An ABB inspection client wished to reduce the size of a major turnaround to make the workload more manageable.

The amount of work to be undertaken was significantly influenced by the number of pressure system inspections required. In particular access for internal examinations was challenging due to the difficulty of arranging this safely. It was essential that any changes did not result in any loss of reliability or increase in risk.

As the inspection services provider, ABB were asked to examine the inspection regimes for the major items of equipment to be inspected during the turnaround. By using the ABB RBI+© software and ABB methodology the client could demonstrate to the regulator that there was a robust process. Even though savings were made it could also be shown that the revised inspection regimes were superior and fully met the spirit and detail of legislative requirements.

Solution
Working in conjunction with the client, ABB led and managed the RBI reviews to optimise the inspection regime. The reviews were led by an experienced ABB RBI team leader supported by client and ABB personnel with a collective knowledge of operations, process, mechanical, inspections, NDT, corrosion and materials. Using the ABB RBI+© software the team reviewed the operational and inspection history of each item of equipment in order to determine the deterioration mechanisms and consequences of failure. This enabled individual Written Schemes of Examination (WSE) to be developed based on the outcome of the RBI review.

Where inspection requires entry to the vessel by an inspection engineer, the preparation costs to facilitate the inspection (e.g. scaffolding, craneage, cleaning equipment, fitting resource, stand-by men, etc.) are significant. Modern NDT methods and an improved understanding of the deterioration process from the RBI+© process can justify non-invasive inspection methods that achieve the same results.
Better understanding of the condition of the equipment, its credible deterioration mechanisms and the rates of deterioration from the RBI+© process means inspections can be programmed in a more optimum way. Also intermediate inspections are used to monitor controlling factors resulting, on average, in longer intervals between major inspections.

For this gas terminal, the results of the RBI were that many invasive examinations could be replaced by external examinations with NDT. Due to the condition of the equipment and low rates of deterioration, it was also possible to extend the major inspection interval to 12 years on many items of equipment.

The result of these changes to the inspection regime were that many items were removed from the turnaround as they could either be examined on line or the inspection was deferred in accordance with the regulations supported by the clear RBI+© documentation. The items that were still required to be examined during the turnaround were now largely non-invasive resulting in a shorter turnaround with less work.

The savings on just one turnaround from using the RBI+© software and process were conservatively estimated by the client as £0.5m. This did not take account of the extra production from reducing the turnaround duration.

**Benefits**
- ABB RBI+© used to improve inspection regimes for major gas processing plant reducing risk
- Fewer vessels required invasive examinations that put inspection engineers at risk in confined spaces
- £0.5 million saved from major turnaround