

	<p style="text-align: center;">IADC UBO & MPD Committee Meeting MoM</p>	<p style="text-align: center;">Q3 Meeting 17-19 Sep 2019 IADC Headquarters, Houston</p>
---	--	--

Day 1 – Tuesday, 17 September 2019

0800 to 0830

Welcome Breakfast sponsored by Beyond Energy

0830 to 1000

Welcome, Introductions, and Safety Moment

Andre Alonso Fernandes welcomed the UBO & MPD Committee and thanked Beyond Energy for sponsoring the meeting. Everyone briefly introduced themselves. Martyn Parker volunteered to take minutes.

Safety Moment – Chris Scarborough highlighted the importance of safety belts and then advice on the weather Houston expecting 10” plus of rain.

Reviewed the Q2 meeting minutes:

- BSEE wants additional detail in MPD documents.
- API Gas in Riser.
- Continued work on Influx Management addendum.
- API 16C Working on the document (Incorporate API6A bolting and work on new testing criteria).
- Training group met with Mark IADC in July and handed over the MPD Training Curriculum. Plan is to meet with Mark this coming Thursday 19th Sept.
- IADC Well Control group putting together a subcommittee on training needs to liaise with MPD Committee.
- API 16Q meeting MPD and 16Q working groups had a meeting to discuss and addendum for MPD to be added to API-16Q. Discussion on design and selection of MPD components (should it be in API-16Q or 92S)?

Leesa Teel referenced the IADC Anti-trust Guidelines which applies to the meeting.

2020 / 2021 Committee Meeting Schedule

Q4 2019, 3-5 December. Hosted by IADC at their HQ, Houston. Sponsored by Weatherford.

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, June, dates TBD, Rio de Janeiro, Petrobras to host. Sponsored by AFGlobal. Contact: Brian Piccolo.

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

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

Q1 2021, Houston, TransOcean host and sponsor.

	<p align="center">IADC UBO & MPD Committee Meeting MoM</p>	<p align="center">Q3 Meeting 17-19 Sep 2019 IADC Headquarters, Houston</p>
---	---	---

Q2 2021, Houston, NOV Tower.

Q3 2021, In conjunction with the 2021 IADC/SPE MPD and UBD Conference and Exhibition, Kuala Lumpur. Dates to be finalized. Sponsor TBD.

Subcommittee Reports

UBO – Leiro Medina: Worked on the document to align 92M & S. They are working with Roland Goodman (API) to make document easier to read.

MPD – Bob Goodwin: worked on IME influx annex, held a skype meeting and continued work. Currently aiming to get the document out for review (redline) to the committee for Dec. This could slip to Q1 2020 meeting.

Gas in the Riser – Otto Santos: LSU has completed building a test well with gas injection point and instrumentation to monitor. Theoretical work is to reviewed against testing.

DGD –Sara Shayegi: No work done, CML is currently the most used and work is ongoing / focused based on CML practices. This document is fairly well developed. Other forms of DGD are currently at prototype stage so place holders in the document as appendices.

Discussion: Goal will be potentially to combine 92 series document in the future.

HSE – Jon Thain: met with Mark Denkowsky IADC in July and handed over the MPD Training Curriculum. Plan is to meet with Mark this coming Thursday 19th Sept.

MPD Influx Control Work Group –Bob Goodwin: Bob Goodwin’s comments from above. (MPD).

API 16 RCD - Joe Karigan: Bring testing annexes into the body of the document.

Certification Liaison: Bob gave advice that ABS are no longer accepting testing on new build accumulator systems from Lloyds

Discussion:

MPD Offshore Rig Rating Status

Was approved issued in meeting minutes from Dec 2018.

- It needs to be distributed for public awareness. The plan is to add to IADC web page: resources, completed documents
 - This table needs additional clarity.
 - This potentially needs to be added to API-RP-92S? With more detail.

Mike Van Der Staak asked if the group should develop an MPD ready status for Land Rigs?

BSEE Notice into Lessees

Discussion / update from Sara Shayegi requested and received volunteers.

	<p align="center">IADC UBO & MPD Committee Meeting MoM</p>	<p align="center">Q3 Meeting 17-19 Sep 2019 IADC Headquarters, Houston</p>
---	---	---

New 2020 MPD Committee Chairman

Roger Van Noort will not be able to chair IADC MPD Committee in 2020, but will stay on as vice chairman

Brian Piccolo was elected and will take over in December. Proposed candidates were Andre Alonso Fernandes, Leiro Medina, Brian Piccolo and Martyn Parker.

