PLANT
INTEGRITY
MANAGEMENT

PIM RBI

Optimised Inspection Planning

Risk based inspection (RBI) is an important technique used to optimise inspection planning.

RBI uses the anticipated likelihood of failure and its consequences to set appropriate inspection intervals such that failure due to loss of integrity can be prevented as far as is reasonably practicable.

RBI schemes are continuously updated to ensure that inspection intervals are always kept at an optimal level.

Development

There are many ways to implement an RBI based process. The process that has been developed by Plant Integrity Management Ltd (PIM) ensures that an optimal balance between benefit and effort is achieved.

The PIM method addresses the requirements of applicable industry codes and guidance texts whilst maintaining a practical, fit for purpose approach.

Process

PIM uses a seven stage process to implement new RBI builds.

1. Collection and organsiation - The first involves the collection and organisation of information for the RBI assessment. This data is compiled through registration, data collection and data validation.

2. Assess current condition - The second stage focuses on understanding the current condition of the equipment, specifically looking at any available corrosion and inspection data. After this has been reviewed the condition of the equipment is measured against a traffic light system which allows PIM to identify the profile of risk across the plant.

3. Review corrosion barriers - Upon completing the condition assessment, the third stage in the process identifies and reviews the corrosion barriers. The barriers are evaluated on performance, current condition and also suitability. These factors allow PIM to determine the equipment's ability to meet field life.

4. Review operational and maintenance history - The fourth stage of the build focuses on reviewing the operational and maintenance history. Consequence assessments are carried out to establish the level of risk each item carries. The assessment involves identifying the type of system and operating conditions of the RBI item and agreeing the consequence ratings for each.

5. Risk based assessment - Stage five of the process involves drafting the actual Risk Based Assessment building on the findings from the previous stages. The RBI draft takes into account the information collated on the threats, including validation of deterioration mechanisms, probability of failure and the risks associated with these.

6. Written Scheme of Examination (WSE) - After the RBI draft has been completed the findings are used to create a WSE which comprises the key deliverable. The WSE document details the inspection techniques and coverage requirements and is used to develop a five year inspection plan. This stage allows PIM to review all the data collected from the RBI draft and strategically plan for future inspections and maintain plant safety.

7. Peer review of documents - The final stage of the process involves a peer review of all the documents created, including the RBI assessments, WSEs and the five year inspection plan. Once the documents have been examined by the peer review team, the assumptions and outputs must be validated before they can be accepted and inputted into the maintenance management system.

Key benefits

Application of PIM's RBI process delivers the most robust and cost effective way of optimising a client's integrity related inspection programme currently available, using a combination of industry recognised codes and practises combined with an industry leading, practical, fit for purpose approach.

PIM RBI PROCESS

1. Collection and organisation
2. Assess current condition
3. Review corrosion barriers
4. Review operational and maintenance history
5. Risk based assessment
6. Written Scheme of Examination (WSE)
7. Peer review of documents

PLANT INTEGRITY MANAGEMENT

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