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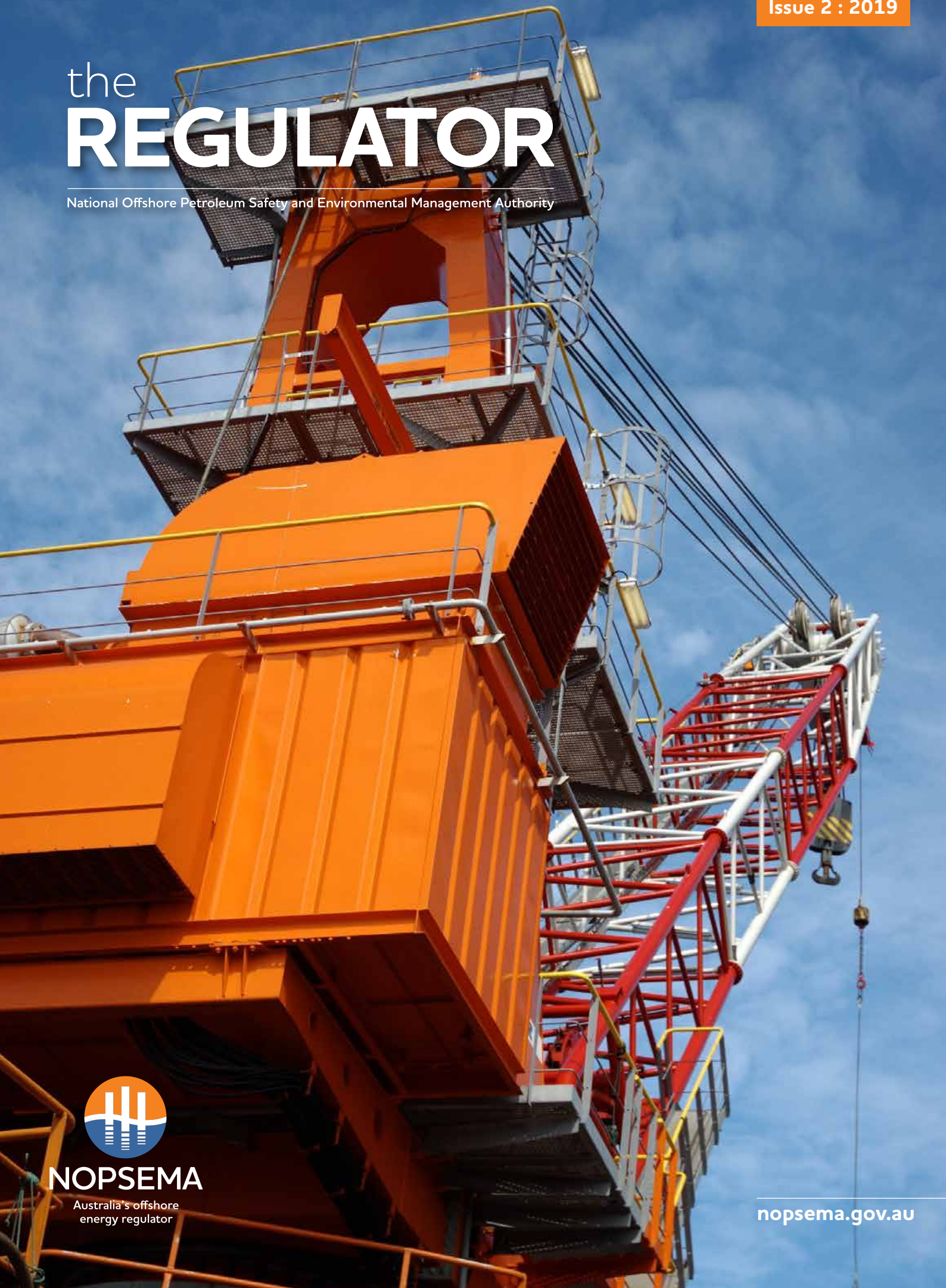
National Offshore Petroleum Safety and Environmental Management Authority



NOPSEMA
Australia's offshore energy regulator

nopsema.gov.au

ABOUT NOPSEMA

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, environmental management and structural and well integrity for offshore petroleum facilities and activities in Commonwealth waters.

By law, offshore petroleum activities cannot commence before NOPSEMA has assessed and accepted detailed risk management plans that document and demonstrate how an organisation will manage the risks to health and safety to as low as reasonably practicable (ALARP) and the risk to the environment to ALARP and with acceptable environmental impacts.

For more information visit our website at nopsema.gov.au.

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FEEDBACK

NOPSEMA welcomes feedback from our stakeholders. Please direct all enquiries about this publication to communications@nopsema.gov.au.

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Message from the Chief Executive

On 25 April 2019, regulatory amendments introducing full publication of environment plans and a public comment process for exploration activities commenced. NOPSEMA has been a strong advocate for increased transparency measures and I welcome the greater availability of information on environmental assessments that will now be available.

Prior to the amendments taking effect, Equinor voluntarily published their environment plan for proposed exploration drilling activity in the Great Australian Bight. NOPSEMA supported this increased transparency through facilitating a public comment process to mirror what would be the new regulatory process. The community were provided an enhanced opportunity to have their say on the environmental proposal and NOPSEMA was provided with an opportunity to test processes established to facilitate public comment.

NOPSEMA received more than 30,000 submissions on Equinor's draft environment plan, and it's pleasing to note that some of these submissions raised matters relevant to the Environment Regulations and will be considered in the context of NOPSEMA's decision making during the assessment process. However, it was disappointing that a significant number of the submissions failed to provide information on how Equinor's proposed activity specifically impacts them but included abusive commentary instead. NOPSEMA will continue to educate industry and the community on how to use the public comment process in a manner that provides meaningful information for the titleholder and NOPSEMA's assessment teams.

I am often asked why NOPSEMA doesn't comment on the specifics of assessments that are underway. In the same way that it is inappropriate for a court to comment on a trial that is underway, NOPSEMA must ensure the principles of natural justice and procedural fairness are maintained at all times. To comment on an assessment that is underway, or to release documents provided by titleholders to inform the assessment, while the process is ongoing would potentially breach these principles.

With the publication of environment plans at the start of an assessment and at the conclusion of the process where a plan is accepted, the public can now see the changes that have been made to the plan through the assessment process. It is important to note that an environment plan will only be accepted once it meets the stringent requirements of the Environment Regulations.

