

International Association of Drilling Contractors



**ART Drilling Control Systems
Subcommittee Meeting
16 January 2014
IADC – Houston, TX**

1. Reviewed the IADC anti trust guidelines ;
<http://www.iadc.org/antitrust/IADC%20Antitrust%20Guidelines%20Rev%206%20.pdf>
- 2.
3. Announced the IADC ART BOP Controls Subcommittee meeting currently scheduled for Feb 5th.

Committee / Subcommittee	Date	Time	Agenda & Registration	Minutes	Participate via WebEx	Location
BOP Controls Subcommittee	5 February 2014	9:00 a.m.	Agenda & Registration	Minutes	Join	IADC 7th Floor Houston, TX

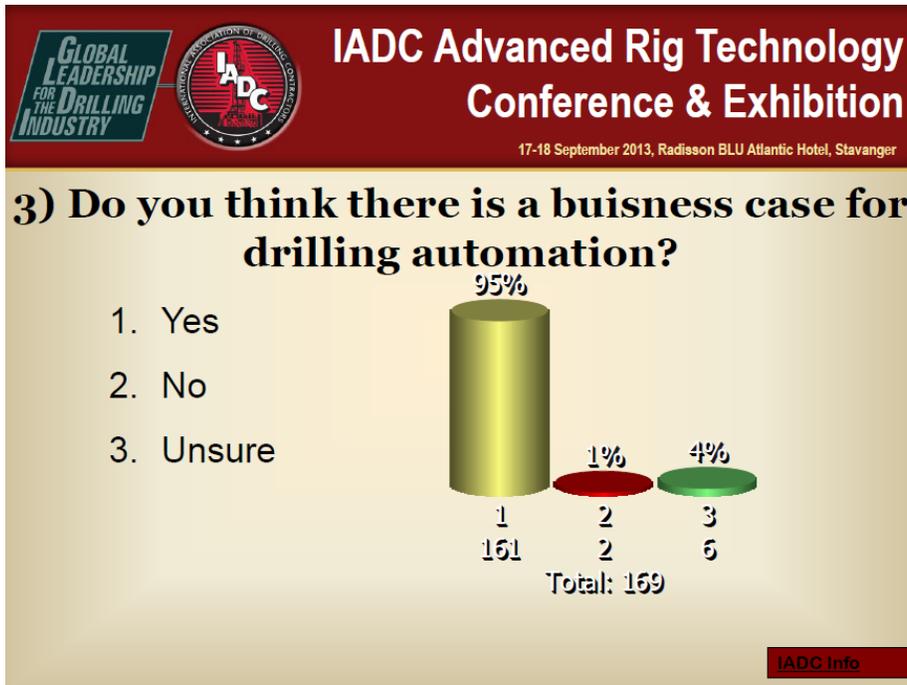
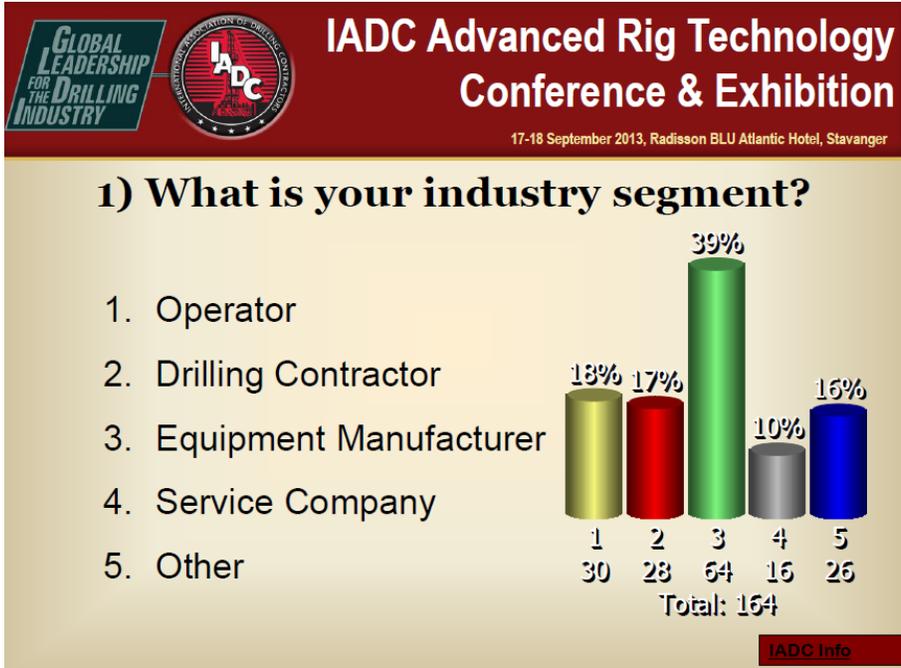
4. Reviewed relevant response slides from the 2013 IADC ART conference in Stavanger (captured in appendix A)
http://www.iadc.org/committees/advanced_rig_technology/pdf/ARS%20Summary.pdf
 - a. The group was interested in generating a pivot table from the original data so that the answers from slide 1 and slide 20 can be correlated.
 - i. **ACTION:** Scott Maddox to determine if the raw data is still available for this effort.
 - b. There was interest in reviewing the KSA's that are currently being developed. It is understood that Version 1 of these KSA's have a target release period of March 2014. This KSA represents approximately 72 rig based positions. There was a consensus that the committee should take a look at the KSAs at a future meeting to determine which are relevant. Then discuss evaluating all relevant roles that address or interact with the DCSs. Input from this committee would target the Version 2 release of the KSAs. There was also interest to see if the KSA's differentiated based on class/vintage of the rig and if competencies of the remote monitoring centers would also be included in the KSAs.
 - i. **ACTION:** Scott Maddox to contact Brook Polk with IADC to see if the latest version of these can be distributed to the ART DCS committee.

