



Macaé, July 11th 2017

**MINUTES OF THE IADC-BRAZIL TECHNICAL/OPERATIONAL COMMITTEE MEETING
HELD ON JULY 11th, 2017 FROM 3:00 p.m. TO 4:30 p.m. AT TRANSOCEAN'S OFFICE IN
MACAÉ**

Present at this meeting were the following:

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| - Pedro Freitas – Transocean | - Gabriel Caraffini – Seadrill |
| - Jalile Bartole Pereira – IADC-BRAZIL | - Hudson Carvalho – NOV |
| - José Villanueva – QGOG | - Leandro Rocha – Odebrecht |
| - André Cabral – Etesco | - Pedro Franco – Odebrecht |
| - Alex Pacheco – Brasdril | - Marcus Bides – Falck Safety |
| - Eugênio Campos – Odebrecht | - Thiago Amato – QGOG |
| - Cláudia Monte – Oil States | - Guilherme Vanni – Petrobras |

The objective of this meeting was to show the Technical Committee schedule for 2017 and discuss Washpipe. The topics of discussion were as follows:

1. Introductions
2. Technical Presentations
3. Review of main topics for 2017
 - Washpipe failures in Brazil
4. Next meetings - update
5. Other topics
 - Contact list update
 - Volunteers
 - Open Forum

The following items were agreed upon

- The subjects of technical presentations planned for this year were presented. Some of these topics were presented at the last General Meeting. In case the members of this Committee have ideas on other relevant topics, they can send them to Adm Jalile and Leader Pedro Freitas to be analyzed.
- Pedro Freitas showed the main four topics that are being discussed at the technical meetings this year. The 4 main topics for 2017 were discussed and Pedro Freitas gave an update on each subject. The topic 4 (Drill string vibration and stress) is still to be initiated and volunteers are necessary. New volunteers to this group is Antonio Lameira (TOI) and Pedro Franco (OOG).
- New topics were discussed and suggested to be added to the IADC committee. Pedro Freitas requested that each company to provide more details (slide material) to be



shared on the next meetings so the group can decide. Extra topics discussed to be considered were:

- (Seadrill) Recurrent issues with Mud Pumps while fighting losses on the well.
- (Odebrecht) WSOG implementation onboard the rigs.
- (Odebrecht) Suggested each drilling contractor to list the equipment with the biggest NPT impact and share with the IADC members.
- (Oceanrig) NR12 implementation and challenges to meet the requirement. Note: this has discussed and suggested to be added to the HSE Committee.
- Washpipe discussion (summary):
 - The history with washpipe failures have been discussed among all participants. Seadrill does not recall seeing too many failures. OOG recall seeing 6 events over the last 2 years with 10 hours of NPT. Etesco and Brasdrill did not report any major problem. Transocean and QGOG reported several events where the standard washpipe failed. This was considered to be a critical component and actions were needed to reduce the operational impact. During the group discussion, it became clear that the rigs using WBM on the same drilling parameters are facing similar issues. The rigs that are operating with OBM and using the deubling or P-quip are not reporting any significant failures. This subject will be discussed on the work group. Eugenio highlighted the lack of a plan in the oil industry for washpipe. The committee agrees that it should be standardized when the washpipe should be changed. Pedro Freitas and Thiago will create a template to collect data from all companies, to identify the causes of the failures and standardize the operating time for each scenario, depending on some variables. Pedro Freitas noted that Deubling does not work well with water-based mud. For this type of fluid, it is preferable to work with conventional.
 - Failures may be related to some chemical component or mud properties. Guilherme Vanni will request information from CEMPES to specify the composition of these fluids. In addition, it is important to identify the solids present in the sludge, because failures may be associated with abrasion.
 - Hudson (NOV) pointed out that NOV realized that the failures occurred with high-speed drilling (RPM).
- Leandro suggested that each company survey the main causes of downtime, and if drilling contractors have problems in common, become discussion topics for the committee.
- It was stressed again the importance of updating the contacts of IADC Committees members.



Actions

- Jalile will send the General Meeting presentations to the committee members.
- Guilherme Vanni will request information about mud composition to CEMPES.
- Pedro Freitas e Thiago Amato will create a template to get information about washpipe operations. Jalile will schedule a follow up meeting on the **08/15/17**.
- Each Drilling Contractor to receive the standard spreadsheet and revert back the data from Washpipe failures to IADC Administrator (email: administrator@iadc-brazil.org) – **Due date: 08/09/2017**.
- Marcus Bides will send informations of DROPS of a paper made by Falck Safety.
- Contact list of all Drilling Contractors and IADC Members shall be updated. Each company has to send email to IADC Adm updating the contacts for Tech committee communication. If necessary, Jalile will send the current contacts list of the company to be updated. **Due date: 08/15/2017**.
- Hudson will check if there is a recommendation on the percentage of solids in the fluid to not damage the mud piston.
- IADC will share the contact list after updates.
- People that want to participate on the 2017 Tech Committee, shall contact IADC Adm and Tech Leader. Any help is appreciated!
- The focal points of “IADC Technical presentations”, ref to presentation, shall send the presentation slides / proposal to IADC Adm (Jalile) and to the Tech Leader (Pedro Freitas). The committee will review and fit them at next meetings. The focal points are defined in the attached presentation.

Next Meeting

The next meeting for the Tech/Ops committee will be held on October 3th at 3pm at Transocean.

Referenced files / Attachments

- General Meeting presentations
- IADC Tech Presentation slides
- Washpipe Presentation
- Washpipe template