Prior to the federal election, the Liberal-National Coalition announced that if re-elected they would initiate an independent audit of the environment assessment process administered by NOPSEMA for proposed exploration activity in the Great Australian Bight. Australia's Chief Scientist has since been appointed to undertake the audit, and I welcome the opportunity for an eminently qualified expert such as the Chief Scientist to undertake this audit. I am assured that the independence of NOPSEMA's assessment will not be encumbered by the audit, and I see the timing as appropriate given the recent Government reforms, increasing transparency of the environmental assessment process. The final audit report will be presented to the federal Minister for Resources and federal Minister for the Environment and NOPSEMA will consider any findings of the Chief Scientist.

Stuart Smith, CEO

More than a century of experience behind our Spill Risk team

Before an energy resource company can undertake offshore petroleum activities, it has to convince NOPSEMA's spill risk experts that all practicable measures are in place to prevent and respond to oil pollution.

NOPSEMA's Spill Risk Team is made up of environmental specialists and spill risk experts with hands-on experience in responding to oil spills and mitigating pollution risks.

Team Manager, Rhys Jones says staff have worked in practical response roles in industry and government across Australia and internationally and hold advanced qualifications in areas such as marine pollution, environmental economics, environmental science, biology and habitat ecology.

"We're a team of six and between us we have about 120 years of valuable experience and offer a broad cross-section of diverse skills in specialist areas with many response deployments under our collective belts," Mr Jones said.

"Our official role is to ensure that titleholders proposing to undertake offshore oil and gas activities are prepared for a timely response to oil pollution, so we assess their environment plan and oil pollution emergency plans. We look at their response

arrangements and try to figure out whether they are sufficient or what needs to be done better, smarter, or more efficiently. We also use our collective knowledge and experience to influence the companies to take up best practices and improve their planning and preparedness for emergency response."

As part of the assessment process, all components of an environment plan are analysed, including chosen control measures and suggested implementation standards for emergency response and risk mitigation.

Mr Jones says NOPSEMA can rely on the team's collective expertise, experience, knowledge, latest research and scientific findings when assessing submissions.

"Major oil spills are extremely rare and therefore unfamiliar to many. But for the professionals who have experience in this area, we appreciate that there's a well-established body of knowledge about how to respond to an oil spill, as there is for fire, explosion, or other incidents. There are common approaches for responding and we are looking to find out whether the proponents understand the specific risks of their activity and whether they are applying the right approach to deal with it."

As NOPSEMA's primary role is the prevention of major accident events to ensure the safety of the workforce and protection of the environment, NOPSEMA plays an important role in assessing individual activity proposals to ensure risks are as low as reasonably practicable and that environmental impacts are acceptable.

"Everything we're looking at is about whether the necessary arrangements are in place to reduce the risk to as low as reasonably practicable (ALARP)," Mr Jones said.

NOPSEMA recognises that no offshore petroleum activity is without risk but is committed to applying appropriate measures and controls to reduce risk to an acceptable and ALARP level, in accordance with Commonwealth regulations.

"Our focus is prevention and preparedness. The purpose of the oil pollution emergency plan is for the proponents to outline exactly how they would respond to an oil spill. For example, they need to explain how they're going to get all the people they need with the right experience to actually run an incident control as well as the necessary equipment to respond," Mr Jones said.

"If a spill was to occur, the proponent must implement their response plans. As the regulator, in our regulatory role, we would be observing what they're doing and if necessary we would use our powers to intervene. We would be ensuring compliance with their plan in terms of response. But if at some point we thought that what was in the plan might not be appropriate anymore with new information, we could intervene and tell them to do something different."

To comply with the Environment Regulations, proponents need to be able to demonstrate and test their arrangements.

"We're constantly challenging and testing industry to make sure they've done enough. Pushing to see if they can do better. We wouldn't accept a plan if we didn't think it addressed the requirements of the regulations. Likewise, they are required to test their own arrangements through regular exercises and drills," Mr Jones said.

"It's our job to assess a plan and make sure the plan's going to manage the risk but it's also our job to be talking to industry to see if they can do better; and going out and inspecting a company's readiness to respond".

We have a privileged perspective across industry. We get to see lots of plans and lots of ways of doing things. While we can't discuss specifics during an assessment, we can use our privileged perspective to raise awareness of the collaborative opportunities available to titleholders."

Promoting public comment periods for environmental approvals

Providing opportunities for public comment on offshore projects and petroleum exploration activities is an important step in ensuring and maintaining transparency throughout the environmental approvals process.

Part of the public comment process includes publishing a notice in relevant national, state and local papers to promote the opportunity for community members to have their say about an environment plan or an offshore project proposal. Notices inviting public comment should also be published on the company's website.

When preparing public notices, companies should ensure that information contained in the notice is clear, concise and factual. By doing this companies can ensure community members are accurately informed of key activity details to encourage participation in a constructive manner.

At a minimum notices should include:

- the name of company undertaking the activity and a company logo
- the project or activity name
- key details about the proposed project or activity such as the activity type, duration and location
- a statement about the approval document being prepared in accordance with the regulations administered by NOPSEMA under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*
- the closing date of the public comment period
- a link to NOPSEMA's website where the public can submit a comment, and find more detailed information about the activity.

As community interest in offshore oil and gas activities in Australia continues to grow its important companies are providing an appropriate level of information to the public about proposed activities. This information and subsequent dialogue goes a long way to companies maintaining their social licence to operate.

Further information about the promotion of public comment periods can be found in NOPSEMA's Offshore Project Proposal Assessment Policy (N-04750-PL1650) and Environment Plan Assessment Policy (N-07450-PL1347). Alternatively, proponents and titleholders may wish to seek further advice from NOPSEMA. For more information, email environment@nopsema.gov.au.

EXAMPLE OF A PUBLIC NOTICE

Marine Seismic Survey Notice

Offshore Petroleum Australia Pty Ltd is proposing to conduct the Bonaparte Basin 3D Seismic Survey activity between June and September 2020 in Commonwealth waters adjacent to WA and the NT. The activity will be conducted over 45 days in an area 700 km^2, 55 km from Wadeye in the Joseph Bonaparte Gulf.

An environment plan (EP) for the activity has been prepared in accordance with the regulations administered by NOPSEMA under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. A comment period is open until 20 December 2019 providing the public with an opportunity to submit a comment in relation to the EP.

To submit a comment or for further information about the activity, see NOPSEMA's website at: https://info.nopsema.gov.au/home/open_for_comment.

Safety spells success

The inaugural Health and Safety Representatives (HSRs) Forum was held in Perth on 12-13 June this year. Organised by a tripartite committee lead by NOPSEMA, with representatives from government, industry and unions, the two day event provided an opportunity for HSRs to engage with their peers, regulatory authorities, and industry safety bodies.

