

Smart Production Metering Field Pilot: the Benefits from a Virtual Approach

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To face new hydrocarbon production metering systems and back allocation challenges, Total E&P Qatar and its Research Center (TRC-Q), located in the Qatar Science and Technology Park (QSTP), test novel approaches to improve current production metering system in the Al-Khalij field. This field is operated under a Production Sharing Agreement (PSA) with Qatar Petroleum (QP).

A field pilot, which involves three platforms offshore, is currently conducted to test a Data Validation and Reconciliation (DVR) software. This tool is used for production accounting, monitoring and as an alarm system related to equipments' failure. The main outcome to be expected from this pilot will be an automatic validation of on-line production data before their final recording in the database.

The key advantage of the DVR approach is to take into account all the information redundancy and data uncertainties. In the DVR approach, a realistic uncertainty is associated with the information (measurement / model parameter) and a statistical method is applied to re-estimate and improve simultaneously the information and its subsequent uncertainty.

The current status of this study is presented along with improvements and challenges.

A few examples of on line monitoring of Al-Khalij Wells' production are presented through a comparison between the DVR on-line virtual meter outputs and the on-site production tests. The results, obtained from sensitivity analysis are also discussed to assess the improvements achieved by applying the DVR approach.