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- ii. **ACTION:** Ian Russell to contact Dave Dartford with the ART BOP Controls committee to see if they will be doing the same for KSA's applicable to BOP Controls.
 - c. There were discussions and interest within the group on Control System Data Management and Data Integrity. This particular item was not part of the poll in Stavanger however the participants suggested hosting a Data Management workshop to better define the issues as an industry. It was also highlighted that there may be a Data Management portion during the IADC conference in Galveston. <<Need to confirm>>. Also SPE DSATS is working to initiate an effort with the SPE PD²A (Petroleum Data Driven Analytics) and Digital Imaging TIGs towards Managing Big Data. A workshop on data integrity was mentioned as a possible effort.
 - d. In general terms it was discussed how this group may improve reliability of the control systems. This discussion included scheduled based maintenance as a possible topic to consider.
 - e. SPE's DSAT's efforts towards defining the granular steps on how to build a stand was discussed. It is understand that the definition of this first step will come to an end in September of this year. This topic aligned with slide 20's 'Well Construction Steps' poll results. One of the tasks could be for the ART DCS committee to review the steps produced by the SPE DSATS group and identify if there are any steps which the driller absolutely does not want to automate and why.
 - i. **ACTION :** Fred Florence to contact Clinton with SPE to come in and review the current details of the 'Drill A Stand' process flow.
 - f. The final items that was discussed as a possible effort was the development of Digital Security Guidelines for drilling control systems. Possibly leverage existing industry standards and/or develop some detail around best practices in our industry.
5. Next meeting (pending Ian's decision) was suggested to be same time same place approximately 1 month from this meeting (either 13th or 20th of Feb).

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APPENDIX A: Slides reviewed

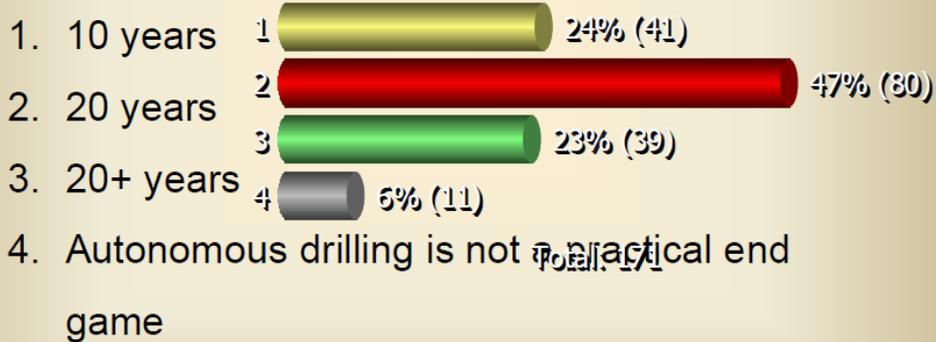




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17-18 September 2013, Radisson BLU Atlantic Hotel, Stavanger

5) When will fully autonomous drilling be commercialized with 50% market penetration?



