



**International Regulators' Forum
Annual General Meeting
June 18 to June 20, 2019
Den Haag, The Netherlands**

Summary of discussions and action points

Participants:

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| Australia | Stuart Smith Derrick O'Keeffe Graeme Waters | NOPSEMA NOPSEMA NOPTA |
| Brazil | Marcelo Mafra Borges de Macedo Alex Garcia de Almeida | ANP ANP |
| Canada | Stuart Pinks (Chair) Robert Normore Paul Alexander Dan Chicoyne Keith Landra | CNSOPB CNSOPB C-NLOPB C-NLOPB NEB |
| Denmark | Bénédicte Crapez Torben Krarup | DWEA DWEA |
| Ireland | Ben Browne | CRU |
| Netherlands | Theodor Kockelkoren J.A. (Hans) deWaal | SSM SSM |
| New Zealand | Donna Ellis | WorkSafe New Zealand |
| Norway | Ann Myhrvold Finn Carlsen | PSA PSA |
| United Kingdom | Wendy Kennedy Andy Taylor Chris Flint David Walker | OPRED OPRED HSE HSE |
| United States | Lars Herbst Bryan Domangue | BSEE BSEE |

Attended by Phone:

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| United States | Allison Fischman – Session 6 Elizabeth Torres – Session 6 | BSEE BSEE |
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Special Guests:

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| James Drummond John Eddie | Organisation for Economic Co-operation and Development (OECD) – Session 4 Wild Well Control - Session 9 | |
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| | <p><u>WELCOMING REMARKS:</u></p> <ul style="list-style-type: none">Stuart Pinks (IRF Management Committee Chair), along with Hans deWaal and Theodor Kockelkoren of the State Supervision of Mines, The Netherlands (Host), delivered opening remarks and welcomed IRF members to the Annual General Meeting (AGM). |
| 1 | <p><u>SESSION 1 – ADMINISTRATIVE ITEMS</u></p> <ul style="list-style-type: none">Stuart Pinks reviewed the Action Items from the last IRF AGM held in Aberdeen, Scotland in June 2018 - all complete. |
| 2 | <p><u>SESSION 2 – STRATEGIC DIRECTION – SETTING THE STAGE</u></p> <ul style="list-style-type: none">Stuart Pinks and Derrick O’Keeffe led the first of two sessions on IRF Strategic Direction. Pre-reading materials were reviewed and discussed.Time was spent discussing IRF’s vision, taking into account where we want to be five to ten years from now, and a SWOT analysis was undertaken.Acknowledged that, as regulators, we have a privileged access to information. Both as individual regulators, and as a collective of regulators from eleven countries, we are in a strong position to leverage this information to identify critical risk areas, and to then influence industry to reduce risks and drive improvements in safety performance.It was agreed that the IRF would benefit from an agreed mechanism for identifying and articulating critical risks, and for then leveraging external entities (e.g. industry associations, standards bodies) to undertake required work to develop / implement solutions to reduce such risks and improve safety. |
| 3 | <p><u>SESSION 3 – COUNTRY HIGHLIGHTS</u></p> <p>Denmark led the session. Members provided updates. Themes / key messages included (not necessarily applicable in all jurisdictions):</p> <ul style="list-style-type: none">A noted decline in operational process safety in general, and in Operators diligence in properly maintaining facilities and equipment, directly correlated to the reduction in the price of oil.Extreme weather events are becoming more the norm; this has implications from a facilities design perspective. Additional commitment by Operators to respecting operational limits is also required.Further improvements required to prevent well control incidents.Risks associated with the implementation of digital technologies.A need for Operators to “think leak first” when faced with an operational matter that could potentially involve a leak (rather than continuing operations while trouble shooting to rule out a leak).An ongoing commitment to improving safety culture is required.Risks presented by ageing assets; concerns with smaller, less experienced operators taking them over.Increasing expectations on regulators to make full use of their enforcement tools to drive improvements in operator compliance and safety performance, coupled with effective follow-up programs to confirm the implementation of necessary corrective actions.Concerns / risks with respect to decommissioning and abandonment of offshore facilities (activity in this regard is increasing significantly in a number of jurisdictions): |



