

Sphering frequency review



Spheres

The scope

Petrogas E&P Netherlands owns and operates interests in the A and B Blocks in the Northern sector of the Dutch continental shelf. In 2015, Petrogas requested that we review the sphering strategy for one of the existing gas pipelines and a new gas pipeline soon to go into operation.

Removal of liquids from gas pipelines is crucial for maintaining pipeline integrity. The liquids are a potential corrosion threat as well as having flow assurance implications if the quantity of liquid in the pipeline becomes excessive for handling at receipt. There is therefore a high importance on optimisation of sphering strategies for maintaining operability of pipeline systems whilst minimising the number of sphering operations required.

The solution

We reviewed the sphering run records of the existing pipeline system, including the quantity and nature of the liquids received at the downstream platform. Using a trending-based model we derived an optimal sphering programme to ensure that the liquid levels at receipt could be handled. The programme also included guidance for a review cycle whereby the liquids received in the months and years ahead could be adjusted based on any changing trends.

For the new pipeline system, we reviewed the flow assurance carried out during design and assembled a 'first-gas' pigging schedule. The schedule was designed to ensure that the volume of liquids expected could be quickly established and the sphering frequency tailored accordingly. As for the existing pipeline, the volume of liquid that could be handled downstream was included within the assessment as well as the requirement to review implications for the corrosion strategy.