

RISK BASED INSPECTION (RBI)

“Achieve Optimized Inspection Plan as per API 580/581 to Minimize the Lost Production and Downtime without Compromising Safety and the Environment with IMMUSCO”

Risk Based Inspection (RBI) is a decision making methodology to optimize inspection activities to ensure pressure systems integrity management through a systematic risk analysis. RBI is based on a Risk Assessment as per API 580/581 where this risk identifies the safe operating windows for particular process equipment, for example static equipment or pipework via consideration of the likelihood of failure and consequence of failure.

Issues:

Maintenance is an important factor in quality assurance and in some cases determines the long-term success of a company. Poorly maintained resources can cause instability and partially or completely pause the production. Malfunctioning equipment or complete breakdowns can become a costly process for most companies. When breakdowns occur the labor cost per unit rises as time passes until the equipment again run as normal. Before the equipment again run as usual, there will be unexpected expenses to repair the problems, which includes extra costs for repair facilities, technician / repair crew, preventive maintenance inspections and spare parts. These are some examples of what a company can expect to deal with over time, if a reliable maintenance management solution is not installed – even for companies with new machines in their production.

Solution:

IMMUSCO Asset Integrity Management System provides a risk-based inspection strategy for maintenance and inspection planning (i.e. Time Based, Condition Based, Operational or Corrective Maintenance). IMMUSCO strategy is completely inline with API 580/581 methodologies and with company and plant objectives towards plant availability and safety. The implementation of IMMUSCO RBI can provide cost benefit and optimized inspection plans for plants fixed equipment.

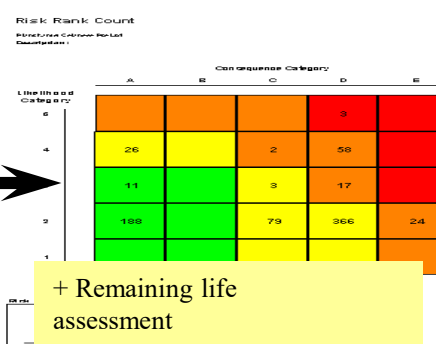


Minimize the inspection and maintenance cost of your facilities with optimized inspection plans based on risk of failure & applicable damage mechanism for each equipment without compromising safety and environment

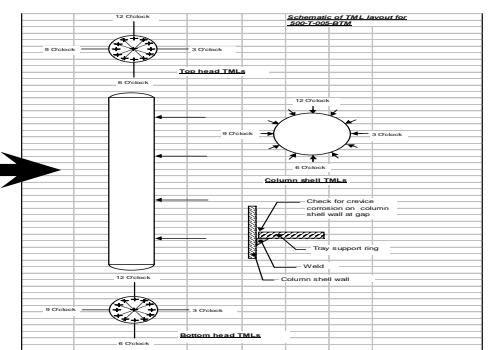
Plant Data Assessment



Risk Ranking



Inspection Plan



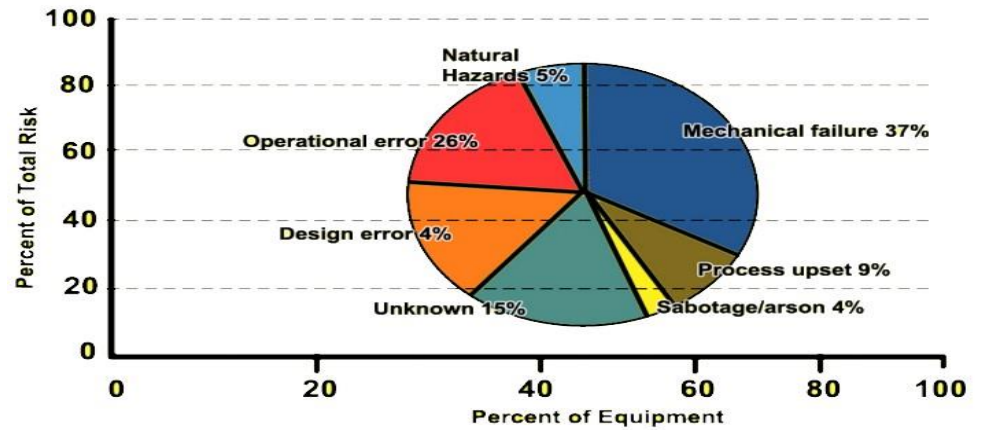
RBI Deliverables:

- Risk Ranking, Risk Matrix, Risk Targets and Pareto Curves.
- Risk Driving Degradation Mechanisms.
- Likelihood of Failure and Consequences for each individual equipment item.
- Consequence to personnel, environment, production loss and material damage for ignited and unignited leaks.
- Evaluation of the impact of changes in process conditions and materials on installation risk and inspection program.
- Effect of inspection effectiveness.
- Number of inspections on the individual equipment item risk for a given period of time.
- Inspection procedures and detailed equipment inspection plans.

