

Sand Jetting, FracGuard® Plugs Complete Complex Well With Only Coiled-Tubing Unit, Save \$300,000



Working in a difficult lateral section, Weatherford provided an efficient alternative to a plug-and-perf completion using only a coiled-tubing unit.

Objectives

- Complete a 3,117-ft (950-m) lateral section of an exploratory shale-gas well. Dogleg angles up to 9.7° per 98 ft (30 m) are likely to cause sticking issues, which necessitates an alternative to a traditional plug-and-perf completion.

Our Approach

- Weatherford deployed an integrated Petroleum Consulting (PC) and completion services team. Following careful study of logging-while-drilling (LWD) data and collaboration with the client, the PC team suggested a 10-stage completion using sand jetting via coiled tubing. The technology enables operational efficiency by setting a FracGuard plug and jetting in one trip.
- For each of the 10 stages, the coiled-tubing unit ran the frac plug and jetting tool to plug depth. Then the surface pumping equipment pumped a setting ball to set the plug. Next, the jetting process began for each cluster within the interval, followed by a wellbore cleanup.
- The operation delivered a clean wellbore to the client to enable a smooth flowback recovery of the fracturing fluids.

Value to Client

- Using the single-trip efficiency of a coiled-tubing unit and FracGuard plugs, Weatherford completed the well in 10 stages with no sticking issues.
- The operation saved approximately US \$300,000 in completion costs compared to use of thru-tubing, which would have required another 20-hour trip per stage, or about nine more days.
- The operation reduced water consumption to 7,500 bbl per stage compared to an average of 9,000 bbl in similar wells.

LOCATION

Reynosa, Mexico

FIELD

Burgos Basin, Batial Field

WELL TYPE

Horizontal shale gas

WELL DEPTH

13,681 ft (4,170 m)

LATERAL LENGTH

3,117 ft (950 m)

MAXIMUM DOGLEG

9.7° per 98 ft (30 m)

MAXIMUM PUMPING PRESSURE

10,750 psi (74.1 mPa)

MAXIMUM FLOW RATE

60 bbl/min

FRACTURE GRADIENT

1.1 psi/ft (.008 Mpa/ft)

NUMBER OF STAGES

10

PROPPANT

1.8 million lb (816,466 kg) of natural sand and 1.2 million lb (544,310 kg) of ceramic proppant

BREAKING FLUID

Hydrochloric acid (15% solution)

WATER CONSUMPTION

7,500 bbl

PRODUCTS/SERVICES

- Petroleum Consulting services
- Pressure pumping services
- Coiled-tubing services
- FracGuard plugs

