

	<p style="text-align: center;">IADC UBO & MPD Committee Meeting MoM</p>	<p style="text-align: center;">Q4 Meeting 3-5 Dec 2019 IADC Headquarters, Houston</p>
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Day 1 – Tuesday, 3rd October 2019

Welcome Breakfast sponsored by Weatherford

Welcome, Introductions, and Safety Moment

Oscar Gabaldon welcomed the UBO & MPD Committee and thanked Weatherford for sponsoring the meeting.

Introduction round

Everyone briefly introduced themselves.

Minute taker

Glenn-Ole Kaasa volunteered to take minutes.

Safety moment

Oscar highlighted the importance of being careful in traffic in view of the recent bad weather.

Recap Q3 meeting

Oscar went through a short recap of the Q3 meeting minutes.

- On Day 3 the Minutes were approved by committee.

2020 / 2021 Committee Meeting Schedule

Q1 2020, 23-24 April, in conjunction with the 2020 IADC/SPE MPD and UBD Conference and Exhibition. Hosted at Grand Hyatt Hotel, Denver. Sponsored by Pruitt. Martyn Parker is the contact.

Q2 2020, 9-11 June, Rio de Janeiro, Petrobras to host. Sponsored by AFGlobal. Contact is Brian Piccolo.

Q3 2020, September, dates TBD, Stavanger, Hosted and sponsored by Equinor.

- Brian Piccolo followed up with Equinor to get confirmation since Ragnar Fredriksen is no longer with the company as their MPD focal point. Equinor confirmed that they will host and sponsor, and will come back with new MPD focal point.
- Troy Bloomfield offered that Aberdeen Drilling School (ADS) can be host and sponsor as backup for Equinor.

Q4 2020, December, 1st week, Houston. Hosted by IADC. Sponsored by Halliburton.

Q1 2021, Houston, Transocean to host and sponsor. Jonathan Thain is contact.

Q2 2021, Houston, NOV Tower. NOV to host and sponsor.

- Action: Jonathan to follow up with Dwain at NOV to confirm them as host and sponsor.

Q3 2021, 14-17 September. In conjunction with the 2021 IADC/SPE MPD and UBD Conference and Exhibition, Kuala Lumpur. Sponsor TBD.

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- Action: Sara to check if Shell will host and sponsor.

Q4 2021, December, Houston.

- Action: Oscar will check if Blade can host/sponsor.
- Action: Leesa to book IADC headquarters as backup venue.

Subcommittee Reports

1. UBO. Leiro Medina: Target to have a final draft ready for next meeting.

2. MPD. Bob Goodwin: Status on Influx Management annex: the document is in clean-up phase. Target to have a version out for the committee by end the year.

3. Gas in the Riser. Otto Santos: Finished review of first draft. Prof Wesley LSU provided feedback on status from test well setup at LSU. Building of test well with gas injection capabilities and instrumentation to monitor gas distribution is complete, ready for experiments.

4. DGD. Sara Shayegi: Sara suggested to postpone finalizing first draft of document to include experience with CML systems in Gulf of Mexico.

- Action: To be discussed in the next committee meeting.

5. HSE/Training. Jonathan Thain: Curriculum finished. Next step is rollout. Will need to raise funding to proceed with effectuation of the training course. Meeting with Mark Denkowski, head of Well Sharp Thursday, Day 3 of committee meeting.

Liaison Reports

1. Well control committee. Paul Sonnemann commented that the well control committee is not doing any changes to well control training to handle MPD specific. Need inputs from MPD committee. Oklahoma blow-out is an example of MPD technology used without proper guidance.

2. Certifying authority. Nothing to report. Mohamed Boukamcha (ABS) attending meeting.

3. Regulatory. Konstantin Puskarskij (Maersk): Will update on status of MPD in Australia for next meeting.

API Task Group Reports

1. API 16 RCD. Micah Spahn: Ready to merge annexes into body of document. Review testing.

2. PMCD, subsea stack (92P). André Alonso Fernandes. Nothing to update.

MPD Rig Preparedness

Rig Preparedness Matrix for offshore operations

Brian Piccolo reported on the work on the Rig Preparedness Matrix article. Document was sent for

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---	--	--

review prior to the MPD committee meeting.

