CASE STUDY

Stuck Pipe Spotting Fluid for Invert Emulsion Fluids PIPE-LAX OB Field Trial

"We obtained higher spurt loss and higher cumulative volumes in Eastern Venezuela where wellbore instability has been caused by mechanically unstable shale. All sorts of pipe-freeing products have been used in this region."

Armando Rivera, Fluid Engineer, M-I SWACO

Well Information

Location ..... Eastern Venezuela

Spud ..... Directional

Casing shoe ..... 13 ⅜ in. at 3,000 ft (914 m)

Interval drilled ..... 7,910 ft (2,411 m) of 12¼-in. hole

Hole angle at TD ..... 27.79 degrees

Borehole static temperature ..... 170° F (76.6° C)

The Situation

A drilling program in Eastern Venezuela called for the use of an all-oil diesel oil-based mud (OBM) in a formation comprised of mostly shale (90%) and some sandstone. Historically, these wells have been troublesome due to wellbore instability caused by mechanically unstable shale as well as mud density management across a wide range of pressure required for hole stability.

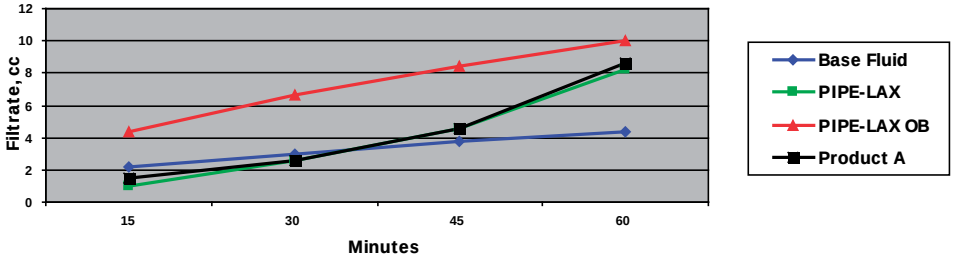
The Solution

M-I SWACO engineers recommended PIPE-LAX OB, a spotting fluid designed to free stuck drillstrings when using invert-emulsion fluids. PIPE-LAX OB fluid is a single-package, liquid blend made for fast mixing and frees the drillstring by penetrating through and cracking the filter cake to free differentially stuck pipe.

The Results

PIPE-LAX OB degraded the filter cake faster and more effectively than previously used traditional pills. The use of the PIPE-LAX OB pill circumvented the need for a sidetrack and the loss of the bottom-hole assembly (BHA), valued at approximately $250,000.

Lab tests indicated that the spotting fluid remained active after 30 hr of exposure and showed no compatibility issues with OBM products.



The Details

A 13.7 lb/gal PIPE-LAX OB pill was mixed using 10.4 bbl of PIPE-LAX OB and 307 lb/bbl of barite. The 12.6 bbl pill at was spotted in the annulus, pressured up to 200 psi for 5 min, allowed to soak for a couple of hours. The washpipe was pulled out of the hole and run in hole with fishing string, bumper sub + jar + accelerator + 5 in. drill pipe. It was latched to the fish at 7,756 ft; after overpulling the pipe at 230,000 lb the fish was dragged to surface and retrieved.

The lab testing protocol was as follows.

- Run API fluid loss on OBM (base fluid), quantify cumulative volumes in cc for each 15 min interval up to 60 min
- Clean up filter press while keeping wall cake intact.
- Add treatment fluid to API filter press cell with wall cake intact.
- Run API fluid loss.
- Check spurt loss and quantify volumes in cc for each 15 min interval up to 60 min.
- Repeat procedure for all samples of treatment fluid and compare results.

Questions? We'll be glad to answer them.

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

M-I SWACO
A Schlumberger Company

P.O. Box 42842
Houston, Texas 77242-2842
www.miswaco.slb.com
Email: questions@miswaco.slb.com

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