

GAS STORAGE

GAS-STORAGE-WELL INTEGRITY SERVICES

Meeting federal standards
with proven oilfield technologies



Weatherford[®]

MAINTAIN WELL INTEGRITY

Reveal and repair casing and cement issues with field-proven technologies

North American gas-storage wells provide reliable energy storage. Many of these wells have been in service for more than half a century. A regular inspection and maintenance program led by a skilled service provider can extend life even further and sustain productivity for decades to come.

Only Weatherford offers a comprehensive portfolio of world-class diagnostic and restoration technologies that minimize storage-well downtime. As your one-stop partner for storage-well integrity, we can help you to safely inspect and maintain your wellbores to regulatory standards.

Our broad portfolio of inspection systems features the SecureView® casing and cement evaluation service, which provides high-definition logs of your inner casing, outer casing, cement strength, and cement bond. And should we find a problem, our comprehensive remediation toolbox of MetalSkin® solid-expandable liners can fix the issue with a smaller bite out of your budget than you might expect.

WE ARE YOUR SINGLE-SOURCE PARTNER

Only Weatherford offers the comprehensive inspection, remediation, and turnkey project-management solutions that extend the life of your aging assets. Our step-by-step process delivers field-proven well-integrity services that meet strict regulatory standards.



FIND IT

Track down any downhole issue with actionable wellbore data



PREP IT

Remove debris and prepare the wellbore for remediation



FIX IT

Restore integrity permanently and leave a larger ID



ABANDON IT

Finish strong with safe, permanent abandonment solutions

Meet federal standards with oilfield expertise

Regulations for gas-storage wells will continue to tighten. As standards develop at both state and federal agencies, Weatherford well-integrity experts can help you to meet these new regulations efficiently and cost effectively.

MEET INSPECTION STANDARDS IN 1 TRIP

Reliable and field-proven oilfield technology delivers ultradetailed well-integrity logs that exceed regulatory standards with minimal downtime and negligible cost. Among the many rules that apply to regular wellbore inspection are API RP 1171 standards, which range from baseline logging (Section 6.5.2) to complete cement and casing-integrity evaluation (Section 6.4.6 and 6.9.2).

Weatherford wireline inspection services help you to prevent complex problems tomorrow by uncovering the smallest of threats today. In conjunction with conveyance systems, our technologies operate in either real-time or memory mode to give you the operational flexibility to log any job, anywhere.

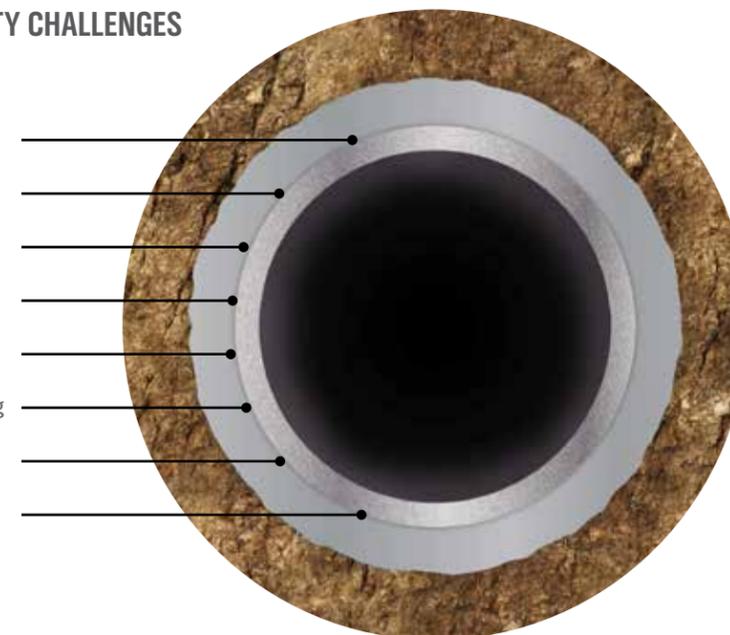
REPAIR WELL-INTEGRITY TO STANDARD IN 1 TRIP

When well-integrity problems are identified, operators require a permanent, cost-effective solution that safely extends the life of the well. Conventional repair methods include replacement liners and scab liners, which incur significant rig costs and often reduce the wellbore inside diameter (ID). Another approach is a cement squeeze—in which cement slurry isolates unwanted fluids and casing defects—which often fails long-term and requires further intervention.

Advanced oilfield well-integrity restoration technologies offer a better approach. Solid-expandable liner technology provides a low-cost and permanent alternative to conventional methods.

CASING INTEGRITY CHALLENGES

- Zonal Isolation
- Water Shutoff
- Worn Casing
- Perforation
- Corroded Casing
- Split or Parted Casing
- Collar Leaks
- Deformed Casing





FIND IT

Track down your downhole issues with actionable wellbore data

The SecureView® casing and cement evaluation system detects, diagnoses, and evaluates even the smallest leaks and casing problems.

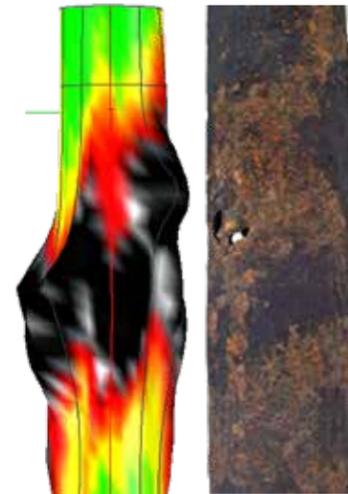
Built from thousands of feet of casing and tons of cement—and subject to decades of use—comprehensive cased-hole well integrity raises questions that no single tool or measurement can answer. That's why our SecureView service—comprised of a suite of well-diagnostic technologies—combines and overlaps measurements to detect any wellbore problem in one logging run.

