well Engineering and Operations
Contents

• Inspection findings as leading indicators
• Process safety aspects
Inspection Findings 2016 - 2018

- Performance Standards
  - Installation operator and Well operator PS not aligned
  - Well components not identified as SECEs such as storm chokes – no verification
  - ICP Verification activities on wells not occurring for many years
  - Side outlet valves as single barriers not detailed in PS – (SCP)
  - Leak rate acceptance criteria do not align to industry benchmarks
  - 3rd party equipment not addressed in PS
  - Wells not meeting performance standards; no initiating actions
Inspection Findings 2016 - 2018

- **Maintenance**
  - Not managed effectively – overdue wells maintenance not on backlog
  - Well barrier test records not sufficiently recorded
  - Well integrity records incomplete and anomaly reporting not occurring as per procedure

- **Ancillary safety and environmentally critical equipment:**
  - Gauges in unsuitable units or scales
  - Calibration not occurring – not in maintenance management system
  - Gauges not checked or failures not recorded
  - Hose management procedures insufficient or not followed

- **Suspended platform wells**
  - Integrity monitoring of these wells not defined and insufficient

- **MAAASP**
Inspection Findings 2016 - 2018

- Annulus management procedures
  - Not sufficiently detailed
  - Not audited or reviewed
  - Annulus pressures not investigated
  - SCP not sufficiently monitored
  - Bleed downs not recorded in WIMS
  - Bleed down details not recorded i.e. fluids, volumes
  - Bleed down HP/LP interfaces not sufficiently engineered
  - Management of change for bleed down rig ups not followed
  - MAASP not recorded in controlled documents
  - Current MAASPs not correct in control room or system
Inspection Findings 2016 - 2018

• Cross departmental issues:
  o Risk assessment
  o Competence
  o Well handover documents not completed in sufficient detail
  o Contingency options for wells risk not tested – i.e. equipment onshore may not be mobilised in time
Inspection Findings 2016 - 2018

- Risk assessment
  - Wells risk assessments do not stand up to scrutiny
  - Information carried over to ORA/SCRA inaccurate or incorrect
  - No tracking or confirmation of mitigating actions in place
- Competence
  - Not covering all positions; system not maintained; 3rd party personnel not trained; intervention well control certification not present; *well integrity training for production team not in place*
  - Production personnel not following written procedures; procedures out of date; wells handovers not occurring
- Audit and review
  - Effectiveness of systems not assured…
Process Safety

1. Leadership and culture
   • Put process safety on the management agenda and encourage the reporting of “bad news”.
   • Use every opportunity to discuss and promote process safety.

2. Risk awareness
   • Make sure that you understand your organisation’s vulnerabilities and risks.
   • Make sure that bonus schemes don’t encourage people to put production ahead of process safety.

3. Information
   • Set up management systems to analyse, prioritise and manage risks.
   • Make sufficient resources available for improvements and the investigation of near-accidents.
   • Actively share experience and knowledge.

4. Competency
   • Ensure the continuous development of process safety expertise.
   • Get expert advice on process safety in the context of decision-making processes.
   • Communicate openly about critical aspects of process safety.

5. Action
   • Formulate clear action plans and actively monitor their implementation.
   • Make sure that risk management activities and corrective measures are carried out promptly.
Process Safety

Experience has shown that **most process safety management systems** start to **deteriorate immediately**, or very soon after they have been implemented, unless real efforts are made to maintain their effectiveness. For example, analysis carried out for HSE in 2007 showed that **81%** of loss of containment incidents could be traced back to **failings in maintaining** the requirements of the process safety management system.
• At least 75% of legislative breaches could be avoided by **benchmarking against industry standards and guidelines**
• Active monitoring is not just walking about worksites but is carried out to test the **effectiveness of control measures** under managers responsibilities
• **Scrutiny of work** carried out by subordinates as a minimum where you have authorising or approving authority
• **Risk assessments** for impaired wells must be facilitated by competent teams, in reasonable time, and effectively monitored and reviewed
• **Control measures implemented** should be records of implementation and then monitored at appropriate frequencies
• **Cross departmental understanding and communication** is critical
Questions