

## **SPE-222507-MS**

# Application of Laboratory Approach to Offshore Analysis: No Compromise on Fluid Composition

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### **Abstract**

Presented here is the development of a new approach to compositional analysis, allowing data to be generated in offshore and field environments with the same level of quality as established laboratory measurements.

Availability of reliable fluid composition traditionally relies on established, often remote, laboratories, resulting in considerable delays before data is available for reservoir models and other field evaluations. Previous attempts to generate compositional data onsite have compromised quality in order to improve portability and reduce reporting time.

The innovative approach presented is a result of technology assessment, method refinement and extensive testing including comparison with traditional laboratory techniques. Evaluation of deviations in compositional measurements between the techniques was performed, with the analytical uncertainties of the methods considered.

Testing commenced using certified reference materials from a variety of sources and extended to include analysis of real samples available in the lab facility.

Comparison with laboratory techniques showed excellent compositional agreement, well within the expected uncertainties and acceptable tolerances of the methods, and the certified materials.

Improvements in column selection and method optimization allowed the reduction of run times to circa 30 minutes, enabling completion of blank, verification and sample runs within the timespan of a single shift and reporting of fully reviewed data within 8 hours of sample collection or completion of sample restoration.

Samples are run in triplicate, with QC checks that mirror those performed in the laboratory to generate confidence in the offshore data.

This novel approach allows laboratory quality compositional data to be generated in the field without compromising on the calibration, verification and QC processes which give confidence in the measurements.

Earlier availability of this data enables quicker decision-making without compromising on the quality of the measurements.

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