
Challenges of offshore ageing infrastructure and life extension

A Regulator perspective

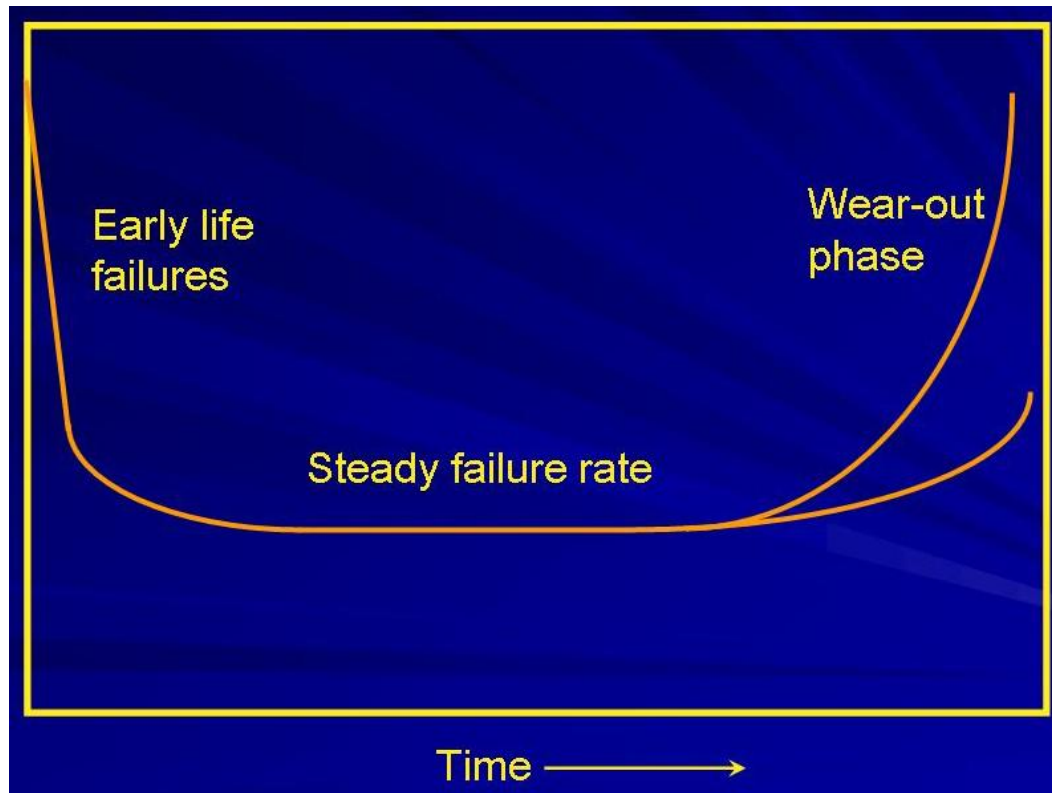
IRF Conference, Perth, October 2013

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WHAT IS AGEING?