More than 70 HSRs from production, drilling, vessel and onshore facilities attended the forum, resulting in a great mix of trades and disciplines from both operator and contractor organisations. The event, which comprised of a one-day pilot HSR refresher training followed by a one-day collaborative discussion, was part of a program to build engagement with HSRs and promote their critical role in keeping the offshore workforce safe. The discussions throughout the two days provided an opportunity for HSRs to share their lessons and stories, as well as test ideas with fellow HSRs.

One of the highlights was an insightful keynote presentation from a workforce representative who was actively involved in the Montara well incident in 2009. The presentation was a valuable reminder to HSRs that things can and do go wrong, and although this was a significant event from an environmental perspective, all personnel on board were evacuated safely.

Over the next few weeks, the organising committee will review the structure of the forum, discuss feedback received and review outcomes of the event with a view to sharing these more broadly with interested stakeholders via NOPSEMA's website and the Regulator magazine.

NOPSEMA would like to take this opportunity to thank the HSRs who attended the forum in particular for their enthusiastic participation across the two days. To stay updated about next steps, subscribe to our latest news at nopsema.gov.au.

Benchmarking leading practice environmental management regulation

A number of senior NOPSEMA staff recently attended the National Environmental Law Association (NELA) conference in Canberra titled *'Twenty years of the Environment Protection Biodiversity Conservation Act (EPBC Act), looking back, looking forward'*. The purpose of the conference was to discuss how the EPBC Act is currently operating, and identify options for improvements to the Act in the lead up to its 20-year review, which is due to commence later this year.

The conference provided some important insights on leading practice environmental management regulation. One of the most significant outcomes of the conference was confirmation that environmental management regulatory regimes should be objective-based and allow for independent science based decision making. These elements, as well as other strengths identified at the conference, form the basis of the internationally recognised regulatory framework for offshore energy projects administered by NOPSEMA. The regulatory framework and governance arrangements under which NOPSEMA operates warrant detailed examination when considering options for potential enhancements to the EPBC Act regime that may flow from the proposed review.

In addition to objective-based regulation and independent science-based decision making a number of other key themes highlighting potential improvements to the EPBC Act framework consistently featured in presentations delivered at the conference by environmental law professionals, scientists and regulators. These included the importance of appropriately funded, technically competent regulators and of ensuring accountability through active compliance monitoring and enforcement.

As the independent expert regulator of environmental management for offshore energy projects in Australia, NOPSEMA administers an objective-based regulatory regime that focuses on the scientific and technical merits of proposed activities. Importantly, the regime explicitly requires detailed consideration of requirements under the EPBC Act to ensure that matters of national environmental significance are appropriately protected.

One of the key principles underpinning NOPSEMA's objective-based regime is that responsibility for ensuring the protection of the environment lies with those who create the risks. That is because these parties have the knowledge, decision-making authority, on the ground control and resources to ensure that the risks they create are effectively managed.

This type of regime sets high-level requirements that must be achieved, but does not generally prescribe how those requirements must be met.

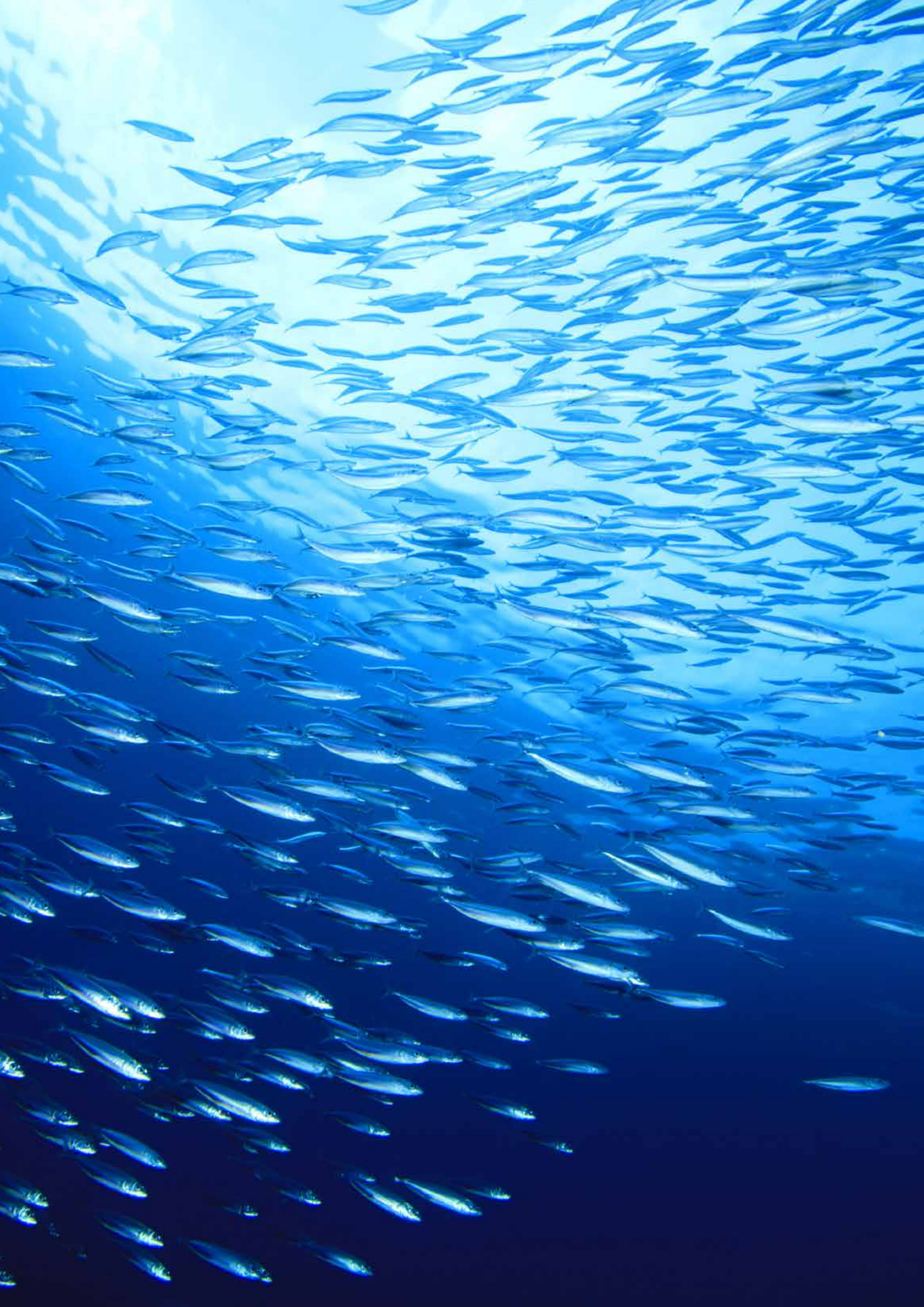
Through the environment plan process, titleholders are required to make a case, supported by evidence, that they will reduce the environmental impacts and risks of their activities to as low as reasonably practicable and acceptable levels.

