

CASE STUDY

RISK-BASED INSPECTION (RBI) ASSESSMENT FOR OFFSHORE PRODUCTION FACILITY

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SONOMATIC

OVERVIEW

The offshore facility is designed for oil and gas production and has a current production capacity of 85 MMSCFD of natural gas and 24,000 BPD of oil. It is designed to stay on the field for 20 years with normal equipment maintenance or replacement and has been operating since 2012.

This RBI assessment evaluated a total of 80 pressure vessels and 478 piping circuits. Based on the outcome of RBI assessment, an inspection response plan (IRP) recommends the type of inspection and coverage and establishes the frequency of the recommended inspection by considering factors such as the pressure vessel and piping's status, monitoring practices, and results of previous inspections

SERVICES

The project covers 80 pressure vessels and 478 piping circuits for the offshore production facility. The main objective of the project was to analyse the risk profiles for the pressure vessels and piping circuits through the application of API 581 RBI methodology. The outcome of the RBI assessment is to propose an inspection plan for the pressure vessels and piping circuits based on the obtained risk.

OUTCOME

Overall, the facility's risk rating is within the low-risk category. However, the medium high-risk category for both pressure vessel and piping circuits are cause for concern. This risk rating is primarily due to driving factors such as high external corrosion rates, evidence of thinning in historical inspection records, highly flammable hydrocarbon contained in the equipment, and larger inventory groups, all of which contribute to high PoF and CoF values.

Therefore, Sonomatic has developed an IRP for the Client based on the RBI risk ranking obtained from the assessment. The IRP includes a list of pressure vessels and piping circuits to be inspected, the recommended inspection methods and coverage, inspection intervals, recommended inspection dates, and priority based on risk.

With these measures in place, the facility can proactively mitigate any potential risks and maintain a safe operational environment.

Summary of Risk					
Equipment Type	Quantity	Overall Risk Category			
		High	Medium High	Medium	Low
Pressure Vessel	80	0	1	40	39
Piping Circuit	478	0	149	106	222
Total	558	0	150	146	261