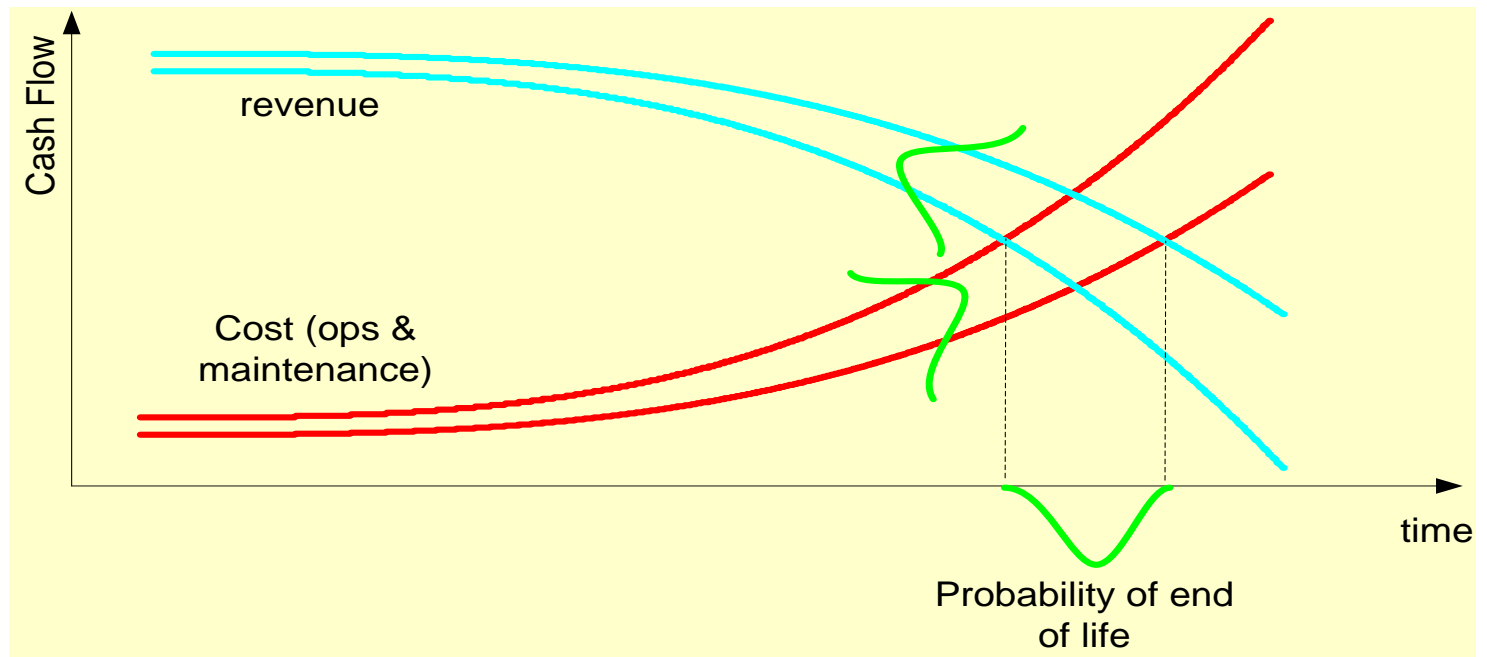
- Typical design life for production assets = 25 years.
- *“The design life is the assumed period for which a structure or component is to be used for its intended purpose with anticipated maintenance but without substantial repair from ageing processes being necessary” ISO 1990*
- Ageing is wider than just the integrity of the main structure

Key ageing issues

- Ageing/deterioration
 - External/internal corrosion
 - Structural degradation/failure (e.g. fatigue)
 - Backlogs of maintenance
 - Cumulative effect of modifications
- Changes in process conditions over time
- Obsolescence
- Loss of information capture/retention (IT + human!)
- Advances in knowledge/technology
- Improvements in good practise



The ageing/life extension conundrum....





Key Programme 4 (KP4)

Offshore Ageing & Life Extension



“To ensure that the risks to asset integrity associated with ageing and life extension are controlled effectively.”

- Doing work now, for improved integrity management/safety in the future
- Inspect approaches to management of Ageing & Life Extension (ALE):
 - Is it a key element of the asset integrity management (AIM) system?
 - Is there senior management involvement?
 - Is it integrated into corporate safety culture?
 - Are long-term asset integrity plans developed?
- Seek industry recognition of the importance of ALE:

Overview of KP4 progress so far

- KP4 Interim Report published November 2012 (www.hse.gov.uk/offshore/ageing/kp4-interim-report.pdf)
- Industry has responded well
 - Ageing/life extension now firmly “on the map”
 - Good practices being captured by O&GUK
- Good senior management response:
 - Recognised as a business issue
 - ALE policies/procedures developed
 - KP4 task groups created
 - Some allocating personnel with specific ALE responsibilities.
 - KPI “dashboards” for ALE

Some key lessons

- ALE management works well when
 - Long term maintenance strategies are clear (all)
 - Performance trending of SCEs and other data is carried out (process safety/mechanical)
 - Go/No Go checks are insufficient!
 - Temporary repairs are replaced with permanent solutions (mechanical/pipelines)
 - Long term reliability of obsolete equipment (particularly for control/detection) is managed effectively.

