
From: Armand, Timothy
Sent: Monday, April 19, 2010 3:05 PM
To: Maxie, Doyle
Subject: FW:
Attachments: Lesson Learned Form A Set.docx; image007.jpg; image006.jpg; image001.gif

This can be added to the investigation once it has been cleaned up.

Several typos.

Timothy J Armand
M-I SWACO
BP Project Engineering Manager
Direct: 281.366.5028
Mobile: 713.775.4152

From: Cullum, Daryl
Sent: Friday, April 16, 2010 9:57 AM
To: Freeman, Mike (Houston); Armand, Timothy
Subject: Fw:

Tim,
Currently in meeting so reply short.
Yes, we are evaluating F-A-Set formulation and mixing instructions.

Mike,
Do you have a written project plan or lab request?

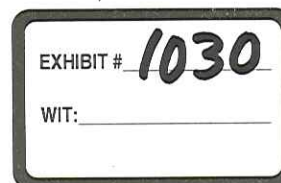
Regards,
Daryl Cullum

-
Sent from my BlackBerry Wireless Handheld

From: Armand, Timothy
To: Cullum, Daryl
Sent: Fri Apr 16 09:23:07 2010
Subject: FW:
Daryl,

I believe that you had mentioned something regarding the software for the FAS AK. I am trying to beat LeBleu to the punch on filing an NCR and we are trying to close the gaps. If you have anything you guys are working on regarding revising the software please let me know and we will attach/include it as part of our investigation.
Thanks,

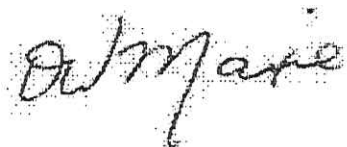
Timothy J Armand
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From: Maxie, Doyle
Sent: Friday, April 16, 2010 7:56 AM
To: Armand, Timothy
Cc: Barry, James
Subject: RE:

Gentlemen,

Here is what we have for lessons learned from the FAS AK pill that was mixed improperly at rigsite.



Project Engineer
Houston District
Office: 281 . 988 . 1809
Cell: 281 . 686 . 7247
Ritefax: 832 . 351 . 4916

M-I SWACO

From: Armand, Timothy
Sent: Friday, April 16, 2010 7:52 AM
To: Maxie, Doyle
Subject: RE:

Great job Doyle.

Please try and send James Barry what data you can as so he can get cranking.

Thank you,

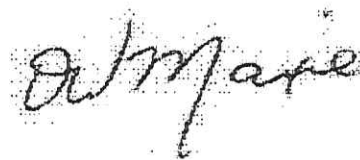
Timothy J Armand
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From: Maxie, Doyle
Sent: Thursday, April 15, 2010 3:43 PM
To: Cart, Blufford (Scooter); Heck, Al
Cc: Armand, Timothy
Subject:

On March 17th 2010, we lost returns on the Deepwater Horizon drilling for BP. ON the 17th we placed order for LCM material with Fourchon, KWIK SEAL, to replenish what we had used while pumping LCM pills. Upon calling the Fourchon warehouse to reorder KWIK SEAL, we were informed we only had 75 sxs of KWIK SEAL in Fourchon. We placed order for that amount. We were then informed that there was none to be found at the hubs also so we asked that an order be placed. We ordered 100 more sxs on the 19th and the order for 400 sxs on the 20th in anticipation of replenishment. During this time is when John LeBleu with bp called the warehouse and inquired about the availability of the KWIK SEAL. Warehouse informed him we did not have any in the area and we had to order from supplier. He then talked with Tim Armand and we came up with substituting MI SEAL in place of the KWIK SEAL. We contacted the warehouse (Fourchon) and were informed there was no MI SEAL in Fourchon. I cannot recall as to the availability of MI SEAL in Amelia. That can be reviewed by daily report by Alan which I do not have available for that date.

Since this occurrence, we have been challenged by John LeBleu to review and identify the maximum amount of LCM we can accommodate on rig site and what type of LCM we need. We were also asked to develop and automatic order in the event we encounter losses. After more discussion on this issue we have decided to provide a checklist for the LCM we need to order and will let the quantities be dictated by the material usage for the event. I have attached both documents that will be included in subsequent programs to identify the LCM we will carry on board and a checklist to identify what we can reorder.

