



IADC Well Control Committee
Meeting Minutes
22nd June 2017
IADC Crown Center
Houston, TX USA

Contractor roundtable

An informal discussion of drilling contractors was held prior to the Well Control Committee meeting. Key topics discussed included the following:

- Onshore utilization remains high despite low oil prices
- As activity picks up, former drillers are returning to that position, creating a shortage of floorhands
- Advantages of automated BOP handling systems
- Importance of communication to avoid shallow gas kicks
- UH Capstone petroleum engineering program projects
- Operator requests for customized rig configurations, such as third mud pumps

Well Control Committee Meeting

Welcome & Introductions

Chairman Aaron Mueller of Independence Contract Drilling opened the meeting and welcomed the attendees. Steve Kropla of IADC provided a building safety briefing and reminded everyone the meeting was subject to the [IADC Antitrust Policy and Guidelines](#). Mr. Mueller asked those present to introduce themselves and their companies.

WellSharp Update

Gerardo Barrera provided an update on the status of WellSharp. There was some discussion of the low passing rate for the instructor exam for surface drilling. Effective Monday, 26th June, the length of the time permitted for the test will be increased by 30 minutes. This change is due to a request from international training providers.

The Arabic translation of the WellSharp examination was launched in early May, with the Chinese language version launched in mid-June.

Brooke Polk gave an update on the process of converting to the WellSharp well servicing curriculum. She noted that the conversion would be complete at end of February 2018, except for the introductory level.

Instructor requirements will be increased for well servicing instructors. IADC will send out an information sheet outlining the changes required to convert from WellCAP to WellSharp.

The well servicing curriculum will not require a formal simulator assessment as with drilling, but must be taught with some form of simulation. This will be checked in program audits.

Ms. Polk stated that development was underway for an enhanced well control course, using the scenario-based training principles of WellCAP Plus and adding high-fidelity simulation and human factors. This is expected to be rolled out about January 2018.

WellSharp audit activity will be ramping up to the end of the year, and providers should expect to be contacted about arranging an audit. Audits will always be performed to the highest level of course taught. Ms. Polk noted it is also important to be able to audit an actual course in progress. Audits consist of at least two days. They will take place both in the US and international locations, though recently most audits have been outside the US. Items that may trigger an audit include the amount of time since the last audit, whether it is a new program, and other factors. IADC's goal is to perform 60 WellSharp audits by end of year. Post-audit actions depend on the specific findings of the audit. Corrective actions can vary from requiring an action plan for improvement to having program suspended. Suspended providers are removed from the website and have no access to the WellSharp system to upload records.

IADC is also looking at updating sample exams, since the older samples have confusing questions that have since been clarified in the WellSharp testing system.

There was a question from the group on what steps are being taken to add additional questions to the testing database, since students may become familiar with questions given in a small question pool. Ms. Polk stated IADC has been trying to finish the database language translations before adding questions. Now that the bulk of the translations are complete, IADC will ramp up that process.

20K BOP on Solaris Project

Fred Milne of Helix Oilfield Systems gave a presentation on its Hydril 11" 20K PSI HP/HT BOP system. The BOP had been selected as part of the complex hybrid stack used on the Solaris project operated by Total E&P Norge AS in Norway. It was the first time a stack of its kind had been used on the Norwegian Continental Shelf. Mr. Milne said the BOP is unique in that it is the only 11-inch 20K BOP with a 15K annular.

The BOP stack, built in 1992, had only been used on three projects, and had never been operated in response to a well control event. Its last previous deployment was in 1998, though it had been subject to regular maintenance with the OEM to stay in a ready state. Nevertheless, due to the long period of time since the stack was last utilized, the Norwegian PSA required additional testing prior to giving approval for use on the project.

Preparation prior to drilling to meet regulatory compliance included providing support of PSA and company audits combined with BOP recertification, shear test program, rig upgrades, stack integration, and commissioning and testing. In addition, extensive HPHT/MPD and BOP controls training was performed with project personnel.

Total spudded the Solaris gas exploration well in February 2016 using the Maersk Gallant jackup rig. Drilling operations faced a number challenges, including being the deepest well and the heaviest vertical casing string on the NCS, along with formation pressure of more than 18K PSI and a formation temperature of 198°C.

Mr. Milne stated that with the Helix BOP System, Total was able to meet its drilling program in spite of the challenging well parameters. Drilling activity was successfully completed after 202 days of operations in September 2016.

Formation temperature was not as high as had been expected, but Mr. Milne said mud cooling was still a consideration. No damage discovered on demobilization, only signs of normal mud circulation.

Mr. Milne stated that Helix's primary market for the BOP stack is for use as a contingency for operators on HPHT wells. He said that an advantage of the 11-inch annular is that smaller is better in a high pressure environment. In addition, Helix has proposed the stack to BSEE as a well control contingency to use the system as a 20K deepwater capping system.

Following Mr. Milne's presentation, the group took a break

MPD/UBO Committee Presentation

Christopher Scarborough of BP provided a presentation on behalf of the IADC Underbalanced Operations/Managed Pressure Drilling (UBO/MPD) Committee in response to a request for an update on the group's activities.

He began by reviewing the IADC definition of MPD:

*'Managed Pressure Drilling (MPD): an adaptive drilling process used to precisely control the annular pressure profile throughout the wellbore. The objectives are to ascertain the downhole pressure environment limits and to manage the annular hydraulic pressure profile accordingly. It is the intention of MPD to avoid continuous influx of formation fluids to the surface. **Any influx incidental to the operation will be safely contained using an appropriate process.**'*

Mr. Scarborough stated that the benefits from MPD on influx control are significant, but perhaps not fully understood by operators and drilling companies as to how it can open new possibilities on influx control.

