Beijing Geo-Vista Technology Ltd.

Friendly Cooperation
Introduction

- Manufacturing Wireline Logging & LWD Equipment
- Providing Wireline Logging & LWD Services
- Providing Logging Analysis & Software Development

4S Policy: Equipment Sales        Logging Services
             Technology Supporting Component Supply

Philosophy: Preciseness,  Innovation,
            Cooperation,    Win-Win!
Our Clients
Our Main Clients

- CNPC-China National Petroleum Company
- SINOPEC-China Petroleum & Chemical Corporation
- CNOOC-China National Offshore Oil Corporation
- SOCAR-The State Oil Company of Azerbaijan Republic
- TOTAL GROUP
- Weatherford
- Baker Hughes, Russia
- OilServ, Iraq
- Eastern United, Kuwait
- Antares, Germany
- TARGET, Oman
- CASPIAN, Georgia
PRODUCTS

- Logging-While-Drilling (MWD / LWD) System
- Common Coiled Tubing Drilling
- Openhole Wireline Logging System
- Production Logging System
- Engineering Logging System
- Formation Sidewall Coring System
- Pressure Test & Sampling System
- Vertical Seismic Profile (VSP)
- PIView Logging Analysis Software
MWD/LWD System

- Caliper Corrected Neutron Porosity
- Rotary Azimuthal Density
- Nuclear Magnetic Resonance Imaging While Drilling
- Acoustic While Drilling
- Bi-directional Communication & Power System While Drilling
- Pressure-Gamma Ray Resistivity
- Directional Sensor Vibration
- Rotary Steerable Unit
- Measurement While Drilling
  - Caliper Corrected Neutron Porosity/
    Generator Caliper Corrected Neutron Porosity+Ultrasonic Caliper
  - Rotary Azimuthal Density
- Acoustic While Drilling
- Electromagnetic Propagation Resistivity
- Pressure & Caliper While Drilling
- Near-Bit Azimuthal GR
CCN and RAD offers measurement of formation density, neutron porosity, borehole caliper, and formation imaging. Geosteer the well for maximum reservoir exposure. Neutron porosity and bulk density are critical for the quantification of hydrocarbons in the reservoir.
The tool can realize direction in the rotary drilling, improve the borehole trajectory and bi-directional communication with the surface.
Common Coiled Tubing Drilling (ComCTD)

- Quick Connect Sub (UQC and LQC)
- Agitator (Optional)
- Mechanical Circulating Sub (MCS)
- Mechanical Orienting Sub (MOS)
- Main Valve Assembly (MVA)
- Power and Communication Tool (PCT)
- Drilling Performance Tool (DPT) (Optional)
- Vibration & Shock Digital Attitude Sensor (VDS-2)
- Vibration & Shock Digital Attitude Sensor (VDS-3)
- Wireless Measurement While Drilling-3 (MWD-3)
- Electromagnetic Propagation Resistivity Tool (EPR-2)
- Electromagnetic Propagation Resistivity Tool (EPR-3) (Optional)
- Inclination and Gamma Ray (IGR)
- Gyroscope Orientation Tool-Drilling (GOT-D) (Optional)
- Electrical Orienting Tool (EOT)
- Mechanical Release Joint (MRJ)
- Hydraulic Release Joint (HRJ)
- Float Value Sub (FVS)
- Downhole Thruster
- 2-3/8" / 2-7/8" / 3-1/8" Motor
Openhole Wireline Logging System

Advanced detection technology
Excellent continuous improvement
Expansion capabilities

- ThruLog
- HostileLog
- LithoLog
- ComboLog
- TRLog
- SlamLog
- ImageLog
Openhole Thru-Pipe Logging System

ThruLog offers multiple conveyance options. No chemical source logging is available as use the GCN-TM. Data is acquired in real-time mode by wireline, or in memory mode through drill pipe.