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| | <ul style="list-style-type: none">▪ Idle iron – facilities not being decommissioned and abandoned in a timely manner, regulations often silent on timelines for completing such work▪ Dormant wells – shut-in wells not plugged and abandoned in a timely manner; again regulations often silent on timelines for completing such work.▪ Non-routine work – requires additional diligence to ensure work is done safely• With respect to personal safety, IRF members continue to see a high incidence of lifting incidents, dropped objects in general, and falls. Fatigue management was also expressed as a concern.• Quality of incident investigations by Operators is often lacking; industry still also needs to do a much better job of sharing incident details and learnings.• Expectations on regulators with respect to stakeholder engagement are increasing• Regulators need to do more in demonstrating their value in order to build public confidence that Operators are being held accountable.• Regulatory modernization efforts continue in many countries focused on improving safety and environmental protection; regulators need to continue to build internal competencies and capacity, particularly when operating in a performance based (or goal based) regulatory environment.• The remit of a number of IRF members is being expanded to include the regulation of renewable energy projects. |
| 4 | <p><u>SESSION 4 – ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD) – BEHAVIOURAL INSIGHTS – PRESENTATION BY JAMES DRUMMOND</u></p> <p>This session was led by Australia.</p> <p>A presentation was provided by James Drummond from OECD titled “<i>Applying Behavioral Insights to Organizational Behaviour</i>”. The presentation focused on fostering a culture of safety in the energy sector.</p> |
| 5 | <p><u>SESSION 5 – IRF PERFORMANCE INDICATORS</u></p> <p>Brazil provided a presentation on IRF Performance Indicators analyzing data collected from IRF members from 2007 to 2018. It was observed that there are ongoing challenges in collecting and submitting data in a consistent manner across all IRF member jurisdictions. A firm conclusion as to whether or not industry has improved over this time period in the categories for which information is collected could not be drawn. Data collected continues to be posted on an annual basis to the IRF website. IRF members confirmed that it was useful to do so as it allows for a comparison between IRF member jurisdictions.</p> <p>It was also agreed that the IRF should check in with IOGP with respect to their annual collection and reporting of safety performance indicators, and then re-examine the value of collecting and reporting IRF Performance Indicators as currently structured.</p> |
| 6 | <p><u>SESSION 6 – WORKING GROUP STATUS REPORTS</u></p> <p>This session was led by New Zealand.</p> <p><u>Performance Measures Working Group:</u></p> <p>The United States provided an update on the process safety risk analysis framework. Using IOGP taxonomy, the working group has been examining a sample of data related to barrier failures and associated causal factors to provide insights into system risks. The working group developed a</p> |



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| | <p>Microsoft Excel tool as an incident analysis template. Work completed to date shows some examples of patterns of failures and causal factors. The working group will finalize its report and stand down. IOGP has expressed an interest to work with IRF on this project as they are seeking ways in which to become more predictive. The working group will thus make further contact with IOGP to determine if they could take the work done to date and advance it further.</p> <p><u>Culture of Safety Working Group:</u></p> <p>Canada (NEB) recommended that this working group stand down. This recommendation was accepted by IRF members. IRF members are encouraged to monitor or connect with established working groups and projects such as the <i>North American Regulators Working Group on Safety Culture</i> and the work being done by the OECD (refer to Session 4 above).</p> <p><u>Standards Working Group</u></p> <p>Australia and Canada (CNSOPB) provided an update. Gaps in well integrity standards identified by this working group had previously been shared with relevant industry associations and standards groups. ISO/TC67 has reported significant progress in reviewing and analyzing the identified gaps (refer to ISO report included in Session 7 below).</p> |
| 7 | <p><u>SESSION 7 – EXTERNAL ASSOCIATIONS</u></p> <p>This session was led by Canada (C-NLOPB).</p> <p>IOGP, IADC, ISO, and API each submitted update reports that were circulated to all IRF members in advance of the AGM.</p> <p>Canada (CNSOPB) provided a summary of highlights from the four reports.</p> <ul style="list-style-type: none">• IOGP provided updates on some of its standards work (e.g. standardization of equipment, well integrity standards, and offshore structures), and on a variety of safety initiatives focused on fatality elimination (e.g. life saving rules, aviation, land transportation and process safety). Furthermore, IOGP provided updates on the Wells Expert Committee initiatives to improve effectiveness in the prevention and mitigation of high consequence well control events.• IADC provided updates on activities including those of: the IOGP/IADC BOP Reliability Data Base; the WellSharp well control training program; the Subsea Technician Competency Assurance (STCA) program, the Knowledge Retention and Educating our Workforce (KREW) system, and the Well Control Institute.• ISO's report provided a response to the outputs of the IRF Standards Working Group (refer to Session 6 above). ISO/TC67 has reviewed the gaps in well control standards identified by the IRF working group, and has categorized them into four groups: drilling, cementing, well barriers, and suspension and abandonment. Although further analysis is required, ISO expects that it will result in a number of changes to well integrity standards.• API provided updates on activities of the Centre for Offshore Safety, Pipeline Safety Management System requirements, their Process Safety Site Assessment Program, and their recently launched Environmental Partnership comprised of companies in the U.S. oil and gas industry seeking to improve the industry's environmental performance.• API, ISO and IOGP highlighted cooperative arrangements in place to seek alignment from a standards making perspective and to avoid duplication of effort. |



