

IriSphere

Look-ahead-while-drilling service

APPLICATIONS

- Vertical and deviated wells
- Improved casing seat selection
- Salt navigation
- Optimized coring location
- Ahead-of-the-bit detection of
 - Formation tops
 - Early pressure transition
 - Formation stringers
 - Fluid contact

BENEFITS

- Higher drilling efficiency
- Lower risk and reduced contingencies
- Proactive hazard management and avoidance
- Improved casing sections through reduction, optimization, or elimination
- Increased ROP
- Fewer BHA trips out of hole

FEATURES

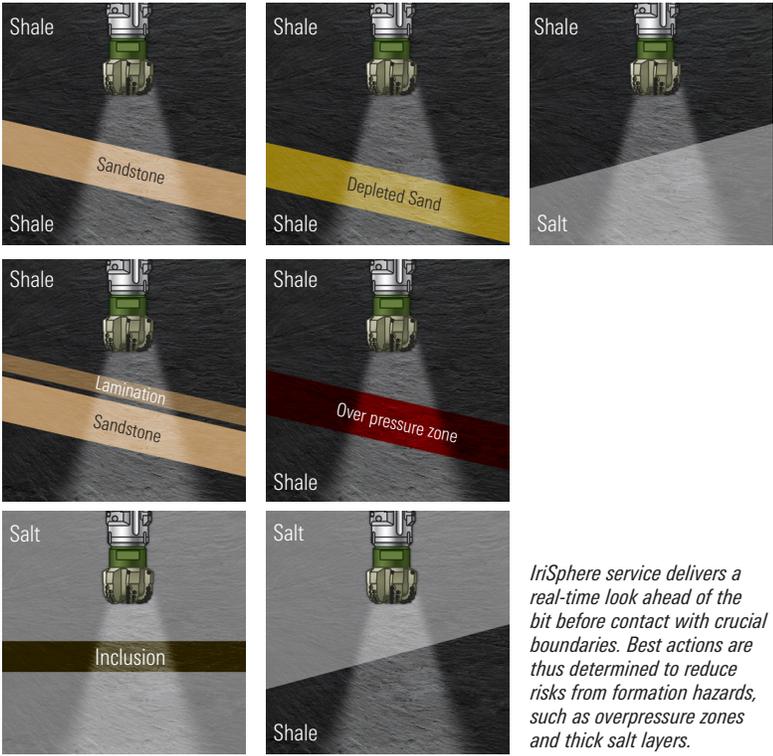
- Deep look ahead of the bit exceeding 100 ft [30 m]
- Cloud-enabled automated solution
- Hole size availability from 5½ in to 16 in

IriSphere* look-ahead-while-drilling service combines deep directional measurements with advanced automated inversion to accurately detect formation features ahead of the bit and land wells while managing drilling risks, optimizing casing placement and coring location. The look-ahead capability is delivered while drilling in real time by using multifrequency transmitter and multireceiver directional subs. Electromagnetic (EM) signals are sent from the transmitter into the formation and retrieved by the receivers to enable the enhanced look-ahead sensitivity and resistivity profiles.

Operators can now drill ahead with confidence and reduce drilling uncertainties in real time. Applications include detection ahead of the bit of formation features with potential pressure differentials for integration in a standard pore pressure prediction workflow. Penetrating a high-pressure reservoir might result in stuck pipes, lost circulation, and other potential wellbore instability issues.

IriSphere service provides drillers with real-time mud properties management and enables optimized casing design and contingencies planning. Unlike the current geostopping technology available in the industry, the IriSphere service differentiates between a thin high-resistivity stringer and a target reservoir. Consequently, premature casing seating or coring location is avoided.

IriSphere service enables the driller to see far in front of the bit while drilling, providing enhanced formation tops mapping, improved landing capability, and better drilling hazard avoidance. The same workflow is applied to determine the reservoir bottom, completion optimization, and salt navigation, including salt entry and exit.



IriSphere service delivers a real-time look ahead of the bit before contact with crucial boundaries. Best actions are thus determined to reduce risks from formation hazards, such as overpressure zones and thick salt layers.

IriSphere Service[†]

Number of transmitters in BHA	1
Number of receivers in BHA	up to 3

Measurement Specifications

Azimuthal coverage	360°
Azimuthal resolution	2°

Recorded Data

Recording time while pumping	15 d [360 h]
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Power and Combinability

Power supply	MWD turbine (no battery)
Combinability	Combinable with all Schlumberger technologies [‡]

Mechanical Specifications		475	675	825
Hole size		5½ in–6¾ in	8½ in–9¾ in	10½ in–14¾ in
Drill collar nominal OD		4.81 API	6.75 API	8.25 API
Max. collar OD		5.4 in [137.2 mm]	7.5 in [190.5 mm]	9.1 in [231.1 mm]
Collar length	Transmitter	17 ft [5.18 m]	12.8 ft [3.91 m]	13.4 ft [4.09 m]
	Receiver	17.81 ft [5.43 m]	13.2 ft [4.02 m]	13.6 ft [4.14 m]
Top thread connection		NC 38 (3½ IF) Box	5½ FH box	6¾ FH box
Bottom thread connection		NC 35 Box	NC-50 (4½ IF) box	5½ IF box

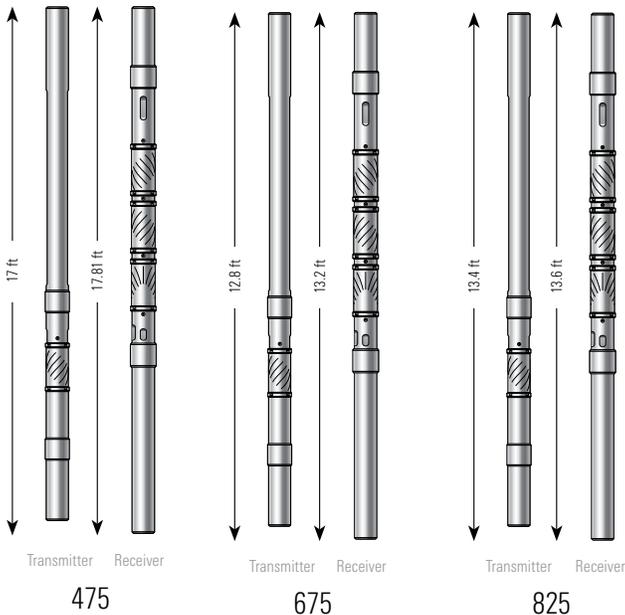
Operating Specifications

Mud		WBM/OBM/SOBM	WBM/OBM/SOBM	WBM/OBM/SOBM
Max. operating temperature		302 degF [150 degC]	302 degF [150 degC]	302 degF [150 degC]
Max. tool curvature	Rotating	15°/100 ft	8°/100 ft	7°/100 ft
	Sliding	30°/100 ft	16°/100 ft	14°/100 ft
Max. flow rate		400 rpm [1,514 L/min]	800 rpm [3,028 L/min]	1,200 rpm [4,542 L/min]
Max. operating pressure		25,000 psi [172 MPa]	25,000 psi [172 MPa]	25,000 psi [172 MPa]
Rotation speed range		20–200 rpm	20–300 rpm	20–300 rpm

[†] The IriSphere service requires standard resistivity measurements from EcoScope^{™††}, PeriScope[™], or arcVISION[™] services.

[‡] Note: The transmitter must be placed at least 35 ft [10.7 m] from proVISION[™] service.

Refer to the Schlumberger shock and vibration references for details regarding axial, lateral, and torsional limits of the tool.



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