

RELIABILITY CONSULTING AND SOLUTIONS



INNOVATION

ENGINEERING

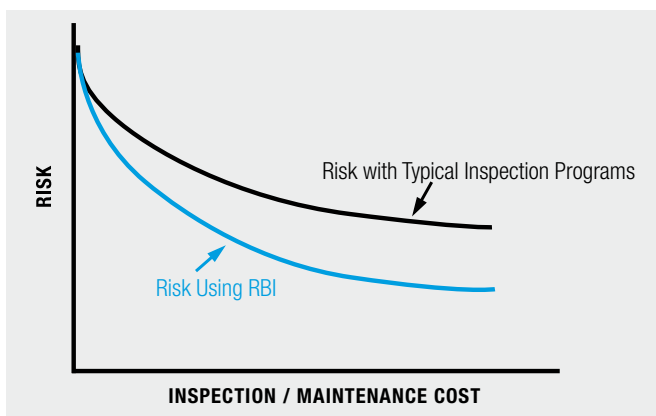
OPTIMIZATION

Risk-Based Inspection Programs

Risk-Based Inspection Programs – Leading Edge Technology

Chemical, petrochemical, oil & gas, and refinery sectors are facing tougher safety, environmental and mechanical integrity regulations as well as challenges associated with the need for both cost and leak reduction to improve safety and availability. Under these circumstances, it has become crucial to manage operational risk through the use of effective technology and best practices for inspection and maintenance planning. One of the highest benefit maintenance methodologies is Risk-Based Inspection (RBI). Let us help you implement a best in class RBI Program having positive impact on your company's bottom line.

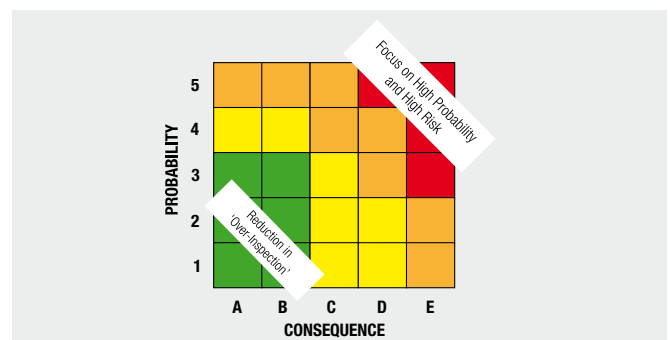
RBI significantly reduces maintenance efforts and increases plant reliability and availability at the same time. This correlation results from shifting inspection efforts from “over inspection” of uncritical equipment to an increase in inspection cost spending on components with potentially higher probability of failure and consequence. The result is an overall risk reduction and increase in plant safety and reliability while constraining costs.



Management of Risk Using RBI (Source API 581-2000)

Let us assist you in developing a leading edge RBI program which:

- is a consequent development of traditional maintenance strategies that minimizes maintenance expenses,
- belongs to the knowledge based methodologies focussing on safety and plant availability on demand by increasing on-stream time due to less turn-around time and a consequent reduction of unexpected failures,
- is a systematic tool that helps users to make informed business decisions regarding inspection and maintenance expenses,
- identifies “Weak Points” and “Bad Actors”,
- enables evolution from a “Bandage Approach” to a sustaining reliability culture,
- is a recognized way towards “Best In Class Performance” and “Operational Excellence”,
- means fostering replacement strategy,
- is measuring risk as a key performance indicator,
- implies prioritization in maintenance efforts,
- extends inspection intervals where local authorities recognize RBI, and
- allows determination of external alternative inspection methods to avoid internal entry.



