Corrosion and Erosion Monitoring in Upstream Oil & Gas

Rosemount™ Wireless Permasense Systems for Offshore Applications

Discover how Rosemount Wireless Permasense technology can be used to digitally transform upstream offshore applications, increasing operational efficiency and reduce overall costs.

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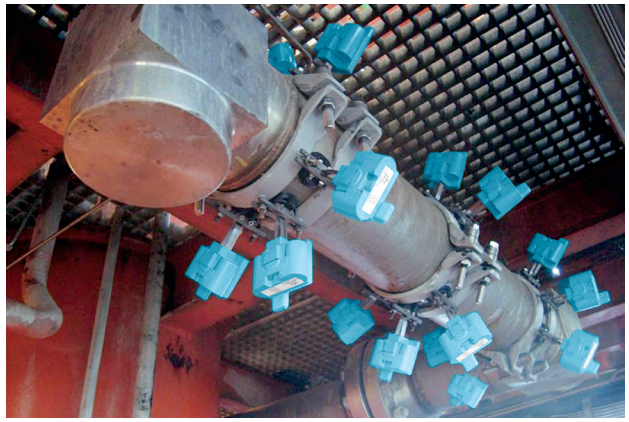
Offshore Corrosion & Erosion Monitoring with Rosemount Wireless Permasense Systems

REAL-TIME CORROSION & EROSION MONITORING

Real-time corrosion monitoring of equipment and associated piping can provide valuable insight into the corrosion status of equipment and components. The data can be trended against fluid characteristics (pH, dissolved oxygen, H_2S and CO_2 concentrations, corrosion, scale, and inhibitor residuals, etc.) and process data (pressure, temperature, flow rates, etc.) to not only highlight potential areas of corrosion concern, but also enabling preventative measures to be undertaken in a timely manner.



REDUCED CORROSION MONITORING OPERATING EXPENDITURE

Conventional corrosion monitoring requires manual intervention to retrieve and replace corrosion coupons and probes. There are also the associated difficulties and costs associated with either:

- online retrieval (2 man team + retrieval tools / isolation valves)
- scheduling offline retrieval into what is often a busy shutdown / TAR

The only maintenance costs associated with Rosemount Wireless Permasense systems are replacement of batteries once every 8-9 years. The flexibility of Rosemount Wireless Permasense technology also means that as conditions change, and the corrosivity changes, the location of the sensors can simply be moved by site personnel while the facility is operational without intervention.

PRODUCTION OPTIMIZATION

Production is often times constrained due to potential integrity concerns. For example, in the United Kingdom Continental Shelf, this is most commonly caused by sand production from the reservoir posing a potential erosion risk. Rosemount Wireless Permasense systems can be used to actively monitor critical locations, thereby enabling production to be increased to its optimum level without any increased integrity risk.

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VERIFICATION OF INSPECTION PERIODICITIES

Inspection frequencies are most commonly determined in the oil and gas industry by means of a Risk Based Inspection (RBI) methodology. This method seeks to optimize planned inspection activities by examining the health, safety and environment (HSE) and business risk of 'active' and 'potential' damage mechanisms (DMs) to assess and rank failure probability and consequence. This ranking is used to optimize inspection intervals based on site-acceptable risk levels and operating limits, while mitigating risks as appropriate. Rosemount Wireless Permasense technology offers the ability to eliminate manual inspection rounds and optimize by monitoring the ongoing levels of corrosion and erosion, and providing the necessary mitigation to reduce this level of conservatism.

CORROSION INHIBITOR RATIONALIZATION

Corrosion inhibitors are one of the most commonly used methods of corrosion protection, with large quantities of corrosion inhibitor chemicals being injected annually. Significant savings can be made by refining the amount of inhibitor used. Rosemount Wireless Permasense technology offers the ability to monitor the actual levels of wall loss occurring on the process piping, thereby enabling the levels of corrosion inhibitor to be adjusted to the optimal amount required.

EQUIPMENT LIFE MANAGEMENT

For equipment with known wall thinning, Rosemount Wireless Permasense technology can be used to actively monitor these critical locations. Using the accompanying DataManager software, the equipment retirement date can be predicted, providing proactive monitoring of the life span of equipment and piping. This allows equipment to remain in operation for as long as possible, or until the next maintenance event when it can be changed out (i.e. at a shutdown) with minimal disruption to the ongoing operation of the facility.

Rosemount Wireless Permasense Systems

- Continuous corrosion monitoring
- Non-intrusive
- *Wireless*HART® data delivery
- Software provides thickness data over time

For more information, visit
www.Emerson.com or contact your Sales Representative

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