CASE STUDY

HALLIBURTON

Brazil

Petrobras simplifies well cleanup in high-solids flowback operations

Automated flow control and integrated solids management supports safe well testing and saves an estimated 48 hr of rig time

CHALLENGE

- Increase well flow rate under high-solids conditions
- Maintain precise pressure and flow control
- Reduce well testing complexity
- Manage surface solids handling and disposal
- Maintain operational visibility

SOLUTION

- Deploy FloConnect® Choke Manifold
- Integrate desander and filtration technologies
- Centralize tank inventory and solids control
- Provide remote monitoring and real-time data

RESULT

- Reduced cleanup execution time by 26%
- Avoided 33 hr of historical transfer-related NPTEliminated HSE, SQ, and NPT events
- Reduced CO_2 emissions by 1,167 metric tons

Overview

Petrobras sought an optimized reservoir cleanup solution that could increase flow rate, manage the produced solids, and maintainsafe operating conditions.

Halliburton deployed an integrated surface well testing solution that combined the FloConnect® Choke Manifold, part of the FloConnect® surface automation platform, with a dedicated solids-management package. The design placed the automated choke manifold downstream of solids-removal equipment and upstream of the heating and separation systems. This configuration allowed Petrobras to maintain stable operating conditions at higher flow rates, improve operational visibility, and accelerate cleanup activities, while protecting personnel and equipment.

Challenge

Petrobras had previously conducted production flow operations with surface well testing equipment installed on a drilling rig, where high gas flow rates carried significant volumes of abrasive solids and oil-based mud. These harsh conditions exposed flow-control equipment to severe erosion, which could damage chokes, require equipment repairs, restrict flow rates, and interrupt production. Such disruptions could extend cleanup execution time and increase overall well costs.

Surface solids management posed an additional challenge. Limited rig deck space restricted solids-storage capacity, while hydrocarbon-contaminated solids required specialized waste-management procedures. Historical operations had stopped for up to 33 hr while crews offloaded solids from the surface well testing system. Petrobras required an approach that could manage solids without such interruptions while maintaining precise flow control and operational visibility.

Solution

Halliburton designed an integrated cleanup system that combined automated flow control with upstream online solids management. The FloConnect® Choke Manifold served as the primary flow-control system, while a desander and sand filtration package removed abrasive solids before fluids reached the manifold and downstream processing equipment. This configuration protected downstream equipment from erosion and maintained target pressure and flow conditions throughout the operation.

The all-electric FloConnect® Choke Manifold provided automated flow control and real-time operation monitoring. Halliburton monitored well conditions from the command center and adjusted choke openings or changing flow paths within seconds. Remote operations reduced personnel exposure to high-pressure flowback activities. The plug-and-play design required no additional rig-up time, and the vertical equipment configuration performed reliably in the erosive environment with no washout during the job.

Halliburton also integrated centralized solids inventory control with real-time tank monitoring. The system tracked skip-tank capacity and supported fluid transfers without interrupting cleanup operations. This approach helped Petrobras optimize limited deck space, simplify offshore logistics, and maintain continuous operations.

Result

Petrobras completed the cleanup campaign safely and ahead of schedule. The integrated system maintained stable operating conditions and supported continuous flowback with no unplanned shutdowns. Remote choke operation eliminated the need for personnel to access flow-control equipment during flowback, which reduced exposure to high-pressure operations. Real-time monitoring also helped Petrobras identify process restrictions, respond quickly to changes in well conditions, and maintain efficient cleanup performance.

The system allowed Petrobras to produce the well at up to 78% of full capacity under harsh-solids conditions. Compared with historical operations in the same reservoir, Petrobras reduced cleanup execution by 26%, or 15.5 hr. Online solids handling avoided an additional 33 hr associated with historical transfer delays, for an estimated combined savings of 48 hr of rig time.

The operation recorded zero health, safety, and environment (HSE), service quality (SQ), and nonproductive time (NPT) events. The shorter operating schedule also reduced CO_2 emissions by 1,167 metric tons. Together, these results demonstrated that automated flow control and integrated solids management can help Petrobras reduce cleanup time, limit operational interruptions, and improve safety during high-solids flowback operations. testing tanks before finalizing clean-up, another reference 33h were saved by online solids handling.



FloConnect® Choke Manifold

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