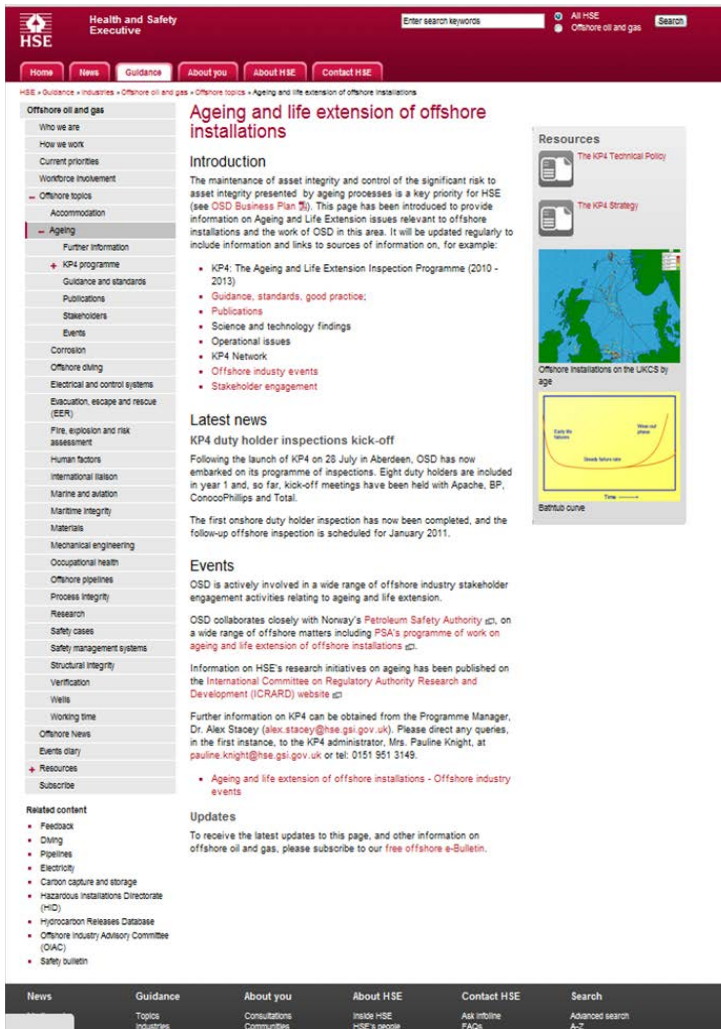
KP4 good practices

- Greater emphasis on quality and monitoring of Operational Risk Assessments (ORAs) for degraded plant
- Auditing of defined life repairs
- Undertaking ALE gap analysis
- Obsolescence Reviews
- “Life of field” structural integrity condition assessments
- Extensive fabric maintenance – most visible!!

But.....

- Existing work loads are very high, meaning taking time out to consider ALE issues is difficult.
- Fabric maintenance still a challenge, with widespread concerns over CUI.
- Need for better appreciation of ‘Ageing’ and planning for Life Extension, and day-to-day management - further integration into mainstream asset management
- ALE auditing/verification needs to be improved
- Work to implement industry good ALE practices
-and its not just a “Safety thing”

HSE Ageing and Life Extension information



The screenshot shows the HSE website page for 'Ageing and life extension of offshore installations'. The page includes a navigation menu on the left, a search bar at the top, and a main content area with sections for 'Introduction', 'Resources', 'Latest news', 'Events', and 'Updates'. The 'Introduction' section discusses the maintenance of asset integrity and control of significant risk to asset integrity presented by ageing processes. The 'Resources' section lists documents like 'The KP4 Technical Policy' and 'The KP4 Strategy'. The 'Latest news' section mentions 'KP4 duty holder inspections kick-off'. The 'Events' section discusses stakeholder engagement activities. The 'Updates' section provides information on how to receive the latest updates to the page.

www.hse.gov.uk/offshore/ageing.htm

- Primary source of information on ageing offshore installations on:
 - Related reports/findings
 - KP4 templates
 - Standards and technical guidance documents
 - R&D
 - Links to other relevant websites (e.g. O&GUK, PSA, EI)