



Weatherford®

REAL RESULTS

Coiled Tubing and Cyclone Bailer® Tool Clear >800-Ft Obstructions and Help to Restore Production from 0 to 700 BPD in 4 Wells

Objectives

- Clean residue from the rubber elastomers on progressing cavity pumps (PCPs) off the liner in four heavy-oil wells. The residue buildup on the liner, which consisted of sand, asphalts, heavy oil, and elastomer debris gums, had created obstructions ranging in size from 100 ft (31 m) to more than 800 ft (243 m).
- Restore production, which had completely stopped.
- Avoid the costs of using a rig or removing the liner during the intervention.

Results

- To avoid using a rig, Weatherford deployed 2-in. coiled tubing (CT) to convey the Cyclone Bailer tool into each wellbore. The size of the CT was sufficient to maintain high pump rates in all four wells, each of which had fluid losses and low pressure. Using CT eliminated the need to remove the liner from each well.
- The size of the elastomer debris—up to 1 in.²—was too large to pass between the inner diameter of the liner and the outer diameter of the CT using well flow. Therefore, the Cyclone Bailer tool was more effective at removing waste from the liners than the jet nozzles or conventional motors and bits used previously by other service companies. The debris was also too heavy to remove using energized fluids with nitrogen. The Cyclone Bailer tool used a strong vacuum to draw debris into the bailer and to trap the large objects in its high-performance filter.
- The operation lasted just 5 days.

Value to Client

- After the removal of residue on the liners, production increased from 0 BPD (0 m³/d) to the original levels of 700 BPD (111.3 m³/d).
- The Cyclone Bailer tool and CT services brought the well back into production quickly and cost effectively. By using CT instead of a land rig, the operator reduced rig time by 50 percent—from 10 days to 5 days—and saved US\$300,000.



In most heavy-oil fields in Venezuela, using PCPs results in elastomer gum debris and sand buildup on the liner that create obstructions and interrupt production. In these four wells, the Cyclone Bailer tool and CT services removed the obstructions in a quick and cost-effective manner and fully restored production to previous levels.

Location
Venezuela

Formation Type
Sand, shale

Number of Wells
4

Well Type
Onshore, vertical, heavy oil

Casing Size
8-5/8 to 9-5/8 in.

Tubing Size
3-1/2 to 5-1/2 in.

Liner Size
3-1/2 to 5-1/2 in.

Total Depth
7,275 to 8,476 ft (2,217 to 2,583 m)

Workover Depth
6,000 to 10,000 ft (1,828 to 3,048 m)

Bottomhole Temperature
-175 to 169°F (-115 to 74°C)

Bottomhole Pressure
1,300 to 1,656 psi (8.9 to 11.4 MPa)

Products/Services

- Cyclone Bailer tool
- Scrubber tubes
- 2-in. coiled tubing

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