

STATUS AND FUTURE OF INDUSTRY WELL CONTROL COMPETENCIES

White Position Paper

WCI Competency Workgroup

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SUMMARY

Inherent in the global business of well construction, completion, workover, servicing, and abandonment of wells are Well Control and/or Well Process safety risks. To address these risks, the oil industry and regulators have jointly driven impressive improvements in training and assessment/certification of safety critical positions over several decades. The risk of process safety incidents has been reduced, safeguarding lives, the environment, assets, and industry reputation.

Although much has been accomplished to date due to the tireless efforts of many entities and individuals, the Well Control Institute (WCI) Board of Directors suggests that there is room for further improvement. As evidenced in other industries, our industry has not yet made full use of the opportunities that the digitalization in enhancing effective learning offers. To strengthen our process safety readiness, simplifying how we train and certify people along with a program approach to competency development versus a “single class” approach will yield stronger and more consistent results both in compliance and experiential learning and will help meet future well control competency requirements.

This white paper is written as part of the well control competency workgroup input to the WCI board. The intent is to provide direction to the industry and to be used as input to the next revision of International Association of Oil & Gas Producers (IOGP) Report 476, which we view as the key industry guidance on well control competency.

This paper represents the following WCI positions and actions:

- 1) IOGP Report 476 Recommendations for Enhancements to Well Control Training, examination and certification, as the foundation for industry well control competency recommendations, will actively have the support of the WCI for its implementation and future development.
- 2) Well control risk may be further reduced by enhancement and implementation of continuing education of industry personnel. WCI will actively support the industry in developing e-learning or other learning tools including drilling and well intervention simulators.

- 3) WCI recognizes an issue remains with industry personnel not attending 'job specific' well control training especially for Level 3 positions attending Level 4 training. We suggest more collaboration between Operators and Contractors to enforce attendance to the appropriate level well control training courses.
- 4) A deeper understanding of Crew Resource Management (Human Factors) can reduce industry well control risks though improved human performance and WCI supports IOGP/IADC/IWCF efforts in this undertaking.
- 5) Advanced knowledge of the fundamental downhole risks and well design amongst operational personnel has the potential to reduce overall process safety risk. WCI supports the development of Level 5 training by IWCF and IADC, per IOGP Report 476.
- 6) WCI suggests more active collaboration between the two main Well Control accreditation bodies (IADC/IWCF).

BACKGROUND

Operators and contractors accountable for the control of key wells process safety risks are required to undertake Well Control training and pass relevant assessments to maintain their Well Control certifications. The structure and objectives of the training/assessments are provided in IOGP Report 476. The report defines 5 different assessment levels. IOGP have also published associated reports which provide more guidance in areas like Human Factors, for example IOGP Reports 501 *Crew Resource Management for Well Operations Teams*; Report 502 – *Guidelines for Implementing Well Operations Crew Resource Management*, and Report 503 – *Introducing Behavior Markers of Non-Technical Skills in Oil and Gas Operations*. The key IOGP committee in this domain is the Wells Expert Committee (WEC) which includes a dedicated training and competency workgroup. The WCI Well Control workgroup has worked closely with IOGP WEC, aligning and avoiding duplication of efforts.

Well Control certification is delivered by two main accreditation bodies; the International Association of Drilling Contractors (IADC) and the International Well Control Forum (IWCF) which are both industry recognized non-profit entities. Third party training providers are accredited to deliver training and conduct assessments on behalf of IADC, IWCF or both. Operators and contractors define whether IADC or IWCF

are their recognized certification body. Some companies have preferences for one or the other, but most operators and contractors accept either scheme, although some prefer the simplicity of dealing with only one such body.

Operators and Contractors follow the same certification systems, although supervisory personnel typically attend Level 4 training and equipment operators attend Level 3, per IOGP Report 476. Furthermore, there are different job specific certification requirements for Completion and Well Intervention staff and Well Engineers.

Well Control Certification/Training has evolved and improved significantly over the last several years, and the control of wells process safety risks are more robust as a result. Both the training available and the assessments have progressed through various industry bodies. Operators, Contractors and third-party training providers have had a major input to this effort, both through steering groups and at a more detailed operational level.

Current key development activities are in the Well Services certification domain (IADC), Report 476 Level 5 certifications for engineers/technical authorities (IWCF and IADC) and Human Factors (IWCF and IADC).

The context presented below supports the observations and recommended actions from the WCI Well Control Competency, Retention, and Assessment workgroup.

CONTEXT

IOGP Report 476

Regulators, IOGP, IADC, IWCF and WCI have global interests and insights in the field of Well Control competency development. Progress is driven through various work groups and committees with industry-wide participation. The key lever recognized by all consulted is IOGP report 476 which has provided focus and direction for the effort. This report has helped align objectives across the industry and WCI agrees that this should remain the key lever for industry alignment. WCI focus should be to strengthen the connection between IOGP and IWCF/IADC, and help them operationalize the intent behind any updates to the report.

Continuing Education

There is evidence that knowledge retention in between the two-year well control certification cycle remains an issue. Even though rig crews are regularly confronted with well control specifics through onsite well control drills, kick sheets, daily checklists, meetings/discussions, and learning from incidents, gaps in knowledge retention still exist. As a program effort, recognizing that some companies will already have this in place, the WCI suggests that well control readiness will be enhanced through more structured use of continuing education efforts, moving towards a program that includes both 'single well control class' and 'continuing education' approach.