Environment plans are assessed by teams of highly qualified and experienced environmental scientists who make a recommendation to an independent decision maker on whether the team considers that the environment plan meets regulatory requirements. The decision maker considers this recommendation, including any scientific or technical information not contained in the environment plan that may be relevant to the decision, and determines whether they are reasonably satisfied that the plan meets the requirements of the regulations.

Once an environment plan is accepted, NOPSEMA inspectors undertake regular compliance monitoring and, where required, enforcement activities to hold titleholders to account in delivering strong environmental management outcomes.

The ultimate goal of NOPSEMA's regulatory activities is for Australia to have safe and environmentally responsible offshore energy industries. Objective-based regulations coupled with independent science-based decision making and regular compliance monitoring allows NOPSEMA to pursue this goal through reinforcing a culture of continuous improvement in environmental performance of offshore energy industries.

Further information about how NOPSEMA regulates under an objective-based regime can be found on NOPSEMA's website at nopsema.gov.au.



Cooperative efforts and information sharing on decommissioning

With a view to streamlining processes under the offshore petroleum regime, NOPSEMA has been working closely with the National Offshore Petroleum Titles Administrator (NOPTA) on decommissioning matters associated with offshore oil and gas activities.

Titleholders are expected to provide records of regulatory approvals in relation to infrastructure and wells within a title area to demonstrate compliance with legislative and regulatory requirements. These requirements include obligations relating to the maintenance and removal of structures, equipment and other property.

In late 2018, NOPTA made a number of updates to its application forms for various titles-related applications. Titleholders are required to provide documentation to demonstrate that wells and infrastructure within the title have been through a regulated abandonment decommissioning process or outline why this did not need to occur.

Information provided to NOPTA as part of relevant applications will be shared with NOPSEMA so the status of wells and infrastructure can be reviewed to provide information to the Joint Authority on relevant title related decisions under the Act.

The types of documentation that may be provided by titleholders includes correspondence from the Designated Authority demonstrating permanent abandonment of a well or authorised decommissioning arrangements prior to NOPSEMA becoming the regulator for environmental management in 2012. Titleholders may also choose to provide correspondence from NOPSEMA accepting an end of environment plan report, a revised environment plan for which some specified activities have ended and, authorisations under the *Environment Protection (Sea Dumping) Act 1981*. Technical reports may also be used to demonstrate that the activity is complete and can no longer be considered a 'petroleum activity' for the purposes of the Environment Regulations.

If NOPSEMA has queries regarding the status of infrastructure and wells based on the information contained in a titleholder's application to NOPTA, NOPSEMA may follow this up directly with the titleholder and provide progress updates to NOPTA as appropriate.

It is worth noting this advice does not relate to potential changes to the regime as part of the Department of Industry, Innovation and Science's review of the decommissioning framework scheduled for completion in 2020. For further details about the review visit industry.gov.au.

The importance of well barriers: An Australian perspective

NOPSEMA is a member of the International Regulators' Forum, formed in 1993 to provide international leadership on safety-related regulatory matters. Each of the 10 member countries (including the UK, US, Norway and New Zealand) submits an annual article to the Forum, which are published online at irfoffshoresafety.com/monthly-articles. Below is a reproduction of the April 2019 IRF article prepared by NOPSEMA on the topic on well barriers.

Australia has recently become one of the world's largest exporters of liquefied natural gas (LNG), following the start-up of a number of major offshore gas projects. NOPSEMA, the independent regulator for offshore petroleum activities in Australian Commonwealth waters, highlights 'preventing and managing loss of well control' as a key element in supporting a safe, environmentally responsible and nationally valuable offshore industry.

In parallel with the growth of gas development, Australian offshore well regulations were updated in 2016 to include more detailed reporting of well incidents where well integrity had been compromised. At that time, the extent and value of this information in identifying and managing well risk could only be assumed. The potential of a significant contribution of this information to safer wells – and reductions of safety and environmental risk – evolved within the first two years.

In early 2018 NOPSEMA commenced a pilot study with the aim of identifying potential patterns and opportunities in this data that could assist with the management of well integrity risks and a longer term view of being used to prevent well control events. An aspirational goal was to contribute to the safety of well integrity in a global context.

The preliminary study was partly inspired by the 2006 study by Petroleum Safety Authority (PSA) Norway (SPE 112535, Viknes and Aadnoy, 2010).

The work developed through 2018, with a focus on the barrier status of production wells including non-operational and suspended wells. This work covered more than 500 wells out of a total inventory of around 900 wells in the Australian offshore regulatory regime. Whilst not exhaustive, it was considered that 500 wells could be representative of the total wells, and that analysis of the remaining wells could follow. In both the NOPSEMA and PSA studies, tubing leaks were identified as the most common well barrier failure. In the NOPSEMA study, the other common well integrity issues were related to subsurface safety valves, casing and Christmas tree equipment.

It became clear from the progressing study that the data should be shared with industry at an early stage such that the benefits from this work could be quickly accessed and applied. An industry/NOPSEMA workshop was seen as the best approach to engaging a representative cross-section of industry, to show some examples of industry practice, and to encourage discussion with a view to improvements in well integrity management.

In November 2018, NOPSEMA convened a workshop in conjunction with the industry peak body, the Australian Petroleum Production and Exploration Association to share the findings from the well barrier study and initiate proactive discussions on well integrity management. The workshop was attended by 50 industry specialists representing Australian and international oil and gas companies, with three global players presenting an overview of their world-wide well integrity management systems. The workshop highlighted the importance of having robust risk assessment processes in place to manage well integrity problems. An example of a good approach is a well failure model that identifies potential well failure modes with pre-determined action plans and response periods (as described in ISO 16530).

Workshop participants identified three key areas showing promise for potential improvement in well integrity management. Within these NOPSEMA has identified actions it intends to progress:

The first is increasing sharing of lessons learned and near misses between organisations. This helps industry make informed decisions and more consistent judgements of what is an acceptable level of risk. For additional knowledge-sharing, NOPSEMA is now planning another industry workshop focussing on prevention of well control events during drilling.

The second is more consistent terminology for describing wells and well integrity.

The need for standardised definitions for well status (such as shut-in, plugged, suspended, temporarily abandoned, abandoned) was noted in an earlier IRF

article by NOPSEMA (June 2017), and an article on the topic can be found in the first issue of the Regulator for 2019 available at nopsema.gov.au/resources/publications. To address this need, NOPSEMA intends to publish new guidance on this topic, based on existing international guidance and standards, such as the UK Oil and Gas Authority's Guidance for applications for suspension of inactive wells.