He said that MPD can provide increased safety for drilling operations by providing early kick detection capability and dynamic influx control which provides the ability to manipulate pressures instantaneously with a higher circulation rate. In addition, MPD provides the ability to keep pipe moving throughout the kill operations, and eliminates ballooning and formation cycling through constant pressure on open hole formations.

One of biggest benefits of MPD is increased granularity in monitoring, especially when using Coriolis meters and other monitors. It makes it easy to monitor flow in/flow out in gallons on both sides and the friction pressure. Kicks can be noticed within a half-barrel and the well can be shut in within 1 or 1.5 barrels.

On large floating rigs, MPD is less likely to set off alarms since it eliminates the impact of rig movement due to the fixed volume container. This saves significant time in both cost and NPT since it eliminates the need to shut in and shut down. Mr. Scarborough stated that when the time a well takes is increased by NPT, personnel HSE risk is increased as well. He said just the use of a rotating head can dramatically reduce incidents of loss of well control.

Despite its recognized benefits, Mr. Scarborough said, MPD still faces a number of challenges with industry acceptance and acceptance by regulatory bodies. These are frequently due to concerns over conflicting company policies, liability/accountability issues, and confidence and competency levels. He noted that it is current practice that when an influx is detected, even when using MPD, to revert to conventional well control.

To provide a better understanding of MPD capabilities and a framework for MPD operations, the IADC UBO/MPD Committee is currently working on an MPD Influx Control Supplement to the API 92 series. This is intended to provide guidance on aspects to verify for operations being designed to actively manage influxes with the MPD system. The objective is to ensure that

equipment setup, engineering and safety processes will provide a safe envelope to manage influxes within the primary barrier.

Designed to supplement API 92M and API 92S, the Committee document will define additional recommendations for operations planning to use MPD for influx removal. These will include detailed guidelines for engineering, equipment selection and assurance, testing, process safety practices, and crew training and competency development.

In conclusion, Mr. Scarborough said that dynamic influx control mitigates many of the current challenges faced during conventional Well Control, since it utilizes an adjustable primary barrier, improves HSE and operational safety, reduces secondary challenges, and increases operational efficiency. When completed, the MPD influx control supplement to API 92S will provide guidance to the industry to properly make use of this technology.

Subcommittee reports

Well Control Practices Subcommittee: Paul Sonnemann, SafeKick – Since very few people attended the last meeting, there was no further development on the scope of Subcommittee. Mr. Sonnemann urged more people to be involved on the Subcommittee. Intent is not to write document. SC has list of conventional practices they are interested in.

Curriculum Subcommittee: Matt Parizi, Chevron – There was no report from this group.

Simulator Subcommittee – Michael Arnold, Intertek – There was no report from this group. A subcommittee meeting planned to follow the meeting was cancelled and will be rescheduled.

Barriers Subcommittee – Scott Randall, PlusAlpha Risk – There was no report from this group.

General Discussion

Paul Sonnemann discussed the gas in riser work being done by the MPD/UBO Committee. He noted that the Committee had developed a set of draft recommendations relating to riser gas management for deep water operations. These are still under development.

Mr. Mueller discussed interest in being involved with either high schools or colleges with activities focusing on the petroleum industry. He asked if anyone knows of someone who might help pursue presentations from these groups to refer them to him.

The following were suggested as possible topics for future meetings:

- MPD components
- Mud/Gas Separators
- Decommissioning of platforms
- Rental vs. purchase of equipment
- Automated well control
- Petroleum engineering professors retiring, only schools that focus on well control is LSU and A&M -- Jerome Schubert

Discussion & Next Meeting

The next Well Control Committee meeting will be at 1 p.m. on Monday, 28th August at Moody Gardens Hotel & Conference Center in Galveston. This will be the day prior to the next IADC Well Control Conference of the Americas, which will take place at the hotel on 29-30 August.

The meeting was adjourned, with a meeting of the Well Control Practices Subcommittee scheduled to follow afterwards.

Attendance:

Name		Company Name
Brian	Piccolo	AFGLOBAL CORP
Austin	Johnson	AFGLOBAL CORPORATION
Charlie	Holt	BP
Chuck	Boyd	CS INC
Michael	Williams	DIAMOND OFFSHORE DRILLING INC.
Robert	Kemper	EXXONMOBIL
Trevor	Bishop	EXXONMOBIL
Fred	Milne	HELIX OILFIELD SERVICES
Bill	Burch	HELIX OILFIELD SERVICES
Phillip	Harris	HTK INTERNATIONAL
Mike	Harris	HTK INTERNATIONAL
Steve	Kropla	IADC
Mark	Denkowski	IADC
Aaron	Mueller	INDEPENDENCE CONTRACT DRILLING
Jane	Murphy	INTERTEK
Laura	Murchison	MURCHISON DRILLING SCHOOLS
John	Bottrell	NOMAC DRILLING CORPORATION
Steven	Ronan	OTC SOLUTIONS
Antonio	Lage	PETROBRAS
Paul	Sonnemann	SAFKICK
Harshad	Patil	WEATHERFORD
Robert	Ziegler	WEATHERFORD TECHNOLOGY & TRAINING CENTER
Barry	Cooper	WELL CONTROL SCHOOL