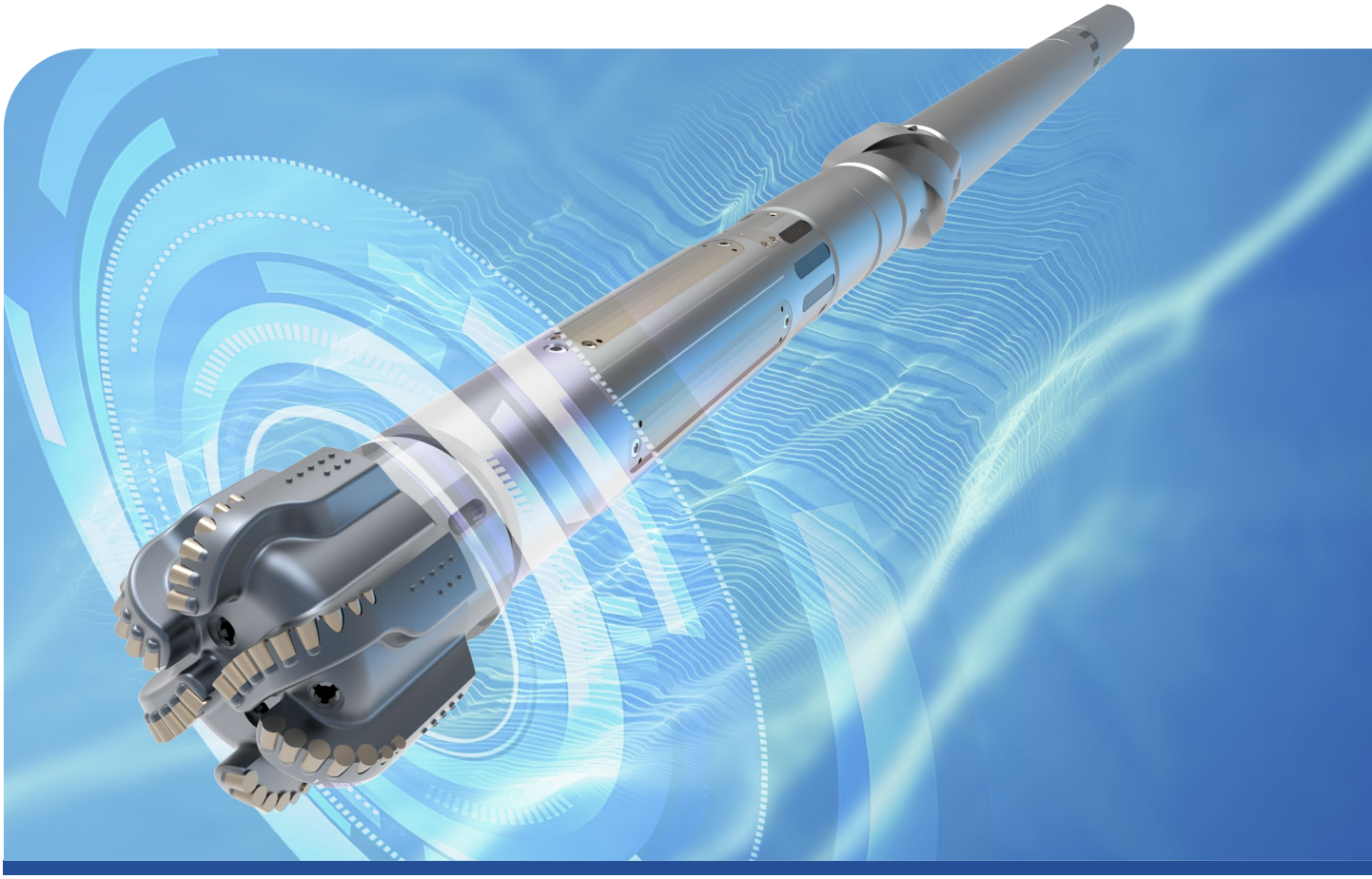
QOILTECH



Formation Evaluation and Logging integrated Devices

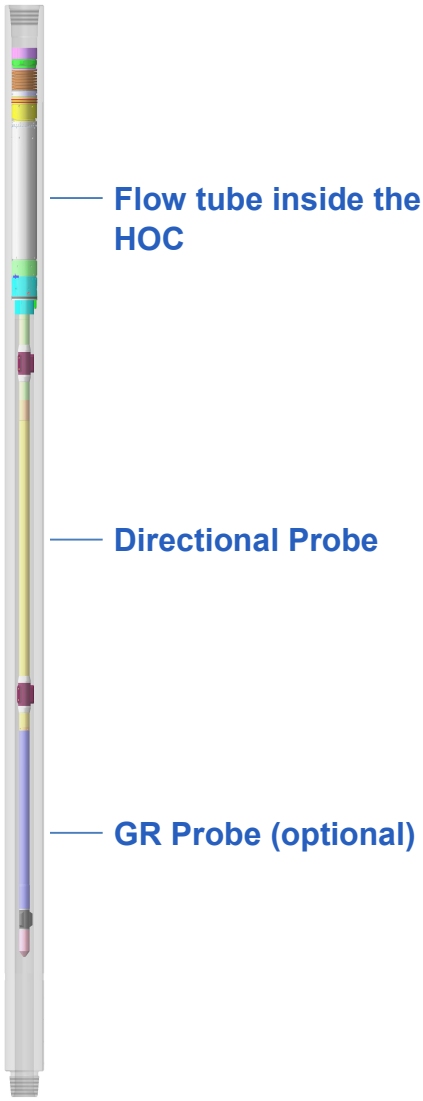
FELiD® SYSTEM

QOILTECH

TigerLiD® Top-mounted Flow Tube MWD Tool

Features

- Mud pulse: Positive pulse
- Power: Turbine alternator
- Hole size: 6” to 17.5”
- Optional Gamma ray probe
- Highly accurate azimuth and inclination data
- Short tool string: reducing BHA assembling time



