Storage tanks health check

ABB’s holistic approach helps a client to manage deterioration on ageing hydrocarbon storage installations.

The client operates a number of hydrocarbon storage facilities across the UK. Many are more than 30 years old and are situated close to sensitive areas such as residential properties or waterways. Economic pressures and company reorganisations have placed further constraints on their long term operation.

Along with all other plant operators, the client needed to adhere to ever more stringent restrictions on the control of hazardous areas and emissions to atmosphere or to drain.

The client understood the need to demonstrate to regulatory and other bodies, visible evidence of appropriate maintenance and inspection programmes.

The main storage tanks were subject to ongoing inspection and maintenance, but the client looked to ABB to improve their management of pipework integrity.

Solution

ABB’s experienced consultants and engineers, supported by proven assessment methodologies identified imminent operational threats or shortcomings in current asset care practices.

The client chose ABB because of our in-depth comprehensive ‘life-cycle’ experience of the design, operation, inspection, and maintenance of high hazard process plants. They also sought ABB’s specific knowledge of the management of corrosion and other deterioration mechanisms associated with ageing hydrocarbon storage installations. ABB offered a holistic approach to improving the management of vessels, pipework, rotating equipment, and safety critical systems.

The work involved an investigation into:

- How ‘healthy’ the sites were
- Which items / operations are safety critical
- Potential deterioration mechanisms and whether the current inspection regime catered for them
- The most vulnerable areas and the appropriate inspection frequency
- The appropriate design standards to be used for repairs and modifications
- An integrity management policy to establish a clear audit trail of inspection, maintenance, modifications and repairs
The review identified that although the storage facilities appeared generally in a satisfactory condition, with many good asset care practices pipework presented a vulnerability and was in need of more attention in areas such as:

- In-line bellows
- General corrosion, especially at pipe supports
- Maintenance of steam condensate removal systems
- Supporting of pipework
- Standards for the repair and modification of pipework

The outcomes from the health checks and subsequent Risk Based Inspection (RBI) reviews were used to implement a pragmatic programme of inspection of pipework, including generating schemes of examination.

A key deliverable was a policy for registration and inspection of pipework which established a framework for an auditable integrity management approach. This included the registration basis, inspection requirements and other aspects that affect the integrity of pipework.

Benefits
- Compliance with legislation
- Ability to demonstrate compliance and proactive management of assets to regulatory bodies
- Improved relationship with the local residential population
- Greater plant availability
- Improved asset integrity
- Reduced environmental impact
- Focused schemes of examination allowing for cost planning
- A ‘feel good factor’ derived from the knowledge that ABB have ensured there are fewer surprises in store in the future