Reducing NPT. Improving Efficiency. Conveyance Independence.

Flexible Solutions for Electric Line and Slickline
Combining the Largest Slickline Company in the World with Leading Cased Hole and Perforating Technologies

**Any Service on Any Conveyance**

We offer a full range of well intervention services regardless of conveyance. That way we can provide the greatest value to our customers with the same high-quality data - *whether in real time or in memory mode.*

Each well is different and every operator has a different set of objectives. Imagine a high-pressure well that requires evaluation and intervention. An operator may choose electric line to run a tool with real-time data that allows for further investigation. Then it may be best to switch to slickline to quickly run mechanical tools to improve well performance. In this case, the best option is to have both conveyance options onsite and ready to run.

Halliburton offers an entire line of conveyance-flexible tools that includes industry-leading technologies for measurement, perforating and intervention. And with our state-of-the-art combo-unit, we offer a truly integrated suite of slickline and electric line solutions that help operators improve process efficiency and asset value.

**Minimize NPT with Rapid Deployment**

When a well isn’t producing, it represents significant losses for operators. For complex wells such as high-pressure, high-temperature or deepwater wells, the risks are even greater.

That’s why Halliburton is dedicated to reducing nonproductive time (NPT) for our customers’ wells. We leverage our experience and understanding to help operators achieve efficient well maintenance, remediation and control – without killing the well. This helps reduce intervention costs, boost production, and minimize NPT.

**Project-critical Services**

Electric line and slickline services enable a wide variety of project-critical services. These range from logging operations that can help operators make decisions about how to get the most out of each well, to the maintenance services that actually get the well to optimum performance.
<table>
<thead>
<tr>
<th>Challenges</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>We routinely operate at depths greater than 25,000 feet (7,620 meters) with bottomhole pressures exceeding 15,000 psi.</td>
</tr>
<tr>
<td>High Temperature</td>
<td>We’ve conducted intervention operations in wells greater than 600°F (315°C).</td>
</tr>
<tr>
<td>Deep Water</td>
<td>We provide services for subsea wells in water depths greater than 8,500 feet (2,591 meters).</td>
</tr>
<tr>
<td>Remote Location</td>
<td>We have a large global footprint, which enables us to reach remote locations fast.</td>
</tr>
<tr>
<td>Complex Completions</td>
<td>We support large-bore tubing completions, multizone completions, prolific reservoirs and deepwater sand control completions.</td>
</tr>
<tr>
<td>High Angles</td>
<td>We routinely service wells with a greater than 65° deviation.</td>
</tr>
<tr>
<td>Riserless</td>
<td>We have performed numerous riserless interventions from lightweight vessels – setting records and firsts in the North Sea, Gulf of Mexico, Asia Pacific, West Africa and Brazil.</td>
</tr>
</tbody>
</table>

**Vast Array of Services in Real Time or on Memory**

- Running and retrieving wellbore devices, such as flow control devices or pressure/temperature gauges
- Reservoir evaluation
- Operating downhole circulating devices
- Completion repair
- Workovers
- Running and setting packoff or straddle assemblies for tubing repair
- Pulsed neutron logging
- Retrieving production fluid samples
- Retrieving stuck tools
- Cement and casing evaluation
- Perforating multiple intervals
- Production logging
- Setting and retrieving wellbore devices using the DPU® tool
- Electronic firing systems for explosive operations
- Pulling subsea wellhead plugs
- Downhole camera
- Pipe recovery

**All About Options**

Conveyance flexibility is an important part of service delivery. That’s why we offer virtually any service on virtually any conveyance method.
Integrating Solutions

Halliburton slickline and electric line services benefit from mutual research and development. Through exceptional teamwork between these two services, we offer our customers the industry’s widest array of tools for slickline and electric line, including tools for cement and casing evaluation, production logging, formation evaluation, and reservoir evaluation and monitoring.

Cement and Casing Evaluation Tools
Verifying well integrity is an important aspect of well life decisions for both new and mature field wells. Halliburton offers a full range of industry-leading technologies designed to meet the challenge.

Cement evaluation with our multifinger caliper can provide the best well integrity services on a single trip, saving rig time and delivering solutions more efficiently.

Production Logging Tools
Whether your well is vertical, deviated or horizontal, we provide equipment for memory and electric line production logging:
- **Flow rate measurement** – continuous flowmeters, basket flowmeters, fullbore flowmeters and spinner array tools
- **Fluid identification and flow composition** – gas holdup, capacitance water holdup, radioactive fluid density, differential pressure density, resistance array and capacitance array
- **Flow condition and well diagnostics** – pressure, temperature, X-Y caliper, inclinometer
- **Correlation tools** – gamma ray, casing collar locator

Formation Evaluation Tools
Increasingly, thorough evaluation requires specialized tools to retrieve accurate data from challenging environments. Halliburton offers an array of tools to meet any logging challenge.