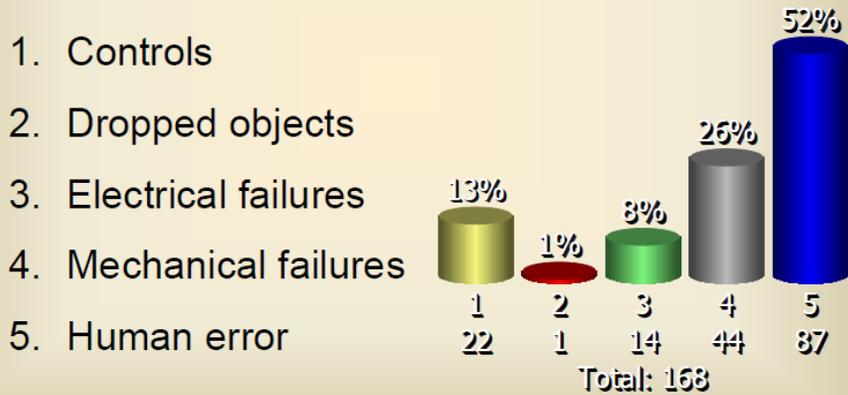
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6) What are the primary causes of NPT



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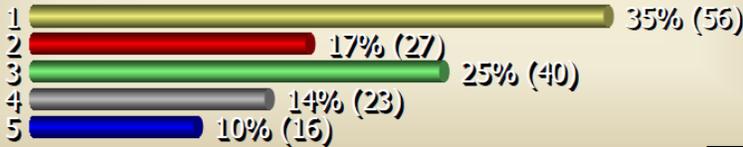


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13) Where is the biggest need for technology development?

1. Control Systems
2. MDP
3. Plug and Play controls / Modular Machine Control
4. Ultra HPHT (20K psi)
5. Dual Gradient Drilling



Total: 162

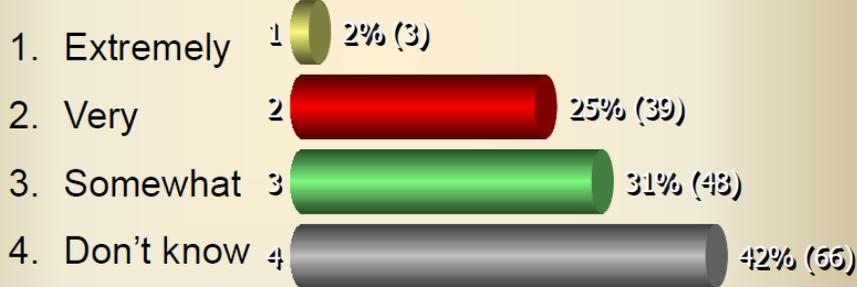
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18) How secure is your control system digital security?



Total: 156

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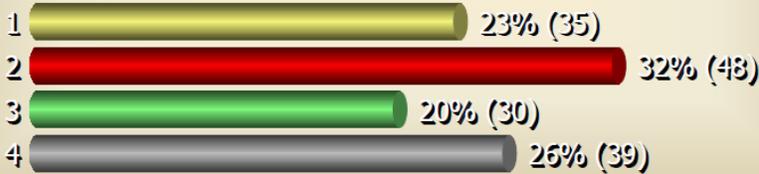


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19) Do you understand the benefits of hardware in the loop (HiL) testing?

1. Yes, we always use it
2. Have heard about it but don't really understand it
3. Yes, but it costs too much
4. Never heard of it



Total: 152

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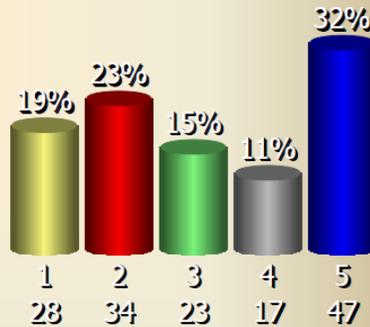
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00:45

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20) What project should the Drilling Controls Subcommittee work on next?

1. HiL Testing guidelines
2. Well Construction Steps
3. Digital Security
4. Certification – instrumentation
5. Knowledge Skills & Abilities



Total: 149

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Attendance:

Name		Company Name
Michael	Weston	APITEQ
Per Erik	Berger	APITEQ
David	Wagner	AWC Inc.
Nathan	Moralez	BP America
Rex	Bomer	Cameron
Thomas	Roesner	GE Oil & Gas Drilling & Production
Scott	Maddox	IADC
Kevin	Kolmetz	MOOG Inc
Fred	Florence	National Oilwell Varco
John	Hoeflich	National Oilwell Varco
Erlend	Engum	National Oilwell Varco
Drew	McPhail	Tesco Corporation
Trenton	Martin	Transocean
Emanuele	LaBella	Transocean