- It was concluded that the work on the offshore rig preparedness matrix is now closed.
- Action: André Alonso Fernandes and Roger van Noort volunteered as responsible to move the document further in the process to make it available to the industry.
- Need to decide how to pursue to have the matrix endorsed as an IADC document.

New Businesses to Discuss

Input from Leesa:

- Leesa received a request for volunteers to contribute in a workgroup on safely tripping drill pipe in MPD/UBO. The topic was not discussed further in the meeting.

Discussions regarding rig preparedness for land operations:

- Mike Vander Staak briefly outlined the work the task group has done on rig preparedness for land operations. Work in progress, so no details were presented.

Discussions regarding well control training:

- Paul Sonnemann: Regular well control training requires inputs to train crews to be prepared for MPD, e.g. basic well control training should introduce basic terms related to MPD, such as e.g. what is an RCD; what is defined as a kick versus nuance gas, etc.
- A problem is that the IADC has formed a separate closed group/committee for well control training curriculum (Well Sharp), which is not open for input from the MPD Committee. It was commented that there are no plans for a standalone module for MPD training related to well control. There is a need to decide what to carry over from MPD to the well control curriculum.
- Action: Jonathen Thain and Paul Sonnemann to take the lead to bring input from the MPD committee to Mark Denkowski on meeting Thursday.

Elections

The following subcommittee Chair and Vicechair members where elected for the upcoming year:

- Dual Gradient Drilling (DGD). Sara continues as Chair. Jonathan Vice Chair.
- Riser gas. Chair Hari Hariharan. Vice chair William Bacon.
- HSE & Training. Chair Guilherme Vanni, Vice Chair, Ernest Okeke
- Managed Pressure Drilling (MPD). Chair Sagar, Vice Chair André Alonso Fernandes
- UBO. Chair CJ Bernard. Vice Chair Nadine Dsayande
- API 16RCD. Chair: Micah has two more years to go as Chair.

The following responsible for liaison reports where elected for the following year:

- Regulatory. Konstantin continues as liaison.
- Well control. Paul Sonnemann continues with support of Bob Goodwin.

Breakout Session

The committee separated into the various workgroups for each subcommittee. The workgroups worked the rest of the day, separated by lunch.

	<p style="text-align: center;">IADC UBO & MPD Committee Meeting MoM</p>	<p style="text-align: center;">Q4 Meeting 3-5 Dec 2019 IADC Headquarters, Houston</p>
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Day 2 – Wednesday, 4 December 2019

Welcome Day 2

Oscar welcomed the committee for the second day, and thanked Weatherford for sponsoring the event.

Leesa requested everyone to sign on the roster for the meeting.

Breakout Session

The committee separated into the various workgroups for each subcommittee. The subcommittee work continued the rest of the day, separated by lunch.

Day 3 – Thursday, 19 September 2019

Welcome Day 3

Oscar welcomed the committee for Day 3, and thanked Weatherford for sponsoring the event.

Discussions

The committee discussed the way forward with the MPD training curriculum.

Mark Denkowski visited the committee briefly to discuss the way forward on the MPD/UBO training curriculum. It was proposed to roll out the training in a phased approach to speed up the process and limit the initial cost, to initially roll out the course without an online test. This was to be discussed in the following meeting that day between Mark, Jonathan and Paul.

Breakout Session

The committee separated into the various workgroups for each subcommittee.

Recap from Subcommittee Breakout Sessions

Committee members reconvened after the breakout sessions for a recap.

1. UBO. Leiro: Document restructured completely to be aligned with the format of the other API documents. Ready to be sent for review.

- Leiro brought forward a discussion on the requirement for two RCDs on critical H2S wells. It was proposed to revise the test to a less prescriptive requirement, such as a recommendation for an additional safety layer when drilling these wells.

2. MPD. Sagar: Finished document yesterday. Added an explanatory section based on Martin Culen's text as appendix. The document will be sent to Holly for review by the committee.

