

Driving Efficiency and Optimisation: Analytics

CASE STUDY

PROJECT OVERVIEW

In 2022 Imrandd completed the first of a two-phase data analytics scope for an international operator to optimise future inspection strategies and plans. The scope included cleansing and rationalising topsides piping systems and associated inspection data before implementing the analytics process and using the results for optimisation.

Two of the assets have been completed as part of the 2022 full integrity management contract, this phase 1 scope covered a further four additional assets. This scope has delivered a sound basis for the accurate scheduling of inspection activity in the short term and has paved the way for phase 2 which will complete the analytics and give recommendations up to COP in 2030.

The result of the work has been major efficiencies in inspection scheduling across every asset and is set to deliver significant savings in both spend and carbon footprint while better ensuring the safety of the asset.

THE CHALLENGE

Imrandd was challenged to deliver long term efficiency that would bring better inspection planning and scheduling, as well as carbon footprint reduction and ESG savings, without compromising on the safety of the assets in the short term.

Although a large amount of inspection data existed, there was a backlog in analysis of this data hence there was a

concern that some short term integrity threats would not have been addressed soon enough. This could increase the risk of equipment failure and unplanned shutdowns

During the planning, the operator also requested that analytics were performed that took both the internal and external condition of their assets into account. Although Imrandd's existing technologies did not usually include external corrosion, Imrandd's team of experts pride themselves on their ability to approach challenges with an innovative, creative mindset to bring solutions to the table that meet the requirements of any scope.

THE SOLUTION – EXACT POWERED BY AIDA

To mitigate the concerns over the volume of data, a phased approach was proposed. Imrandd's data team worked with the operator to select systems and pipework for the first phase, with priority given to those due for inspection within two years. The data team then performed a series of additional analyses to interpret and further visualise the findings of the analytics, drawing on expertise from across the business to build models that would also accommodate external condition information.

By applying analytics and robust engineering methods to the cleansed data, Imrandd's engineers transformed the planning and scheduling of inspection and maintenance up to COP, giving the operator confidence that they were following a plan that was based on analysed, demonstrable insights.

HIGHLIGHTS

- ▶ This analytics scope analysed and trended data from a total of 3,500 lines in 182 corrosion circuits. This included more than 95,000 wall thickness measurements arising from inspections for internal corrosion. Data from over 500 external inspection reports was also extracted and analysed.
- ▶ The optimised strategies resulted in a substantial reduction in the amount of inspection to be performed up until COP. This varied by asset but in total results in a 26% reduction in effort and spend on inspection related to piping. This represents a cost saving of £2.65m. Further optimisation as new data becomes available is expected to lead to additional cost savings.
- ▶ Average saving of 26 tonnes of Co₂ per asset per year.

CONCLUSION

The scope addressed both internal and external integrity threats. Without compromising on risk, Imrandd's experts worked with the operator's integrity team to rank and prioritise the short-term requirements, but also with a focus on long term efficiency.

As a result of the advanced data analytics performed by Imrandd, the operator is putting in place an enhanced, more efficient inspection plan, delivering tangible savings, and giving them confidence in their risk management.