Aker BP Assesses Ivar Aasen Reservoir Connectivity with Real-Time Asphaltene Gradient

Ora wireline formation testing platform integrates large-flow-area focused sampling with controlled ultralow rate to obtain contamination-free fluid for accurate DFA.

By using the new Ora* intelligent wireline formation testing platform’s contextual insights product to benchmark the asphaltene gradient with existing data, Aker BP reduced connectivity uncertainty vertically and laterally in the western part of Ivar Aasen Field.

Fluid sampling challenges
With only sparse data in this part of the field, Aker BP needed more accurate measurements for connectivity assessment. However, acquiring representative formation fluids in the reservoir would be particularly difficult because the formation pressure is very close to the saturation pressure. Traditional wireline formation testing tools do not have the necessary flow area, rate control, and focused sampling capability to provide uncontaminated reservoir fluid at minimal drawdown.

What Schlumberger recommended
To meet the challenge of acquiring pure oil from the formation in oil-based mud while maintaining the flowing pressure above the saturation pressure, the Ora intelligent wireline formation testing platform’s cleanup advisor recommended deploying a focused radial probe with a total flow area of 110 in². For optimal cleanup of fluid into the packer, two independent flow managers would be used to enable individual rate control of the sample and guard inlets to maximize the focusing effect.

To streamline real-time downhole fluid analysis (DFA) during the job, the Ora platform’s intelligent planning was used in conjunction with assessment of the reservoir fluid geodynamics to fine-tune the planned data acquisition sequence.

What Aker BP achieved
The Ora platform delivered fluid with <1% contamination—as subsequently validated by laboratory analysis—for accurate DFA and sampling at multiple depths in the reservoir. Throughout operations, the fluid was maintained in single phase. The high-quality relative asphaltene gradient obtained with the Ora platform was seamlessly integrated with the existing data and visualized in the reservoir context in real time. The reservoir model was then updated based on reservoir fluid geodynamics, enabling Aker BP to assess lateral and vertical connectivity while the tool was still in the well.