Risk Based Management

ASME Seminar

By

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What is Risk Based Management?
Benefit of RBM

• An overall reduction in risk for the facilities and equipment assessed;
• An acceptance/understanding of the current risk;
• Inspection and maintenance activities can be focused and more cost effective.
Where you use RBM?

• Ensure Safe Production
• Process safety: JHA (job hazard analysis); QRA (quantitative risk assessment)
• RBI
• IPF (Instrumented Protected System)
• RCM
• ME
Risk is the combination of the probability of some event occurring during a time period of interest and the consequences, (generally negative) associated with the event. In mathematical terms, risk can be calculated by the equation:

\[ \text{Risk} = \text{Probability} \times \text{Consequence} \]
Risk assessment matrix (RAM)
• Inspection frequency / Inspection effectiveness / NDT method will affect the probability of failure

• Determine the consequence of failure by introducing corrosion loop/circuit

  ▪ Corrosion Loop
    Grouping of equipments and piping based on the same process condition (service medium, operating condition) and material selection criteria resulting in the same degradation mechanism

  ▪ Circuit
    Subsection(s) of a part of equipment or piping system where the metallurgy is the same and the corrosion rate is expected to be the same (e.g., shell, channel, running line, dead-legs, drain system, injection/mixing point)
Data Management System

To record:

• Equipment data, including specifications, history, and related documents and drawings
• Human resources data, including employee information

With data management system and inspection, you can:

• Reduce equipment failures and downtime
• Effectively track equipment history and spot trends
• Maintain easy access to equipment and location information but still have the proper security and control over that information
• Effectively schedule and track inspections, enter and maintain inspection results, and calculate corrosion rates and renewal dates
Implementation

To Fulfill:
- Statutory requirement
- Industrial standard
- Company standard

Multi discipline

Plan

Check

Do

Review
How RBI work/integrate with others

• Risk based management
• SIL
• RCM
• Maintenance Excellence
• Ensure safety procedures
When to apply RBM

- Model set up
- Pilot study
- Implementation
- Continuously study
Reference
API 580, 581
Q & A