- Deadline for feedback will be mid January.
- André and Sagar to address comments in February.

	<p style="text-align: center;">IADC UBO & MPD Committee Meeting MoM</p>	<p style="text-align: center;">Q4 Meeting 3-5 Dec 2019 IADC Headquarters, Houston</p>
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3. Gas in the Riser. Good meetings, but slow progress. Want to speed up. Work will be split up and given to volunteers to write separate sections.

4. DGD. Sara Shayegi: Sara suggested to wait to include experience with CML systems in Gulf of Mexico prior to finalize first draft.

5. HSE/Training. Jonathan: Feedback from discussion with Mark the earlier that day. Decision made to move forward with a phased approach without the electronic test in order to speed up and reduce cost. Moving forward, IADC will develop a scope of work and estimate actual cost.

- Jonathan and Paul will attend the well control meeting next week to have their feedback. Mark will send course curriculum.
- A. Jonathan's notes from meeting with Mark attached as appendix to these minutes.

API 16RCD. Micah: Resolved comments from operators. Appendices incorporated into main body. Planned to be sent to API for review.

Closing Comments:

Oscar thanked IADC for hosting the event, Weatherford for sponsoring the event, and all of the participants for their attendance and participation.

The meeting was called to a close at 11:40 am December 5th, 2019.

Appendix:

- A. IADC training requirements, notes by Jonathan Thain from meeting with Mark Denkowski.

IADC Training requirements

- Draft formal letter to IADC from the MPD committee to outline our concerns with the lack of movement in the roll out of the MPD course.
- Work with IADC WC committee to try and incorporate the below points in to WC courses. Suggest two or three people from each committee meet to discuss the best plan forward. Highlight MPD curriculum areas that are relevant. P. Sonnerman, J. Thain, E. Okeke, T. Bloomfield. We reach out, via IADC, to the relevant WC advisory personnel with the four bullet points below that we believe can be covered in conventional WC as a crossover from conventional to MPD. J. Thain to suggest this to WC committee Dec 11th.
 - Hydrostatically underbalanced fluids.
 - CBHP.
 - Nuisance gas/ballooning/breathing.
 - Multiphase flow.
 - Tripping/Stripping.
 - Drilling through fractured zones.
 - Causes of losses.
 - Pressure window.
 - ECD – no APL in conventional WC for example.
- IADC will send through WC course content so that we can modify content to include relevant MPD content, examples above. Suggest IME or MPD sub-committee cover this work?
- UBD training curriculum developed in 2020. HSE & Training sub-committee.
- CML/DGD training curriculum developed in 2020. HSE & Training sub-committee.
- MPD Training costs: Is this Well Sharp? How much is the cost if not? UBO was done in Well Cap.
 - Test +/- \$100k
 - Accreditation and database \$25k.
 - Language translation \$25k.
 - Total cost +/- \$200k.
- Develop course test questions, 3-500 to begin, and add to the Dropbox. List checked by end of Q1 committee meeting. G. Vanni, E. Okeke, J. Thain.
 - Blade.
 - Signa.
 - Weatherford.
 - Halliburton.
 - Pruitt.
 - Seadrill.
 - Transocean.
 - Aberdeen Drilling School.
 - Maersk.
 - Beyond Energy.
 - Pacific Drilling.

Appendix A – IADC training requirements, notes from meeting with Mark Denkowski.

- 3-4 months to build database. - M. Denkowski.
- Can this be a tax write off? - M. Denkowski.
- Can the IADC hold the above funds? - M. Denkowski.
- Role out of MPD course minus testing will cost +/- \$75k, course will have it's own IADC accreditation. Test to follow.
- Suggest adding additional sum (\$5k?) to each Maersk course and mention that course will be IADC accredited when IADC have rolled out the course.
- Are any companies willing to fund the above? Ask group at committee wrap up.
 - G. Vanni to ask operators.
 - J. Thain to ask contractors.
 - E. Okeke to ask service providers.
- IADC to send a draft SOW to role out the course minus testing ASAP. Meeting to discuss SOW in early January and agree costs that need to be covered.