Schlumberger

On Demand Frame

UNIQUE TECHNOLOGY enables decision-making in less time by streaming formation pressure-while-drilling pretest data to surface.

Conventional LWD mud-pulse telemetry sends data uphole in packets—called frames—at discrete time intervals. Each frame is composed of data from all the tools in the BHA, whether or not that data is needed at the time.

On Demand Frame (ODF) technology invokes a special transmission mode that uses the entire bandwidth for data from a single selected tool, such as the StethoScope* formation pressure-while-drilling tool. This allows the operator to customize the information sent uphole and increase real-time data resolution—on demand—to facilitate decision-making.

CONFIDENT DECISION-MAKING IN LESS TIME

When a StethoScope test is performed with the pumps on, ODF enables assessment of the validity and quality of the pressure data by streaming it to surface in real time while the test is occurring. This eliminates uncertainty about pretest validity, permits a confident decision about whether or not to repeat the test, and saves time by enabling a dry or lost-seal test to be aborted early.

When the test is performed with the pumps off, ODF sends the key test points plus buildup profile and quality indicators when the pumps are turned on again. Without ODF, only the final pressure value and the calculated mobility value would be sent, making quality control difficult.

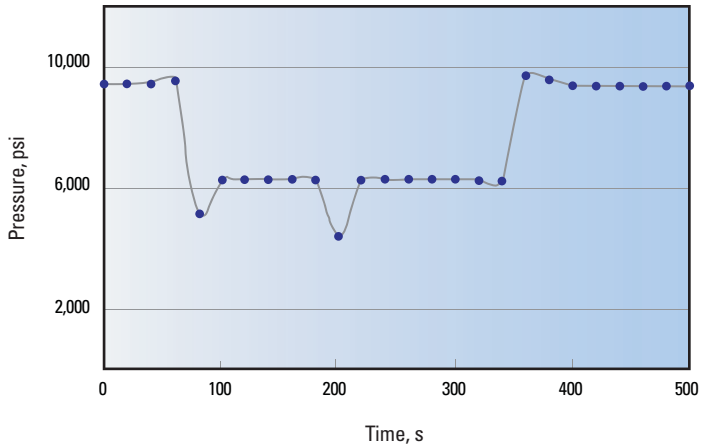
QUICK, REAL-TIME PRETEST QUALITY VERIFICATION

To verify pretest quality in real time, during the StethoScope pretest and post-pretest, ODF technology streams

- the last determined buildup pressures for each investigation and measurement phase, quoted to a resolution of 0.1 psi
- the rate of pressure change at the end of the last measurement-phase buildup, recast as an equivalent pressure change over a 1-min period
- the pressure variance determined at the end of the last measurement-phase buildup
- seven points along the last measurement-phase buildup, spaced logarithmically in time.

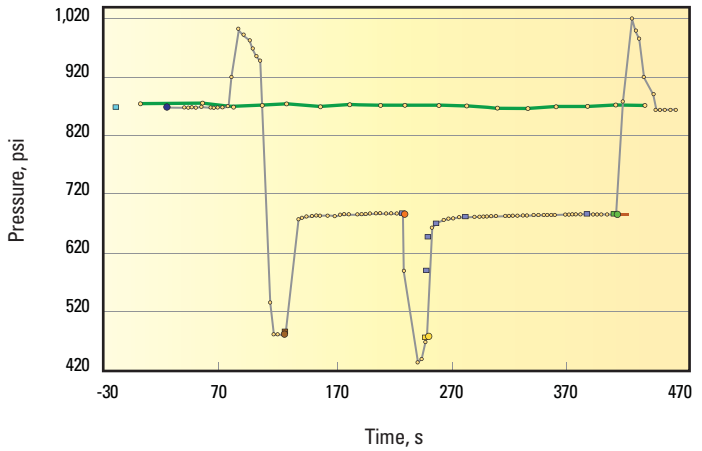
Other information about the character of the pressure response—such as when during the buildup the pressure stabilized, whether a slow leak or pressure relaxation is suspected, and whether the test is likely to be supercharged—is transmitted when requested.

CONVENTIONAL DATA TRANSMISSION



A pressure profile acquired using conventional LWD mud-pulse telemetry has few pressure points and no quality indicators, making interpretation and quality control difficult.

ODF DATA TRANSMISSION



An ODF pressure profile has quality indicators and many more pressure points, including annulus pressure (green line), allowing a confident decision about whether to continue the test or abort it.

On Demand Frame

APPLICATIONS

- Quick verification of pretest quality in real time

BENEFITS

- Eliminates uncertainty about pretest validity
- Permits confident decisions about whether or not to repeat tests
- Saves time by enabling dry or lost-seal tests to be aborted early
- Provides all key data and quality indicators, even for pumps-off tests

FEATURES

- More data points per pretest, in real time—including the event pressure points
- Significant improvement in quality control capabilities
- Real-time quality indicators
- Optional on-demand data, such as pretest plots

ODF Data Transmission

Phase	Data Received on Surface
Prior to starting deployment	Tool status
	Downlink feedback
	Retract status
	Battery status
During the test	Streaming instantaneous pressure values with their associated time
	Event pressure points—hydrostatic before, investigation drawdown, investigation buildup, measurement drawdown, measurement buildup
	Annular pressure—every *x* number of flowline pressure points, configurable
	Tool state
After the test, as soon as the probe and setting piston are retracted	Retract status
	Run number/test number to identify the test
	Battery status
	Quality indicator of overall test—good, dry, leak, stabilized
	Pressure variance—equals noise on gauge measurement
	Event pressure points—hydrostatic before, investigation drawdown, investigation buildup, measurement drawdown, measurement buildup with 0.1-psi resolution
	Seven points in measurement buildup
	Sixty-second slope—last 60 s of final buildup
	Mobility
	Type of test performed

ODF technology enables decisions to be made confidently in less time.

www.slb.com/stethoscope

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