Finally the establishment of common reporting categories for wells, to improve industry's ability to measure, monitor and demonstrate performance. The simple colour-coded well integrity classification system in 117-Norwegian Oil and Gas Recommended Guidelines for Well Integrity is a simple method of communicating well integrity status. NOPSEMA uses the classification charts in 135-Norwegian Oil and Gas Recommended Guidelines for classification and categorisation of well control incidents and well integrity incidents, and is in the process of updating its guidance on this topic. A recent additional resource for process safety reporting is IOGP Report 456 Process Safety – Recommended Practice on Key Performance Indicators and the accompanying Safety Data Reporting User Guide, which includes a classification system for well control incidents during drilling and completions: a four-level system that includes leading and lagging performance indicators.

NOPSEMA will continue to support measures towards continuous improvement in well integrity management, in collaboration with Australian and international peak industry bodies and promote the use of international well integrity guidance and standards as a benchmark for good oilfield practice.

Managing sensitive information in an environment plan

Following the transparency regulatory amendments a number of environment plans have been published for public comment. In some cases NOPSEMA has identified that 'sensitive information' and parts of the consultation report are not being included in the correct part of the environment plan submission. This can result in delays to the environment plan assessment process and presents a risk that sensitive information is inadvertently published in an environment plan.

While NOPSEMA's completeness check includes a cursory check of the sensitive information to ensure the environment plan is acceptable for publication, the responsibility for redacting and/or removing sensitive information sits with the titleholder.

See NOPSEMA's Environment Plan Assessment Policy (N-07450-PL1347) for further advice about how to manage sensitive information.

ENVIRONMENT PLAN *(PUBLISHED)*

Information provided by relevant persons or the public is considered in the relevant section of the environment plan (where appropriate) with any sensitive information removed/redacted.

The consultation report must be provided in the environment plan with sensitive information removed/redacted including names of relevant persons and their contact details; information requested not to be published and full text responses from relevant persons.

TITLEHOLDER REPORT ON PUBLIC COMMENT *(PUBLISHED)*

Content includes comments made by the public in general terms (where relevant) with the exception of information requested not to be published. However, sensitive information must also be removed/redacted from this report.

SENSITIVE INFORMATION *(NOT PUBLISHED)*

Sensitive information includes parts of the consultation report that contains names and contact details of relevant persons; full text responses from relevant persons; and copies of responses where relevant persons have requested its not published. Sensitive information may also include consideration of information provided by a relevant person, or the public, where a respondent has requested its not published.

ADDITIONAL GUIDANCE:

- Cross-reference the content of the sensitive information part and relevant section of the environment plan.
- The full text responses of public comments do not need to be included in an environment plan.

Use of monitoring and investigation warrants

The majority of NOPSEMA's planned inspections introduce the use of NOPSEMA's inspector powers that give warrant free access to facilities and titleholder premises.

NOPSEMA inspectors also have a range of regulatory tools available to monitor compliance and conduct investigations. Two such tools are monitoring warrants and investigation warrants. The use of these warrants is a routine part of NOPSEMA's regulatory activities and assists NOPSEMA in efficiently and effectively complying with its specific functions under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

In addition, the *Regulatory Powers (Standard Provisions) Act 2014* provides NOPSEMA's inspectors with monitoring and investigation powers that allow inspectors to enter certain premises to monitor whether the provisions of an Act or a legislative instrument have been, or are being complied with. These powers also allow inspectors to determine whether information given in compliance, or purported compliance, with a provision of an Act or a legislative instrument is correct. These powers enable inspectors to gather evidential material on the premises that relates to the contravention of offence provisions and civil penalty provisions which is the subject of an investigation.

Premises include those of a titleholder or facility operator and third party contractors or service providers who have been contracted by a duty holder. While a NOPSEMA inspector may access these premises with the consent of the occupier, it is generally NOPSEMA's preference to enter these premises under a warrant to ensure clarity of responsibility and introduces specific obligations on occupiers. Depending on the circumstances, inspectors may advise the occupier of the premises in advance of the intention to execute either warrant.

Some warrants also provide powers to inspectors to gather physical information or evidential material and to require the occupier to answer any question or produce any document relating to the inspection/investigation.

Forensic technology specialist inspectors may also be utilised by NOPSEMA to gather electronic information/evidential material at these premises if deemed necessary.

In order to obtain a warrant, inspectors must make a formal application to a Magistrate and that Magistrate must be satisfied by information on oath or affirmation that is reasonably necessary that inspectors should have access to the premises.

In the case of monitoring warrants, these may be valid for up to 90 days and for investigation warrants up to seven days. In both cases, the premises may be accessed by the inspector as many times as the inspector determines is reasonably necessary as part of the inspection.

Source control workshop brings together global experts

To coincide with the 2019 Spillcon conference, NOPSEMA in conjunction with the Australian Petroleum Production and Exploration Association (APPEA) and the International Offshore Production Regulators (IOPER), hosted a workshop on subsea well source control preparedness and response, specifically focussing on the delivery and installation of a capping stack.

The workshop was built off a series of global source control programs preparing for potential loss of well control events. Over 120 participants attended from seven countries, representing drilling and completions managers and engineers, emergency and oil spill response professionals, well containment equipment suppliers and well control specialist organisations, source control consortium coordinators, and employees from various local, regional and international offshore oil and gas regulators.

Industry learnings and developments that have been taken in response to the Deepwater Horizon incident in the Gulf of Mexico in 2010 was the overarching theme of presentations delivered throughout the day by speakers collectively representing over 265 years in various segments of the subsea and offshore oil and gas business sector.

International Association of Oil and Gas Producers (IOGP) Well Expert Subcommittee Chair, Chris Carstens outlined the newly launched IOGP global standard for source control and Brett Morry the Global Technical Director at Trendsetter Engineering presented the various designs and well containment toolkits. In terms of technical developments, Boots and Coots (Halliburton's) Global Engineering and Technology Manager, Mr Andy Cuthbert discussed enhancements made to equipment and installation analysis tools and the importance of companies maintaining qualified personnel. Oil Spill Response Limited SWIS Engineering Manager, Mr Andy Myers, provided insight into the contingency planning progress companies have made in relation to source control since the Montara and Macondo incidents.

On behalf of the International Offshore Petroleum Environmental Regulators (IOPER), NOPSEMA's Head of Division, Cameron Grebe discussed IOPER's priority initiative areas for source control including preparation and actual response. This was followed by an interactive capping stack deployment simulation, presented by Brett Morry and Thomas Selbekk, Vice President for well control and blowout support at Add Energy Group.