12:00 to 13:00

Lunch – Sponsored by Beyond Energy. Oscar Gabaldon thanked Beyond Energy for sponsoring lunch.

13:00 to 16:30:

The committee separated into the various work groups for the afternoon session.

Breakout Session

MPD/Influx Management Annex
API 16 RCD
UBO
Gas in the Riser
DGD

The committee was briefly reconvened from 14:30 to 15:00 by IADC staff to discuss impact of

Day adjourned.

Day 2 – Wednesday, 18 September 2019

8:30 Welcome, Introductions, and Safety Moment

Oscar Gabaldon welcomed the UBO & MPD Committee and thanked IADC for hosting the event and Beyond Energy for sponsoring the meeting.

Regulatory Update

Konstantin Puskarskij gave an update on his initial experience with legislators / regulators in Australia for deep-water MPD planning. Australian regulatory bodies are using API RP-92S as their guidance.

8:45 to 12:00

The committee separated into the various work groups for rest of the day.

12:00 to 13:00

Lunch – Sponsored by Beyond Energy.

	<p style="text-align: center;">IADC UBO & MPD Committee Meeting MoM</p>	<p style="text-align: center;">Q3 Meeting 17-19 Sep 2019 IADC Headquarters, Houston</p>
---	--	--

13:00 to 16:00

The committee separated into the various work groups for rest of the day.

Day adjourned.

Day 3 – Thursday, 19 September 2019

8:30 to 12:00

The committee separated into the various work groups for morning sessions.

12:00

Recap from Subcommittees Breakout Sessions

Committee members reconvened after the breakout sessions for a recap.

API 16 RCD – Micah Spahn: See attached minutes in Appendixes.

MPD/Influx Management Annex – Bob Goodwin:

- Reviewed the entire document. Cleaned up the document.
- Group reviewed clean document, Index / Outline.
- Actions are for Chris S. to write Section 6.3.3 & review 3.7 Operating Procedures for Influx Management.
- We agreed that a Technical Paper should be developed giving guidance on entering laterals that have potential / likelihood to turn over to gas. (M Parker to draft).

UBO – Leiro Medina:

- The group is realigning the document to match the structure of API92M & S
- Plan to add additional sections for RMD and 2-Phase MPD. Plan is to remove some generic recommendations that are not just for UBD operations but applicable to all drilling.
- They plan to have a format for committee review in December Q4 meeting.

Gas in the Riser – Oscar Gabaldon: Continued discussion and review of the document. Otto emailed comments and they were reviewed. Making steady progress.

Closing Comments:

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

The meeting was called to a close at 11:30 am September 19, 2019.

Lunch provided by Beyond Energy.



**IADC UBO & MPD
Committee Meeting
MoM**

Q3 Meeting
17-19 Sep 2019
IADC Headquarters, Houston

Appendix 1. Attendance List

First Name	Last Name	Company Name
Patrick	ONeill	
Mahesh	Sonawane	2H OFFSHORE
Brian	Piccolo	AFGLOBAL
Shawn	McClosky	AFGLOBAL
Mike	Vander Staak	BEYOND ENERGY SERVICES
Leiro David	Medina	BEYOND ENERGY SERVICES & TECHNOLOGY CORP
Oscar R	Gabaldon	BLADE ENERGY PARTNERS
Chris G	Scarborough	BP
Jeffrey	Graybeal	DIAMOND OFFSHORE
Joseph M	Karigan	HALLIBURTON ENERGY SERVICES
Brian	Grayson	HALLIBURTON ENERGY SERVICES
CJ	Bernard	HALLIBURTON ENERGY SERVICES
Isabel	Poletzky	HALLIBURTON ENERGY SERVICES
Glenn-Ole	Kaasa	KELDA DRILLING CONTROLS AS
Otto	Santos	LOUISIANA STATE UNIVERSITY
Carl	Guzman	M-I SWACO A SCHLUMBERGER COMPANY
John Edward	Conn	M-I SWACO DYNAMIC PRESSURE MANAGEMENT
Dwayne	Barnwell	NATIONAL OILWELL VARCO
Andre Alonso	Fernandes	PETROBRAS
Guilherme S	Vanni	PETROBRAS
Martyn	Parker	PRUITT
Micah	Spahn	PRUITT
Akram	Nabiyev	PRUITT
Ernest	Okeke	PRUITT
Sara	Shayegi	SHELL EXPLORATION & PRODUCTION
Marlon	Solorzano	SOLO ENERGY SOLUTIONS
Gavin	Humphreys	STENA DRILLING LTD
Omer	Kaldirim	TEXAS A&M UNIVERSITY
Nadine	Osayande	WEATHERFORD