I have also attached the order sheets submitted by personnel on board.



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MI SWACO

Search Parameters

Impact :

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|------------------|---|
| Lesson Number | |
| Short title | First Form A Set Pill |
| DIMS Well Name | |
| Rig | Deepwater Horizon |
| Event | |
| Phase | |
| Task | |
| Importance | Team Level, Share with other teams |
| Field | |
| Activity | |
| Impact | Inhibited Pill's Effectiveness |
| Author | |
| Entered | |
| Summary of Event | Due to massive mud losses, the decision was made to pump a Form A Set pill. The pill was mixed according to the FAS instructions—which called for 2 ppb Duo Vis (a polymer viscosifier), and we mixed 190 bbls in a 200 bbls pit. The pill was pumped but did not function as effectively as it could have been—losses slowed from 360 bbls an hour to 300 bbls. |
| Root Cause | When the XL was mixed (XL is chemical that cross links the polymer in the pill), it was mixed, as it had been in previous pills, on top of the pit. (FAS instructions call for the XL to be mixed "directly to the pill"). The 2 ppb made for a thick pill and the XL did not mix in as well as it needed to be. The small pit limited agitation since the agitator was further from the surface. So the XL did not mix homogenously. The mixing pit in which the pil was mixed may have contributed tot the pill not getting a homgeneous mix with the Cross-linking polymer. The pils has 200 bbls mixing capacity. We mixed 200 bbls of the pil which brought lever of fluid to top of pit. The agitation for this pit is not adequeste to mix the fluid thoroughly. The fluid temperature of the pit causes the temperature of the pill to rise while it mixes in the small pit. When the cross-linking is added to this particular application of the pill, the formulation was calculated at 85 °F, when the temp is higher >100 °F with no retarder the cross-linking agent begins to work immediately causing the pill to |

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| | thicken. |
| Lesson Learned | <p>On the next attempt with a dual pill (Form a Squeeze/Form a Set), we mixed the Form A Set with 1.5 ppb Duo Vis and used a 500 bbls pit to mix 230 bbls of pill. Mixing the pill in the larger pit and with less viscosifier meant that the agitator was near the surface and provided plenty of agitation in the thinner pill. (The agitator needs about 150 bbls of mud to cover it). We mixed the XL through the hopper instead of adding it directly to the pill. The second pill was much more effective than the first. (It should be noted that while the second pill was <u>much</u> more effective than the first, mixing the XL through the hopper did produce some problems of its own. The mixing pump lost prime shortly after the last XL was mixed due to the viscosity. (After about 6 of the 19 XLs were mixed the pill appeared molten). Due to high pump pressure and fluid temperature (>100 °F), we were only able to get 164 bbls of the 230 bbls of Form A Set built).</p> |
| Required Action | <p>With the success of the second pill, future pills will be mixed in a larger pit. (500 bbl capacity). This will allow for better agitation in the pit to give a more homogeneous mix of the pill. The DOIVIS will be calculated at 1-1.5 ppb instead of the 2 ppb called for in the FAS software. All components of the pill will be mixed through the mixing hopper. If the hopper cannot accommodate mixing of the pill then we need to review the performance of the hopper and may need to make changes. M-I SWACO is addressing the ambiguity of the wording in the FAS software to clear up any confusion as to where the XL crosslinking material should be mixed</p> |

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| | into the pill and that is through the hopper. We will line-by line review any further mixing procedures sent to Fluid Specialists to ensure clarity of the path forward and the correct mixing procedures to be followed. Of future pills with BHT >100°F, we will pilot test to add some retarder to allow longer mixing time in pits. This will be discussed with Rig team because the addition of retarder will increase the wait time for pill to cross-link. |
| Time Savings (hrs) | 0 |
| Cost Savings | 0 |
| Lesson Status | Recent Entry |
| Date Lesson Closed | |
| Action By | |
| Attachments | |