Measurement Specifications

Items	Range	Accuracy
Inclination	0-180°	±0.1°
Azimuth	0-360°	±1° (Inc>5°, Dip<70°)
Toolface updates	14s/9s @ data rate 0.5Hz/0.8Hz	

Operating Specifications

Max. pressure	20,000 psi	Max. temp	150 ℃
Vibration	20 Grms, 50-1000 Hz	Shock	1000 G, 0.5 ms, Half-sin

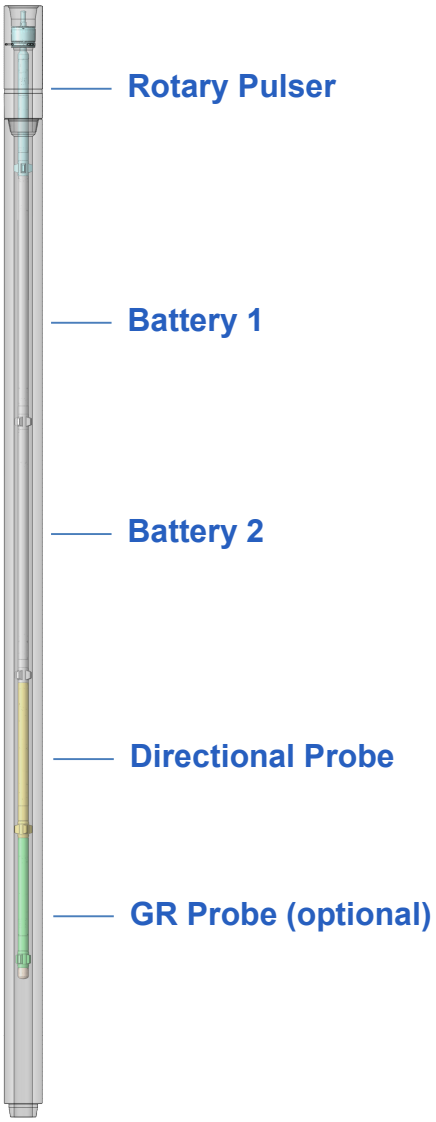
Mechanical Specifications

Series	350	650	1200	
OD	4.75” (121 mm)	6.75” (171 mm)	8” (203 mm)	9.5” (241 mm)
ID	2.82” (72 mm)	3.25” (83 mm)	3.25” (83 mm)	3.25” (83 mm)
Connection	311×310 (3-1/2 IF)	411×410 (4-1/2 IF)	631×630 (6-5/8 REG)	731×730 (7-5/8 REG)
Flow ranges	9.5-22.1 L/s	14.2-41.0 L/s	14.2-75.7 L/s	

TigerLiD® Rotary Pulser MWD Tool

Features

- Mud pulse: Positive pulse
- Power: Battery pack, DH running hours > 200hrs
- Hole size: 6" to 17.5"
- Optional Gamma ray probe
- Highly accurate azimuth and inclination data
- Highly LCM tolerance
- Simple structure: easy assembly and maintenance



Measurement Specifications

Items	Range	Accuracy
Inclination	0-180°	±0.1°
Azimuth	0-360°	±1° (Inc>5°, Dip<70°)
Common pulse width	0.5-2 s	
Data rate	0.5-1.5 bps	

Operating Specifications

Max. pressure	20,000 psi	Max. temp	175 ℃
Vibration	20 Grms, 50-1000 Hz	Shock	1000 G, 0.5 ms, Half-sin
Operating Voltage	28-40 VDC	LCM tolerance	50 lb/bbl medium size

Mechanical Specifications

Valve size	Collar size	Hole size	Flow ranges
5.25”	8”	17.5” / 12.2”	44-70 L/s
4.125”	6.75”	9.5” / 8.5”	13-40 L/s
4”	6”	7.5”	21-31 L/s
3.44”	4.75”	6.5” / 6”	9-25 L/s

TigerLiD® High Speed Pulsor

Features

- High Stability
- Resistant to Erosion
- Continuous wave
- High Speed
- No battary needed

Mechanical Specifications

Collar size	Flow ranges
6.75”	9.3-47L/s
4.75”	8-22L/s

Operating Specifications

Data Rate	＞2 BPS
Max. temp	175℃
Max. pressure	Standard: 20,000 Psi High pressure: 25,000 Psi
Sand Content	Sand ≤3% by volume recommended
LCM Tolerance	50 lb. per bbl medium nut plug
Signal Transmission	Positive Mud Pulse
Pulse Height	Adjustable

LeoLiD® EM Resistivity Tool (6.75"&4.75")

Features

- Tool type: Electromagnetic propagation
- Antenna: Four transmitter dual receiver (symmetrical array)
- Dual frequency: 2MHz and 400KHz
- 2 T-R distance: 584 mm & 889 mm
- Measurements: 32 original curves, 8 resistivity curves & GR
- Record interval: 10s
- Customization: Compatible with Halliburton or APS systems (by Conversion)
- Compatibility: Can work with Near-bit Gamma Tool for thin oil reservoir

Operating Specifications

Tool size	6.75”	4.75”
Borehole size	8.5-10.5”	5.5-6.5”
Connection	NC50	NC38
Max. doglet severity	20°/100 ft (Sliding)	21°/100 ft (Sliding)
	10°/100 ft (Rotating)	13°/100 ft (Rotating)
Max. flow rate	44.2 L/s	22.1 L/s
Max. pressure	20,000 psi	20,000 psi
Max. temp	150 ℃	150 ℃