**ThruLog**
- 140 MPa / 175 °C
- \( \Phi \leq 57 \text{ mm (2-1/4 in.)} \)
- Temperature/Tension/Mud Resistivity Tool (TTR-T)*
- Casing Collar Locator (CCL-T)
- Telemetry/ Memory/ Gamma Ray (Spetralog**) Tool (TMG-TM)**
- Generator Compensated Neutron Tool (GCN-TM)
- Acoustic Tool (ACT-TM)
- Dual Lateral log Tool (DLT-TM)
- Four Arms Caliper/Orientation Tool (FCO-TM)
- Array Induction Tool (AIT-TM)
- Casing Collar Locator (CCL-T)
- Battery Power Sub (BPS-T)
- Temperature/Tension/Mud Resistivity Tool (TTR-T)*
- Radial Bond Logging with Memory Mode (RBM)

*T: Thru-Pipe
**Spetralog follow customer request
***TM: Thru-Pipe Memory
HostileLog system provides quality control data on critical operational characteristics even in prolonged high temperature and high pressure well conditions. And HostileLog also has a slim outside diameter for HTHP well with slim hole size.

### HostileLog

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature/Tension/Mud Resistivity Tool-Slim Hostile (TTR-SH)</td>
<td>220°C (430°F) 8 hours</td>
</tr>
<tr>
<td>Casing Collar Locator-Slim Hostile (CCL-SH)</td>
<td>172 MPa (25000 psi) Φ 73 mm (2-7/8 in.)</td>
</tr>
<tr>
<td>Digital Transmission/Gamma Ray Tool-Slim Hostile (TGT)</td>
<td>200 MPa (29000 psi) Φ 76 mm (3 in.)</td>
</tr>
<tr>
<td>Orientation Tool-Slim Hostile (ORT-SH)</td>
<td>Data Transfer &amp; Gamma Ray</td>
</tr>
<tr>
<td>Compensated Neutron Tool-Slim Hostile (CNT-SH)</td>
<td></td>
</tr>
<tr>
<td>Litho-Density Logging Tool-Slim Hostile (ZDT-SH)</td>
<td>Need Motor Push Sub (MPS-SH)</td>
</tr>
<tr>
<td>Acoustic Tool-Slim Hostile (ACT-SH)</td>
<td>∆t and CBL</td>
</tr>
<tr>
<td>Dual Lateral log Tool-Slim Hostile (DLT-SH)</td>
<td></td>
</tr>
<tr>
<td>Micro Spherical Focused Laterolog Tool-Slim Hostile (MSF-SH)</td>
<td></td>
</tr>
<tr>
<td>Array Induction Tool-Slim Hostile (AIT-SH)</td>
<td></td>
</tr>
<tr>
<td>Four Arms Caliper-Slim Hostile (FAC-SH)</td>
<td></td>
</tr>
</tbody>
</table>
The ComboLog System is characterized with integrated electronics, short tool string length and less weight. It saves the rig up time significantly at the wellsite.

<table>
<thead>
<tr>
<th>ComboLog-Wireline</th>
<th>140 MPa /175 °C / Anti-H₂S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature/Tension/Mud Resistivity Tool (TTR)</td>
<td></td>
</tr>
<tr>
<td>Digital Data Transfer / Spectralog / Orientation Tool (TSO)</td>
<td></td>
</tr>
<tr>
<td>Compensated Neutron Tool (CNT)</td>
<td></td>
</tr>
<tr>
<td>Dual Spectrum Density Tool (ZDT-D)</td>
<td></td>
</tr>
<tr>
<td>Acoustic Tool-Combo (ACT-C)</td>
<td>Δt/CBL</td>
</tr>
<tr>
<td>Array Induction Tool-Combo (AIT-C)</td>
<td></td>
</tr>
<tr>
<td>Insulation Sub-Combo (ISS-C)</td>
<td></td>
</tr>
<tr>
<td>Dual Lateral Log Tool-Combo (DLT-C)</td>
<td></td>
</tr>
<tr>
<td>Micro Spherical Focused Laterolog Tool (MSF)</td>
<td></td>
</tr>
<tr>
<td>Total length of the downhole tools:</td>
<td></td>
</tr>
<tr>
<td>(From bottom to GR measurement point)</td>
<td>22.2 m (DLT-C) \ 19.3 m (AIT-C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Tools</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Litho-Density Logging Tool-Integrated (ZDT-I)</td>
<td>Φ 92 mm for 4.5 in. Hole Size</td>
</tr>
<tr>
<td>Electrical Decentralizer Sub (EDS)</td>
<td>Used in Slim &amp; Hostile Hole</td>
</tr>
<tr>
<td>Array Laterolog Tool (ALT) &amp; Thin Layer Resistivity Tool (TLR)</td>
<td></td>
</tr>
<tr>
<td>Hexapod Arms Caliper (HAC) (HAC-I) (HAC-IX)</td>
<td>Six Independent Radiiuses</td>
</tr>
<tr>
<td>Micro Spherical Focused Laterolog Tool (MSF-4) (MSF-S)</td>
<td></td>
</tr>
<tr>
<td>Casing Collar Locator (CCL)</td>
<td>Cement Bond Log (with ACT-C)</td>
</tr>
</tbody>
</table>