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| | <p>United Kingdom (OPRED) provided an update on activities of the International Offshore Petroleum Environmental Regulators' Forum (IOPER). Topics included a review of IOPER objectives, IOPER priority work streams, a summary of outcomes from the Source Control Workshop (SPILLCON 2019 Perth), and the exchange of information among regulators – lessons learned, best practices, trends, and effectiveness of regulatory activities.</p> |
| 8 | <p><u>SESSION 8 – DECOMMISSIONING</u></p> <p>A presentation was provided by The Netherlands focused on well plugging and abandonment. Topics included:</p> <ul style="list-style-type: none">• Gas emission monitoring after abandonment;• Leaving NORM contaminated tubing in a plugged and abandoned wells;• Alternative materials for abandonment other than cement (clay, thermite, etc.); and• Well integrity for reuse <p>The discussion that followed addressed: the question as to whether the use of cement is the best option in all cases; the need for regulatory timelines for undertaking plugging and abandonment of wells; the need for global standards for plugging and abandonment of wells; and post-abandonment requirements for well monitoring.</p> |
| 9 | <p><u>SESSION 9 – WILD WELL CONTROL PRESENTATION</u></p> <p>This session was chaired by Ireland.</p> <p>John Eddie of Wild Well Control provided a presentation titled <i>Well Control Trends</i>. It addressed the following topics:</p> <ul style="list-style-type: none">• Well Control Events – Response Levels (Tiers 1, 2 and 3)• Well Control Trends• Offshore Response• Relief Well Trends• Well Concerns Going Forward <p>Discussion following the presentation zeroed in on human factors, noting that Wild Well Control estimates that approximately 85% of well control incidents involve poor human performance or human error. Areas of concern include level of rig crew well control training, safety culture and attitude, level of rig crew preparedness for a well control incident, and a rig crew's ability to react properly during a high stress event. Additionally, there was some discussion on the technical challenges presented by ever more complex geological plays, tight margins, water depths, shallow reservoir depths, restricted access for well control response, and mature equipment integrity.</p> |
| 10 | <p><u>SESSION 10 – WELL CONTROL / GAS RELEASE INCIDENTS</u></p> <p>This session was led by USA. Presentations of significant well control / gas release incidents were provided by The Netherlands, Norway, Australia, Denmark and the United Kingdom.</p> <p>Discussions following the presentations focused on lessons learned. Despite knowing the potential consequences of a loss of well control situation, regulators remain concerned by the number of such incidents that still occur, and the lack of sharing of well control incidents and lessons learned across industry. Human factors, lack of proper risk assessments, poor management of change, concerns around leadership / supervision / contractor oversight, and poor communications in the workplace were general themes discussed.</p> |



