

# Riser Life Extension Review

Review condition and remaining production life of a floating production system and fixed jacket

The review of the remaining cathodic protection (CP) life of a Gulf of Mexico tension-leg platform (TLP) was undertaken to evaluate the ability of the current systems to support a 20-year life extension. At the same time, the opportunity to include non-destructive riser testing into the life extension program was also identified.

## TECHNICAL ACHIEVEMENTS & BENEFITS

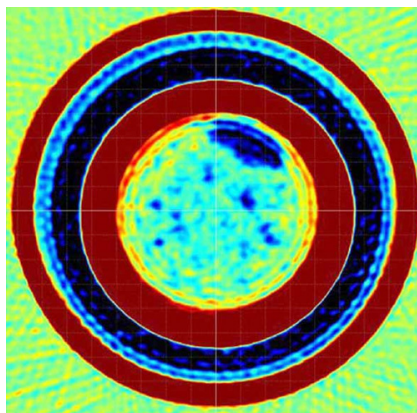
The remaining lives for the hull, risers, tendons and tendon anchor piles were calculated by reviewing original CP design specifications, in conjunction with inspection data taken intermittently throughout the platform's operating life, including visual images of anodes and CP potential readings.

After 16 years in service at the time of the assessment, the hull was found to represent the limiting factor with respect to remaining CP system life. However, with close to 25 years of estimated life remaining, this still enabled the 20-year extension targeted by the Operator without any major intervention or retrofit.

As well as undertaking a design review, guidance was also provided regarding the ongoing management and surveillance of the CP system over the extended operating life of the asset. This included recommendations for reducing remotely-operated vehicle (ROV) inspection durations by optimizing inspection routing, as well as use of appropriate ROV tooling to enable the water-jetting of selected anodes to remove surface corrosion products to refine remaining life assessments. A guide was also developed to identify typical responses to inspection findings identifying accelerated anode depletion or loss of polarization over the course of the extended design life.

While mobilizing for the CP inspection, an opportunity was also identified to undertake computerized tomography (CT) scans of the pipe-in-pipe steel catenary risers. This enabled detailed internal inspection of both the carrier and outer pipes without incurring a separate mobilization cost.

Such joined-up thinking on the part of the Operator, facilitated by GATE's involvement in the project, shows the savings and benefits associated with taking a view of asset integrity that transcends traditional silos and discipline-specific assessments.



## LOCATION

Gulf of Mexico

## CHALLENGE

Many deepwater assets are currently being evaluated to determine how their economic operating life may be extended from what was initially assumed during their original design.

## SOLUTION

Riser condition assessment through non-destructive testing and the determination of remaining CP system life are critical aspects of the life extension process for aging deepwater assets. By moving beyond traditional discipline-specific perspectives, such assessments can often be approached in parallel in order to provide efficiency and cost savings during subsea inspection campaigns.

Image: Example Tracerco Discovery™ image of a similar pipe in pipe system. Image Courtesy of Johnson Matthey.