The current delivery of Level 3 (Drillers Level) and 4 well (Supervisor Level) control certification is through face to face courses with re-certification every two years. Other than rig based drills and exercises, many cite limited exposure to well control learning/training outside the re-certification cycle and there is opportunity to encourage a more continuous competency program. WCI encourages implementation of a continuous learning program utilizing various learning delivery methods including e-learning between certification training cycles.

Short term, e-learning, well control gaming 'apps', and/or web based well control simulators offer an opportunity to address knowledge retention between the two-year certification cycle. These types of learning tools are evolving at a rapid pace and in this industry some contractors and operators are utilizing early versions to improve knowledge retention and assessment.

WCI will encourage IADC/IWCF to develop easily available "learning nuggets" (quick e-learnings) and continue to encourage industry sharing of any available tools and methods. WCI supports further understanding of how these types of learning tools could be used to improve knowledge retention and the role they could play in this domain, and how these tools should be managed and tracked.

In addition, establishing higher competency expectations of the current certification assessments is a key lever to reduce the process safety risks. The easiest way to achieve this is to keep the exam level of difficulty unchanged, but to raise the

minimum pass mark. Some companies have already introduced this as an internal requirement. IADC WellSharp Advisory Panel has discussed and agreed to incrementally raising pass percentage from 70% to 75% then 80% in a staged approach. Raising the passing mark may introduce other business risks and may mean that some with less strong theoretical knowledge are disadvantaged. WCI therefore request IADC and IWCF to review their databases and revert with a view as to what the historical impact of such an approach would have been, and their position on potential risks and benefits.

Job Specific Training

IOGP Report 476 defines 5 levels of well control training; Introduction, Support Personnel, Equipment Operator, Supervisor, and Engineering. IADC and IWCF have developed course criteria and appropriate accreditations for levels 1–4. Regarding level 5, IWCF has approved level 5 course material, while IADC is in the process of developing criteria for level 5 training.

Level 3 training is designed for equipment operators, specifically contractor ‘drillers’ on drilling rigs. The course material focuses on kick avoidance, detection and if required making the well safe. Level 4 training is specific for supervisors, typically contractor ‘tool pusher’ or operator ‘representative’. Level 4 training focuses on oversight and corrective actions, including returning the well to normal operations following a well control event.

Industry personnel do not always attend the appropriate job specific well control training, specifically designated level 3 personnel attending level 4 training. Nonconformities can be the result of contract compliance, employee job position change, job position delegation, or simply misunderstanding the training levels. IADC and IWCF support job specific training. WCI suggests more collaboration between Operators and Contractors to enforce appropriate training levels.

Complexity may be a hindrance to enhance well control readiness. Through recent development of well control competency systems, some complexity has been introduced, such as; position specific training, recent WellSharp WO & Interventions equipment operator accreditations, future advance courses, and/or incorporation of

HF training. Each program enhancing industry well control competency. WCI advocates simplicity where possible.

Crew Resource Management

Based on review of incidents, the Wells industry is conscious that improvements in “Human Factors” or “Crew Resource Management” remains an enabler to reduce process safety risks further. Again, IOGP has developed guidance which is referenced in many conversations, IOGP Report 501, Report 502, and Report 503. Both IADC and IWCF are developing incremental well control course material that includes Human Factors offerings. There is potential to deepen underlying knowledge and WCI should aspire to help develop “thought leadership” in this area. WCI will encourage and support IADC/IWCF actively in developing such thought leadership through conferences, consultation with relevant expertise and sharing of best practices.

Level 5 Training and Fundamentals of Downhole Risks

Wells process safety and integrity risks can be further improved through a deeper understanding of the subsurface risks/pressures, uncertainties and the well engineering/design aspects amongst both operators and contractors. IOGP Report 476 has included this in level 5 training for office based engineers, but it is also recognized that operational staff could benefit from this knowledge. WCI suggests eLearning or continuing education between two-year recertifications include fundamental grounding of downhole risks for operational personnel. Further, WCI supports the development of Level 5 training by IWCF and IADC, per IOGP Report 476.

IADC and IWCF Collaboration

IADC have a long history in well control training. The WellSharp program is a great enhancement and has raised the bar in well control training and assessment. The latest developments in IADC WellSharp have introduced independent assessments and much improved course data management. IADC is progressing a WellSharp Well Servicing certification program; it is expected that they will have an offering early 2018. IADC’s efforts in this area are guided by an Industry Advisory panel where many companies are represented. Their WellSharp program broadly follows the IOGP recommendations in report 476.

IWCF was formed around 30 years ago as the European Well Control Forum. The initial footprint was broadly Europe eastwards, and many operators have been involved in their development from inception to their current state. IWCF operate through a board, elected through a decentralized “branch” system. Their program broadly follows IOGP 476. Historically, IWCF administered independent well control exams. In the last 5 years, they have expanded to also include approvals for course syllabi and they certify training providers. They have a Completions Workover Interventions (CWI) syllabus in place with exams and much of this was delivered through active support from industry. IWCF are in the process of developing a Level 5 as per the IOGP report 476.

The WCI Well Control workgroup assessed IADC and IWCF relative to IOGP Report 476 well control training objectives. Findings indicated both are aligned with Report 476. Many similarities were noted between the two organizations.

WCI continues to support more active collaboration between the two main Well Control accreditation bodies (IADC/IWCF). Regarding these efforts, IWCF has a standing invitation to attend regular meetings of the WCI Board.