

West Coast Africa: FAZE-PRO™ drills injector well like an OBM, cleans up like a WBM

“By using the FAZE-PRO invert emulsion system, the operator drilled with OBM/SBM performance, yet was able to easily clean up and complete the most effective injector yet drilled in the area. This achievement dramatically reduces the field development cost for the operator.”

Aris Petrides - Area Engineer

Well information

Location:	Offshore West Coast Africa
Spud/completion:	March 2000
Total footage drilled:	Two 6” laterals, 3,800 ft each in length, 3,400 ft TVD
Mud weight:	8.3 – 8.5 lb/gal
Water depth:	120 ft

The situation

The operator required an oil- or synthetic-base drilling fluid system for inhibition and lubricity, but needed to improve clean up and completion to provide an effective injector well.

Drilling in the area requires

highly inhibitive muds, and completions have historically been difficult. Although this mature field still has a significant amount of oil to produce, disposal of waste water requires a good injector.

The solution

M-I proposed the FAZE-PRO reversible invert emulsion system, engineered to provide the inhibition and drilling performance of a synthetic- or

oil-base drilling fluid, while allowing for easy clean up requiring much less treatment during the completion stage.

The results

- Trouble-free drilling. Drilling of the injector well proceeded with no problems.
- Invert emulsion drilling. The system exhibited the superb inhibition and lubricity expected from an invert emulsion drilling fluid.
- Simplified completion. With the efficient clean up provided by the FAZE-PRO system, the operator did not have to displace to a water-base system prior to completion.
- Reduced costs. Since the operator was able to eliminate extensive remedial clean-up treatments, completion costs were reduced by \$30,000 per lateral.

Faze-Pro benefits

- Superb inhibition
- Excellent lubricity
- High ROP
- Improved clean up
- Simplified completion
- Reduced costs



The results (con't.)

- Highly efficient injector. Upon completion, the bilateral injector, drilled with FAZE-PRO, recorded an injection rate that was higher than a nearby quad-lateral injector drilled with a conventional oil-base mud.

The details

After setting the 7 ½-in. casing at 3,400 ft, the operator displaced to the FAZE-PRO invert reversible emulsion system, which was built on the rig. Upon displacement, horizontal drilling proceeded directly out from casing with no problems.

The first lateral was drilled to target TD, displaced to brine, and drilling proceeded on the second lateral, likewise with no problems. Conventional OBM clean up uses powerful solvents and surfactants to overcome oil-wetting and invert emulsion. The FAZE-PRO package makes overcoming oil-wetting a non-issue as soon as the pH goes below 7. At that instant, it

becomes just another WBM clean up. As such, clean up is cheaper, easier and poses less chance of over-treatment that can lead to fines migration. The flocculation of the formation clays of the two laterals was performed with less rig time and chemical cost than on previous wells.

Previous clean-ups required three soaks of half an hour each. Two of the chemicals requiring soaks were Cleansweep and LoSurf 300, which were eliminated on this well. The third soak was for 15% HCl, which was reduced to 10% HCl with no soak.

The bilateral injector well drilled with FAZE-PRO has a higher injection rate than a quad-lateral injector drilled nearby with a conventional OBM.

Properties of THE FAZE-PRO system at the beginning and end of the interval

Properties	3,400 ft	7,250 ft
Hole size, in.	6	6
Mud weight, lb/gal	8.3	8.5
Funnel viscosity, sec/qt	65	65
Plastic viscosity, cp	20	23
Yield point, lb/100 ft ²	22	22
HTHP fluid loss, cm ³ /30 min @ 300°F	6.2	5.6
Chlorides, mg/L	126,000	127,000

Questions? We'll be glad to answer them.

If you'd like to know more about FAZE-PRO and how it's performing for our other customers, please call the M-I office nearest you.

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