

Implementing Risk Based Inspection on a top-tier COMAH site.

The implementation journey started in 2013 following an environmental incident in late 2012 in which during a routine maintenance activity, a pin-hole leak resulted in the unintentional loss to atmosphere of a toxic chemical. Production on the Site ceased for several months until the site and the Regulator were satisfied that a robust Mechanical Integrity program was in place for production to recommence and the potential for re-occurrence of the incident minimised.

Most organisations implement a Risk Based approach to their Inspection process for the following reasons - and this project was no exception:

- a. To improve the management and compliance of Health and Safety on Site and to reduce risks of plant failures
- b. To identify and repair or replace deteriorating equipment in a timely manner and
- c. To produce cost savings through efficient and effective inspection activities

The project has managed to achieve these goals by implementing the following measures, procedures and strategies during the Risk Based Inspection implementation:

1. Piping lines were arranged into piping circuits which have the same Damage Mechanisms to reduce the number of inspections required and to take a more targeted approach to inspection.
2. The same piping circuits were given specific Condition Monitoring Locations for a more consistent approach to inspection results recording.
3. A team approach was used to ensure that other stakeholders outside of the Inspection Department were involved in the calculation of Production Loss consequences. This helped to spread the understanding of the Inspection Department and their objectives.
4. A preferred software tool was selected to help calculate risk and to integrate RBI into the Inspection work process (Inspection Planning, Reporting and the management of Inspection Recommendations)
5. The data required to calculate risk was collected and uploaded into the software.
6. The Inspection team was trained in the risk calculation methodology and to use the new software. Training materials and guidance manuals were written for the team along with the development of a competence standard for RBI assessment.
7. Inspection strategies on Site were modified to reduce uncertainty in the results obtained from an Inspection activity. In areas this reduced the number of Inspections that were required by increasing the time between inspections and other areas increased the effectiveness of the required activities giving a greater confidence in the data obtained.
8. The entire management team were given training in Risk and Risk Based Inspection. This also helped the management team understand the potential links between RBI and other risk/criticality-based process safety processes (such as the Process Hazards Analysis process)
9. Integrity Operating Windows were identified to ensure that the process does not impact detrimentally on equipment corrosion rates or initiate other potential damage mechanisms.

The software and the Inspection strategies have now been adopted by the company globally. This required training of personnel across the Middle East, South America, Australasia, Mainland Europe and the US. This has meant supplying translated training materials in various languages and supporting the Sites as they use the new software.



As a result of this project, the company now has a more effective Inspection process worldwide and has the ability to share the type and results of Inspections globally using the same platform.