Measurement Specifications

Measurements	GR	2MHz Phase shift	2MHz Attenuation	400KHz Phase shift	400KHz Attenuation
Range	0-800 API	0.1-2000 ohm·m	0.1-500 ohm·m	0.1-1000 ohm·m	0.1-200 ohm·m
Accuracy	5%	1% (0.1-50 ohm·m)	2% (0.1-25 ohm·m)	1% (0.1-25 ohm·m)	5% (0.1-10 ohm·m)
		±0.05 mmho/m (>50 ohm·m)	±1 mmho/m (>25 ohm·m)	±1 mmho/m (>25 ohm·m)	±5 mmho/m (>10 ohm·m)
Vertical resolution	6”	8”	8”	12”	12”

LeoLiD® EM Resistivity Tool (3.95")

Operating Specifications

Ultimate Tensile Load	1000KN (100T)
Ultimate Torsional Load	5000 N.m
Max. WOB	8000 KN (8T)
Max. pressure	120 Mpa
Max. RPM	300 RPM

Mechanical Specifications

Tool size	100 mm	**Borehole size**	118-139.7 mm
Tool length	4082.8 mm	**Tool weight**	0.26 T
Measurement distance	2276.4 mm	**Connection**	NC31 (210⊠211)

Measurement Specifications

Measurements	2MHz Phase shift	2MHz Attenuation	400KHz Phase shift	400KHz Attenuation
Range	5-1500 ohm·m		0.1-400 ohm·m	
Accuracy	2% (5-50 ohm·m)	2% (0.1-25 ohm·m)	2% (5-25 ohm·m)	2% (0.1-5 ohm·m)
	0.5% (50-1500 ohm·m)	2% (25-400 ohm·m)	0.5% (25-1000 ohm·m)	0.5% (5-200 ohm·m)
Vertical resolution	8”	8”	12”	12”

CatLiD® Near Bit Azimuth Gamma Tool

Features

- Measurement distance to bit: 0.37m
- 16-sector azimuth gamma imaging
- Continuous at-bit inclination measurement
- Stable EM wireless transmission: Over 12m in downhole condition
- Low battery consumption: Over 300hrs in 1 run for near-bit sub
- LWD compatibility: Can work with LWD such as EM Resistivity Tool in one BHA

Measurement Specifications

Items	Range	Accuracy	Vertical resolution
16-sector azimuth GR	0-800 API	5%	6.0”
Near-bit inclination	0-180°	±0.5°	NA
Status parameters	3-axis vibration, collar speed, power supply, temperature, etc.		
Sample rate	16 s		
Memory size	256 Mb		

Operating Specifications

Max. pressure	20,000 psi	Max. temp	175 ℃
Vibration	20 Grms, 50-1000 Hz	Shock	500 G, 0.5 ms, Z-axis 1000 G, 0.5 ms, X&Y-axis
Max. RPM	360 rpm	Mud type	Oil-based / Water-based

Mechanical Specifications

Tool size	6.75”	4.75”	6”
Borehole size	8.5-10.5”	5.5-6.5”	7-8”
Near bit sub length	1.03 m	1.05 m	1.04 m
Receiver sub length	1.17-1.23 m	1.78 m	1.28 m
Near bit sub connection	4-1/2 REG	3-1/2 REG	4-1/2 REG
Receiver sub connection	4-1/2 IF (NC50)	3-1/2 IF (NC38)	NC46

CheetahLiD® Rotary steerable system

Features and benefits

- **High buildup rates, up to 8°/100 ft**
- ✓ Improves drilling efficiency through deeper kickoff and more responsive steering
- **Near-bit inclination, azimuth and gamma ray measurements**
- ✓ Optimizes wellbore placement and reservoir navigation
- **Automated 3D steering adjustments while drilling ahead**
- ✓ Reduces time on well and achieves faster and safer well delivery with exact placement
- **Automatic inclination hold function**
- ✓ Drills straight, smooth wellbores and promotes faster completions
- **Optional downhole motor**
- ✓ Improves drilling efficience and performance in one faster run

Mechanical Specifications

Tool size	6.75”	5.75”
Borehole size	8.5-10.5”	7-8”
Tool length	11.5 m	12.5 m
Flow Range	22-44 L/s	21-31 L/s
Max. buildup rate	8°/100 ft	8°/100 ft
Max. RPM	250 rpm	250 rpm

Measurement Specifications

Items	Range	Accuracy	Vertical resolution
Azimuth GR	0-800 API	5%	6.0”
Near-bit inclination	0-180°	±0.5°	NA
Near-bit azimuth	0-360°	±2°	NA

Operating Specifications

Max. pressure	20,000 psi	**Max. temp**	150 ℃
Vibration	20 Grms, 50-1000 Hz	**Shock**	500 G, 0.5 ms, Z-axis 1000 G, 0.5 ms, X&Y-axis

LynxLiD® General Azimuth Gamma Tool

Features

- **Operating modes:** Includes both Average Gamma and Azimuth Gamma modes
- **Azimuth Gamma:** Supports customizable generation of gamma data for two, four, or more quadrants
- **16-sector azimuth gamma imaging:** Enhances the gamma resolution of the reservoir, guiding drilling and geological operations
- **Customization Service:** The relative positioning of gamma detectors (up, down, left, right) can be adjusted based on actual formation conditions
- **Compatibility:** Fully compatible with the APS/Halliburton MWD systems and can be customized according to specific client requirements

