



Weatherford®

Wellbore Integrity
Restoration Services



New Life for Mature Wells

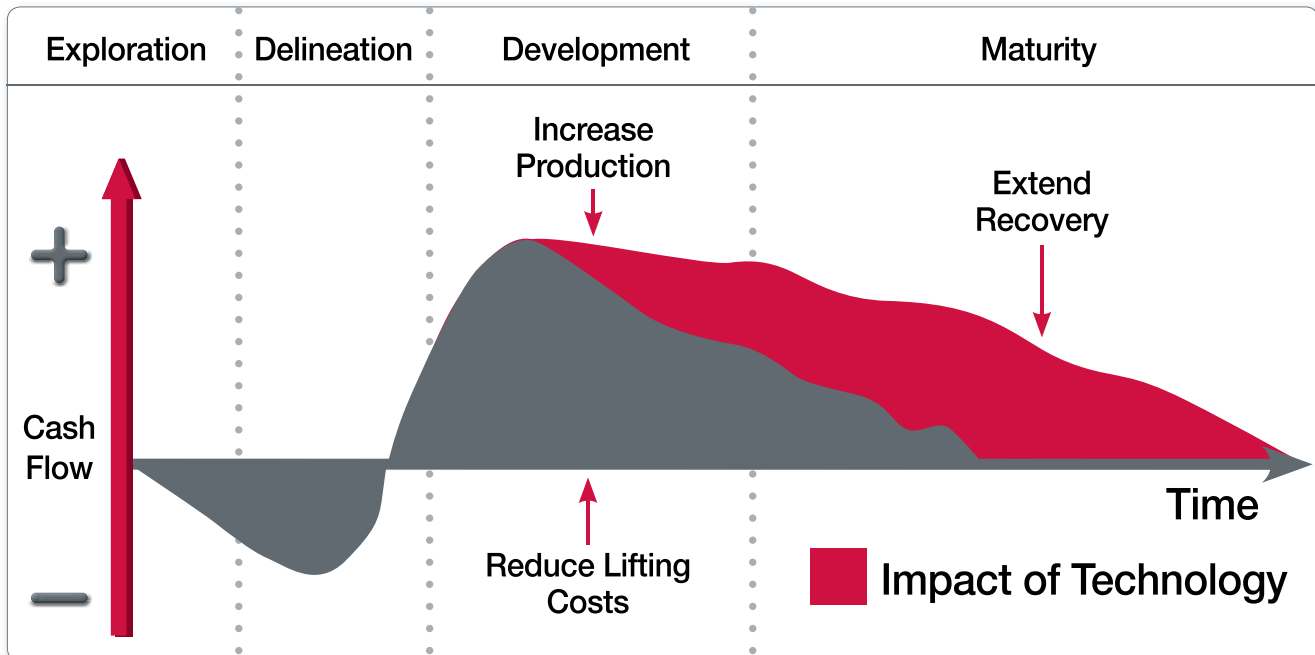
Optimize and extend recovery with cost-effective, integrated services for permanent casing repair and a full range of isolation applications.

Fix it permanently

with Weatherford casing repair and isolation.

Extend your field recovery with our life-of-well repairs

We can provide you with all the engineering expertise and technology that you need to successfully develop your recoverable reserves with greater well-performance gains and operating-cost reductions.



Why Weatherford?

Industry-leading technology

We have a full suite of technologies that reliably, quickly, and safely restore your wellbore integrity, minimize your lifting costs, and maximize your reservoir output.

Efficient, full-service capabilities

By providing you with a single source, Weatherford increases efficiency. You'll get one company that can design and coordinate your entire remediation operation. For optimal results, we collaborate with you to develop a plan, select the best technology for the job, and coordinate installation at the job site.

Reduced operating costs

Through our solid-expandable technology, we can help you make long-term casing repairs that are more cost efficient than short-term, squeeze-cementing jobs. Weatherford's MetalSkin® cased-hole liner system or HOMCO® internal casing patch provides a permanent fix that lowers cumulative well operating costs.

Cased-hole, mature-field challenges

Our services are designed to remediate your cased-hole issues, whatever the application.

