



WCI Board of Directors Meeting
18:00-20:00 (CEST), Monday, 18 June 2018
Bella Center, Copenhagen, Denmark

Participants:

Alex Parmenter, BP
Andy Krieger, BP
Antony Quin, IWCF
Carey Lowe, Ensco plc
Chuck Chauviere, Baker Hughes, a GE company
Cindy Taff, Shell
Ed Kautz, Ensign
Eric Daflon, Total
Evelyn Baldwin, Maersk Training
Gene Stahl, Precision Drilling
Jason McFarland, IADC
Jean-Francois Poupeau, Schlumberger
Kim McHugh, Chevron
Leesa Teel, IADC
Leif Nelson, Seadrill
Lyndol Dew, WCI Chairman
Mark Denkowski, IADC
Matias Machum, Seadrill
Mike Holcomb, Patterson-UTI
Shawn Firenza for Joe Rovig, NOV
Simon Drew, KCA Deutag
Steve Kropla, IADC
Thom Roller, Apache
Tom Burke, Rowan Companies

1. Introductions, Antitrust Statement and Chairman's Remarks

Lyndol Dew delivered welcoming remarks. Mr. Kropla delivered a facility briefing, conducted roll call and noted the meeting was subject to the IADC Antitrust Policy & Guidelines. Mr. Dew welcomed the new members of the WCI Board – Kim McHugh and Carey Lowe. Ms. McHugh has taken the place of David Payne of Chevron, while Mr. Lowe has replaced Steve Brady of Ensco.

2. Special Presentation – Case Study – Serious Well Control Event

Mr. Daflon presented the case study from an incident that had occurred on a Total well that was being drilled in Africa in November 2016.

The rig crew had first experienced a well control incident two weeks earlier. They had managed to bring the well under control, but the bottom hole assembly became stuck in the wellbore.

The well was plugged and a sidetrack drilled to a new target, with an additional 7" liner set above the reservoir.

While drilling at a depth 2596 meters (8517 feet), the pumps were stopped to perform a connection. Drilling resumed and the driller reset the gain/loss indicator. At 2599 meters (8526 feet), the driller noticed an overflow and active pit increase. He picked up off bottom and called the mud logger to ask for a confirmation. The mud logger confirmed the gain, but the driller had to be instructed to shut-in the well by the toolpusher.

He spaced out and closed the annular bag; after shutting in, the SIDPP was 450psi and the SICPP 1160psi. The gain was estimated at 27 square meters. The well was already flowing at 1000 liters per minute during the connection. A constant gain in the pits and at the flowline had been recorded for 25 minutes before the well was shut-in.

The rig began circulating annulus content using the Drillers method. A critical situation was encountered trying to handle contaminated returns from the well. High oil content had resulted in pit contamination with gas. Saturation of the poor boy resulted in oil and gas spraying at derrick vent line; some oil was sprayed in to the sea. The pilot-flare of the nearby production facility posed a high risk of ignition, requiring well control efforts to be suspended until winds were favorable.

Finally, the crew was able to displace the well to 1.64 SG kill mud and stabilize the situation some 40 hours after the incident occurred. Mr. Daflon noted that kick detection is everyone's duty and responsibility; shutting in the well is the driller's responsibility.

At the conclusion, of the presentation, the Board discussed specific training for drillers and general communication on the rig. Mr. Dew thanked Mr. Daflon for sharing Total's experience and the lessons learned.

3. Presentation – Diverter and Emergency Disconnect Sequence Criteria

Mr. Parmenter, Ms. Baldwin and Mr. Machum jointly delivered a presentation on a diverter and emergency disconnect sequence (EDS) criteria that had been collaboratively developed by BP, Seadrill and Maersk Training over a nine-month period.

They stated the efforts had been developed because while industry is well prepared for initial well shut in, in deep water operations, there is a potential for complications taking place during a well control event. Basic well control training may not fully prepare crews to handle the time sensitive, immediate and systematic responses required in the event of a well control escalation at the rig site. Without a fully understanding of Divert and EDS, crews may delay the correct response. Also, rig site procedures may be inadequate.

To improve this situation, the three companies studied varying responses that had been observed during exercises in the Maersk Training Immersive Simulator Environment as well as rig-based well control 'complexity' drills. They conducted multiple workshops with subject matter experts and a human performance specialist to develop guidelines for rig teams to perform complex well control drills for potential scenarios.

A number of flowcharts were developed to help rig crews quickly follow steps to deal with specific items, such as a threat to the rig position, positive indications of an influx, or a blowout on the rig floor.

The flowcharts were validated during offshore well control drills. The scenarios and criteria have been embedded in the Maersk Training Immersive Simulator Environment to ensure that quality and understanding of rig site procedures is improved. These guidelines are now integral to offshore drills and onshore immersive simulations utilized by the companies involved.