The ComboLog System is characterized with integrated electronics, short tool string length and less weight. It saves the rig up time significantly at the wellsite.
LithoLog is used to measure formation lithology and liquid characteristic which not use traditional chemical radioactive source way to get the formation information.

<table>
<thead>
<tr>
<th>LithoLog</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear Magnetic Resonance Tool-M (NMR-M)</strong></td>
</tr>
<tr>
<td><strong>Hexapod Resistivity Imaging Tool (RIT-WBM/OBM)</strong></td>
</tr>
<tr>
<td><strong>Ultrasonic Scan Imaging Tool (USI/USI-V)</strong></td>
</tr>
<tr>
<td><strong>Multi-dipole Array Acoustic Tool (MAA)</strong></td>
</tr>
<tr>
<td><strong>Reservoir Characterization Tester (RCT/RCT-C/RCT-S)</strong></td>
</tr>
<tr>
<td><strong>Formation Coring Tool (FCT/FCT-L)</strong></td>
</tr>
<tr>
<td><strong>Generator Compensated Neutron Tool (GCN-TM)</strong></td>
</tr>
<tr>
<td><strong>Elemental Capture Tool (ECT)</strong></td>
</tr>
<tr>
<td><strong>NMR Rock Sample Analyzer (NRA)</strong></td>
</tr>
</tbody>
</table>
• Thermostatic Regulation Logging System (TRLog)

The TRLog uses a thermostatic regulator to cool down, keeping a constant temperature inside and outside of the instrument. TRLog can work at least 36 hours continuously in harsh environments with 200°C and 160 MPa, it can combine with the pipe conveyed logging tool (PCL) to achieve horizontal well measurement, and downhole logging data can also be collected during the salvage process. The outer diameter of the instrument is 92 mm and can be adapted to 4.5 in. borehole operations.

• Slam Logging System (SlamLog)

The SlamLog can work at least 8 hours continuously in harsh environments with 190°C and 160 MPa, it can combine with LithoLog & ImageLog.
Openhole Wireline Logging System

**ImageLog**
(Special Logging System)

- Hexapod Resistivity Imaging Tool (RIT-WBM/OBM)
- Ultrasonic Scan Imaging Tool (USI/USI-V)
- Multi-Dipole Array Acoustic Tool (MAA)
- Array Induction Tool (AIT)
- Array Latrolog Tool (ALT)
- Nuclear Magnetic Resonance (NMR)
- Thin Layer Resistivity Tool (TLR)
- Multi-Finger Imaging Tool (MFI-24/40/60)
- Elemental Capture Tool (ECT)
ImageLog - Ultrasonic Scan Imaging Tool – V (USI-V)
Flow Imaging Scanner (FIS)

FIS can identify fluid and gas entries multiphase in horizontal well or liquid in gas well, and it can scan fluid and get imaging flow characteristic. And it is a radioactive source free system.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Resistance &amp; Spinner</td>
<td>FIS-RS</td>
</tr>
<tr>
<td>Capacitance &amp; Gas Holdup</td>
<td>FIS-CG</td>
</tr>
<tr>
<td>Fluid Density</td>
<td>FIS-FD</td>
</tr>
</tbody>
</table>
A pulsed neutron instrument. The instrument is a three detector, 1.7 in. Diameter instrument capable of operating in several different modes. The following modes of operation will be available with the RMT instrument:

- Pulsed Neutron Capture (PNC)
- C/O mode
- Pulsed Neutron Holdup Indicator (PNHI)
- Hydrolog mode
## Engineering Logging System

### Multiple Corrosion Inspection System (MultiCIS)

<table>
<thead>
<tr>
<th>Tools Name</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gamma Ray Tool-Production</td>
<td>GRT-P</td>
</tr>
<tr>
<td>Casing Collar Locator</td>
<td>CCL-P</td>
</tr>
<tr>
<td>Platinum Thermometer Tool</td>
<td>PTT</td>
</tr>
<tr>
<td>Noise Detection Tool</td>
<td>NDT</td>
</tr>
<tr>
<td>Multi-Finger Imaging Tool</td>
<td>MFI</td>
</tr>
<tr>
<td>Magnetic Corrosion Inspection Tool</td>
<td>MCI</td>
</tr>
<tr>
<td>Magnetic Thickness Tool</td>
<td>MTT</td>
</tr>
<tr>
<td>Down Hole Camera-Memory</td>
<td>DHC-M</td>
</tr>
</tbody>
</table>
Down Hole Casing & Tubing Tractor (CTT)

Downhole Hydraulic Tractor (DHT)

- Tractor + HSB (Hexapod Segmented Cement Bond tool)
- Tractor + PLT + RMT
- Tractor + MultiCIS (Multi Corrosion Inspection System)
- Tractor + Mechanical Downhole Cutter (MDC)
- Tractor + PST (Hydraulic Plug Setting Tool)
- Tractor + Borehole Logging Tool
Formation Sidewall Coring System

- Formation Coring Tool (FCT)
- Mechanical Sidewall Coring Tool (MSC)
- Nuclear Magnetic Resonance Rock Analyzer (NRA)
Pressure Test & Sampling System

- Reservoir Characteristic Tester (RCT)
- Reservoir Characteristic Tester-Slim (RCT-S)
- Reservoir Characteristic Tester-Casing (RCT-C)
- Formation Test, Fluid Analysis, Pump-thru Sub (FFP)
Reservoir Characteristic Tester (RCT)
Vertical Seismic Profile System (VSP)

- Multilevel Vertical Seismic Profile Tool (MultiVSP)
- Piezoelectric Vertical Seismic Profile Tool (PiezoVSP)
- Slim Vertical Seismic Profile Tool (SlimVSP)
- Geophysics Vertical Seismic Profile Tool (GeoVSP)
- Magnetic Vertical Seismic Profile Tool (MagnetVSP)
Logging Services

- MWD/LWD/RSS/GSD
- Coiled Tubing Drilling (CTD)
- Openhole Wireline Logging
- Engineering Logging
- Production Logging
- Wireline Sampling & Testing
- Vertical Seismic Profile (VSP)
- Data Analysis & Reservoir Research
- Perforation/Cutting/Completion
Russia Base

Middle East Base
VSP
Services Ability

MWD/LWD Services-ComLWD

- Directional Drilling Services (DD)
- Measurement While Drilling (MWD)
- Caliper Corrected Neutron Porosity (CCN)
- Generator Caliper Corrected Neutron Porosity (GCN)
- Ultrasonic Caliper Measurement While Drilling (CWD)
- Rotary Azimuthal Density (RAD)
- Acoustic While Drilling (AWD)
- Electromagnetic Propagation Resistivity (EPR)
- Pressure While Drilling (PWD)
- Pressure & Caliper Measurement While Drilling (PCD)
- Inclination GR (IGR)
- Near-Bit Azimuthal GR (NGR)
Services Ability

MWD/LWD Services -

InteLWD
- Integrated Logging While Drilling (InteLWD)
- Rotary Steerable System (RSS)
- GeoSteering While Drilling (GSD)

LithoLWD
- Caliper Corrected Neutron Porosity (CCN)
- Rotary Azimuthal Density (RAD)
- Nuclear Magnetic Resonance Imaging While Drilling Tool (MRI)
- Acoustic While Drilling (AWD)
- Formation Tester While Drilling (FTD)
Openhole WL Services