Software for RBI Planning and Data Management:

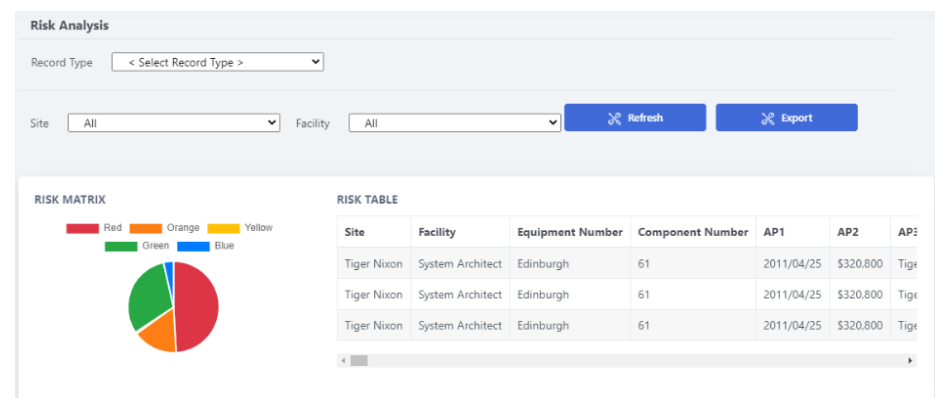
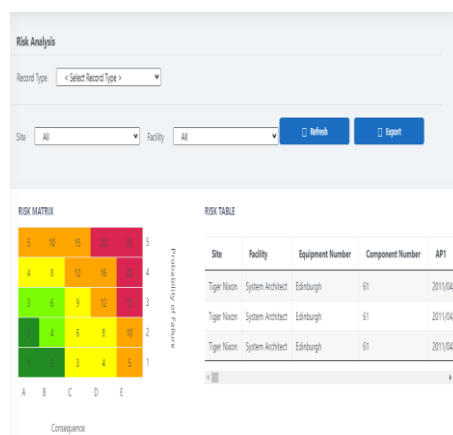
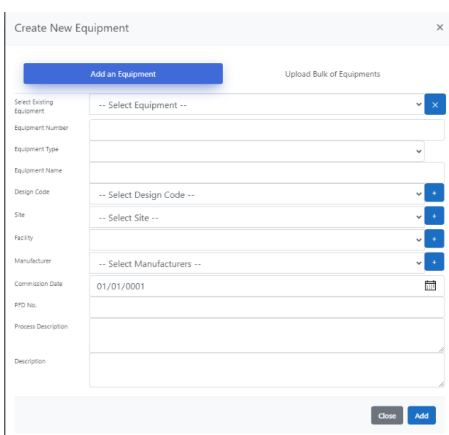
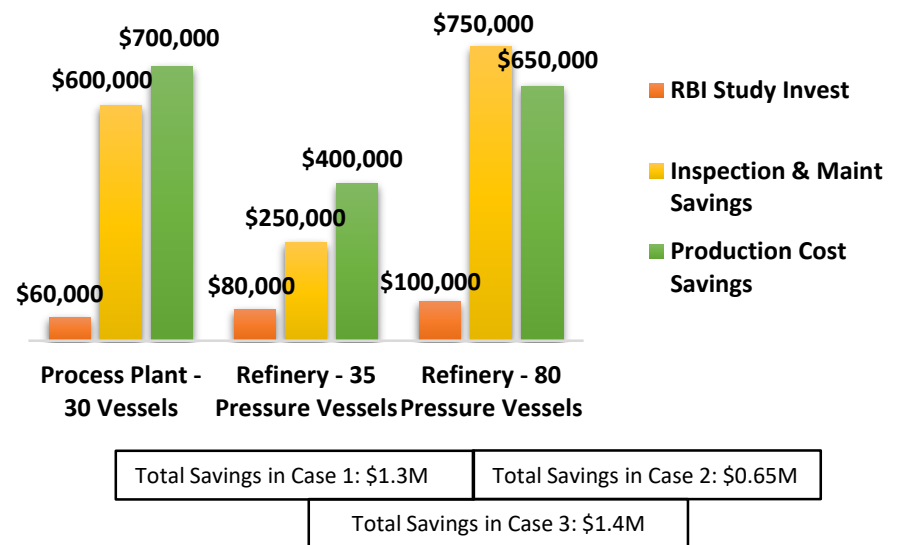
IMMUSCO is in contract with Reliability Plus for software implementation of RBI. the software's major features include, not limited to:

- Inspection Planning/Knowledge Management.
- Risk Management.
- Equipment Condition Monitoring.
- Plant Inspection Requirements.
- Dashboard (trends)
- Import and Export of Bulk Data using standard format.



The figure demonstrates how 80-90% of risk is contributed by only 10-20% of a plant's fixed equipment, while the pie chart shows that mechanical failure contributes to more than 37% of production losses.

Cost Benefits of RBI



Cost of Implementing RBI represents only minimum expenditure, when compared to the total savings that can be enjoyed.

The Benefits:

- Reduced Turnaround Exposure
- Extended Inspection Intervals/ Reduced Inspection Scope / Increased Availability
- Consideration of Degradation and Damage Mechanisms Types
- Increased Operational Awareness
- Flexible Technique for Continuous Improvement as per Changing Risk Environment
- Optimized Inspections and Maintenance Costs

IMMUSCO Experience:

IMMUSCO has highly experienced and certified team of engineers having global experience in providing consultancy services to major Oil and Gas clients including Saudi Aramco and ADNOC.