Operating Specifications

Tool size	45 mm	48 mm
Tool length	832 mm	1107 mm
Electrical connection	1553B	RS-485
Max. pressure	20,000 psi	
Max. temp	175 ℃	
Vibration	20 Grms, 50-1000Hz	
Shock	500 G, 0.5 ms, Z-axis	
	1000 G, 0.5 ms, X&Y-axis	

Measurement Specifications

Items	Measurement range	Measurement depth	Measurement accuracy
Azimuth GR	0-800 API	12” (305 mm)	5%

PumaLiD® NMR Logging Tool

Overview

- NMR measurements facilitate early identification of key petrophysical properties, enabling complete formation assessment through differentiation between movable and bound fluids
- This real-time, mineralogy-independent analysis assesses reservoir quality by quantifying porosity components, fluid types, and permeability

Features

- **T1 acquisition:** Provides a lateral motion-tolerant measurement method and requires minimal pre-job planning
- **T2 acquisition:** Method while wiping or sliding, with fluid typing using dual wait time or dual echo spacing

Benefits

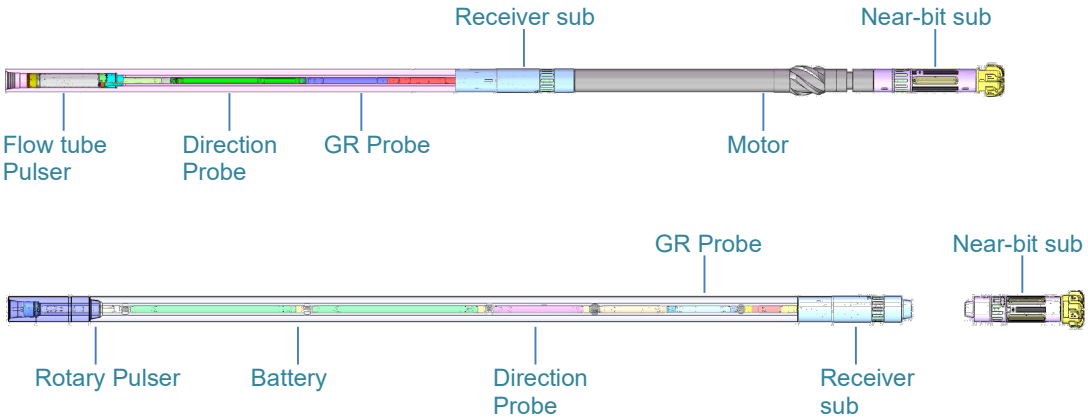
- **Drilling to Production:** Improve the success rate of discovering producible oil and gas and avoid water zones through real-time formation evaluation
- **Enhanced Reservoir Insight:** Identify reservoir intervals often overlooked by conventional logs, determine total porosity and movable fluids, and obtain real-time reservoir quality assessment with minimal invasion impact
- **Reduce Well Time:** offers mineralogy-independent porosity, identifies permeable zones with movable fluids, and eliminates the need for risky nuclear sources

Specifications

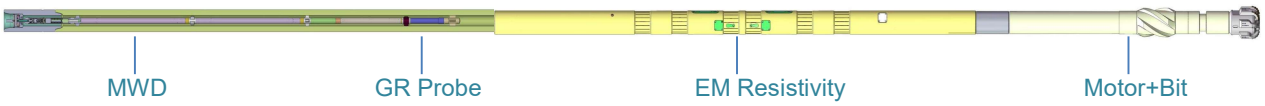
Porosity measurement range	0-100%	**Power supply mode**	Turbo-generator
Porosity measurement accuracy	± 5%	**External diameter**	6.75” (172 mm)
T2 measurement range	0.5-5000 ms	**Internal diameter**	2” (51 mm)
Investigation depth	14” (356 mm)	**Total length**	36 ft (11 m)
Vertical resolution	6” (152 mm)	**Max. temp**	150 ℃
Data storage duration	300 hrs	**Max. pressure**	20,000 psi

Tool Combination

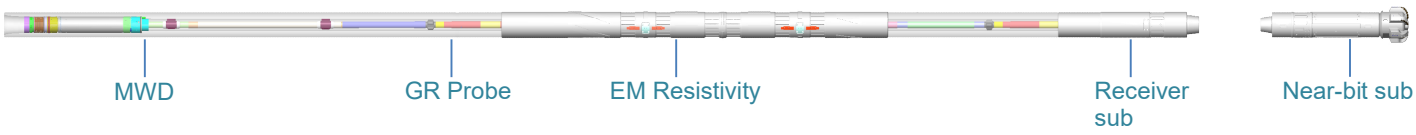
BHA: MWD + Regular GR + Near-Bit Azimuth GR