The Technical Solutions Manager of Oceaneering Australia, explored the requirements to activate, mobile and deploy equipment, while the Managing Director of Global Trade and Transport Solutions Inc, David Pulk explored considerations for designing and implementing transport solutions of capping stack and well containment equipment from source location to deployment locations.

The workshop concluded with a panel session to provide a platform for attendees to reflect on the day and ask speakers any outstanding questions, while the main goals of this workshop were to recognise that responding to an emergency subsea well source control incident involves much more than delivering a capping stack. Preparedness involves having the right equipment, and sufficient numbers of experienced and trained people available, as well as having a clear set of response plans in place that have been physically tested in practice drills. The industry currently has in place the equipment, and the logistics to respond to an incident but it is important that robust and effective response plans are in place to ensure that risks are reduced as much as practicable.

To date, there has been no globally consistent approach to developing a response timeline that addresses all the personnel, equipment and vessel requirements for a subsea well source control incident. A key outcome stemming from the workshop will be the extension of the IOGP source control planning tool specifically, in the development of a response time model. This will provide a common approach for identifying required tasks and estimating timeframes for deploying a capping stack.

After a draft of this tool has been developed, NOPSEMA will seek industry feedback, before releasing a final version that all interested parties may examine for their proposed response timeline estimates for any region in the world.

For more details around the outputs of the source control workshop, or for questions regarding the report, email communications@nopsema.gov.au.


NOPSEM

Spillcon wrap-up

Held every three years, Spillcon, is organised by Australia's government and industry agencies responsible for Australia's marine environmental protection arrangements, the Australian Institute of Petroleum and the Australian Maritime Safety Authority.

This year, the Spillcon conference was held at the Crown conference centre in Perth and brought together local, regional and global environmental and shipping representatives across industry, government and non-government organisations. The key issues focused on across the three days, included cause and prevention, oil spill preparedness, response management and environmental issues.

Several NOPSEMA representatives from the spill risk, environment, safety and well integrity teams, were awarded the opportunity to present on their areas of expertise and chair sessions throughout the conference. These areas included the past, present and future of spill prevention and response, the importance of timing in responding to a well control incident, and an overview of oil spill monitoring plans.

The 2019 event also profiled a range of exhibitors and equipment, and included an on-water display on the Swan River. Spillcon provides an opportunity for attendees to share insight into lessons learnt from marine oil spills, and collaborate on best practice solutions moving forward to tackle prevention, preparedness, and response and recovery issues.

Assessment of well abandonments

Before undertaking the abandonment of a well, a titleholder needs to have an accepted well operations management plan (WOMP) in place that describes the abandonment process and demonstrates that risks to well integrity have been reduced to as low as reasonably practicable (ALARP). Once the well has been permanently abandoned, the titleholder will provide NOPSEMA with a written report describing the process of abandoning the well and the outcome of that process. NOPSEMA will use this report to determine if it is reasonably satisfied the abandonment has been undertaken in accordance with the WOMP.

For wells that were drilled but were not 'abandoned' prior to 1 January 2018 the current standards for well abandonment applies and the WOMP should be prepared accordingly.

The Wells Regulations specify that the activities described in the well abandonment report must be in accordance with the WOMP. This requirement means that if the well abandonment was not undertaken in accordance with the WOMP, a WOMP revision will be required to reflect the new abandonment process. For example, if the well was abandoned prematurely due to a drilling assembly getting stuck downhole, then a revised WOMP should demonstrate that, despite the changed circumstances, risks to well integrity are still ALARP. The well abandonment report should then describe the process and outcome in line with the revised WOMP.

It's important to note that the removal of the conductor and wellhead is not a prerequisite to the permanent subsurface abandonment of the well. However, in order to surrender the title, titleholders are required under the OPGGS Act to 'make good any damage to the seabed' to the satisfaction of NOPSEMA. This requirement generally entails removal of the wellhead unless an environment plan can demonstrate that the risks associated with an alternative approach are ALARP and acceptable. For further information please refer to the *'Cooperative efforts and information sharing on decommissioning'* article in this issue of the Regulator.

NOPSEMA has prepared guidance on what is required in a well abandonment report. For more information, visit nopsema.gov.au/well integrity. Titleholders may also choose to refer to *The Oil and Gas UK Well Decommissioning Guidelines (Issue 6, June 2018)* which outline good practice for well abandonments.

PREVENTING MAJOR ACCIDENT EVENTS

PREVENTING AND MANAGING A LOSS OF WELL CONTROL

Operational risk assessment guidance and next steps

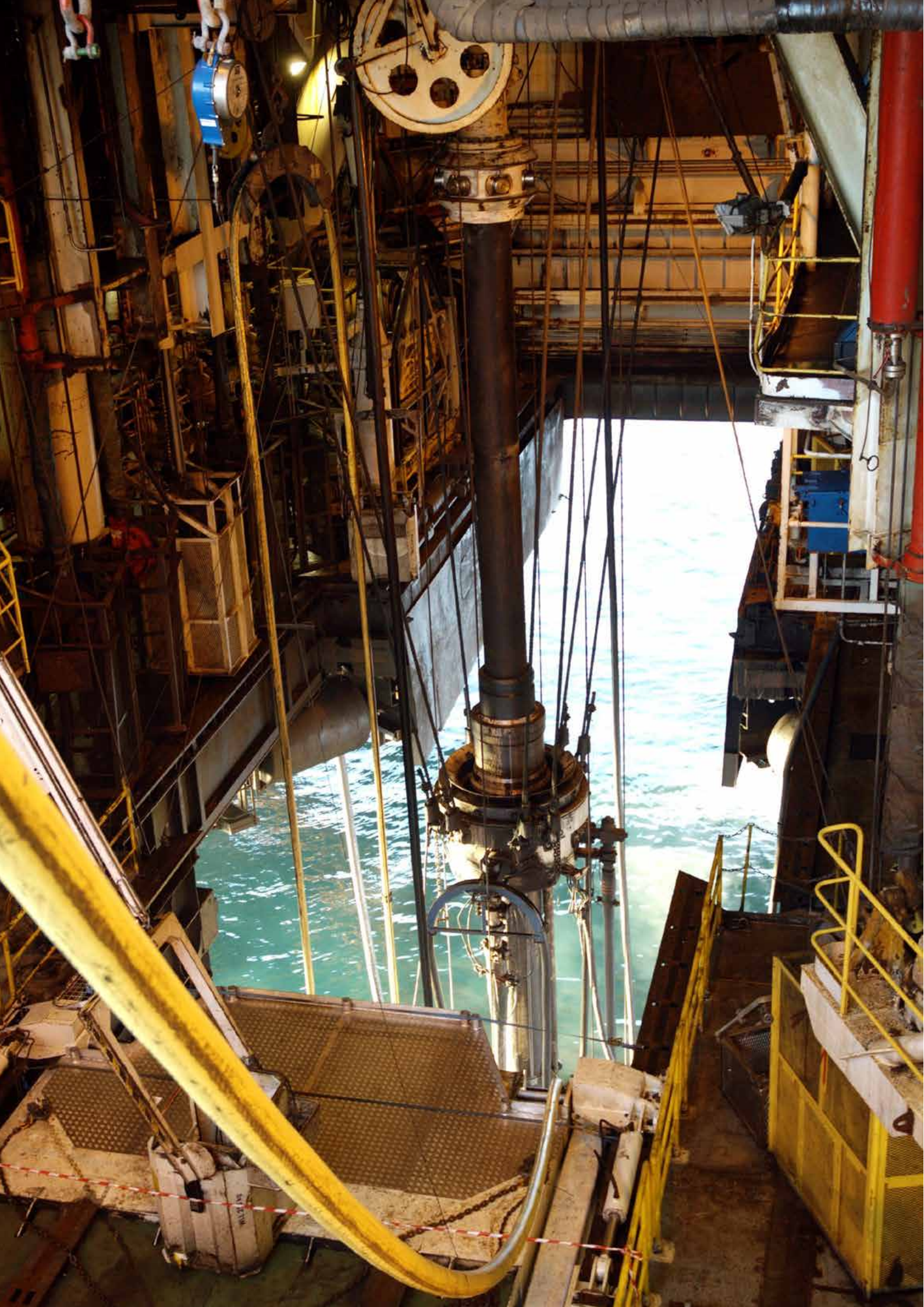
NOPSEMA is refining its guidance on operational risk assessment following feedback received during an industry workshop and consultation process.