- Corroded or eroded casing
- Water shutoff
- Zonal isolation
- Perforation isolation
- Split or parted casing
- Worn casing
- Collar leaks
- Buckled or deformed casing
- Thief-zone elimination
- Lateral and sidetrack isolation
- Well deepening
- Refracturing

Solid results from around the world

USA (North Dakota)

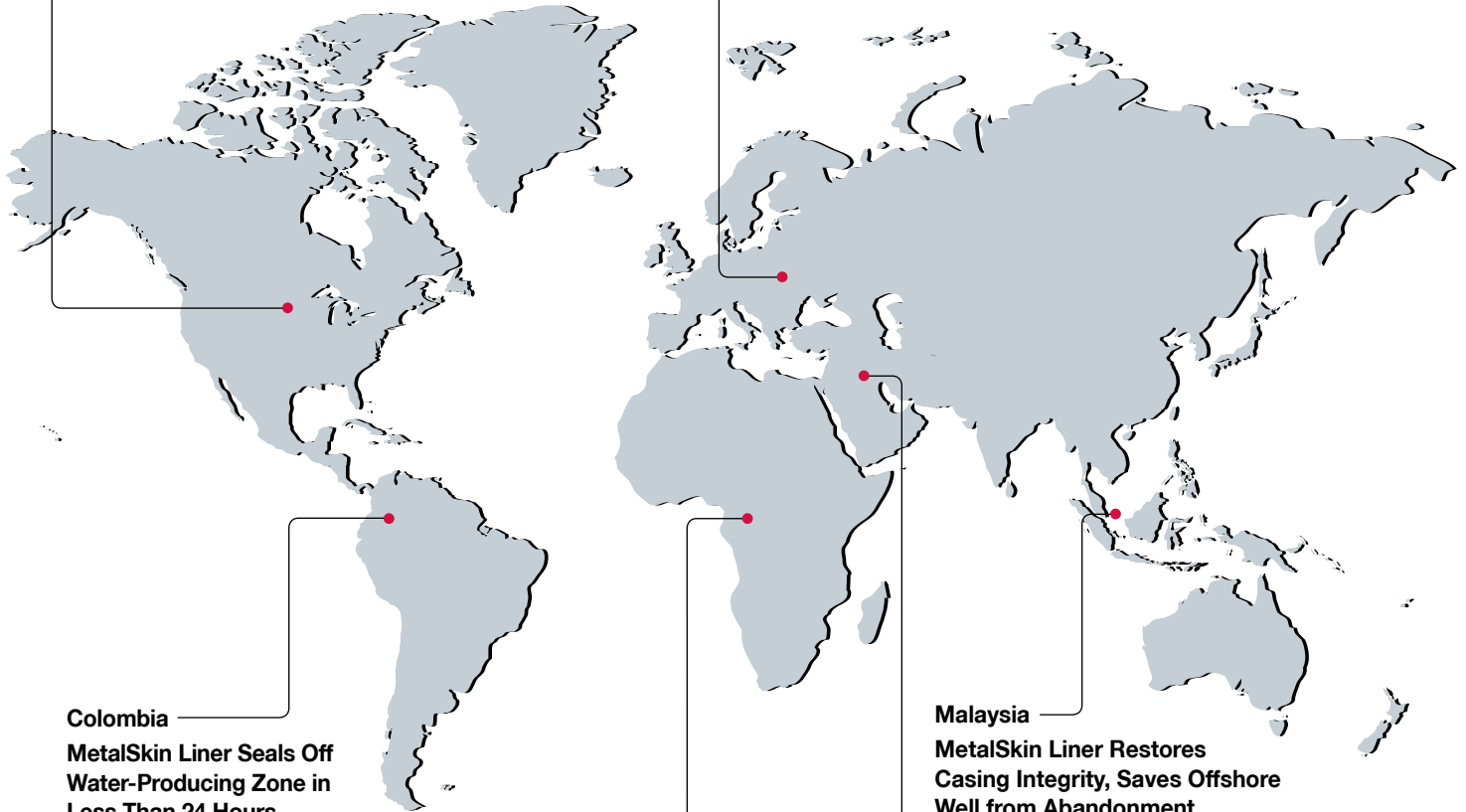
Casing Repair and Isolation Services Fix Leaky 150-ft Section

Weatherford provided the single-source solution—including fishing, wireline, and tubular running services. Our MetalSkin® liner repaired a 150-ft (46-m) casing section, bringing the well to full quality and health, safety, and environmental (HSE) integrity standards in less than 2 weeks.

