

CLIENT	GLOBAL OPERATOR
SECTOR	UPSTREAM OIL & GAS, UKCS
ASSET	LATE LIFE FPSO
DATE	2016 – PRESENT
DURATION	ONGOING
OBJECTIVE	PROVISION OF ASSET INTEGRITY MANAGEMENT SERVICES AND DATA ANALYTICS
SERVICES	INTEGRITY MANAGEMENT CONSULTANCY, LATE LIFE STRATEGY, EXACT



Cutting-edge integrity management solutions provided to global operator to maximise operational efficiencies and reduce costs

PROJECT OVERVIEW

A global operator had been operating two North Sea floating production storage and offloading (FPSO) units in the UKCS and were keen to rationalise and improve the way integrity management (IM) was performed, awarding Imrandd its first IM contract in 2016. Our client already had an understanding of risk, the condition of their assets and overall asset management. With clear commercial and operational drivers to manage its longer-term business needs. However, like many late life asset owners, had a growing backlog and effective prioritisation of tasks was a constant battle.

THE CHALLENGE

Many of the IM processes were carried out manually, placing additional strain on the client's in-house integrity team to effectively rationalise and focus on critical areas and anomalies. Backlog was a concern and resources were stretched. The amount of immediate work to tackle the priorities would require support with sound and collaborative engineering judgement and tools designed to enable the prioritisation and rationalisation of the inspection backlog.

THE SOLUTION

The client was receptive to change, had exacting standards and strong targets to meet, was open to innovation and were vocal in expecting new and improved processes from Imrandd.

We understand that data quality can have a significant impact on operational and business decisions. When we commenced the contract there was a large amount of legacy data and over 1,000 unassessed anomalies. Imrandd's approach requires a thorough understanding of relevant data enabling more informed decisions about controlling degradation and risk while working within constrained resources.

Our focus was to establish degradation rates using the existing inspection data providing an enhanced understanding of corrosion rates and degradation patterns to drive optimisation. We began by defining the risk-based inspection methodologies, ensuring higher risk issues were made a priority.

BENEFITS

By defining a more streamlined process we cleared two years' worth of unassessed anomaly backlog in twelve months. The anomaly assessment criteria were redefined to address at-risk anomalies within five working days or twenty-four hours if the anomaly was deemed critical or required engineering assessments and intervention.

Imrandd developed new processes and challenged the existing IM approach and strategy by integrating with the clients team, created a strong mutual trust and respect as improvements were quickly agreed and introduced.

It was during this interaction that the concept of EXACT, was born. Imrandd knew that the biggest struggle with the existing volume of data was the time and effort it took to process it all. What started as a basic corrosion management system quickly grew into something more advanced. Imrandd's in-house data analytics software converted historical data into information to deliver a significant optimisation of resource deployed on inspection, repair and maintenance enactment.

Heat maps generated from EXACT provided a visualisation of degradation by corrosion circuit and feature type, trending the distribution of corrosion rates quickly and clearly. ▶

- ▶ Accurately cleansed, corrected and interpreted the legacy data sets
- ▶ Mapped and predicted degradation, failure patterns and hot spots
- ▶ Delivered actionable insights, refocus inspection efforts and prioritise risk
- ▶ Reduced 2 years unassessed anomaly backlog in 12 months
- ▶ Saved considerable OPEX through innovative engineering and IM processes

HIGHLIGHTS

One of the client's FPSOs had no condition assessment carried out on its ship's side valves for some time. Normally this would require an intervention requiring a full or partial shutdown, a challenging and costly process. Working in collaboration with our client, we developed a non-invasive method of testing these which satisfied the regulator and meant there was zero downtime required for the asset.

The slops tanks on one of the assets had not been inspected in over 10 years and it was difficult to assure the internal condition. Unless a new solution was found, assessment would mean taking the FPSO off-station and to the yard for detailed assessment, resulting in a shutdown lasting 2-3 months.

Imrandd developed a solution that enabled our engineers to scan the area and confirm the remaining wall-thickness as well as give a probabilistic indication of degradation rates and remaining life on the slop tanks. All of this was managed in-service, so the asset couple remained fully operational with no downtime.

CONCLUSION

Imrandd's asset integrity management approach has enabled our client to build an effective IM strategy which is now much more focused and has provided the operator with a significantly improved understanding of their potential risks. The process has freed up onshore engineering and operations teams from daily firefighting so that they can now guide the inspection teams in a much more effective and targeted way. Inspection enactment is now attentive and as a result potential issues can be caught early before equipment fails or there are any unplanned shutdowns.

LOOK AHEAD

Now that the client has reached a steady state in terms of anomaly and backlog management, effort is being focused in supporting the operator to build on its efficiencies and reduce costs further through the smart and efficient deployment of resources.

Digitisation of the IM strategy remains key, and we are working with the client's support to develop the next digital analytics software in the AIDA suite, ALERT.

This addition to the AIDA family will deliver an intuitive view of the current and future condition of an asset, using data analysis and engineering knowledge to accurately manage risk, cost and operational performance in real-time.

**EXACT was formerly known as AIDA*

FAST FACTS



Actionable insights turning data to information during early project phases led to significant savings and an accelerated ROI



Saved the client \$700,000 through non-intrusive inspection of the FPSO slops tank, in turn deferring a three-month shutdown



Championed the introduction of advanced analytics software EXACT in partnership with the Net Zero Technology Centre