The TMD-3D™ tool, a 3-detector Pulsed Neutron Sigma service, offers conventional 2-detector measurements as well as advanced tight gas detection.

Our RMT Elite™ tool provides industry-leading carbon and oxygen (C/O) logging, oil saturation in unknown salinity waters, multiphase saturation for flood monitoring, and shale gas reservoir evaluation.

Reservoir Evaluation and Monitoring Tools
Offering an understanding of production dynamics to enable decisions that optimize production and mitigate risk, Halliburton’s pulsed neutron logging tools provide leading evaluation to enable the right economic decisions about the productive life of the well.

Halliburton’s pipe inspection portfolio encompasses various technologies to evaluate internal and external tubular integrity, as well as to quantify thickness variations in up to two casing strings.

The TMD-3D™ service provides complete formation evaluation for porosity and gas saturation in complex casing completions.

**Timeline**

1957
- Halliburton acquires Welex
- Invents first slickline-conveyed Electronic Triggering Device (ETD)

1978
- Halliburton acquires Gearhart Industries

1988
The Best of Both Worlds

To help customers get the most out of the integrated slickline and electric line services, Halliburton offers a combo unit, which combines the two technologies into one. With both a slickline and an electric line spool, this unit gives operators all the advantages of both services and more.

Separate slickline and electric line units would typically require five crew members. But just three employees are needed to operate the combo unit. By combining slickline and electric line into a single unit, personnel efficiencies are enhanced. This allows operations for any solution with fewer total crew members.

Because the equipment for both systems is efficiently packaged into a single unit, the footprint for the combo unit is substantially smaller than having two separate units on site.

Best of all, the combo unit can help keep operations running smoothly and reduce NPT. By having both technologies onboard, customers can use the fastest, safest, or most available equipment – depending on the current needs of the project.

Safety Leadership

Halliburton is an industry leader in safety. All of our equipment is certified to the highest standards, rigorously inspected, and regularly maintained. This, combined with our global implementation of standardized safeguards, helps ensure that every tool, every job, and every employee will benefit from our high adherence to safety standards.

Slickline: A Small, Lightweight Alternative

The combo unit is small, but in some situations, customer may need to operate within an even smaller footprint, size or weight limit. In these cases, we recommend using a dedicated slickline unit. It is substantially smaller and lighter, and it can run virtually all the same equipment by using memory instead of in real-time.

A slickline unit can be as small as 48” x 60” x 48”.

Custom-designed for Any Environment

Halliburton’s combo unit uses a very flexible design that can be customized for use in any environment. Small, skid-mounted versions are used on offshore rigs. Climate-controlled cabs are ideal for hot, desert environments. And for arctic operations, a fully containerized unit is available to protect equipment from freezing weather.
Industry-leading Innovations

MILESTONES: First, Deepest, Biggest, Longest

**FIRST**
- Subsea wellhead plugs on slickline from deepwater horizontal trees.
- Our electro-mechanical DPU® tool is the first system to set and retrieve plugs and packers on slickline without explosives.
- We created the first battery-powered slickline DPU tool that can be conveyed on tractor to allow plug setting in horizontal wellbores without coiled tubing.

**BIGGEST**
- We have the biggest and most dense detectors in any pulsed neutron tool on the through-tubing market. Our BGO detectors in the RMT tool have twice the volume and more than twice the mass of competitive technology, resulting in improved signal-to-noise ratio and the highest fidelity measurements in the industry.

**DEEPEST**
- We achieved the deepest offshore electric line run to set a packer at 31,795 feet.
- We performed the deepest completion at a measured depth of 30,521 feet.
- We accomplished the deepest slickline operation in the Gulf of Mexico at 29,800 feet.
- We hold the world record for deepest riserless intervention from a lightweight vessel in more than 6,000 feet of water.

**LONGEST**
- We offer the deepest penetrating 2½-inch and 7-inch perforating charges in the industry.
- We have performed the longest overall perforating job at 9,370 feet.
- We achieved the longest perforated interval at 9,628 feet.
- We executed the longest interval performed with slickline at 645 feet.

Developing more Engineers and Operators
We are expanding our workforce every year through a combination of recruitment, training, career development and retention programs. Our training is focused on developing multiskilled employees to help reduce personnel on board (POB) as well as employees with technical expertise for developing solutions and after sales analysis. We strive to make sure that we have skilled, qualified, and well-trained personnel available when and where they’re needed. That’s why we invest more than $100,000 on each person who completes programs from one of our training centers in the US, Indonesia, Brazil, Scotland and Egypt.
Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.