

RBI: CASE STUDY



OPTIMIZE INSPECTION STRATEGIES TO FOCUS ON HIGH-RISK ASSETS

Planning for a turnaround is a major endeavor. All accessible vessels are typically candidates for an intrusive inspection. The Turnaround Planner prioritizes inspection activities, allowing the inspectors to focus their attention on high-risk assets during the TA.

PROBLEM

The initial plan was to inspect equipment in the Catalytic Reforming Unit based on the API 510 time-based interval. In addition, many assets were scheduled to be stripped of insulation for a CUI inspection. The inspection activities were numerous. The facility desired to optimize the inspection activities before the scheduled shutdown.

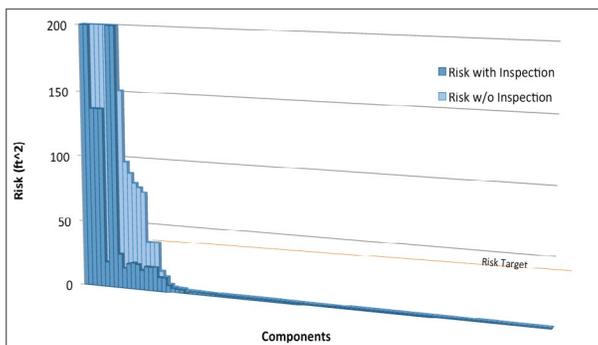
API RBI 581 ASSESSMENT

A rigorous API 581 assessment was performed. The assessment analyzed many aspects of the piece of equipment including, but not limited to, operation temperature and pressure, process fluid, material of construction, thickness surveys, and damage mechanisms.

RECOMMENDATIONS

Based on components requiring additional mitigation action besides inspection

- Perform the recommended inspection activities noted in the inspection plan.
- Actions such as the removal of insulation, the increasing of the corrosion allowance, or changes to the metallurgy are suggested to reduce the unmitigated risk to an acceptable level.



CURRENT RISK VS. INSPECTION - MITIGATED RISK

Total 100 components in the Catalytic Reforming unit. Each column represents one component. Components are arranged from highest (left) to the lowest (right) in the chart. When the risk level reaches the risk target, an inspection activity is required. There are 21 components that exceed the risk target in the plan period. Seven components require other risk mitigation to manage the risk besides inspection activity.

BENEFITS TO THE CLIENT

FLEXIBILITY

The inspections can be satisfied with either an intrusive or non-intrusive inspection method allowing more flexibility in scheduling the inspection activities. This also alleviates the issue of having all inspections completed during the shutdown.

COST SAVINGS

The RBI assessment in this unit provided significant cost savings to the facility. The facility can restructure inspection resources to focus on high-risk assets in other units. While inspection cost savings are not the primary goal of an RBI assessment, in many instances, it is a byproduct of optimizing the inspection activities.

CONTINUOUS IMPROVEMENT

Utilization of RBI provides a vehicle for continuously improving the inspection of facilities and systematically reducing the risk associated with pressure boundary failures.

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