Health and Safety
Executive

HSE

SPE Aberdeen Well Late Life & Well Abandonment Conference:

Process Safety for Wells

Graham Skinner

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
- MAASP

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:
  - Risk assessment
  - Competence
  - Well handover documents not completed in sufficient detail
  - 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.

The Organisation for Economic Co-operation and Development (OECD) 5 Pillars of Process Safety Management

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

Process Safety – Ageing Wells

- 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