

# Orion II

## TELEMETRY PLATFORM running MWD and LWD services to drill faster and further

### APPLICATIONS

- Telemetry platform for running MWD and LWD services
- Increased quantity of real-time curves, images, waveforms, and other data available while drilling long wellbores at fast penetration rates
- Improved resolution of real-time measurements of thin-bedded layers

### BENEFITS

- Increased well placement accuracy
- Reduced drilling risk
- Improved downhole tool control

### FEATURES

- Superior formation evaluation data with real-time input for EcoView\* integrated petrophysical interpretation system
- Fast transmission rates even when drilling very long wellbores
- Fast downlinking with new downlink modulation methods, allowing faster commands to be sent while drilling

### DATA TO GUIDE CRITICAL DECISIONS

Mud pulse signals that transmit LWD and MWD data from downhole tools to the surface weaken and become more sensitive to noise as wellbore length increases. This reduces the quantity and quality of real-time data available to guide drilling and well placement decisions—at the very time making the right decision is most critical. In extended-reach and ultradeep wells in particular, second chances to make the right decisions are rare, and wrong decisions are costly.

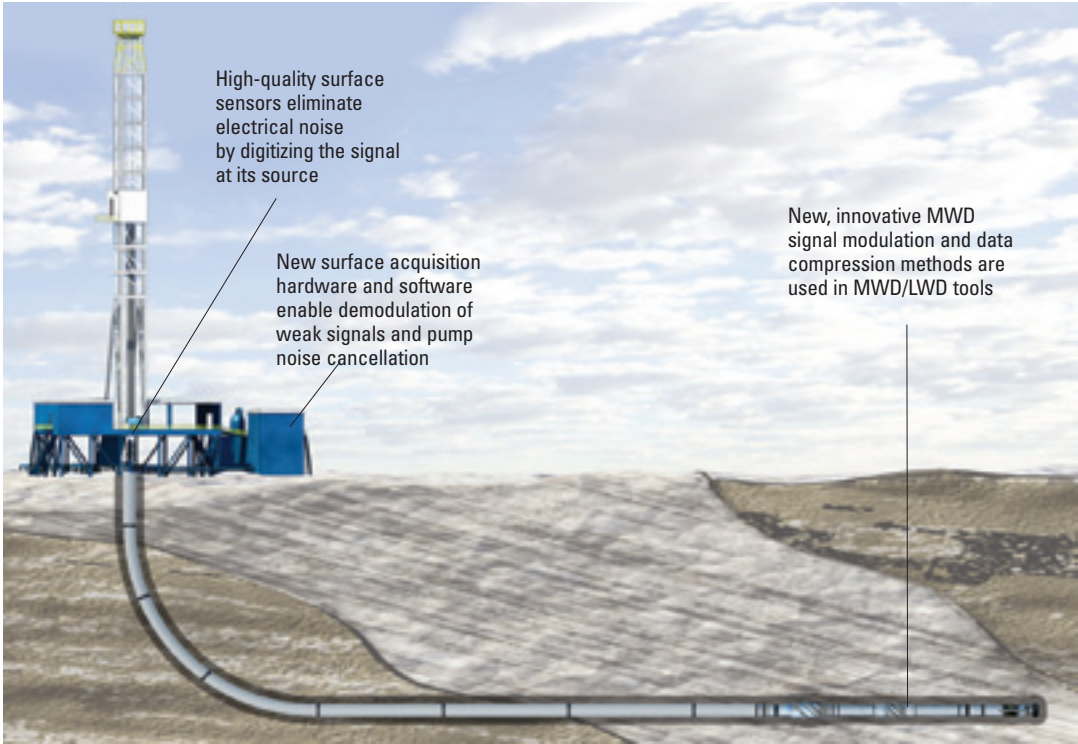
### INCREASED REAL-TIME DATA QUANTITY AND RESOLUTION

Schlumberger provides the real-time data needed to guide decisions by using the Orion II\* telemetry platform to increase the rate of data transmission and cancel noise. Downhole, new compression algorithms

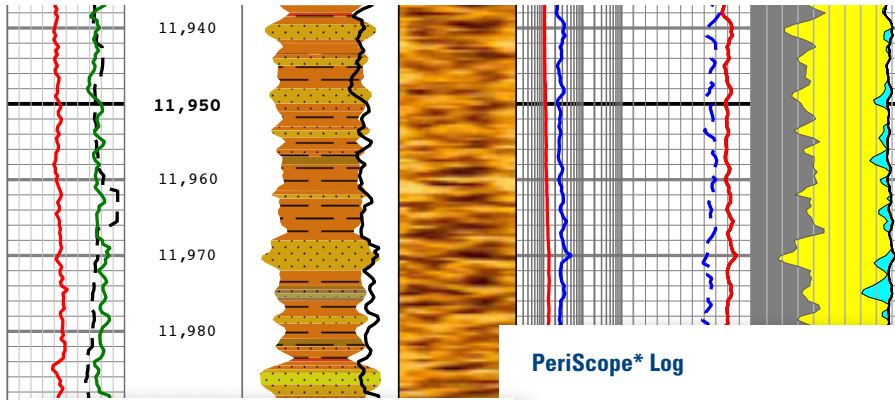
increase the quantity of data transmitted at a given physical telemetry rate, and new signal modulation methods push mud pulse signals further. At the surface, new signal detection and noise cancellation methods demodulate extremely weak signals at high physical telemetry rates to enhance data quality.

