GEOMECHANICS INITIATIVE

http://geomechanics-initiative.com

Geomechanics Initiative Meeting – Agenda

Topic: Aiding and Improving Drilling Operations
Standards and Assurance for Geomechanics

Date: Thursday 24th September and Friday 25th September 2020

Time (EUR): 10:00 – 15:30 Thursday 24th September
10:00 – 12:15 Friday 25th September

Time (UK): 09:00 – 14:30 Thursday 24th September
09:00 – 11:15 Friday 25th September

Location: Virtual, dial in details to follow in due course

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Attendees: [as of 16 09 2020]

	Company	First Name	Last Name
1	CNOOC	Ben	Fletcher
	CNOOC	Clive	Sirju
2	Shell	Isaac	Foo
3	Shell	Peter	Schutjens
4	Shell	Sergio	De-Gennaro
5	Aker BP	Tron Golder	Kristiansen
6	Aker BP	Olav-Magnar	Nes
7	OMV	Mira	Persaud
8	OMV	Manuel	Blumenthal
9	OMV	Bansri	Raithatha
10	OMV	Jennie	Aumayr
11	OMV	Oliver	Knoop
12	OMV	Andrea	Hollerer
13	OMV	Bogdan	Popina
14	OMV	Thomas	Kühn
15	OMV	Martin	Riedl
16	Total	Kun	Su
17	Total	Frederic	Bourgeois

			UK time		EUR time
1	Welcome and objectives for the meeting	Richard Shelton, OTM	09:00		10:00
2	Introductions	All	09:15		10:15
3	How geomechanics is currently integrated with drilling and completion operations in CNOOC, UK	Ben Fletcher, CNOOC	09:30		10:30
4	Aiding and Improving Drilling Operations in Aker BP	Tron Golder Kristiansen, Aker BP	10:15		11:15
Lunch			11:00		12:00
5	Aiding and Improving Drilling Operations in OMV	Mira Persaud, OMV	12:00		13:00
6	Support of the Geomechanics Forage & Puits (Drilling & wells) and standards and Assurance for Geomechanics	Kun Su, Total	12:45		13:45
Break			13:30		14:30
7	Geomechanicists coach, review and assure: Shell's approach	Peter Schutjens, Shell	13:45		14:45
End of day 1			14:30		15:30

			UK time		EUR time
8	Welcome	OTM, Richard Shelton	09:00		10:00
9	An overview of Standards and Assurance used for geomechanics in Aker BP	Tron Golder Kristiansen, Aker BP	09:05		10:05
10	Integration between geomechanics and well construction / drilling in a depleted Central North Sea HPHT field	Isaac Foo, Shell	09:50		10:50
Break			10:35		11:35
11	Meeting wrap up	OTM, Richard Shelton	10:45		11:45
End of day 2			11:15		12:15

Topic

Two topics are planned for the next GIN meeting. Members may choose to talk on either or both topics depending on their experience. The topics are as follows;

1 Introduction

1.1 Aiding and Improving Drilling Operations

Geomechanics is a special discipline in that it interacts with almost all the other subsurface disciplines. Both for data collection as well as providing solutions and answers to those disciplines. One of the main internal clients is usually the drilling department. Drillers and well engineers rely on geomechanics for some important information for well planning, such as safe and/or optimal drilling locations and well orientation for anti-collision or fracture orientation or for drilling through the most productive natural fractures, mud windows, optimal casing schemes, kick tolerance calculations etc. Geomechanics also help in determining risks for drilling and HSSE, e.g. for NPT, avoiding additional costs, casing shear, compaction, wellbore stability, mitigating or preventing losses, etc.

In this session, we should discuss how the geomechanics group interacts with the drillers. Do we interact only with well engineers or also with completions engineers? Is geomechanics involved only during planning or post-drill analyses and the capturing of lessons learned or also during the drilling operations? What is delivered to the drillers and how (e.g. how much does digitalisation influence the data delivery and interaction in your companies)?

Are we involved in taking any decisions? Does the geomechanics team only give advice or do we influence decisions and have the power to stop operations if necessary?

