Managing ageing and life extension to comply with KP4

Ensuring the risks associated with ageing and life extension are controlled effectively to maintain safe and reliable operations.

Asset integrity is a major concern for both duty holders and the HSE. As assets age their integrity comes in to question further. With over 50% of offshore installations in the North Sea operating beyond their design life, asset ageing and life extension is a key issue. The HSE introduced the first ‘key programme’ to improve offshore safety in 2000, each subsequent initiative has centred on a key area of operational safety. Key Programme 4 (KP4) was launched in July 2010 and follows on from KP3 issues which highlighted significant issues on maintenance versus safety critical systems. The aim of KP4 to ensure that the risks to asset integrity associated with ageing and life extension are controlled effectively.

The KP4¹ objectives are:

- To raise awareness of the specific need to consider ageing in the asset integrity management process
- To inspect duty holder management arrangements with respect to ageing and life extension and ascertain the extent of compliance with regulatory requirements
- Where appropriate enforce appropriate remedial action where short comings are identified
- To support the development of an industry wide common approach to the management of ageing and life extension

A key aspect of KP4(1) is the emphasis on organisational and management issues:

- Demonstration that the organisation is aware of ageing challenges at all levels, including senior management
- Demonstration that workforce has adequate experience, competence and training to manage ageing issues
- Definition of key responsibilities, management structure, communications and resources
- Highlight of management measures that differentiate life extension from day day-to-to-day problem shooting

The programme, which will run to September 2013, involves:

- Inspection of duty holder asset integrity management systems
- Onshore inspection of thorough reviews to confirm that:
  - Ageing issues have been identified and are being adequately managed
  - Reasonably practicable improvements are identified and implemented
- Offshore inspections to verify onshore findings and check workforce involvement and awareness

¹ KP4 ageing and life extension inspection programme launch, Ardoe House, Aberdeen, 28 July 2010.
The scope of the programme covers:

- Structural integrity
- Materials
- Corrosion
- Mechanical integrity
- Process plant integrity
- Fire and explosion integrity
- Electrical control systems integrity
- Wells
- Pipelines
- Organisational factors

Duty holders are required to: Understand and address the key issues of ageing; pro-actively identify and manage the age related issues through a life extension strategy and take a holistic view all of aspects of inspection, maintenance, failure risks and operations, whilst setting a realistic plan that accounts for risk prioritisation and safety issues that is resourced and supported by senior management. Duty holders must consider deterioration, changes in well / process conditions, modification, obsolescence, technological advances, and organisational issues.

The key targets for the programme are:

- Industry recognition of the importance of ageing and life extension
  - Key element of the AIM system at all management levels
  - Need for senior management to take the lead and overall responsibility / provide resources
- Integration into corporate safety culture
  - Explicit reference and justification in relevant documentation (e.g. corporate policy, safety cases, thorough reviews, corporate practices)
- Improved integrity management / enhanced safety

**Asset life planning**

A risk based approach to the identification of the actions necessary and the corresponding investment required to manage ageing, maintain asset integrity and sustain operating performance to meet future production requirements. This type of study addresses the issues associated with operating equipment beyond the original design life and the output can be used as part of a technical justification for life extension.

**Implementation of asset life actions**

Support with the implementation and close-out of the actions identified during ageing / asset life extension planning.

**Benefits**

- Develop a proactive approach to managing ageing and life extension
- Ability to extend the life of producing assets whilst ensuring safe and efficient operations
- Maintain HSE compliance

**Why ABB?**

ABB have a long track record of undertaking audits and extending asset life in oil & gas and high hazard process industries.

Our experienced consultants have an in-depth understanding of equipment ageing and deterioration mechanisms and how to manage them over an extended lifetime.

All the services follow ABB’s pRIME philosophy. pRIME (process Reliability and Integrity Management Excellence) is about the asset and integrity management improvement journey; it’s recognising the symptoms, diagnosing the issues, and implementing improvement / treatment.

The pRIME approach is a consultancy programme supported by tried, tested, consistent and coherent methodologies and capability. Following pRIME means a beneficial, cost effective sustainable solution. All processes are risk based, ensuring that effort is concentrated on areas that will give the highest return.

This approach is supported by a coherent set of IT tools (pRIME Toolkit), providing a consistent and efficient approach.

**What we offer**

ABB offer a range of ageing related services to help you meet the demands of KP4.

**Management of ageing and life extension**

An assessment of existing management systems by reviewing documents and interviewing staff to highlight where they could be improved in relation to ageing and life extension. Alternatively, a one day self evaluation workshop can be facilitated by ABB to identify improvement areas.

**Enhancement of management systems**

Providing assistance in the enhancement of management systems to specifically address ageing related issues.