

From: LeBleu, John B
Sent: Sat Feb 20 11:49:19 2010
To: Morel, Brian P; Sims, David C; Cocalles, Brett W
Subject: FW: Proposed Proceedure for FAS
Importance: Normal
Attachments: FAS AK - weighted pill annular closed.doc
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FYI

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From: Lindner, Leo T (MI DRILLING FLUIDS, INC)
Sent: Friday, February 19, 2010 11:45 PM
To: Maxie, Doyle; LeBleu, John B; Hafle, Mark E; Deepwater Horizon, Formen; Sepulvado, Ronald W; Vidrine, Don J; Guide, John
Subject: Proposed Proceedure for FAS

This proceedure covers the general aspects of mixing and pumping the pill. We will of course work up a more specific step by step that will include strokes--but it will depend on the depth at which we pump the pill.

Regards,
Leo Lindner





M-I L.L.C.

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FORM-A-SET AK MIXING AND SPOTTING PROCEDURES – weighted pill

These procedures assume 180 bbl plug @ 11.1 ppg. 180 pumpable bbls will give us 485' coverage in the open hole. The initial zone has been identified at 8969'.

The following **FORM-A-SET AK** pill materials concentration is based on the anticipated BHT of 100° F:

FORM-A-SET AK (190 bbl)

PRODUCTS		
Water	158	bbl
FORM-A-SET RET	1	pails
FORM-A-SET AK	158	sx
DUO-VIS	6	sx
FORM-A-SET XL	16	sx
M-I BAR	291	sx

Recommended FORM-A-SET AK Mixing Procedures:

Mixing order should be:

1. Add **FORM-A-SET RET** (1 pails) in 158 bbl water
2. Add one-half of **DUO-VIS** (3sx)
3. Add one-half **FORM-A-SET AK** material (79 sx)
4. Add **M-I BAR** (291 sx)
5. Add the remaining **FORM-A-SET AK** (79 sx)
6. Add the remaining **DUO-VIS** (3 sx)
7. Add **FORM-A-SET XL** (16 sx) directly to the pill and mix thoroughly for approximately 5 minutes in order to get a homogenous mixture

Recommended Form-A-Set AK Mixing, Spotting & Squeezing Procedures:

SURFACTANT SWEEPS – Oil/Synthetic-based mud

1. For oil/synthetic-base mud applications, the recommended pills are 10 bbl of 3% by vol **SAFE SOLV OM** and 30 bbl of 25% by vol. **SAFE SURF O** (enough volume for 5 to 10 minutes contact time at the desired flow rate). These pills should be mixed in fresh water and pumped **before** the high viscosity pill. At 40 bbls gives us 8.6 minutes contact time.
 - **SAFE SOLV OM** sweep
 - 20 bbl water
 - 25 gallons **SAFE SOLV OM**
 - **SAFE SURF O** sweep
 - 40 bbl water
 - 420 gallons **SAFE SURF O**

2. Pump surfactant sweep into drill pipe and shut down pumps.

HIGH VISCOSITY SPACERS – for Water-based and Oil/Synthetic-based mud

3. Use approximately 10 to 20 bbl of **weighted high viscosity spacers** in front of and behind the **FORM-A-SET AK** pill. (2 lb/bbl **DUO-VIS** in fresh water and **M-I BAR** at the same density with the **FORM-A-SET AK** pill in this case is 11.4 ppg - build 75 bbls and pump 20 before and 20 after pill)(3sxs **DUO-Vis**)
4. Pump spacer into drill pipe and shut down pumps.

MIXING FORM-A-SET AK pill

5. Mix the **FORM-A-SET AK** pill as per above mixing procedures

SPOTTING & SQUEEZING PROCEDURES

6. Keep annular closed and assume we are at our current depth—8,620'.
7. With the **SURFACTANT** sweep and the **first high viscosity spacer** already in the drill string (steps 1 and 3), now pump the whole volume of **FORM-A-SET AK** pill.
8. Follow the **FORM-A-SET AK** pill with the **second high viscosity spacer** (mixed as per Step 3 formulation).



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9. Displace the FORM-A-SET AK pill from the drill string with mud. **DO NOT SHUT THE PUMPS DOWN UNTIL THE FORM-A-SET AK PILL HAS CLEARED THE DRILL STRING AND IS PLACED BELOW THE BIT.**
10. Keep pumping FAS into the shoe—at this bit depth (8,620') there is 95 bbls from bit to the shoe at 8,969'.
11. Pump FAS into formation leaving 10 bbls in the hole. 85 bbls should ensure that the pill is out of the pipe and it is highly unlikely that any will migrate around the BHA. (Or we could inject the entire volume in the formation). Wait on pill for 4 hours.
12. Once the four hours has elapsed, GIH/ tag top of plug if present.
13. Precautionary ream to bottom/across the thief zone.

Safety Considerations:

14. Once the FORM-A-SET AK plug has been pumped out of the slugging tank, flush both the tank and associated mixing/ pump lines with as much fresh water as possible and send to reserve pit.
15. *Do not allow pill to mix with the mud in the active pits as this may crosslink the surface volume.*