Complete management of asset integrity

Cost-effective management of engineering infrastructure requires access to as much data as possible. Recent developments in input and output data analysis for pipeline integrity are helping managers develop better strategies for maintenance.

Correctly maintained engineering infrastructure lasts longer and works better. This requires access to information about the asset's current integrity, its projected lifetime, and repair and maintenance information. This needs to be balanced against costs and the objectives of the integrity management project.

Asset integrity management analyses assets by the systematic coordination of many factors, such as financial considerations, customer requirements and technical feasibility.

The conventional system

Integrity management systems use a control loop model, which collects information on the condition of the equipment and assesses it in relation to the integrity management project objectives. On the basis of this assessment, an action plan is drawn up.

Feedback is integral to the control loop system. This allows mitigation and rehabilitation strategies to be formulated, and ensures optimum focus and cost-effectiveness. The updated risks are compared to the latest inspection results, closing the loop.

A more detailed system

The traditional system can be improved by inputting more data about the product and industry best practices. In addition, more information could be generated to help companies compare the costs of repair and replacement.

Rosen's asset integrity management support (AIMS) can be applied to all types of engineering infrastructures, notably pipelines and storage tanks. Since AIMS is based on separate modules, operators can balance engineering considerations (for example, long-term pipeline integrity) against economic factors (inspection and maintenance costs, for instance) and legal requirements (such as, documentation).

As a market leader in pipeline inspection, Rosen is now able to combine this data so pipeline operators can formulate and implement cost-effective long-term integrity strategies.

AIMS incorporates a control loop to maximise the benefit of the individual components. The primary services provided as part of Rosen's asset integrity management solution are:

- **Data management:** The standardised pipeline data warehouse (SPDW) is the foundation of the pipeline integrity management system
- **Risk assessment:** Based on industry best practices as defined in codes, standards and recommended procedures, the risk management solution confirms both active and impending threats in pipelines and provides full support to ensure their most cost-effective mitigation
- **Defect assessment or fitness-for-purpose (FFP):** Pipeline defect assessment solution provides a detailed assessment of all pipeline defects as a basis for well-informed decisions regarding repairs and defect remediation
- **Diagnosis control and mitigation:** Combined with other available information, the detailed root cause analysis suggests cost effective measures to limit future corrosion and degradation

Analysing the data

Asset integrity management support supplies a large quantity of highly complex data. To ensure cost-effective and convenient implementation of the AIMS system Rosen has developed the software suite Rosoft, consisting of four components:

- Rosoft for pipelines provides and manages digital information on all reported results of the inspected pipeline.
- Rosoft maps represents the pipeline trajectory, characteristics, maps and height profile for location-based analysis
- Rosoft 3D pipe generates a three-dimensional virtual view of the pipeline, including feature locations and characteristics
- Rosoft risk management identifies pipe sections most at risk, allowing operators to formulate mitigation and control measures

Together, AIMS and Rosoft maintain the integrity and extend the life of ageing pipelines and associated plants.

Further Information

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