Risk Based Inspection (RBI) re-validation

How can ABB’s RBI re-validation process benefit you?

ABB were awarded the integrity management / inspection services contract in 2009 and during the first 4 years we have carried out RBI+© studies on all onshore / offshore vessels and piping systems to determine the optimum inspection regime for each asset.

Solution
ABB recommend that an RBI Revalidation audit is performed. This audit looks at the RBI implementation systems and reviews the RBI and inspection documentation for sample equipment items. The audit results will state how effective the RBI programme is and provide a prioritised list of improvement actions if applicable.

We look at the following areas in the audit:

- If the current operating conditions conform to the original RBI input
- Comparison of inspection findings against RBI assumptions and expectations
- The maintenance history of the items in the review
- How inspections plans and RBIs are updated following inspections

We would then score each against each area to give a total benchmark score.

Improvement actions and recommendations would be produced by ABB, to enable the company to gain maximum results from the RBI work.

ABB can perform such an RBI Revalidation exercise as an independent auditor with our wide experience of RBI and inspection spanning over 25 years; we can benchmark a companies’ RBI system against industry best practice.
Benefits
The benefits gained by the client have been:

- Reduced risk (HSE and business)
- Reduced inspection costs (estimated £4M over 4 years)
- Improving production up-time, reliability and OEE
- Maintaining legislative compliance

To maintain the benefits gained, it was essential that RBI was interpreted as an ongoing cyclic process, and it was necessary to re-validate the assumptions made in the original RBI when new data was made available. This involved reviewing the latest inspection data and confirming current and future operating conditions. The revalidation process also considered any potential new deterioration threats, the implementation of the latest inspection / NDT techniques and integrated any changes in UK legislation or company policy.

Throughout 2013, ABB carried out re-validation of 225 RBI’s for the client’s onshore and offshore assets which had been subject to inspection since the original RBI review had been carried out.

As a significant level of technical input was made to the original RBI study it was initially thought that any changes to inspection intervals or inspection type would be minimal.

However, in some cases due to satisfactory one-off checks specified on the original RBI to confirm that deterioration mechanisms were not occurring, further significant benefits were achieved:

- Overall risk of failure reduced with a more detailed and focussed inspection regime for high risk items and less onerous inspection regime for low risk items
- Overall inspection costs reduced with a further 11% decrease in average inspection frequency following revalidation
- Improved production uptime / reliability with a small number of items progressively moving to a non-invasive inspection regime. Several items were deemed as a higher risk following revalidation and a more frequent or onerous inspection regime was implemented
- Maintaining legislative compliance with good feedback from the HSE following KP4 audit - ‘The RBI, WSE and inspection processes are probably the best I have seen within the North Sea’