WEL-PHASE Drilling Fluid

Replaces Diesel-Based Fluids in Environmentally Sensitive Area, Increases ROP, Saves $500,000

Objectives

- Replace diesel-based, invert-emulsion drilling fluid with a non-toxic, non-polluting fluid solution that enables drilling through the 12-1/4 in. sections of six wells in a remote, environmentally protected area.
- Reduce torque while drilling through young shale with S-type and J-type well plans with angles that range from 21° to 44°. Previous wells drilled in this area generated torque values that exceeded rig specification.
- Maintain a rate of penetration (ROP) of at least 120 ft/hr (36.5 m/hr) while drilling at angles between 0° and 30°, and at least 100 ft/hr (30.5 m/hr) while drilling at angles that exceed 30°.
- Reduce drilling-waste disposal and the overall environmental impact of the drilling operation.

Our Approach

- Following a thorough pre-job analysis, a Weatherford team recommended reusable WEL-PHASE drilling fluid mildly customized to wellsite requirements. This water-based fluid can perform as a invert emulsion.
- The operator drilled all six wells without bit balling or other forms of nonproductive time. The operation used a total of 6,300 bbl of WEL-PHASE fluid and 64% of the fluid was reused from well to well.

Value to Customer

- Weatherford WEL-PHASE drilling fluid replaced a diesel-based, invert-emulsion drilling fluid to successfully drill the 12-1/4 in. sections of six wells. Despite rig-pump limitations, the operation doubled ROP requirements with an average of 280 ft/hr (85 m/hr).
- Compared to standard polymers, drilling fluid use was reduced from 41,000 to 6,300 bbl for the campaign. This not only saved 36,000 bbl of fluid, it also reduced the amount of water needed for mixing and reduced wastewater-disposal requirements.
- The water-base fluid was re-used throughout the six-well campaign, which reduced fluid costs by US $500,000.
- The fluid reduced rotary torque by 33% compared to similar wells.
- By eliminating the need for a diluent and re-using drilling fluid from well to well, the Weatherford solution reduced the overall environmental and carbon footprint of the drilling operation.

Using WEL-PHASE drilling fluid, a Weatherford drilling fluids team reduced fluid use by 36,000 bbl in an environmentally sensitive area..

LOCATION
North Colombia

FORMATION
Shale

TOTAL WELLS IN CAMPAIGN
6

WELL TYPE
Type-S and Type-J oil producers

HOLE SIZE AND ANGLE
12-1/4 in. 25 to 45°

TEMPERATURE
190°F (88°C)

WELL DEPTH
10,500 ft (3,200 m)

PRODUCTS/SERVICES
- WEL-PHASE drilling fluid

Weatherford®