- Thru-Pipe Logging (ThruLog)
- Slim Hostile Logging (Hostilelog)
- Combo Logging (ComboLog)
- Lithology Logging (LithoLog)
- Thermostatic Regulation Logging (TRLog)
- Slam Logging (SlamLog)

Openhole ImageLog

- Nuclear Magnetic Resonance Log (NMR)
- Multi-dipole Array Acoustic Log (MAA)
- Hexapod Resistivity Imaging Log-WBM (RIT-WBM)
- Hexapod Resistivity Imaging Log-OBM (RIT-OBM)
- Ultrasonic Scan Imaging Log (USI & USI-V)
Services Ability

Wireline Sampling & Test Services
- Formation Coring (FCT & FCT-L)
- Reservoir Characterization Test (RCT)
- Slim Reservoir Characterization Test (RCT-S)
- Reservoir Characterization Test with Casing (RCT-C)
- Repeat Formation Test (RFT)

Vertical Seismic Profile Services
- Multilevel Vertical Seismic Profile (MultiVSP)
- Slim Vertical Seismic Profile (SlimVSP)
- Piezoelectric Vertical Seismic Profile (PiezoVSP)
- Geophysics Vertical Seismic Profile (GeoVSP)
- Magnetic Vertical Seismic Profile Tool (MagnetVSP)
Engineering WL Services

- Ultrasonic Scan Imaging Log (USI-V)
- Cement Bond Log & Variable Density Log (CBL/VDL)
- Radial Bond Logging with Memory Mode (RBM)
- Hexapod Segmented Bond Log (HSB)
- Down Hole Camera (DHC)
- Gyroscope Orientation Log (GOT)
- Free Point Indicator (FPI)
- Magnetic Thickness Log (MTT)
- Multi-Finger Imaging (MFI)
- Casing Orientation with Dipole Sonic (ORT-C)
- Hydraulic Plug Setting & Through Tubing Plug (PST)
- Noise Detect Log (NDT)
Services Ability

Conveyed Services
- Downhole Casing & Tubing Tractor (CTT)
- Open & Casing Downhole Hydraulic Tractor (DHT)
- Pipe Conveyed Logging (PCL)

Pipe Cutting Services
- Mechanical Down Hole Cutting (MDC)
- Radical Cutting Torch (CUT)
- Punch Torch Cutter (PTC)

Production Logging Services
- Production Logging Service (PLT)
- Memory PLT (PLT-M)
- Flow Imaging Scanner (FIS)
- Reservoir Monitor Log (RMT)
Data Analysis

- Process RENHE/SLB/Baker/Halliburton etc. data (PIView)
- Conventional Petrophysics Analysis
- Borehole Imaging Analysis
- Nuclear Magnetic Resonance Analysis
- Wireline Test Analysis
- Sonic Waveform Analysis
- Production Logging Analysis
- Vertical Seismic Profile Analysis
- Casing & Cementing Inspection 3D Image
- Reservoir Study on Remaining Oil and Potential
- GeoSteering While Drilling
PIView Logging Analysis Software
Target layer real-time alarm

Real-time monitoring of the relative position relationship between the drilling trajectory and the target layer, alarming according to the target layer and the set parameters, and monitoring the track entry and exit layer in real time.
Fracturing Evaluation Technology

VSP or Multi-Dipole fracture monitor technology shows the fracture result directly.

Before

After
Coiled Tubing Drilling (CTD)

- Geological Research and Reservoir Evaluation
- Coiled Tubing Drilling and Sidetracks
- Coiled Tubing Integration Completion
- Engineering with Coiled Tubing
Rigsite Operation
LWD Fullset Services
Rigsite Operation

LWD Services
Rigsite Operation
Openhole Services
Rigsite Operation

VSP Services
Rigsite Operation
Mechanical Sidewall Coring Services with Weatherford
Maintenance

LWD Maintenance Lab
Calibration

WL Density & Neutron

LWD Density & Neutron
Calibration

NMR Calibration
Test System

Test Wells
Test System

Pressure/Temp Test
Test System

Shock Test

Vibration Test
Test System

LWD Circulation
Preciseness

Innovation

Cooperation

Win-win!