Presently available on ImPulse\*, adnVISION475\*, and EcoScope\* LWD tools, as well as TeleScope\* and SlimPulse\* telemetry systems, the Orion II system is scheduled for rapid deployment to other tools in the company's LWD/MWD fleet.

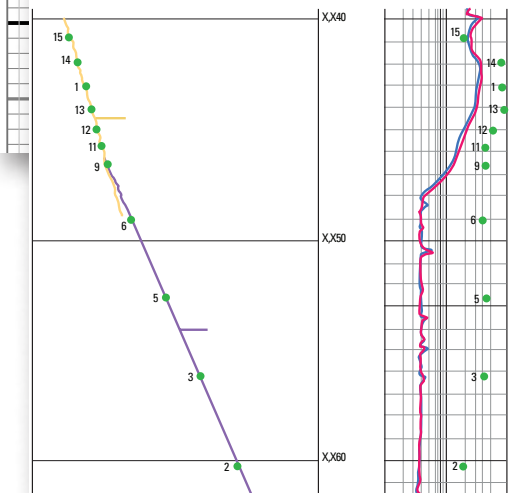
The Orion II telemetry platform also enhances downlink commands to PowerDrive\* RSS or MWD tools by allowing faster commands to be sent while drilling. These commands are sent in real time while drilling without affecting delivery of measurement data to surface.