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| 11 | <p><u>SESSION 11 – OPERATOR INCIDENT INVESTIGATION QUALITY</u></p> <p>This session was led by Australia who provided a presentation on the subject. IRF members deliberated on the question “Why is it so difficult to learn from incidents?” Discussion focused on concerns around the quality of investigations (do they really get to the true root causes and contributing factors?), and the lack of sharing industry-wide on incidents that have occurred and the lessons learned. IRF members strongly believe that industry (and industry associations) need to do a much better job of this.</p> |
| 12 | <p><u>SESSION 12 – OFFSHORE RENEWABLES</u></p> <p>This session was led by Australia. Stuart Smith, CEO of NOPSEMA shared some of his findings from recent research he has been doing into how offshore renewables are being regulated in various jurisdictions.</p> <p>A number of IRF members either do have, or could have in the future, the regulation of offshore renewables within their remit. Given this, the IRF agreed to give consideration to including this topic in future IRF meetings.</p> |
| 13 | <p><u>SESSION 13 – NEW ENTRANTS</u></p> <p>This session was led by Brazil. Presentations on this subject matter were provided by New Zealand and the United Kingdom.</p> <p>Discussions following the presentations focused on a number of regulatory concerns that are presented by new entrants including: ensuring operator familiarization of the regulatory framework (which can be particularly challenging in cases where a less experienced operator is entering a performance based regulatory jurisdiction for the first time), the need for robust regulatory processes for evaluating operator safety and environmental protection capacity (taking into account proposed operational plans and past performance), the need for effective management of crew change-outs in the case of mobile units entering a new jurisdiction, and a proper identification and mitigation of security risks. Additionally, the importance of the IRF network for information sharing was highlighted as assets (and personnel) move between our various jurisdictions.</p> |
| 14 | <p><u>SESSION 14 – REGULATORY AUDITS / INSPECTIONS</u></p> <p>This session was led by the United Kingdom. Presentations were provided by the United States (<i>BSEE Risk Based Inspection Program</i>) and by the United Kingdom (<i>Maintaining Safe Operations and Operational Integrity</i>).</p> <p>The benefits of risk based inspections were stressed in the US presentation. Specific production facility and well operation inspections (along with frequencies) are mandated. However, performance-based risk inspections (based on an analysis of key performance indicators and utilizing trend analysis) can assist in reducing the likelihood of unwanted events and compliance issues. Additionally, facility based risk inspections allow inspectors to specifically target low probability, high consequence areas of a specific facility.</p> <p>The UK presentation addressed the importance of process safety management, and some of their findings from recent safety leadership audits. Concerns around effective monitoring, audit and review of risk control systems by operators were among the findings, as were concerns with how risk assessments are conducted (which if not done properly lead to inadequate risk controls), and the lack of information sharing, training and supervision in the implementation of risk controls.</p> |



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| 15 | <p><u>SESSION 15 – THIRD PARTY ASSURANCE</u></p> <p>This session was led by Canada (NEB). A presentation was provided by Canada (C-NLOPB) stressing the importance of ensuring the training and competencies of third party verification / certification bodies that operators and regulators may rely on. IRF members noted that many of its members, in many cases, rely on the same verification / certification bodies and that it is important that concerns are shared.</p> |
| 16 | <p><u>SESSION 16 – INCIDENT INVESTIGATIONS – FATALITIES</u></p> <p>This session was led by Canada (NEB). Presentations of incidents involving fatalities were presented by the United States. The first presentation focused on a number of deficiencies found in safety controls for a pipe removal operation leading to a fatality as a result of a dropped section of pipe. The second presentation focused on deficiencies in safety controls respecting pipe handling operations on a drillship leading to a fatality as a result of a worker being pinned between a moving piece of equipment and a stanchion post.</p> |
| 17 | <p><u>SESSION 17 – DIGITALIZATION & CYBER SECURITY</u></p> <p>This session was led by Norway who provided a presentation on this topic. It was followed by a general discussion on how IRF member countries have been approaching the matter of digitalization and cybersecurity from a regulatory perspective within their respective jurisdictions. It was generally acknowledged that digitalization changes the risk picture. It was discussed that the focus of digitalization by Operators should not only be on improved efficiencies but also on improved safety. It would be beneficial if there was standardization within the industry in this regard, and the need for regulations was discussed. Collaboration between employers, employees, regulators and government is needed to best ensure the successful implementation of digitalization.</p> |
| 18 | <p><u>SESSION 18 – INCIDENT CASE STUDIES – SHUT-DOWNS</u></p> <p>This session was led by Norway. Presentations on incidents that led to extended shutdowns were provided by Australia, Canada, and Norway. Details are not included in these meeting notes as some of them involve active investigations that have not yet been completed.</p> <p>There was much discussion on the appropriate use of regulators' enforcement tools (e.g. the use of "facilitated compliance" whereby the onus is on an operator to shut down operations versus an ordered shut down by a regulator). Regulators need to be able to explain, and defend, their actions in a manner that contributes to public trust.</p> |
| 19 | <p><u>SESSION 19 – STRATEGIC DIRECTION – MOVING FORWARD</u></p> <p>Building on outcomes from Session 2, Stuart Pinks and Derrick O'Keeffe led the discussion on the IRF's strategic direction moving forward, with a specific focus on IRF's stated objective of promoting best sustainable safety performance globally.</p> <p>The proposed mechanism (as set out in the pre-read materials) for identifying and articulating critical risks, and for then leveraging external entities (e.g. industry associations, standards bodies) to undertake the required work to develop / implement solutions to reduce such risks and improve safety was reviewed and generally accepted. The proposed mechanism addresses:</p> |