The guidance is intended to assist operators in developing procedures for when safety-critical equipment fails, increasing the risk of a major accident event.

The workshop was well attended with over 60 participants representing a broad range of facility operators. The workshop used a number of case studies of degraded safety-critical equipment to explore the use of operational risk assessment to identify additional controls that could be implemented to manage risks to as low as reasonably practicable until the equipment is restored to full functionality.

The aim was to promote development of operational risk assessment processes and apply these processes at the earliest opportunity to ensure that risk-based decisions are made objectively rather than applying the processes at the time of equipment failures when production pressures may bias decision-making.

NOPSEMA will now review and consider all feedback received before publishing a revised draft on our website. Operators will have another opportunity to comment on this draft before a final version is published. To say up to date, subscribe to safety news at nopsema.gov.au/safety.



Appropriate use of crane design standards

Offshore lifting operations are inherently high risk, and the controls for crane operations reflect this with the use of competency management systems and advanced control systems for operators. One of the additional controls is the use of codes and standards put in place to ensure cranes are designed and manufactured with required safety features for use in offshore operations.

Pedestal cranes are used for lifting operations on facilities offshore as well as vessel to facility transfer, subsea construction operations and lifting operations. Their design and functionality are specified in international standards issued by the American Petroleum Institute (API), International Organisation for Standardisation (ISO) and the European Normalised Standards. There are also classification society standards that cover the design of pedestal cranes on vessel facilities.

The European Normalised Standards, for example, include methods, procedures and guidelines to ensure that dynamic forces unique to offshore lifting operations, are included in the design assessment. Dynamic forces include lifting a load from a moving vessel, loads imparted on the crane with vessel movements, loads imparted on a crane from extreme environmental factors such as a cyclone and loads imparted during an emergency.

Standards Australia has a suite of standards that cover design parameters for cranes. However, facility operators should be aware that these standards do not include specific design and functional requirements for pedestal cranes operating in an offshore environment. This may result in the designer of the crane not allowing for sufficient strength in the crane structure to withstand complex and dynamic loadings on the crane in normal offshore operation. The Australian Standards also exclude offshore transfers of personnel using a transfer basket such as a FROG or Billy Pugh, and have no guidance on the design of systems to prevent catastrophic damage to the whole crane during rigging entanglement.

It is important that operators reference suitable design standards for pedestal cranes to be used offshore. The referenced standards should provide appropriate details to crane designers to enable cranes to be designed to withstand risks and hazards unique to the offshore environment. NOPSEMA also recommends that operators consider involving suitably qualified and experienced crane and lifting subject matter experts when selecting a lifting device.

For more information about crane design standards, visit iso.org/standards.html or contact the equipment manufacturer.

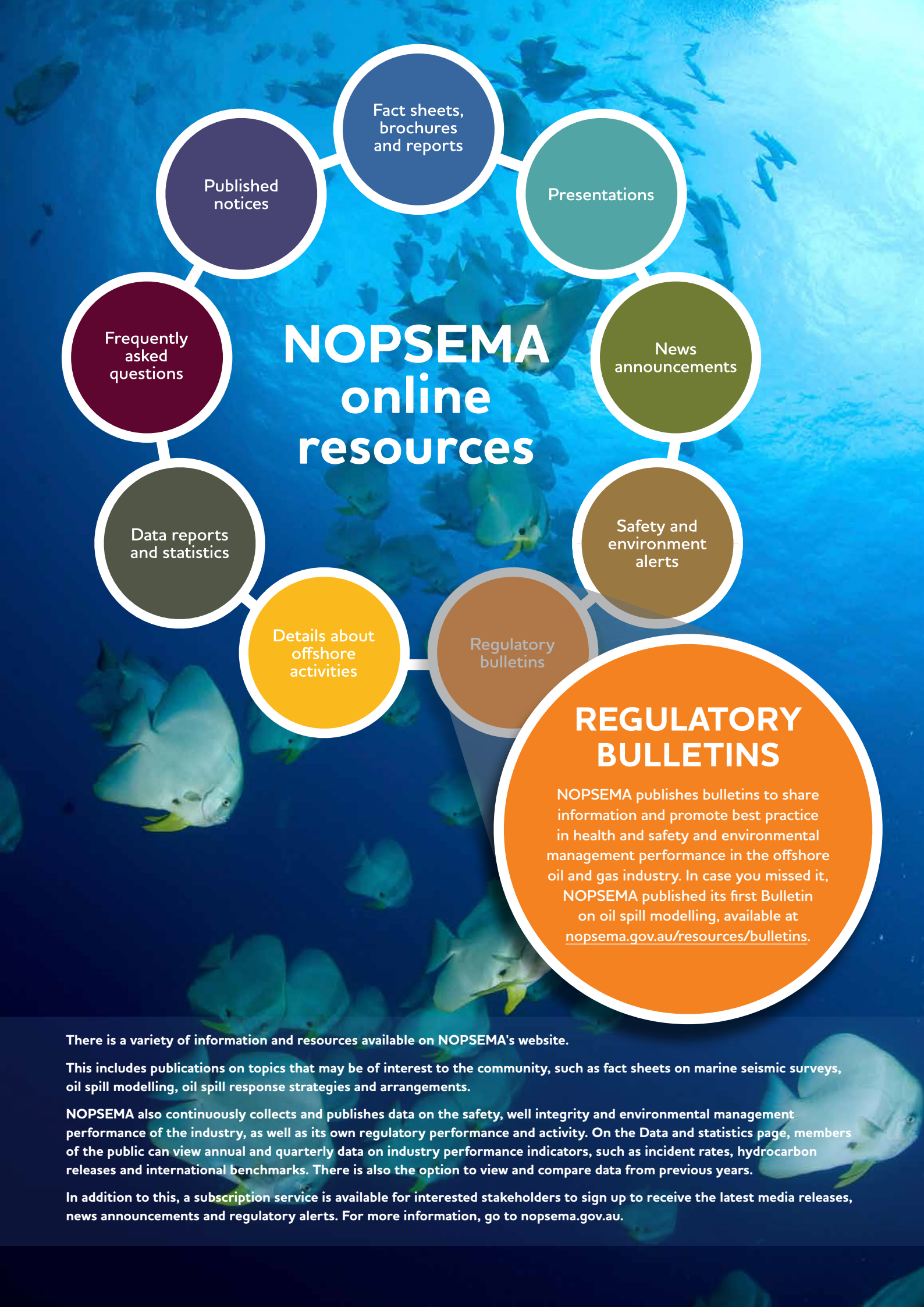
Verification and assurance systems in well construction