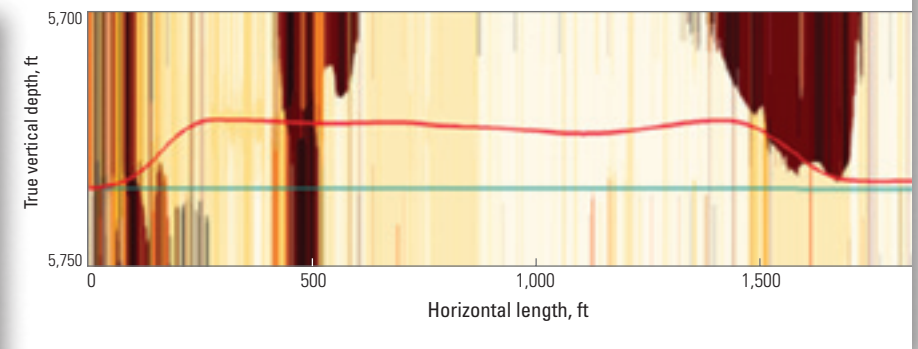
### EcoScope\* Log



### StethoScope\* Log



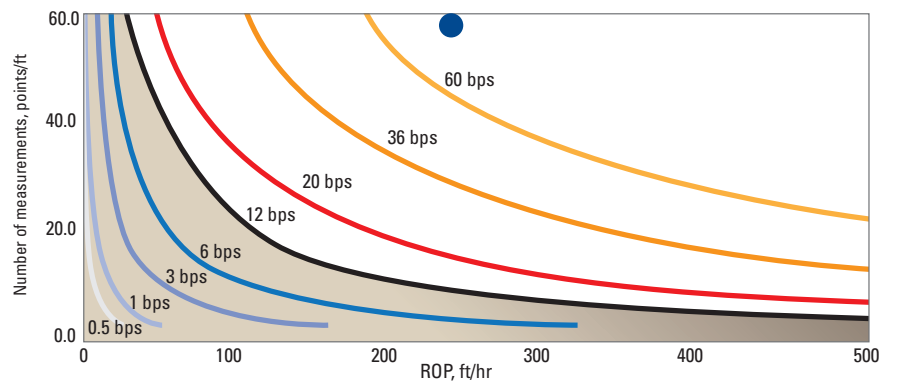
### PeriScope\* Log

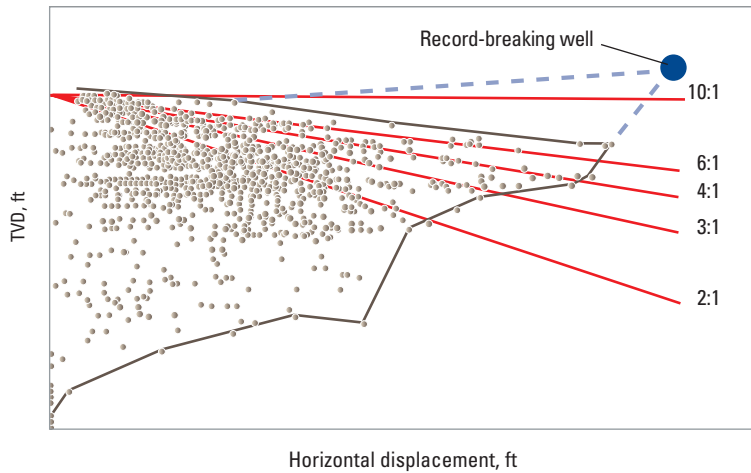


*The Orion II platform enables increased quantity of real-time curves, images, waveforms, and other data available while drilling long wellbores at fast penetration rates.*

### MORE INFORMATION AT FASTER DRILLING SPEEDS

In a complex BHA where an increasing number of real-time measurements are possible, the Orion II platform is the enabler that allows 60 curves at 2 data points per foot at a drilling speed of 250 ft/h. This lets you make the best decisions to minimize risk and optimize your well, landing it in the best place in less time.



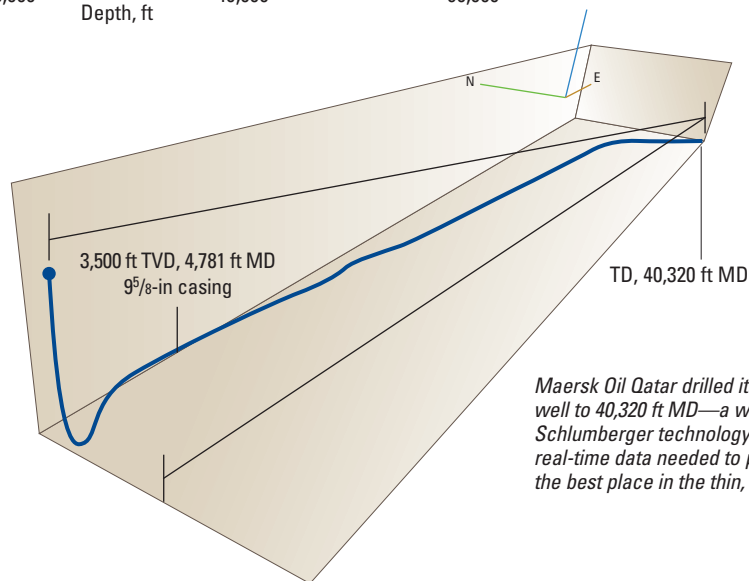
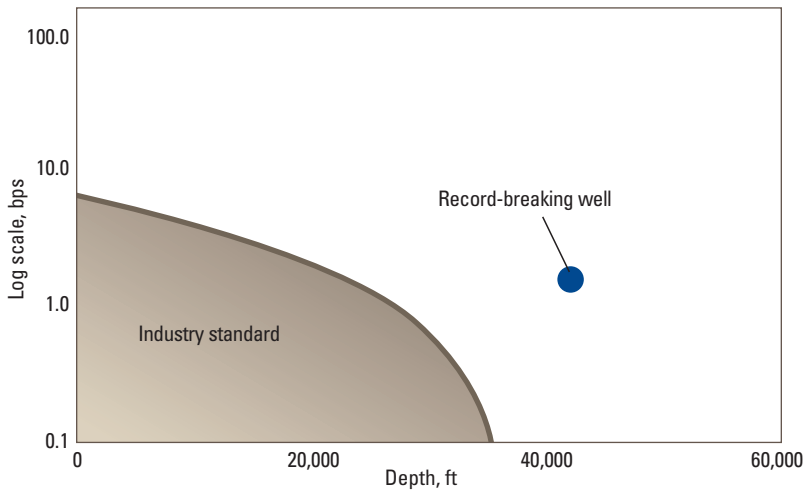


### PROVEN PERFORMANCE

As of March 2009, Schlumberger technology had contributed to six of the top seven extended-reach drilling projects, including Maersk Oil Qatar's BD-04A well, which set world records for

- longest well—40,320 ft MD
- highest ratio of step-out to TVD—10.485
- highest directional drilling difficulty index—8.279
- deepest downlink
- deepest MWD signal.

That well was drilled and geosteered using a PowerDrive RSS, the geoVISION\* imaging-while-drilling service, an adnVISION\* azimuthal density neutron tool, and the TeleScope high-speed telemetry service running off the Orion II telemetry platform. The TeleScope service delivered physical telemetry rates of 3 bps for the first 35,000 ft and 1.5 bps from 35,000 ft to TD.



*Maersk Oil Qatar drilled its BD-04A extended-reach well to 40,320 ft MD—a world record—using Schlumberger technology to deliver the critical real-time data needed to position the well in the best place in the thin, faulted reservoir.*

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[www.slb.com/Orion2](http://www.slb.com/Orion2)

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