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| | <ul style="list-style-type: none">• Risk gap identification• Prioritization• Articulation• Action (both internal and external)• Reporting• Refining / Concluding <p>Taking into account the outcomes from the various AGM sessions, specific risk gaps were identified during this session and then prioritized. Based on a template to be developed and shared by Australia and Canada (CNSOPB), “Problem Statements” are to be developed for those risk gaps identified below. The targeted date for completing the draft “Problem Statements” for submission to the IRF Management Committee is November 30, 2019. The IRF Management Committee will then review the submissions and determine next steps. The identified risk gaps are:</p> <ul style="list-style-type: none">• Well control• Digitalization• Learning / Knowledge Sharing• Investigation Quality |
| 20 | <p><u>SESSION 20 – EXTERNAL COMMUNICATIONS – MONTHLY ARTICLES</u></p> <p>IRF members reconfirmed their commitment to posting monthly articles on the IRF website. A schedule was developed to the end of July 2020.</p> |
| 21 | <p><u>SESSION 21 – NEXT AGM / CONFERENCE IN AUSTRALIA</u></p> <p>This session was led by Australia. It was determined that the next IRF Offshore Safety Conference and AGM will be hosted by Australia’s offshore regulator, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), in Perth, Australia in October, 2020.</p> |
| 22 | <p><u>SESSION 22 – COMMUNIQUE</u></p> <p>A communique detailing the outcomes from the AGM was drafted and subsequently approved. It is posted on the IRF website.</p> |
| | <p><u>CLOSING REMARKS:</u></p> <p>The Chair thanked everyone for attending and The Netherlands for hosting.</p> |



ACTION ITEMS:

1. Connect with IOGP:
 - a. to determine if they could take the work done to date by the IRF Performance Measures Working Group on developing a process safety risk analysis framework and advance it further. (United States) [Session 6]
 - b. to ascertain what work they may be doing, or may be planning to do, on safety culture (Canada). [Session 7]
 - c. with respect to their annual reporting of safety performance indicators and consider whether IRF should modify its program of collecting and reporting of Annual Country Performance Measurement Data (Brazil) [Session 5]
2. Find and distribute to IRF members information regarding API's Process Safety Site Assessment Program. (Canada – CNSOPB) [Session 7]
3. Distribute information on lessons learned from recent third party assurance audit, and November 2018 storm event (Canada - C-NLOPB) [Session 15]
4. Draft, distribute for comment, and then finalize a "Problem Statement" template for articulating critical risk gaps (Canada - CNSOPB / Australia). "Problem Statements then to be developed as follows, and submitted to the IRF Management Committee by November 30, 2019: [Session 19]
 - a. Well control (Australia, United States, United Kingdom, Denmark)
 - b. Digitalization (Norway, Canada – C-NLOPB)
 - c. Learning / Knowledge Sharing (the Netherlands, United States, New Zealand)
 - d. Investigation Quality (Ireland, Brazil)
5. Consider setting up a LinkedIn account for IRF (Canada)
6. Investigate and provide options to facilitate sharing of incidents/safety bulletins between IRF members (Canada – CNSOPB / NEB).
7. Consider and provide recommendation for location for 2022 IRF Safety Conference (Canada, Norway).