**IADC UBO & MPD
Committee Meeting
MoM**

Q3 Meeting
17-19 Sep 2019
IADC Headquarters, Houston

Thomas	Gee	WEATHERFORD
Vahidin	Alajbegovic	WEATHERFORD
Peter Allen	Dugas	WEATHERFORD
Robert	Goodwin	WEATHERFORD
Tom	Askeland	WELLIS MPCD
William "Bill"	Whitefield	WHITEFIELD PLASTICS CORPORATION
Brandon E	Carringer	WHITEFIELD PLASTICS CORPORATION



**IADC UBO & MPD
Committee Meeting
MoM**

Q3 Meeting
17-19 Sep 2019
IADC Headquarters, Houston

Appendix 2. API 16 RCD Workgroup session minutes.

API 16RCD Meeting Minutes

American Petroleum Institute
SC16- Subcommittee on Drilling Well Control Equipment

Time: 8-4

Room: IADC office

Day: Tuesday thru Thursday

Date: 17-19 September 2019

City: 3657 Briarpark Drive, Suite 200 Houston, TX 77042

Micah Spahn – Chairman
Joe Karigan – Vice Chairman

-
- Received update from J Karigan from work completed at June meeting for those not in attendance.
 - Mud formulations for SAL testing have been reviewed and there is a questions as to the component ratios. M Spahn sent formulations to S Shayegi for a review.
 - Separate concern was raised about where the 12ppg value for the density of the mud.
 - M Spahn emailed M Culen about the origin of the value & confirmed it was an arbitrary number attempting to replicate what was happening in the industry at the time.
 - Concern was raised about the applicability of Service Application Levels 1 & 2 based on the nature of well planning requests being customized to a specific well program. S Shayegi confirmed that the nature of SAL 1 & 2 is still beneficial to the market for inclusion of a more stringent test protocol to raise the standard for RCDs. Primary benefit for predetermined SAL levels is for land based operators.
 - Plan is to proceed with minimum standard levels and SAL-C template for customization.
 - Group discussion about bolting being steered towards API 6A, possible new definition for Sealing Assembly Bolting.
 - Closure bolting requirements are in response to BSEE directive for industry to analyze requirements for subsea bolting.
 - Group agrees that sealing assembly hardware does not require closure bolting requirements due to the frequency of inspection and removal from the wellbore.
 - New definition was created and clarification was added to closure bolting section removing the Closure Bolting requirements from Sealing Assembly bolting.
 - Incorporation of Annex B into the main body of the document progressed well but is not complete yet, work will continue on Day 3.
 - Leakage verbiage during the Stripping Tests of 1 Gal/Minute has been removed due to the nature of RCDs with variable closing pressure being ‘lubricated’ rather than leaking
 - Consensus was reached that as long as the RCD can maintain stripping pressure at the end of the test with no visible leakage, the document was too restrictive setting a ‘leakage’ rate on the ‘controlled lubrication’ designs
 - The group had a general discussion about the Edition 2 interpretation by API stating that the dynamic pressure test can be performed without a sealing element being in direct conflict with the intent of the test.
 - M Spahn emailed E Baniak to determine why this interpretation was answered in this manner.
 - A note allowing this test to be performed without a packing element was struck from the document until we receive a response from E Baniak
 - The Packing Element access test removed the requirement for inclusion of a packing element due to the intent of the test being designed to test the capability of the latching mechanism. Consensus was reached that the packing element is not required to test the latching mechanisms of an RCD; a test plug or blanked off sealing assembly can be utilized for this test with no degradation in analyzing performance.
 - Incorporation of Annex C into the main body of the document has been accomplished but needs a group review of the purpose/protocol/documentation sections.
 - Active RCD Manufacturers need to review the Fatigue and Sealing Characteristics tests for applicability.



IADC UBO & MPD Committee Meeting MoM

Q3 Meeting
17-19 Sep 2019
IADC Headquarters, Houston

Appendix 3. API 92U Revision Update.