Since the Montara and Macondo well blowouts, titleholders have improved hazard prevention barriers (the left-hand side of the bow-tie) through the development of systems to ensure that designated barriers are tested and are in place. For example, a popular assurance system requires that well acceptance criteria (WAC) must be met and signed-off by responsible parties, failing which, an approved management of change including formal risk assessment is required before operations can continue. In this way, it is hoped that unexplored concepts — such as the 'bladder effect' used to explain a 15 bbl kick during a negative pressure test on Macondo — will be properly evaluated before decisions are made about how to proceed.

The validity of this assurance process rests on the WAC sign-off. The effectiveness of the sign-off as a control measure is dependent on the quality and integrity of titleholder verification requirements. On a number of occasions, NOPSEMA has identified titleholders that do not have effective or independent verification requirements. A recent inspection revealed that, in some cases, WACs were signed off by the titleholder's representatives without adherence to company procedures as stated in the accepted well operations management plan. In another case, a loosely-worded WAC allowed sign-off despite indicators of poor barrier competence. In this particular case, significant interruptions while cementing casing were not considered grounds for questioning barrier viability and the WAC was signed off. At a later stage, when the casing was cut and pulled for a side-track, cement returns were found well above the expected top-of-cement. This indicates that the annular barrier was invalid, with potential causes ranging from an interrupted annular cement sheath through to severe channelling. Ineffective annular barrier on the production casing could result in reservoir fluids entering higher 'thief zones' that have not been sealed off.

Such instances may be precipitated by the competing goals of seeking to minimise non-productive time and meeting safety requirements that often involve multiple layers of perceived redundancy. In these situations, remedial actions applied in a seemingly benign environment of sub-hydrostatic reservoir pressure provide an uncertain contribution to major accident event prevention, while simultaneously creating immediate and measurable delays to schedules and increased costs.

A possible remedy for this situation is a system of audits that go further than just checking for a tick-in-the-box on the WAC form, or a line in the daily drilling report. Third party service provider records and the mud logger's ASCII data (being the definitive repository of events on the rig) can be stipulated as part of certain WAC verifications, where applicable, and can be included in unplanned examinations. Only occasional audits of such extended reach may be necessary to create a game changer in the world of well risk and safety assurance.



REGULATORY BULLETINS

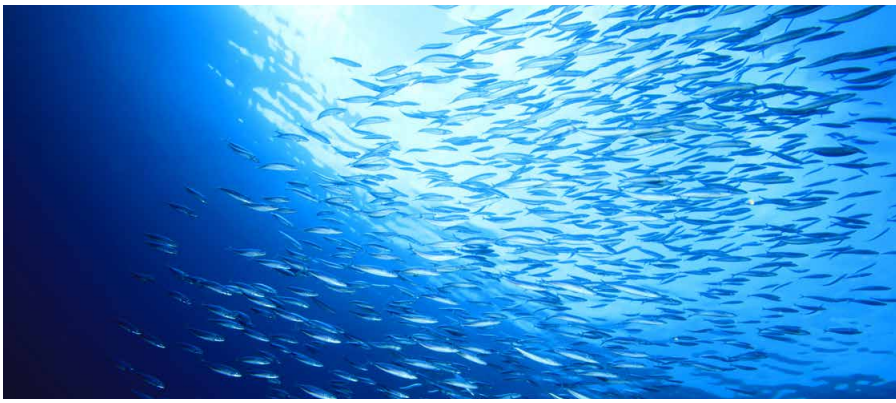
NOPSEMA publishes bulletins to share information and promote best practice in health and safety and environmental management performance in the offshore oil and gas industry. In case you missed it, NOPSEMA published its first Bulletin on oil spill modelling, available at nopsema.gov.au/resources/bulletins.

There is a variety of information and resources available on NOPSEMA's website.

This includes publications on topics that may be of interest to the community, such as fact sheets on marine seismic surveys, oil spill modelling, oil spill response strategies and arrangements.

NOPSEMA also continuously collects and publishes data on the safety, well integrity and environmental management performance of the industry, as well as its own regulatory performance and activity. On the Data and statistics page, members of the public can view annual and quarterly data on industry performance indicators, such as incident rates, hydrocarbon releases and international benchmarks. There is also the option to view and compare data from previous years.

In addition to this, a subscription service is available for interested stakeholders to sign up to receive the latest media releases, news announcements and regulatory alerts. For more information, go to nopsema.gov.au.



Upcoming events

July 2019

7-12 Aquatic noise conference, Den Haag

August 2019

21-23 Prosafe, Melbourne

September 2019

13 Western Australia Petroleum Day 2019, Perth

24-25 Hazards Asia Pacific Symposium, Kuala Lumpur

October 2019

29-31 SPE/IATMI Asia Pacific Oil & Gas Conference and Exhibition, Bali

Events listed are those at which NOPSEMA is presenting, exhibiting or has an organisational role.
For more information about any of the events listed email communications@nopsema.gov.au.
For presentations at past events visit nopsema.gov.au/resources/presentations.