

Operator Efficiently Resolves Pigging Complications During Offshore Pipeline Wax Removal

INNERVUE™ PIPESUITE SURVEY DATA HELPS WITH WAX CLEANOUT AND SUBSEQUENT STUCK PIG RETRIEVAL

NORTH SEA, UNITED KINGDOM

CHALLENGE

- » Pipeline flow restricted by wax deposits
- » Pigging equipment stuck in pipeline during cleanout
- » Wax plug formed by the stuck cleaning pig

SOLUTION

Implemented InnerVue™ PipeSuite diagnostics service to:

- » Determine baseline of wax buildup within the pipeline
- » Locate the stuck cleaning pig from initial pigging maintenance
- » Monitor the progress/completion of the cleaning operations

RESULT

- » Accurately assessed wax deposits and stuck pig locations
- » Provided high-resolution survey data, profiling pipeline interior for successful remediation of multiple blockages and tailoring of cleaning campaign

OVERVIEW

The operator of an offshore UK 8-in condensate export pipeline running from the Lomond platform to the CATS platform in the North Sea was initially dealing with restrictions caused by wax buildup—common to many condensates containing dissolved waxes that can precipitate and deposit under certain environmental conditions. These deposits can build up in production equipment and pipelines, potentially restricting flow (reducing volume produced) and creating other problems.



InnerVue™ PipeSuite datalogger connected to the system.

In the middle of a pigging program initially planned to remove the wax deposits, a cleaning pig became stuck within the already restricted pipeline. This presented unexpected, secondary problems, including development of a new waxy plug, that further complicated the situation and threatened to delay the return to full production capacity. Using Halliburton's advanced InnerVue™ PipeSuite survey equipment, driven by pressure wave technology, the operator quickly gained access to accurate data, enabling them to make informed remediation and retrieval decisions and plans in a timely and cost-effective manner.

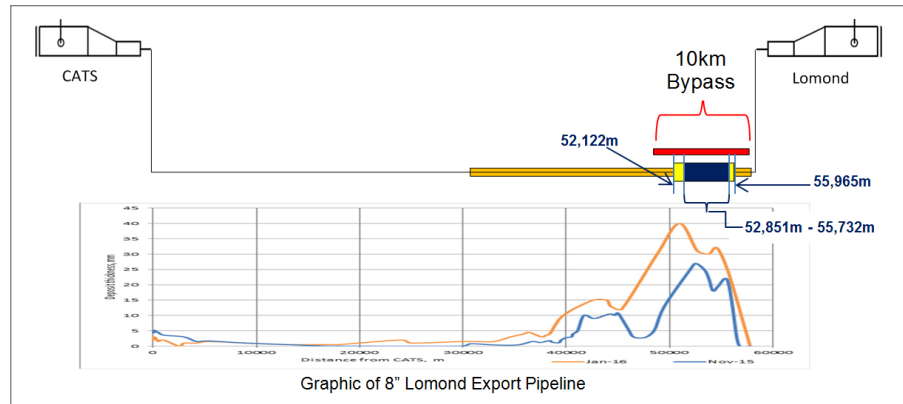
PROJECT DETAILS

In the first instance, the InnerVue PipeSuite diagnostics service helped to establish a baseline of existing wax blockages, to allow the customer to engineer the best cleaning solution, then monitor the cleaning progress. In the second instance, the same technology helped determine the location of the stuck cleaning pig and the front of the wax plug created when it became stuck in the pipeline. Finally, the InnerVue PipeSuite service functionality helped verify pipeline status once the larger blockage problem was rectified and the original cleaning campaign was completed.

SUMMARY

What started as a straightforward pipeline maintenance operation for routine wax cleanout turned into a complex stuck pig and wax plug retrieval operation, as well. Rapid analysis and

presentation of internal pipeline data, including a high-definition debris profile, allowed the client to perform the required remediation steps efficiently and cost-effectively throughout all phases of the project.



Overview of stuck pig location and pipeline wax deposition.

DID YOU KNOW

The InnerVue PipeSuite diagnostics service is a low risk, fast and accurate technique used to map the quantity and distribution of what may be limiting the throughput of the pipeline system, such as wax, hydrate, stuck pig or tool. A pressure wave is created at one end of the pipeline and travels through its entire length at the speed of sound. A reflected signature wave is returned, which corresponds to actual conditions within the pipeline, including:

- » Changes in flow velocity from deposits/debris
- » Changes in medium properties, such as density, viscosity and phase

Analysis of critical data collected by the “pressure wave” technology will increase your understanding of a given pipeline transportation system—from end to end—and provide valuable insight for decisive asset performance management. The InnerVue PipeSuite diagnostics service locates pipeline blockages to high accuracies within 0.3% of pipeline length.

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