

Minima™ Composite Frac Plug

Reduces Cuttings by 40%, Improves Millout Times In Two Horizontal Wells



Minima composite frac plugs break down into small, manageable cuttings that pump to the surface for easy removal from the wellbore.

Objectives

- Set 25 frac plugs in each of two wells during plug-and-perf operations.
- Mill all plugs, then clean out downhole swarf and cuttings to enable subsequent installation of production equipment.

Our Approach

- While reviewing plug-and-perf plans for two horizontal wells, Weatherford well completions experts recommended that a Niobrara operator use Minima composite frac plugs to expedite the process. The short length of the Minima plug creates less volume to mill and leaves less material in the wellbore. Its composite materials produce lightweight cuttings that lift easily to the surface.
- A Weatherford completions team deployed to the wellsite pad with 50 Minima frac plugs, and set 25 plugs in each well.
- Upon finishing frac operations on both wells, the operator milled the plugs using a tri-cone bit run on jointed tubing. The operator achieved an average of 3.04 minutes to mill out each plug.
- After milling, cuttings were flowed to surface to clean out each wellbore.

Value to Customer

- The Minima plugs reliably set and held pressure throughout all fracturing operations.
- The short length of the frac plugs helped to reduce mill-out times.
- The composite plugs produced 40% fewer cuttings than competitor plugs. The lightweight cuttings provided for quick and efficient cleanouts, enabling the operator to bring the wells onto production ahead of plan.

LOCATION

Niobrara Basin
Colorado, USA

FORMATION

Niobrara

WELL TYPE

Onshore oil producer

WELLBORE DEVIATION

Horizontal

CASING SIZE AND TYPE

5 1/2-in., 20 lb/ft

BOTTOMHOLE TEMPERATURE

210°F (99°C)

CIRCULATING PRESSURE

3,100 psi (21.37 MPa)

WELLHEAD PRESSURE

1,300 psi (8.96 MPa)

MILLING BOTTOMHOLE ASSEMBLY

- 4.625-in. JZ Tri-cone rock bit
- 3.375-in. Tomahawk motor
- Drilled with jointed tubing

PRODUCTS/SERVICES

- Minima frac plugs
4.375 in. (111.125 mm) OD
- Top balls
5.5 in. (139.7 mm)
10,000 psi (68.9 MPa)
250°F (121°C)

