

Case Study

LIFETIME EXTENSION ASSESSMENT

AIE-CS-24-003



Client: Upstream Operator
Industry: Oil and Gas
Region: Middle East
AIE Solution: Reliability, Asset Integrity Management

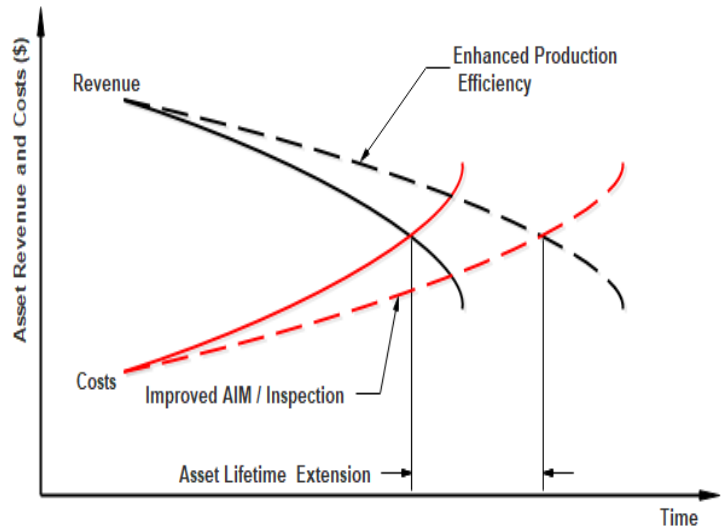


Figure 1: Effects of Targeted Asset Integrity Management (AIM)

CHALLENGE

An Oil and Gas operator approached AIE with a pressing concern regarding the aging assets within their facility. These assets, having fulfilled their intended design life, posed a significant challenge to the operator's ongoing operations. AIE was tasked not only with assessing the current state of these assets but also with providing recommendations to ensure their continued safe and reliable operation.

SOLUTION

AIE perceives aging of an asset to be contingent upon its degradation rate rather than its mere chronological age. Consequently, we strongly advocate for the adoption of specifically tailored and targeted asset integrity management (AIM) strategies to enhance safety and asset reliability.

A comprehensive life extension assessment was meticulously conducted in two distinct phases:

- The initial phase focuses on conducting an exhaustive review and assessment of the key systems along with their respective operational histories to evaluate their current condition thoroughly.
- Subsequently, the second phase entails a meticulous review of the original design, comprehensive assessment of all conceivable threats, and associated risks pertaining to late-life operations. This phase ensures that the asset management strategy is meticulously crafted to encompass the requisites for an extended asset life.

Furthermore, AIE proposed the formulation of a detailed activity plan aimed at the continuous management of the facility's risks.

This plan was devised on the condition that the risks associated with the operation of those facilities into extended life are deemed to be As Low As Reasonably Practicable (ALARP).

OUTCOME

Implementation of the customised Asset Integrity Management System, founded on the comprehensive Life of Field (LoF) study, yielded a substantial extension in the duration during which an asset generates revenue, as illustrated in the figure above. This extension significantly enhances the economic viability of the assets, surpassing the threshold that typically triggers the cessation of production.

VALUE REALISED

- Lifetime of asset extended by 10 years, resulting in deferment of significant costs for decommissioning and new asset construction (approx. \$50 million).
- Through improved AIM and inspection processes, operational costs reduced by 25%, and revenue stream increased over time.
- Proactive management of assets improved the availability of critical equipment by 18%, resulting in decreased downtime and production losses.