Specific points to discuss could be:

1. Communicating geomechanics issues to D&C
2. Real-time monitoring and decision making
3. Value and timing of acquiring geomechanics data during operations
4. What products are delivered to drilling for well planning
5. How are products delivered? Is geomechanics a stand-alone product or part of an integrated workflow?
6. What role does digitalisation play in the interaction with D&C and will the ways of working and interacting change?
7. The dreaded XLOT and reluctance to acquire for fear of operational issues

1.2 Standards and Assurance for Geomechanics

In many companies, geomechanics is a fairly young discipline and was established later than the traditional subsurface disciplines. In this session we might discuss:

1. How integrated is geomechanics within the processes in your company.
2. How early is geomechanics involved in projects
3. Is geomechanics always asked when necessary or are projects and possibilities missed and risks overlooked because geomechanics isn't included or isn't consulted in time?
4. How do we make sure that benefits are clear and lessons-learned are captured and the right people are aware of risks and mitigation measures?
5. Does your company have established standards, workflows? Are the heeded by other disciplines or only valid for the geomechanics department?
6. Is the geomechanics team only giving advice, or can they influence decisions or stop work if necessary?
7. How do the geomechanicists in your company assure that all necessary work is done and ensure quality of their own results?

2 Presentations

Each company is asked to prepare slides for approximately 30 minutes of presentation and 15 minutes for Q&A.

We politely request that presentations are sourced from each company's global resource pool and not only from the North Sea (unless of course your company only holds North Sea acreage). The meeting is a technical forum and these presentations are intended to provide a background to stimulate discussion.

Please ensure you include case studies; and come armed with company and other industry experiences, to bring the lessons learnt and best practices to life.

3 Organisation

Please advise OTM who will be attending if you have not done so already.

4 Abstracts

From page 5.

3. Ben Fletcher, CNOOC - How geomechanics is currently integrated with drilling and completion operations in CNOOC, UK

Addressing the primary theme 'Aiding and Improving Drilling Operations' this presentation will discuss how geomechanics is currently integrated with drilling and completion operations in CNOOC UK. We will cover when and how the disciplines interact, what seems to work well, what doesn't work optimally and perceived gaps. Examples from recent development and ongoing exploration projects will illustrate some successes and pitfalls.

We will also briefly discuss the 'Standards and Assurance for Geomechanics' topic, particularly in the context of a small group with limited resources. A recent case study from Buzzard is used to highlight the importance of further progress in this area.

4. Tron Golder Kristiansen, Aker BP – Aiding and Improving Drilling Operations in Aker BP

This talk will cover traditional integrated pore pressure and fracture gradient/wellbore stability prediction work, how we operationalize the work and also share some results of a field trial we will do in August on real time update of these models and prediction ahead of bit based on the measurements in real time.

5. Mira Persaud, OMV – Aiding and Improving Drilling Operations in OMV

OMV is currently very much working in silos and geomechanics is often not involved in projects automatically. During the ongoing digitalisation, this is hopefully going to improve and geomechanics will work in a more integrated way with other disciplines such as well engineering. We will present programmes and projects that are under way at present that will streamline workflows and make it easier for geomechanics data and expertise to be utilised by drilling both during the well planning phase as well as during operations.

6. Kun Su, Total – Support of the Geomechanics Forage & Puits (Drilling & wells) and standards and Assurance for Geomechanics

The mission of the Geomechanics entity is to contribute to the safety and performance of Total E&P drilling and subsurface operations.
The Geomechanics entity has a specific team to support the drilling operations.
The presentation will discuss the support of the Geomechanics Forage & Puits (Drilling & wells in English) with the following steps:

- Well preparation: deliverables, recommendations and timing
- During drilling and Real time support: Update, support to decision, involvement, communication lines
- After drilling: analysis and recommendations

Interaction between drilling department in HQ, affiliate, geomechanics entity will also be presented.

The last part of the presentation will illustrate the standards and Assurance for Geomechanics.

7. Peter Schutjens, Shell - Geomechanicists coach, review and assure: Shell' approach

The technical challenges of today in operational geomechanics are quite different from those in the 80s or 90s of the last century. Certainly, we geomechanicists still calculate optimal mudweight, predict drawdown pressures to avoid sand production, and calculate shape of subsidence bowls. But over the past two decades, geomechanicists are more and more involved in integrated multi-disciplinary projects from exploration all the way to well abandonment. Example include pore pressure prediction, quantitative interpretation, 4D seismic data analysis, in-well monitoring technology, reservoir optimization by e.g. waterflooding and steam injection, CO_2 storage, and in exploring if/how geomechanics can help in the energy transition. With the tasks and responsibilities of the geomechanicist broadening, the role of coaches, reviewers and assurers has changed. This talk will show how Shell has organized these.
We will talk about what goes well, and what does not, - aiming to trigger a lively discussion in which observations and plans in other companies are shared.

9. Tron Golder Kristiansen, Aker BP - An overview of Standards and Assurance used for geomechanics in Aker BP

This presentation will give an overview of Standards and Assurance used for geomechanics in Aker BP. This includes areas such as laboratory testing, Reservoir Design Operating Limits and well planning.

10. Isaac Foo, Shell - Integration between geomechanics and well construction / drilling in a depleted Central North Sea HPHT field

TBC