

FORM-A-SQUEEZE Plug Ensures Proper Well Control Offshore Trinidad

“By using a FORM-A-SQUEEZE* lost circulation plug, the client was able to regain circulation and control the well.”

Vik Bath, M-I SWACO Sales Manager

Well Information

Well type	Development
Location	Offshore Trinidad
Spud	April, 2006
Interval drilled	12¼-in. hole for a total of 1615 ft (492 m) from 3810 to 5425 ft (1161 to 1653 m)
Density required.....	14.3 lb/gal
Mud weight.....	13.8 lb/gal
Casing size.....	16 in.
Casing shoe depth	3810 ft (1161 m)
Total well depth	5425 ft (1653 m)

The Situation

The well was being drilled offshore Trinidad and experienced a well-control and a total lost-circulation problem at 5425 ft (1653 m) measured depth. Circulation needed to be regained to control the well.

The Solution

Conventional fibrous lost circulation materials (LCM) were used at concentrations of 30 to 50 lb/gal with no success. The string was pulled to the previous casing shoe and the LCM pills were “bullheaded” down the annulus in an attempt to regain circulation. When this did not work, it was decided to introduce the FORM-A-SQUEEZE lost circulation plug. The high-fluid loss/high-solids nature of this product was blended to make up two pills at 80 lb/gal. The pills were left to heal the formation whereby circulation was regained and well control procedures were initiated.

The Results

The results of this operation allowed the operator to trip out of the hole and lay out a costly MWD/ directional assembly. A conventional (cheaper) assembly was then used to run into the hole and circulate. Cement jobs were done to isolate the differentially pressured zones and the hole section was re-drilled and cased off successfully.

The Details

The FORM-A-SQUEEZE pills were blended and spotted according to the procedures below:

PILL 1

- Shut down pumping.
- Blended in slugging pits 80-lb/bbl FORM-A-SQUEEZE pill in 100 bbl of "clean mud" weighting up to 15.3 lb/gal (1.5 lb/bbl over current mud weight).
- Procedure for mixing was as follows.
 - Added 50-lb/bbl FORM-A-SQUEEZE LCM. 3 pallets.
 - Weighted up and topped up slugging pits to 15.3 lb/gal.
 - Added 30-lb/bbl FORM-A-SQUEEZE LCM for a total of 80-lb/bbl FORM-A-SQUEEZE LCM. 1 pallet.
- Increased LCM concentration of Pit 2 from 30- to 50-lb/bbl of sealing material.
- Pumped 100 bbl of FORM-A-SQUEEZE pill from slugging pit.
- Pumped 70 bbl of sealing material pill from Pit 2.
- Pumped 70 to 80 bbl of "clean mud" from Pit 1. Displaced pipe volume with "clean mud" from Pit 1. (Volumes were based on 12¼-in. open-hole volume of 240 bbl).
- Allowed for 2 to 3 hr soaking time before trying to re-establish circulation.

PILL 2

- Blended in slugging pits 80-lb/bbl FORM-A-SQUEEZE pill in 100 bbl of "base fluid" weighting up to 15.1 lb/gal (1 lb/bbl over current mud weight).
- Procedure for mixing was as follows.
 - Added 50-lb/bbl FORM-A-SQUEEZE LCM. 3 pallets.
 - Weighted up and topped up slugging pits to 15.1 lb/gal.
 - Added 30-lb/bbl FORM-A-SQUEEZE LCM for a total of 80-lb/bbl FORM-A-SQUEEZE LCM). 1 pallet.
- Pumped 80 bbl (or as much as possible) of FORM-A-SQUEEZE pill at 6 bbl/min. Annulus open.
- Closed annulus and pumped 175 bbl of 14.1-lb/gal LCM mud from Pit 3.
- Pumped 70 bbl of "clean mud" from Pit 2 to displace LCM mud from drill string.
- Allowed for 2 to 3 hr soaking time before trying to re-establish circulation.

Questions? We'll be glad to answer them.

If you'd like to know more about the FORM-A-SQUEEZE product and how it's performing for our other customers, please call the ALPINE SPECIALTY CHEMICALS or M-I SWACO office nearest you.



ALPINE, a business unit of M-I LLC

P.O. Box 42842
Houston, Texas 77242-2842
Tel: 281-561-1544
Fax: 281-561-1548
www.alpinemud.com

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