Risk as Probability times Consequence of Failure



Bayer Technology Services
Powering Your Performance

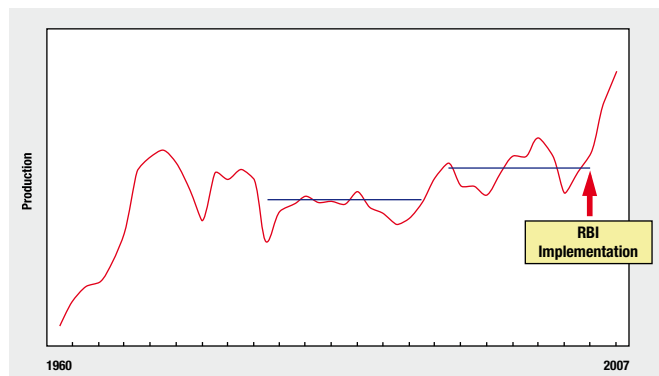
Effects of RBI

Reliability Increase:

- Identification of Weak Points
- Asset Policies
- Replacement Strategy

Less internal inspections:

- Increased Inspection Intervals
- Alternative Inspection Methods
- Up-front On-Line Inspections

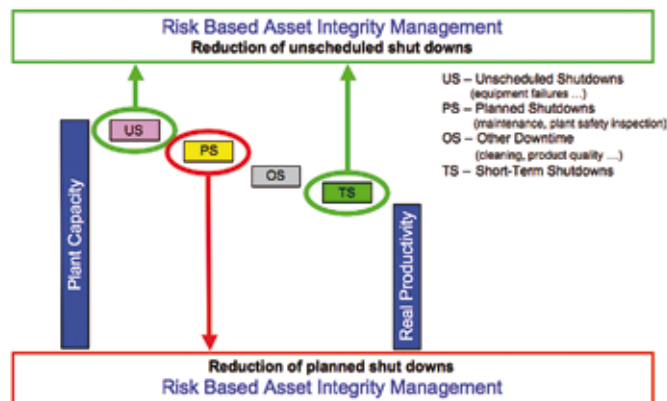


Production Growth achieved after RBI Implementation

Solutions for Implementing RBI

The Risk-Based Asset Integrity Management program from Bayer Technology Services targets three main areas to successfully initialize, implement, and continuously align an RBI based maintenance strategy with day-to-day maintenance:

- Assessment including weak point analysis, bad actor analysis, identification of potential deterioration mechanisms and rates, risk matrix definition for relevant process equipment and components
- Implementation of the right inspection strategy and techniques for components and damage mechanisms, effective repair strategies and concepts as well as effective troubleshooting processes, a risk-based inspection approach including inspection management, condition monitoring and the corresponding software solutions
- Continuous alignment of the methods to the day-to-day inspection and maintenance business by providing an integration of RBI into strategic maintenance planning, visualizing inspection results and equipment conditions for management, and connecting the software solutions to the maintenance management system in place



Opportunities in Operations in use of Risk-Based Asset Integrity Management Program from Bayer Technology Services

As an alternative to a complete program, RBI can mean beginning with just a risk evaluation of your equipment and components. Based on such a high-level consulting assignment, we can demonstrate the benefits of RBI and corresponding inspection programs. Our strength is to work together with you toward a common goal: Increase your overall equipment efficiency and plant performance in as many aspects as possible.

Bayer Technology Services – The RBI Experts

Our Risk Based Inspection consulting services have proven their excellence and usability for years in day-to-day business in the Bayer group and with our customers, serving owners and operators of plants and plant assets. The wide experience of Bayer Technology Services is at your disposal. In conjunction with BayOpX® – our Operational Excellence approach – you get access to our full portfolio of services targeting optimum plant reliability and efficiency.

Our close integration into the Bayer Group makes Bayer Technology Services a service provider able to provide owner-user experience to our customers. More than 50 years of corrosion expertise in the chemical and petrochemical process industry and our semi-quantitative RBI approach guarantees high-quality and reliable results to provide sustainable performance growth.

As a result of our continuous work as project consultants in close cooperation with plant personnel in production facilities, our know-how is transferred in both directions, from development to practice and from practice to development. Our consultants have a high level of experience with software systems implemented and utilized in Risk-Based Asset Integrity Management programs.

Let Bayer Technology Services help you to implement a Leading Edge RBI Program to achieve Best-In-Class Operational Performance.