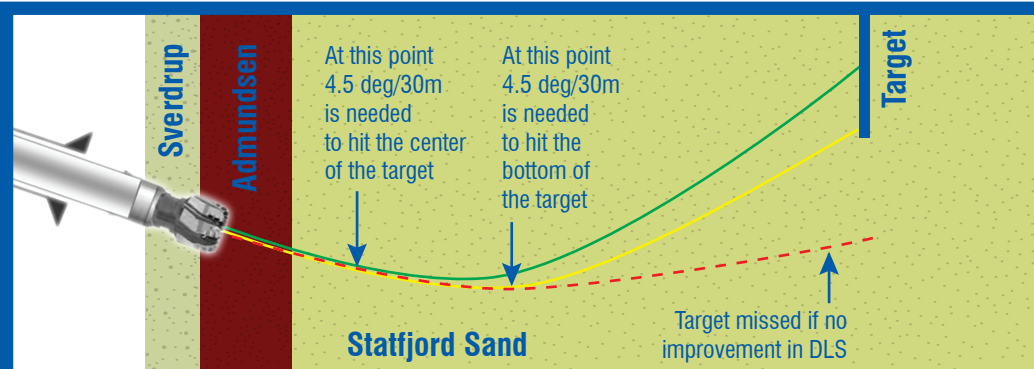


# Enhanced Decision Making



## Highlights

*BHA did not respond as planned after first stand had been drilled.*

*Full borehole caliper data was transmitted to surface in real time. This data confirmed acceptable levels of reamer performance.*

*Client saved two days rig time by making enhanced decision making based on real time high speed data.*

## Two Days of Rig Time and Two Trips Saved With High Definition Data

Statoil used The IntelliServ Broadband Network™ in combination with Schlumberger tools in their Visund field in Norway to avoid trips in which the build rate would be too low and the well might land too deep if the reamer performance was not tracked in real time.

While building angle to land a well horizontally in the Statfjord formation using a rotary steerable system (RSS), the bottomhole assembly (BHA) did not respond as planned. The BHA was designed to build at a rate of 3 deg/30m, but less than one degree of build was observed after the first stand had been drilled. Drillers were concerned that the well would land too deep at this lower build rate, raising the possibility that the first geological target might be missed. The asset team was faced with two possible reasons for this lower rate: 1) a drilling equipment malfunction requiring a trip out of the hole to replace failed/damaged BHA components, or 2) a formation change or other effect causing the unexpected directional tendency, in which case a trip out would not likely change the outcome.<sup>1</sup>

Measurement tools—including additional status indicators for the MWD, LWD and RSS tools in the BHA—were used to investigate these possibilities. The IntelliServ Broadband Network™ allowed data to be sent at a much higher frequency than would have been possible with conventional mud pulse telemetry. The indicators were available from the start, in real time while on bottom and drilling hole. Through the broadband network, Schlumberger was able to transmit full borehole caliper data to surface in real time, which enabled drillers to confirm that reamer performance was acceptable. The real-time availability of information also avoided the need for unnecessary trips to change RSS and to trouble shoot under-reamer.

IntelliServ's Broadband Network™ helped confirm that all systems were operating properly and saved Statoil two days of rig time. The enhanced decision making—all based on real-time, high-speed data—would not have been possible without a high-speed, high-definition broadband network.

After conclusion of the job, a stuck pipe incident occurred; pipe back-off was performed running a tractor inside the pipe, further confirming that the cable was not an obstacle.

For more information please refer to SPE/IADC paper 112702.

<sup>1</sup> Tor Stein Olberg & Harald Laastad, SPE, StatoilHydro, Bill Lesso, SPE & Adrian Newton, Schlumberger IADC/SPE paper 112702

<sup>2</sup> Ibid

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