Using a suite of four technologies that run alone or together in a single trip, we provide high-definition logs of your inner casing, outer casing, cement strength, and cement bond. Run as part of your regular inspection and maintenance routine, the four SecureView tools can run separately or in any combination to gather comprehensive data without information gaps.

Like all Weatherford wireline services, raw well data is interpreted by experienced professionals who use proprietary analysis software to diagnose casing and cement issues, confirm the extent of any damage, and recommend the most efficient remediation strategy.

YOUR CASED-HOLE WELL IS TALKING. WE'RE LISTENING.

Our sensitive GAPS (Geophone Array Production Survey) leak-detection system acoustically pinpoints gas or water movement behind the casing. Using this exclusive technology, we can identify and source surface-casing vent-flow issues (leaks) and recommend an efficient remediation strategy.



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



CalView® TOOL

The highest-resolution multisensory caliper tool on the market with a sampling rate ten times the industry standard

Get a complete and accurate profile of your internal casing to identify corrosion, scale buildup, wear, splitting, and deformations caused by geomechanical stresses.

FluxView® TOOL

Superior analysis of internal and external casing damage using 360° coverage Hall-effect sensors and magnetic flux technology

Identify and quantify casing defects using state-of-the-art sensors and magnetic flux technology.

BondView® TOOL

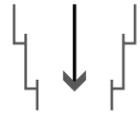
Short and lightweight cement bond tool that is well suited for wells in which centralization is difficult to maintain

Determine the quality and vertical length of the cement bond between your casing and the formation.

UltraView® TOOL

Simultaneous 360° casing and cement coverage and real-time fluid measurements

Gain unparalleled insight into your wellbore integrity with simultaneous ultrasonic-cement analysis, internal and external casing inspection, and thickness detection.



PREP IT

Remove debris and leave a restoration-ready wellbore

Masters of their craft, our fishing crews stand ready for any contingency, anytime, anywhere in the world. They leverage our CLEARMAX™ mechanical cleaning tools to prepare the wellbore for lasting restoration. With decades of experience all over the world, our fishing experts ensure that the job is done safely and effectively.



FIX IT

Restore well integrity with our permanent restoration solutions

Easily installed in a single trip—using either a workover rig or coiled-tubing unit—MetalSkin® technology is field-proven worldwide.

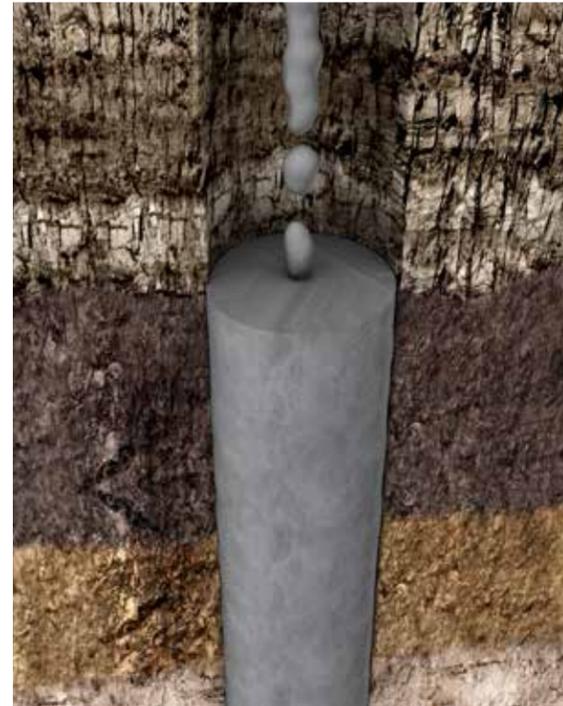
As a pioneer in solid-expandable tubular systems, Weatherford offers unparalleled well-integrity restoration expertise backed by the experience of tens of thousands of installations to date. Our family of MetalSkin solid-expandable liners provides enhanced burst and collapse resistance that seal and isolate damaged casing and shut off unwanted perforations or fluid zones.

We repair casing issues including corrosion, collar leaks, and casing that is split, parted, or buckled. Ideal for mature wells, MetalSkin liners eliminate the need for repeated repairs and leave a larger ID than other mechanical solutions. In many cases, the liners are installed in 1 day and require no drillout, which enables operations to resume quickly while reducing workover costs and nonproductive time.



RESTORES
**CASING
 INTEGRITY**

IN LENGTHS UP TO 2,000 FT
 (610 M) IN **1 TRIP**



ABANDON IT

Finish strong with safe, permanent abandonment solutions

The economic life of every well eventually ends. Our dedicated specialists use the best tools on the market to supply a rock-to-rock, cement-to-formation bond that meets the strictest compliance standards. Using a project-managed approach, our specialists take you through all phases, from pre-job to contingency planning, compliance, engineering, implementation, and final abandonment.



MAINTAIN WELL INTEGRITY

Weatherford gas-storage-well integrity services help you to meet federal standards with proven oilfield technologies.

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