Europe

MetalSkin Liner Restores Production in Offshore Well with Severely Corroded Liner

Weatherford ran and expanded a 2,967-ft (904-m), 7 5/8-in. × 9 5/8-in. MetalSkin liner. The liner system reduced operating expenses by 50 percent and rig time by 28 days, compared to a slot-recovery alternative. The flexible system enabled the client to run additional liner after discovering casing leaks deeper in the well.



Colombia

MetalSkin Liner Seals Off Water-Producing Zone in Less Than 24 Hours

Weatherford services maximized production and reduced downtime significantly with the MetalSkin liner, which was installed faster than a scab liner.

Congo

Weatherford Services Eliminate Produced Water from Corroded Interval in Shallow, Offshore Well

Weatherford fishing and rental, wireline, and tubular running services, and our H₂S-resistant MetalSkin liner system covered a corroded interval and brought the well to full HSE integrity with no drillout needed. Designed around platform limitations, a specialized jack system eliminated the workover-rig requirement during liner installation.

Malaysia

MetalSkin Liner Restores Casing Integrity, Saves Offshore Well from Abandonment

After unsuccessful cement squeeze attempts, Weatherford installed a 7 5/8-in. × 9 5/8-in. MetalSkin liner and then ran an IPP® inflatable production packer below it. The liner re-established the integrity of the 9 5/8-in. parent casing, enabling the operator to recomplete the well as a water-alternating-gas injector.

Iraq

MetalSkin Liners, CLEARMAX™ Cleaning Services Remediate Casing, Maintain Maximum ID in 29 Hours

Weatherford ran our MAX-Blade™ casing scraper and MAX-Brush™ assembly to 3,494 ft (1,065 m), preparing the casing interior for two 7 5/8- × 9 5/8-in. MetalSkin liners. The liners provided one-trip installation with no additional drillout, hydraulically isolated the perforated intervals, and maximized the pass-through diameter.



Find it

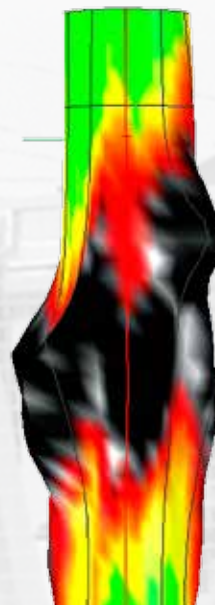
Cased-hole logging services

Take advantage of advanced technologies that help pinpoint casing problems, water-production sources, wellbore obstructions, and bypassed production opportunities. The **UltraView™ tool** simultaneously delivers 360° ultrasonic cement and casing inspections in real time. The **CalView™ multi-sensor caliper** captures high-resolution samples at 10 times the industry standard, and the **FluxView™ tool** reveals internal and external casing damage using 360° magnetic-flux, sensor-array technology. These three tools are part of our **SecureView™** suite of casing evaluation tools.



Threats To Casing Integrity

- Wear
- Deformation
- Thickness
- Defects (internal and external)
- Pressure



UltraView technology revealed the casing defects (left) in the actual pipe (right) that was pulled from the well

Wellbore Integrity

Minimize costs and

Prepare it

Wellbore preparation services

Our wellbore preparation services use fast, effective, thorough methods that prepare your well for remediation. Our **fishing services** include the industry's most comprehensive line of fishing, milling and pulling tools to get the job done right the first time, while **CLEARMAX™ wellbore cleaning services** can remove unwanted debris and prepare your well for the liner with chemical, mechanical and hydraulic technologies.

MAX-Blade™
Casing Scraper



MAX-Brush™ Tool



Benefits ▶ Permanent casing repairs and water shutoff ▶ Quick, cost-efficient, reliable technology ▶ Reduced

