

# OneSubsea Software Update for Vx Technology Helps Improve WLR Accuracy by 28.5%

Expert data interpretation and diagnosis eliminate inaccurate water ratios and improve production certainty, offshore West Africa

## CHALLENGE

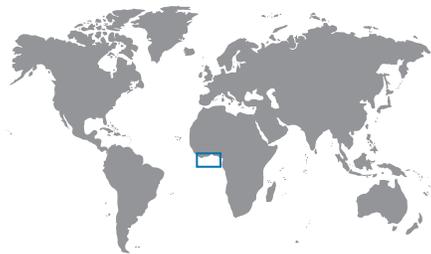
Ascertain cause of inaccurate water/liquid ratio (WLR) and gas/oil ratio (GOR) measurements acquired using Vx\* multiphase well testing technology.

## SOLUTION

Collaborate with OEM OneSubsea regarding log files from Vx technology and historical data from FRIEND\* remote surveillance and diagnostic system.

## RESULTS

- Diagnosed cause of inaccurate data as related to solid deposition on gamma ray beam path.
- Adjusted WLR from nearly 30% to 1.5%, which matched the expectation for the field.
- Improved WLR accuracy by almost 28.5%.



## Identify cause of incorrect multiphase flow data in offshore well

An operator was producing from fields offshore West Africa. The Vx multiphase well testing technology deployed in the operation began reporting high WLRs and GORs although the producing interval was known to contain no water. The operator therefore sought a solution for these unreliable measurements reported with Vx technology.

## Pinpoint and remediate issue with expert data interpretation

The operator turned to OneSubsea for a solution because, as the OEM, it knew the technology best. After consulting with the operator about the issue, OneSubsea requested the log files of the Vx technology and historical data saved in the FRIEND remote surveillance and diagnostic system. Critical flowmeter parameters from these datasets were closely examined. The operating point had shifted over time to the left side.

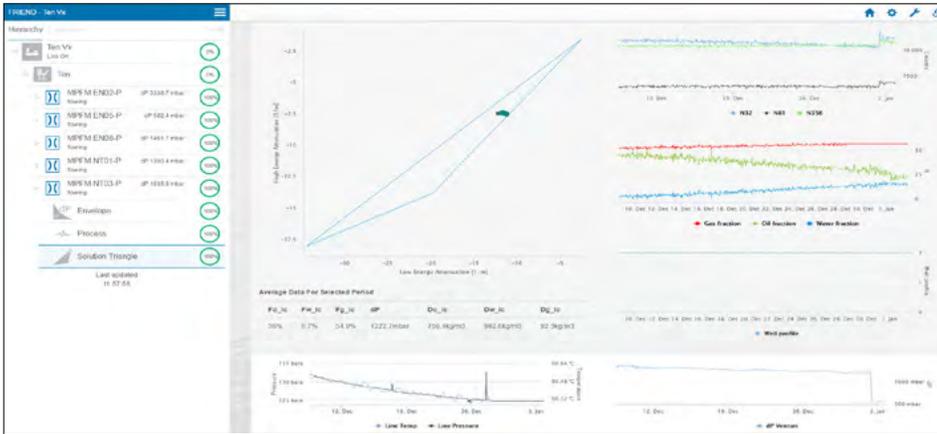
Based on these observations, OneSubsea concluded that a solid deposit may have formed on the Vx technology flowmeter window, specifically on the beam path where the flowmeter emitted gamma ray. Solid deposition can make the empty pipe reference inaccurate and potentially affect the calculation of the fractions based on the number of the counts received on the detector side, resulting in uncertainty in the flow rate reports.

OneSubsea issued an updated configuration file for the Vx technology flowmeter in question. The possible solid deposit on the Vx technology window was assumed to be a permanent physical part of the meter, and new empty pipe references on both low and high energy levels were used to update the configuration.

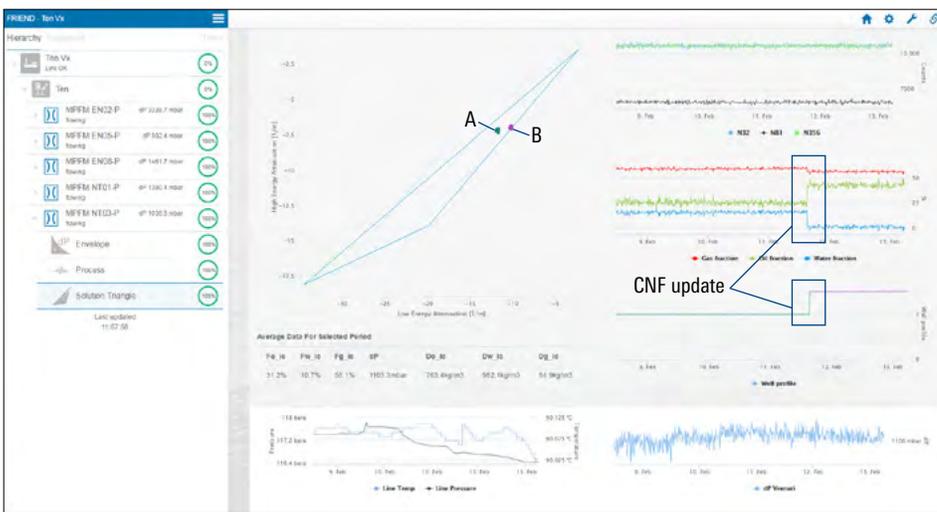
## Increase accuracy nearly 28.5% with expedited software update

The operator installed the updated file prepared by OneSubsea. This update on the configuration file compensated for the plausible solid deposit formed on the Vx technology window and took the operating point back to the oil-gas line. As a result, the WLR reported using Vx technology changed from nearly 30% to 1.5%, which matched the operator's expectation for the field. Based on the assumptions provided by the operator, the accuracy for calculating the WLR was improved by almost 28.5%.

# CASE STUDY: FRIEND system improves WLR accuracy by 28.5%, offshore West Africa



Shift of operating point over time to the left side for a normal flow period.



Solution triangle between operating points acquired the day before the configuration file was installed (A) and two days after the installation (B). After the software was updated, the gas, oil, and water fractions immediately began to adjust toward their correct measurement values.

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