API 92U Revision Update

UBO Sub Committee
18-Sep-2019

TOC Changes

<u>API 92U</u>	<u>API 92M</u>
4. Overview	3. Overview
5. Planning	4. Planning
6. Well Control → Move to 10 and merge with Well Integrity	
7. Returns Flow Process Equipment → Rename to Equipment	5. Equipment
8. Drill String	6. Drill String
9. Circulating Media → Rename to Drilling Fluid Considerations	7. Drilling Fluid Considerations
10. Well Integrity	8. Well Control and Well Integrity
11. UBD Operations → Rename to UBD Operational Guidelines	9. MPD Operational Guidelines
12. Site Safety → Move under 11. UBD Operational Guidelines	
13. Well Site Supervision → Move under 11. UBD Operational Guidelines	9.9 Well Site Supervision

These changes have been implemented in the draft file, but help is needed from the API to renumber the document to make it easier to read.

Additional Topics

Three topics will be removed and included as appendices:

1. Returns Management Drilling (RMD) → Definition included in section 3, but its operational considerations will be included in an appendix
2. Air drilling: Operational considerations included in 9.8 → This content needs to be moved to a new appendix
3. Multiphase MPD: Content to be moved into a new appendix. This appendix will be eventually moved to API 92M.

Content recommended to be removed

Some sections are too generic and are not specific to UBD operations but to drilling operations in general. It is necessary to review if these sections should be removed from the document (comments have been added to each section to specify the reasons for their removal):

Section Number	Page	Subject	Reason for removal
4.3.3	13	Selection of Pipe Rotation Devices—Top Drive vs. Kelly Drive Systems	Pipe Rotation Services are covered by general drilling operations teams. Recommendations can be made in Operational Guidelines, but not to the extent to have a full section on this subject.
8.5.2	53	Estimating Reservoir Pore Pressure	Pore Pressure estimation is a complex subject and should not be part of 92U.
8.8.4	56	Shear Ram Cutoff Test	This procedure should be required for all sour drilling operations whether UBD or not. Consider removing
6.2.7.6	33	Mismatching Figure Numbers	This is covered (mostly) by API RP 79H1. It is general to the industry and not particular to UBD operations.
7.6	49	Waste Treatment Disposal	Depends on local regulations for every area. Should not be included in a global document such as this one
Table 14	72	Valve Position Table	This table needs to be tailored to the specific rig up used in the operation and they can be very complex.
9.12	76	Wellsite Lighting	Generic recommendations applicable to drilling operations and not necessarily to UBD only.
9.14.5	77	Medical Services and Equipment—Special Considerations	Generic recommendations applicable to drilling operations and not necessarily to UBD only.
9.14.7	78	Fire Protection	Generic recommendations applicable to drilling operations and not necessarily to UBD only.

Content recommended to be removed

Annex A, Sections A.1 through A.4 contain generic information that is not particular to UBD operations. These sections are recommended to be removed.

- A.1. Casing Integrity Assessment Flowchart
- A.2. Breathing Air / Gas Detection Equipment
- A.3. Fire Fighting Equipment
- A.4. Burn Kit e.g. St. John's Ambulance

Way Forward - Document structure

1. It is necessary to ask Roland if we could get help re-numbering the document. The modifications are too many and it makes the document difficult to read
2. Start elaboration of appendices for:
 - a) Air Drilling → Move existing content
 - b) RMD → Refer to IRP 22
 - c) Multiphase MPD → Review existing content and move it to appendix. Add content if necessary

Multiphase MPD RPs

1. RPs that are common among mist, foam and multiphase MPD will be inserted into the multiphase MPD appendix and a reference to these topics will be made on the air drilling appendix
2. Kick Detection / Identification:
 - a. Gas Flow Balance
 - b. Gas Composition Monitoring (flow out)
3. Multiphase MPD will follow the API 92M Well Operations Matrix
4. Recommendations to deal with inluxes:
 - a. Increase SBP
 - b. Reduce the injected service gas flow rate
 - c. Increase the liquid phase flow rate
5. Operational recommendations for gas injection missing:
 - a. Check valve at pumps manifold
 - b. Need for gas in measurement (data header)
 - c. Need for a bleed off tool
 - d. Recommendations for bleed off operations (e.g. no hoses)
 - e. Injection by-pass (membrane generated N2 cannot be shut down during connections)