

## ISCWSA/SPE Wellbore Positioning Technical Section

### Collision Avoidance Work Group

10<sup>th</sup> meeting, Maersk Olie og Gas, Copenhagen, March 2011

#### MINUTES OF MEETING

**Members present:** Bill Allen, Jerry Codling, Pete Clarke, Steve Grindrod, Phil Harbidge, Angus Jamieson, Ross Lowden, Simon McCulloch, Dave McRobbie, Ludovic Macresy, Ian Mitchell, Benny Poedjono, Anas Sikal, Harry Wilson (Group leader and minutes).

Visitors: Olga Kuragina

Apologies: Darren Aklestad, Andy Brooks, Bjørn Torstein Bruun, Antoine Devos, Wayne Phillips, Jim Towle

Absent: Fernando Laroca

#### Agenda

- Changes to Group membership
- Minutes of 9th meeting
- Review of Work Group publications
- Review of draft Management Process documents
- Definition of minimum mitigation requirement for HSE risk offset wells

#### Member list

- Fernando Laroca of Petrobras, Ross Lowden of Schlumberger and Ian Mitchell of Halliburton have all joined the Group.
- Shola Okewunmi of Chevron is changing jobs and his replacement, Pete Clark, will take his place in the Work Group.
- Youssef Amghar of Total has changed jobs and his replacement, Antoine Devos, will take his place in the Work Group.
- Stein Harvardstein is no longer working in the discipline and will no longer participate in the Work Group.

#### Minutes of last meeting

Accepted as correct

### **Review of Work Group publications**

Lexicons: No additions had been received to date and none were offered. (Note. Subsequently a change to the "Plane angle" definition has been suggested and agreed). Harry reminded everyone that it had been agreed at the previous meeting that magnetic ranging terminology that was related to collision avoidance be included, and pointed out that he had not received any inputs to date.

Bibliographies: Harry was aware of one relevant paper being presented at IADC/SPE that he would include. There were no other additions put forward.

Current Common Practice: no additions received, but a discussion on recommended best practice was triggered (see next item).

**Action:** Harry to publish revised or just re-dated versions of the documents in May.

**Action:** All to send inputs to Harry by 30th April.

### **Additional item - Standardization of collision avoidance scanning method**

Angus requested that the Group resurrect this objective. Harry pointed out that the *Current Common Practice* document does make recommendations on best practice for calculating Separation Factor. He also reminded everyone that a small team from the Work Group had been formed several years ago to evaluate the several methods of quantifying collision probability, and that the team had been unable to arrive at any recommendations, although several methods had been presented by Group members.

The majority of the Group agreed with Angus that it is desirable that we attempt to evaluate the various methods, score their strengths and weaknesses and, if possible, make a recommendation of best practice. Harry said that whatever came out of that exercise could be included in the Current Common Practice document, since it already discussed some of the newer methods.

It was agreed that the first step was to provide a set of test well proximity scenarios that the candidate methods could be applied to. It was also agreed that the project would be advertised to the ISCWSA and potential candidates invited to participate. It is hoped that the test scenarios will be ready before the autumn meeting and that the evaluation could take place at the 2012 spring meeting.

Pete pointed out that the scenarios should be fully defined such that centre to centre distances and position uncertainty estimates would be calculated correctly by all participants, and therefore the only variable would be collision avoidance scanning method.

**Action:** Harry to invite participation in this project during his Work Group status report to the main ISCWSA meeting on 4th March. (Done)

**Action:** Harry to obtain draft set of test scenarios and distribute to the following team for review and development: Darren Aklestad, Andy Brooks, Jerry Codling, Angus Jamieson, prior to next meeting.

Pete Clark said that the three documents published by the Work Group to date do not explain in detail how to calculate probability of collision. Angus Jamieson and Harry Wilson suggested that the method is adequately covered when the ISCWSA error model definitions are included, in particular the correlation coefficients. Pete's concerns will be considered at the next meeting.

## **Collision Avoidance Management Process**

Three relevant documents had been distributed to the Group since the last meeting. These were each discussed in turn.

Well Trajectory Management (Bill Allen)

Anti-Collision Standard Guideline (Benny Poedjono)

Benny's document is a precise of the papers SPE 92554 & 121040, but it is still a relatively large and comprehensive document. It was felt that it was out of scale with Bill's document and his intent to produce something concise and accessible to non-experts. It was therefore agreed that it would be better to make reference to the original SPE papers in the Well trajectory Management document.

Collision Avoidance joint operating procedure/check list (Phil Harbidge)

It was generally agreed that the document probably needed more content to be useful, but also the need for such a document was questioned.

**Action:** Discuss and decide at next meeting

Harry then reported on a related task that he had taken on; to investigate how Operating companies evaluated offset wells in terms of level of HS&E risk, and what they considered minimum standards of mitigation against high level HS&E risk. So far, he had interviewed a Drilling Engineer from each of three Operating companies

Harry thanked those Operating company members who had participated, but said that even this small sample confirmed that there are widely differing approaches, and that rather than continue gathering data that confirms that fact, it would be more efficient to move on to considering what the Work Group can recommend as best practice.

The most significant difference in policy seemed to be whether or not the probability of penetrating the casing was included in the overall assessment of probability of a well control problem; i.e. given that the planned trajectory contravenes the minimum allowed separation distance for a major risk offset well, and therefore there is an unacceptable probability of collision, will dispensation be given to drill the planned trajectory on the grounds that a collision is unlikely to result in penetration of the production string? Grounds for making this assumption might include; the number of casing strings on the offset well, procedures in place that give early warning of a collision, drilling with a dull bit, intersecting at a low angle of incidence, etc.

Everyone that expressed an opinion in the Group thought that best practice was not to consider such actions as adequate mitigation, on the grounds that their effectiveness is not predictable.

**Action:** Harry to draft a one-pager defining the Group's recommendation and distribute for review.

**Action:** All to provide feedback in time for the next meeting

**Meeting closed.**