

Onshore Asset Integrity Management

Multiple failures from upstream and downstream leads to a total systems approach to integrity management

GATE was consulted to identify the source of unexpected levels of H₂S that had been detected in the central processing facility. Ultimately, GATE was able to determine that multiple operational issues needed to be addressed to mitigate the high levels of H₂S in the processing facility, rather than the H₂S naturally occurring in the reservoir.

Early on, GATE identified that the underlying issues were not only isolated within the central processing unit, but also due to the challenges upstream. There were multiple issues such as: high sand accumulation due to downhole design and well separator processing limits, wax and sand deposition through the flowlines and gathering lines, ineffective high volumes of chemical injection in the central processing unit, ineffective corrosion monitoring (locations selection that can impact erosion and/or corrosion differentiation, not representing the system conditions).

As a result, GATE interfaced between the different stakeholders to merge the prevalent information in order to present the options that remediated the problems of the complex system of wells and outlined the benefits for all stakeholders.

The initial study that GATE was consulted was expanded into identification of the main challenges associated to the upstream integrity issues throughout the field, along with the management gaps from monitoring and process design to flow constraints in pipelines, and chemical usage from wells to central processing facility.

TECHNICAL ACHIEVEMENTS & BENEFITS

- Plan developed for solids removal (sand, wax, corrosion products) at different process stages (from wells to processing facility) that expanded into the remediation options to be implemented to mitigate future issues.
- Evaluation and optimization of chemical injection.
- Improvement of monitoring/sampling activities and identification of Key Performance Indicators (KPIs).
- It was GATE's systems approach that led to the clear identification of underlying causes, not only treating the symptoms locally.
- Excellent feedback was received from the client. It was also communicated that GATE's recommended measures have been successfully implemented reducing the chemical cost, improved monitoring practices, and reduced lost down-time associated with failures and repairs.

LOCATION

Onshore North America

CHALLENGE

Multiple failures upstream (system of wells and gathering lines) and downstream (processing plant) in an onshore field.

One of the main technical challenges in this project was the lack of data management and analysis collected by the facility.

SOLUTION

By interfacing with all stakeholders upstream and downstream, GATE outlined the most cost-effective solution for the field with alternative options for further consideration of the client.

GATE provided a solution that addressed all the issues from wells to processing facility, and presented the options in alignment with the client's operating philosophy.

Prioritization of the actions was provided in each option and classified options in means of complexity (minimal requirements), cost and schedule requirements.