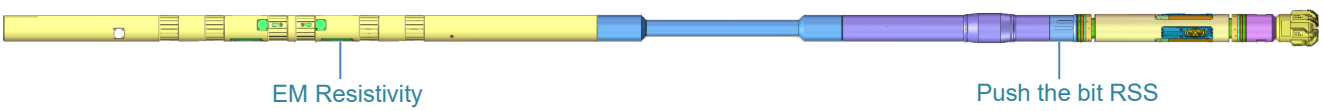
BHA: MWD + Regular GR + EM Resistivity



BHA: MWD + Regular GR + Resistivity + Near-Bit

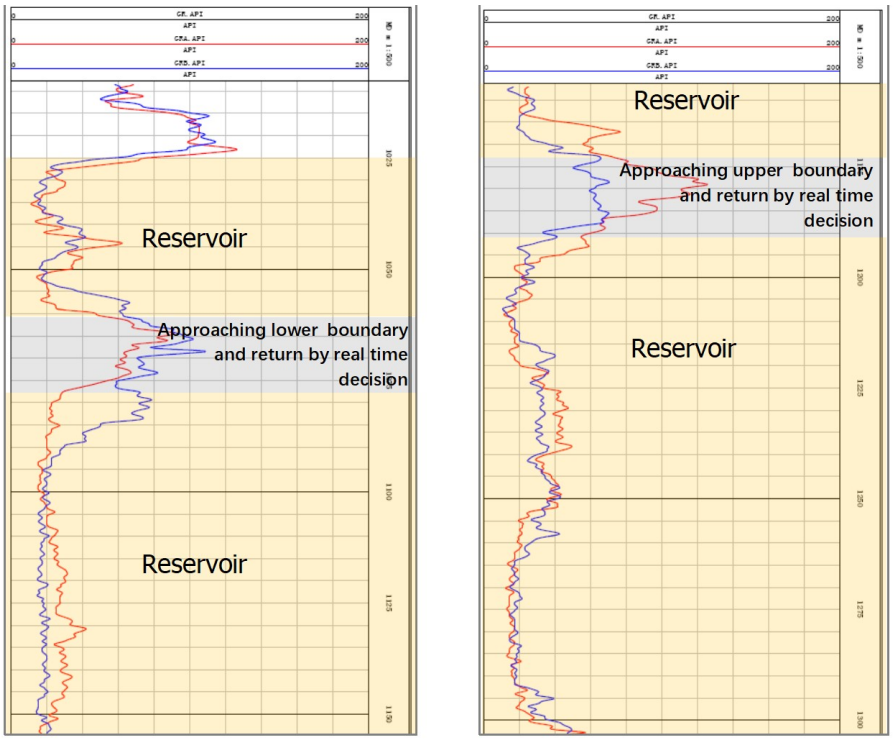


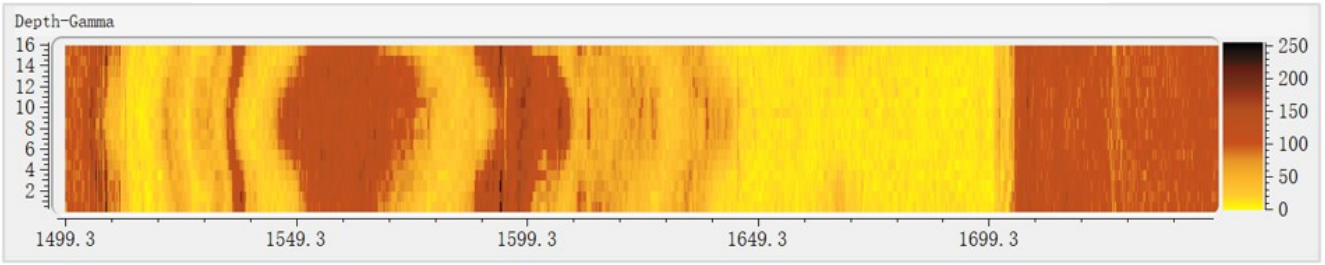
BHA: EM Resistivity + RSS

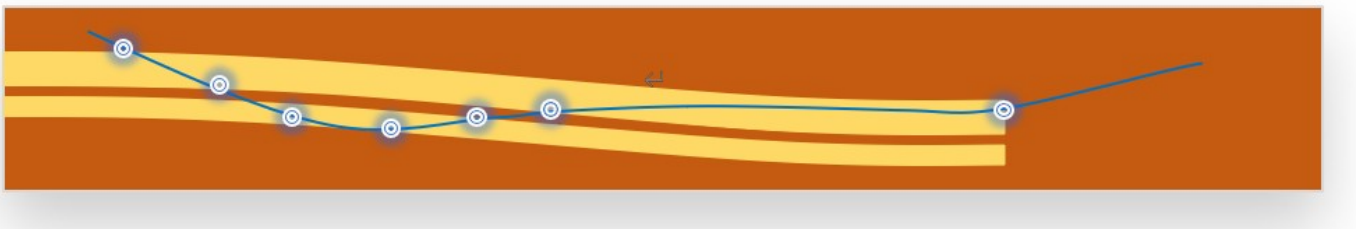


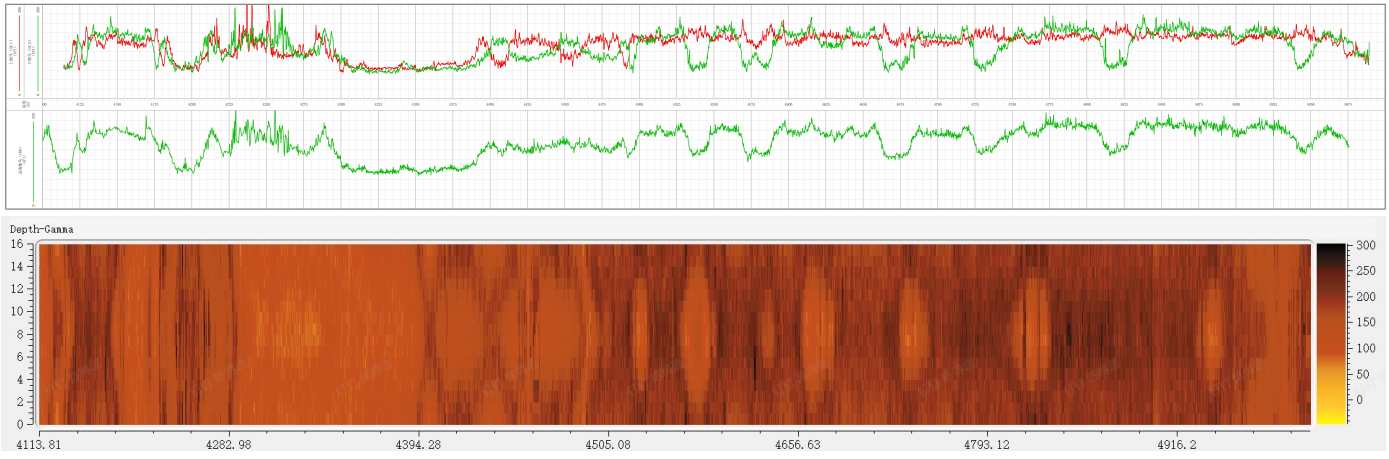
Geosteering

Near-bit GR: Real time azimuth GR curve and 16-sector imaging



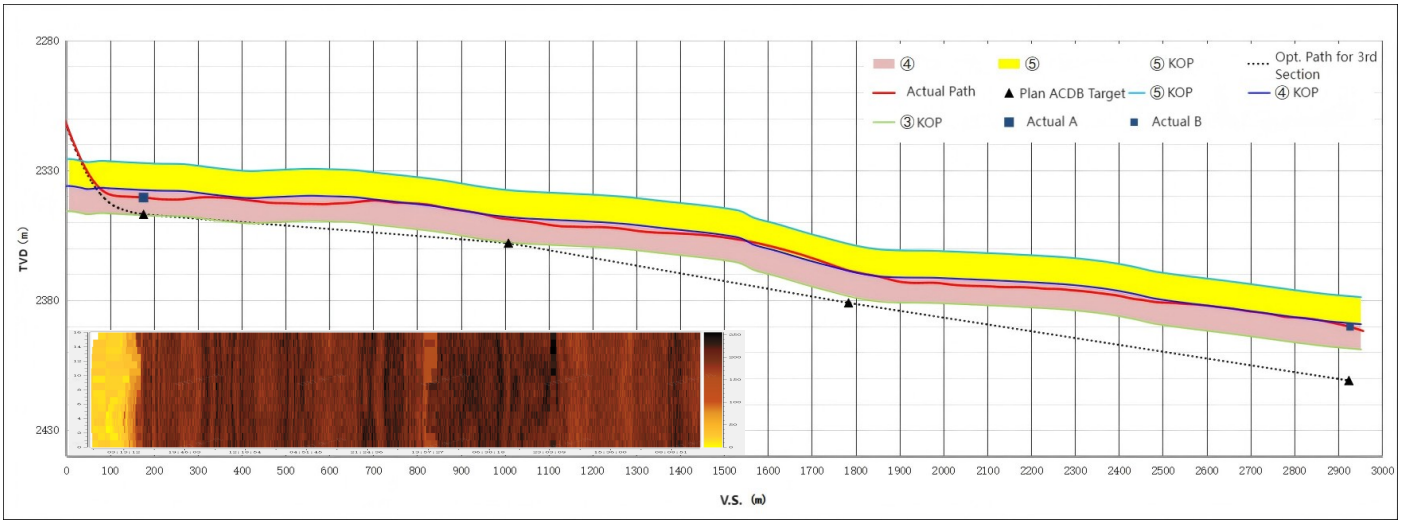




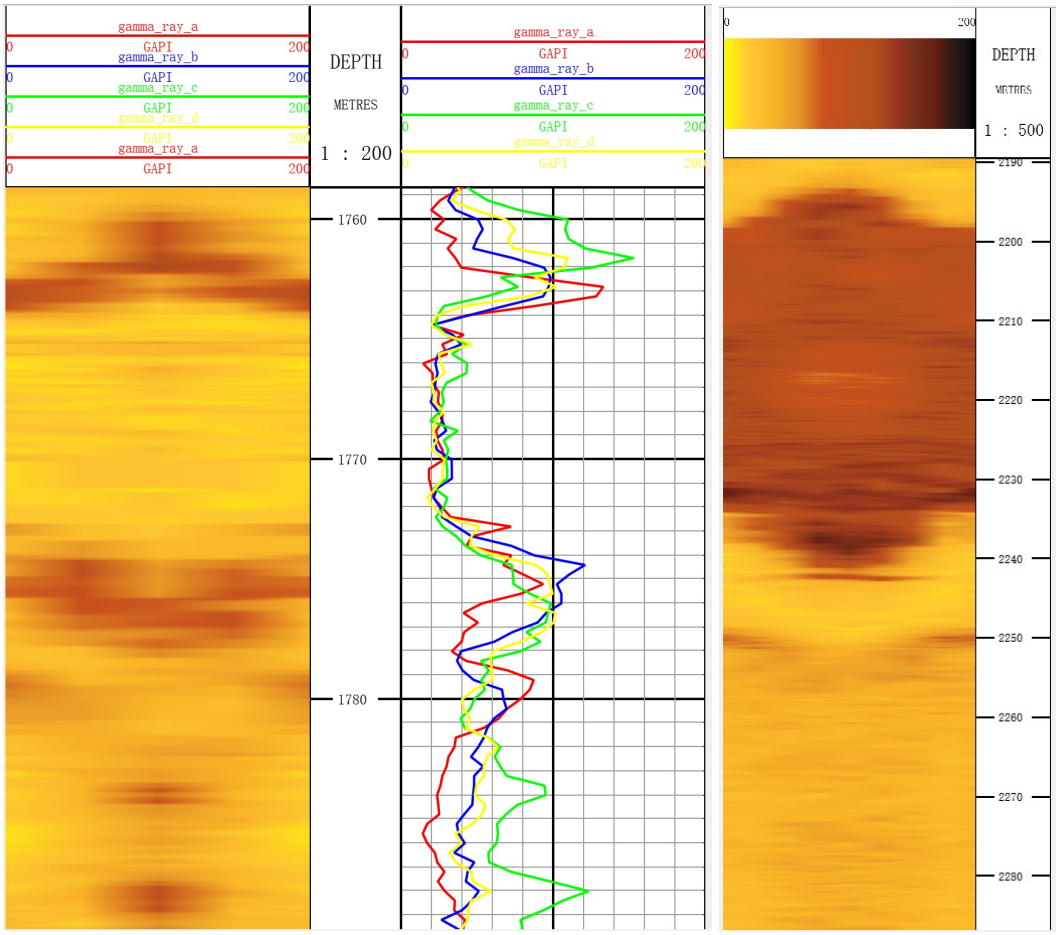


Geosteering

Near-bit GR geosteering

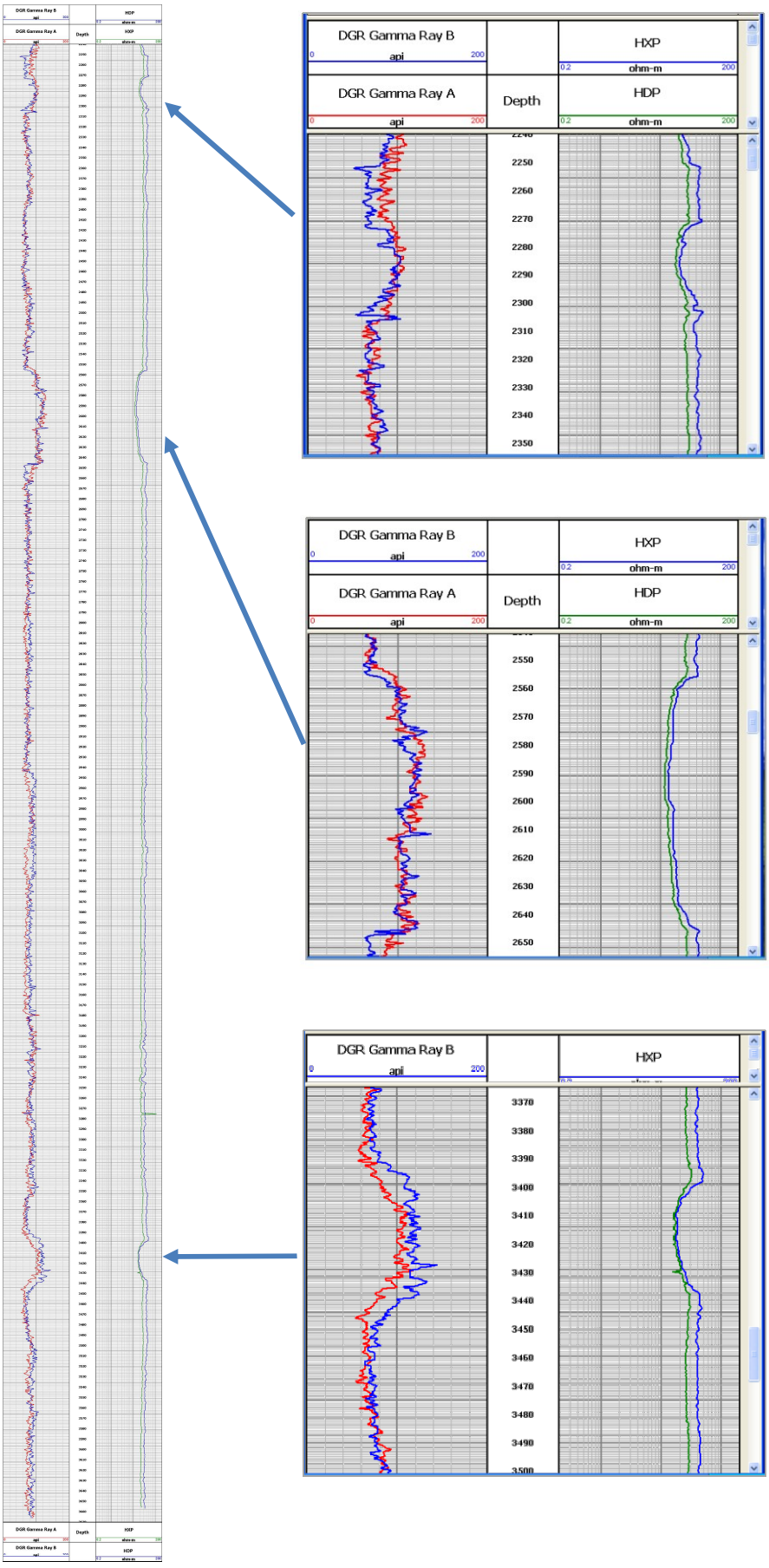


General GR: 4-sector azimuth GR curve and imaging