Following the presentation, the Board discussed various alarms, crew resource management and the human factors component involved in properly recognizing and responding to emergency situations. Mr. Dew thanked the group for their presentation.

4. Update – Industry Follow-up to WCI Competency Whitepaper

Mr. Dew thanked all participants that worked to develop the whitepaper. IADC and IWCF presented their responses to the competency whitepaper and reported on their organizations' training compliance with IOGP 476, program and testing differences and their plans for their respective programs.

Mr. Krieger noted the importance of moving forward with continuous education/retention programs. Mr. Burke noted the advantage of IADC and IWCF remaining separate entities, citing the benefits to industry of healthy competition. Mr. Nelson noted while we cannot prove this will limit well control events, we are able to prove better test scores through these programs. Ms. McHugh noted grading descriptors and the need for an analysis of critical components that are being missed. She stressed the need to identify that knowledge gap. The Board discussed the issues around a driller taking a supervisor's course instead of a driller's level course. This has been a persistent industry problem and not one that can be solved by IADC or IWCF.

Mr. Dew thanked Mr. Quin and Mr. Denkowski for their presentations.

5. Update – IOGP/IADC RAPID-S53 BOP Reliability JIP

Mr. Kropla presented an overview on activities of the JIP. The JIP recently entered an ongoing phase which is planned to span 10 years with fees adjusted annually. There are 29 participating companies – 14 contractors, 12 operators and 3 OEMs. Finishing touches are being added to the JIPs 2017 Annual Report, which is expected to be issued by the end of June. JIP participants are still working with the BTS on their annual report. The JIP is now collecting population data, along with cycle count data to analyze trends. The JIP has not yet been determined what type of reporting will be included with the collection of this data. Mr. Lowe expressed concerns over how this will be handled, noting the role of the OEM in this area. He asked the JIP to carefully consider next steps. Mr. Kropla will share the Board's concerns with the JIP oversight committee. Mr. Burke noted concerns around antitrust conversations. Mr. Kropla noted the confidentiality component and the fact that an attorney is always present.

6. Update – Chevron's DrillPad

Jason McFarland provided some background information on Chevron's DrillPad and Chevron's original hope to have IADC distribute DrillPad via its web site. Due to the technical requirements of the system, it is not practical for IADC to serve as a conduit for DrillPad. This was determined after a technical review undertaken by SMEs who studied

the system in detail. Instead, IADC will promote DrillPad as an industry good practice through conferences and its publications. In addition, Mr. Dew encouraged anyone interested in more information to go directly to Chevron.

7. Discussion – Future Activities

Mr. Dew requested well control presentation for future meetings. He also noted a follow-up from IADC and IWCF will be provided as plans progress with their respective training regimens.

Ms. Taff reported that Shell is working to organize human factors in well control workshop to be held in conjunction with the SPE/IADC Drilling Conference next March in The Hague. Parties to be invited will include operators, drilling contractors and others. Part 1 of workshop will consist on presentations on the latest insights and best practices in industry. Part 2 will focus on how to translate what was heard in Part 1 into a plan to put for wide adoption in the industry. She asked for volunteers from the Board for speakers. Anyone is interested in suggesting presentations or speakers should contact Ms. Taff or Mr. Kropla.

Mr. Dew led a discussion of “what’s next” for WCI. He noted perhaps WCI could serve as a repository for good practices where companies could contribute. Mr. Burke inquired about kick detection and the best available technology. He suggested a presentation around what is currently being done for the next meeting. Mr. Dew suggested a committee could be formed to review the current status and report back to the Board. He asked Board members to contact him or Mr. Kropla if they can offer a resource.

Mr. Krieger suggested a presentation on cybersecurity and its direct link to well control. Mr. Burke noted the recent IADC workshop held in Stavanger.

Mr. Dew noted the Board should revisit the original six items identified as priority topics. Those items were Competency; Safety Management; BOP Reliability; High Reliability Systems; Reporting; and Kick detection automation.

Ms. McHugh suggested a follow-up presentation on WellSafe, Chevron’s well control assurance system.

Mr. Nelson noted he might be able to provide a presentation on a well control incident experienced during a completions operation in Nigeria. The Board would also be interested in other case studies and presentations and welcomes suggestions..

8. Date & Venue of Next BOD Meeting

- 09:00 (CST), Tuesday, 6th November 2018, Ritz-Carlton Hotel, New Orleans, LA

9. Any Other Business/Adjournment

With no other business before the Board, the meeting was adjourned by Mr. Dew. Mr. Dew thanked the Board for their participation. He noted incidents are still occurring – there is much more work to do.