

Argentina

Custom cement strategy stops total losses and boosts efficiency

BridgeBlend™ LCM and reactive-spacer approach seals severe losses in Vaca Muerta

CHALLENGE

- Total losses in intermediate section
- Faulted interval in Candeleros formation
- Negative FIT result
- Multiple pills failed to stop losses

SOLUTION

- Apply reactive-spacer LCM system
- Alternate Tuned® Prime™ spacer and LCM-enhanced slurry
- Tailor BridgeBlend™ LCM with local materials
- Seal fractures with gel-forming reaction

RESULT

- Stopped total losses with single plug
- Resumed circulation without losses
- Reduced non-productive time

Overview

An operator in Argentina's Vaca Muerta field faced severe losses that threatened progress in the intermediate section of a well in the Candeleros formation. The interval contained a faulted zone known for total loss conditions, and early indications revealed unstable regions that placed the section at risk of extended non-productive time (NPT). The operator needed a reliable way to protect operational continuity, restore wellbore integrity, and avoid repeated remedial attempts that increase cost and delay drilling programs.

The geology in this part of the basin includes fractured and unconsolidated intervals that accept fluid rapidly. Once losses start, they often escalate, and conventional lost-circulation pills rarely succeed in sealing the formation. The operator wanted a single, dependable treatment that could deliver zonal isolation, confirm the top of cement (TOC), and allow drilling to resume without additional losses. This requirement established the need for a customized solution that accounted for unique local materials, operational constraints, and the specific mechanical behavior of the loss zone.

Challenge

After the operator cemented the surface casing, partial losses stopped progress toward the planned TOC. A formation integrity test (FIT) returned a negative result. When the operator advanced the intermediate section, total losses started immediately. The mud team attempted multiple lost-circulation pills, but losses continued. Each attempt consumed rig time and failed to deliver a sustained pressure response.

The well continued to accept fluid with no sign of stabilization. Without a dependable seal, the section faced an elevated risk of sidetrack operations, increased NPT, and raised cost exposure. The operator needed an effective way to stop losses, protect the wellbore, and limit additional NPT.



Solution

Halliburton proposed a reactive-spacer lost-circulation solution that used alternating stages of Tuned® Prime™ cement spacer with 8 lbm/bbl of BridgeBlend™ lost circulation material (LCM) and an accelerated cement slurry with an additional 8 lbm/bbl of BridgeBlend LCM. This alternating design allowed both fluids to work together inside the loss zone.

The team used design algorithms to tailor the BridgeBlend LCM with locally available materials that work together to stop losses. The reactive spacer formed a stiff gel when it came into contact with the slurry, which sealed fractures and isolated the loss zones. The team placed fluids in the loss interval and injected them into the formation. A strong pressure response during displacement confirmed that the system plugged the loss zone.

Result

After the cement set, the operator tagged the top of cement (TOC) at the planned depth and advanced through the interval without losses. A successful FIT confirmed wellbore stability. The single-plug solution stopped total losses, reduced NPT, and allowed the operator to continue the section as planned. The integrated approach outperformed the initial plan that relied on only a reactive spacer and delivered stronger zonal isolation in severe-loss conditions.

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