Restoration Services

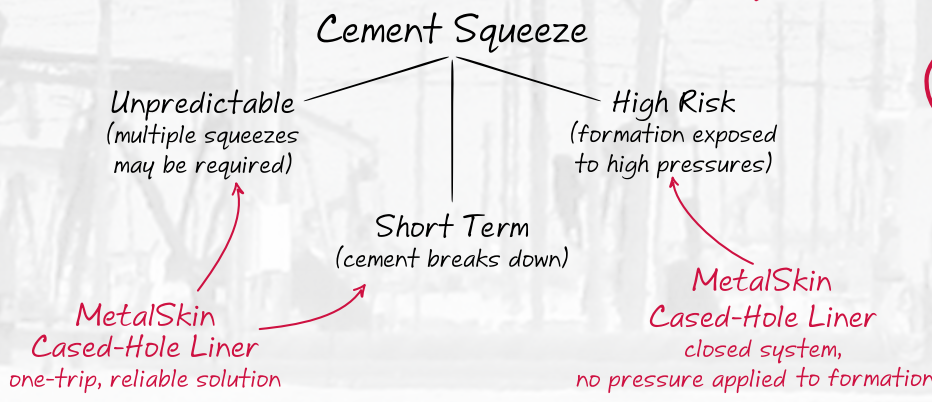
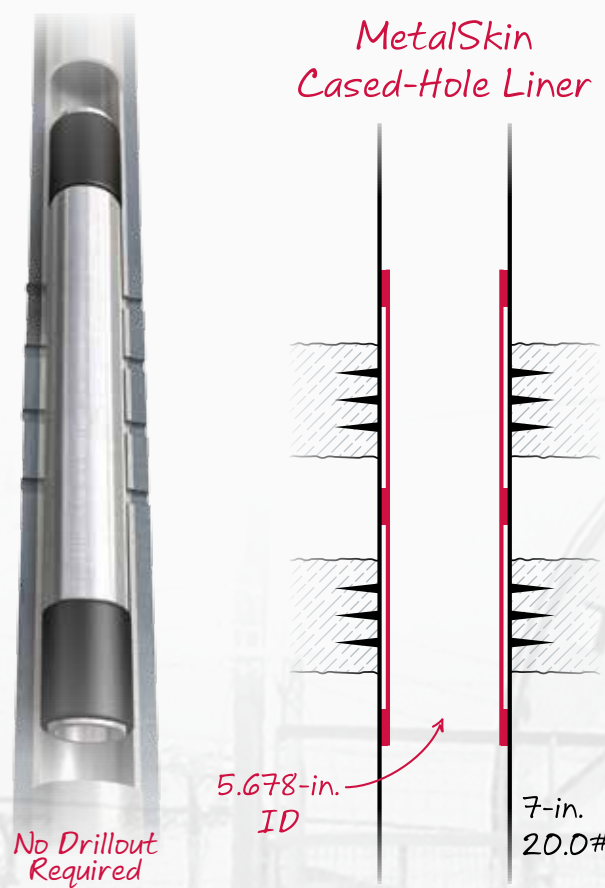
maximize recovery



Solid-expandable liners

Weatherford solid-expandable liners provide a permanent fix that restores wellbore integrity. In addition, this technology saves you money in the long run, while giving you an extra margin of safety and security.

Our **MetalSkin®** cased-hole liners isolate damaged casing and seal off unwanted perforations and formation fluids. With single-trip installation and no drillout required, both rig and nonproductive time are significantly reduced. In many cases, liners can be installed in one day, enabling you to test immediately and get the well back on production.





Complete it

Cased-hole completion services

Cased-hole completion services offer a full suite of technologies—including the latest in **packers, flow controls, and subsurface-safety and control valves**. Coupling the right technology with in-house engineering expertise enables us to effectively and efficiently complete virtually any well.

New Life for Mature Wells





Wellbore Integrity Restoration Services

New Life for Mature Wells

Weatherford casing repair and isolation services give new life to mature wells. To learn how our single-source services and solid-expandable technology can help you permanently repair casing and shut off water to maximize production and extend recovery, contact an authorized representative at solid.expandables@weatherford.com, or visit weatherford.com/integrity.



Weatherford[®]

weatherford.com

© 2013–2015 Weatherford. All rights reserved. 10315.02

Weatherford products and services are subject to the Company's standard terms and conditions, available on request or at weatherford.com. For more information contact an authorized Weatherford representative. Unless noted otherwise, trademarks and service marks herein are the property of Weatherford and may be registered in the United States and/or other countries. Weatherford products named herein may be protected by one or more U.S. and/or foreign patents. Specifications are subject to change without notice. Weatherford sells its products and services in accordance with the terms and conditions set forth in the applicable contract between Weatherford and the client.