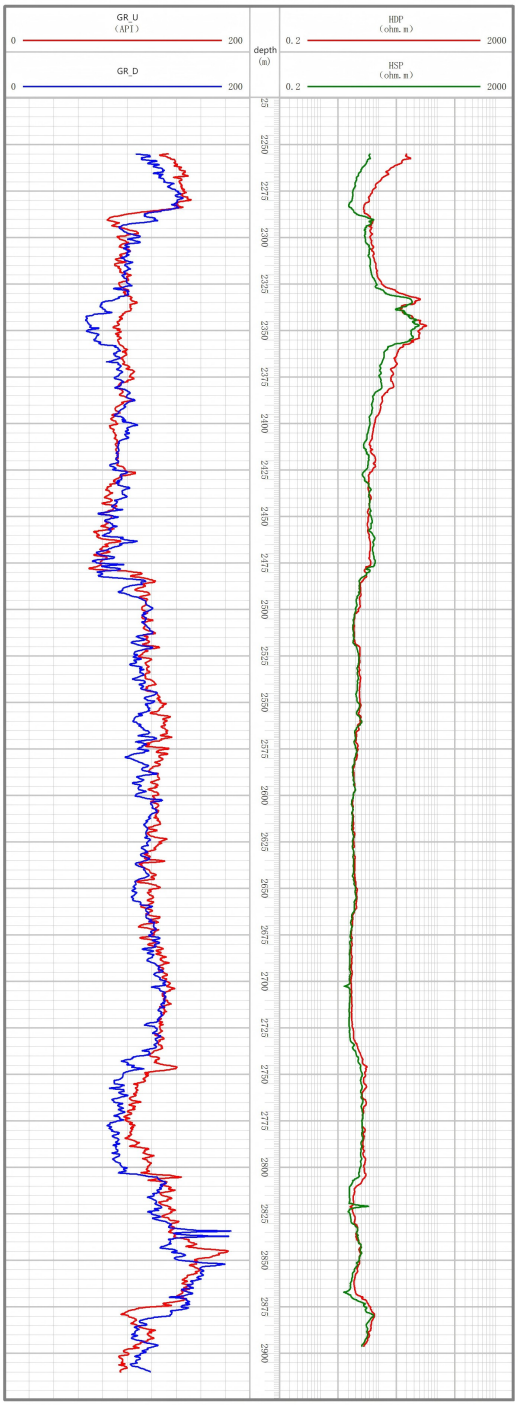
Geosteering

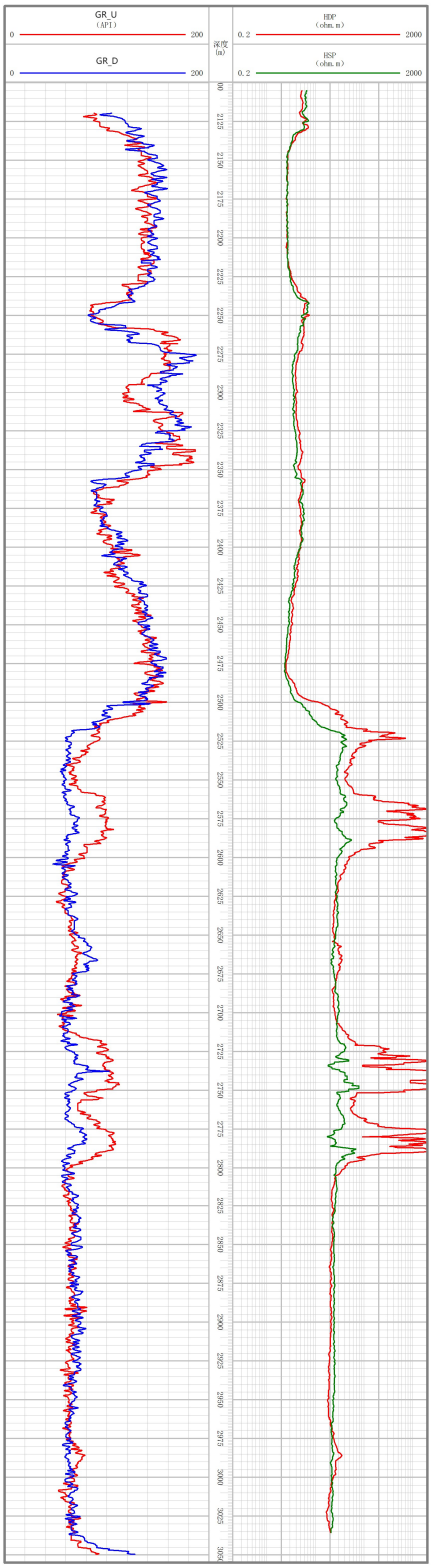
EM Resistivity + General GR: Resistivity and azimuth GR curve



Geosteering

EM Resistivity + Near-bit GR: Resistivity and azimuth GR curve





Product Portfolio

FELiD® SYSTEM

Formation Evaluation and Logging integrated Devices

TigerLiD®

MWD Tool

CatLiD®

Near Bit Tool

CheetahLiD®

RSS

LeoLiD®

Resistivity Tool

PumaLiD®

NMR Logging Tool

LynxLiD®

Gamma Tool

Company Profile

QOILTECH Co., Ltd., a wholly-owned subsidiary of **CIQTEK Co., Ltd.**, leverages cutting-edge magnetic resonance precision measurement to deliver core components, advanced instrumentation, and integrated solutions to the energy industry. The company specializes in the development of unconventional resources such as shale oil and gas, coalbed methane, and combustible ice. Its portfolio includes NMR LWD, Near-Bit Measurement Systems, Resistivity LWD, Rotary Steerable Systems (RSS), and pioneering downhole quantum sensing applications. QOILTECH has established joint research laboratories with leading institutions including China University of Petroleum (Beijing) and CNPC Engineering Technology R&D Company Limited, collaborating on technology development and application research.

Committed to advancing detection technologies for the energy sector, QOILTECH is building an industrial platform for high-end precision instruments and evolving into a fully integrated energy technology enterprise spanning R&D, production, and services.

Reference Customer

中国石化 SINOPEC

中国海油 CNOOC

中国石油

AAGI

亚新煤层气 YX CBM

SINO Gas & Energy 中澳煤层气能源

中国煤炭地质总局 China National Administration of Coal Geology

晋能控股煤业集团 JINNENG HOLDING COAL INDUSTRY GROUP

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