

the REGULATOR

National Offshore Petroleum Safety and Environmental Management Authority



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About NOPSEMA

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is Australia's independent expert regulator for health and safety, structural and well integrity, and environmental management 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 documenting and demonstrating 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 www.nopsema.gov.au.

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Message from the Chief Executive

In May, I attended the International Regulators Forum (IRF) mid-year meeting in Houston while our Head of Division for Environment, Cameron Grebe, attended the Offshore Petroleum Environment Regulators (IOPER) Annual General Meeting in Santa Barbara. These meetings provide a valuable opportunity for offshore petroleum regulators to come together and share industry performance data, discuss current trends, and identify emerging issues.

I was pleased to report at these meetings that overall the Australian offshore petroleum industry is performing relatively well, with maintenance performance holding up and no fatalities or serious injuries being recorded in the past year. However, the rise in hydrocarbon releases across many jurisdictions was of particular interest to member countries.

In our jurisdiction, OHS hydrocarbon releases increased from 18 to 23 in 2016 and seven releases have been reported to us in the first three months of 2017. All hydrocarbon releases are a serious concern due to their risk of ignition and the potential OHS and environmental consequences. It is vital that duty holders do everything reasonably practicable to reduce their occurrence.

I encourage all duty holders to read our *Annual offshore performance report*, which provides a detailed analysis of industry performance, and consider if the findings are relevant to your own operations.

While the industry is doing relatively well in regard to safety and environmental performance, there remains a substantial amount of work to do to improve community confidence in the offshore petroleum regime. This work includes the Australian Government's ongoing review of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations), which seeks to improve provisions for consultation and transparency.

The review of the Environment Regulations is ongoing but NOPSEMA has continued to pursue a number of opportunities for improvement within the current legislative regime. Recently, we published further guidance about how we make our decisions, specifically, what we consider when we assess an environment plan against the requirements of the Environment Regulations. Work has also commenced to reduce the size and complexity of environment plans.

In May, we launched a dedicated *Community information* section on our website (www.nopsema.gov.au). This new section provides easy access to information on offshore petroleum activities, and advice and support for those wanting to be involved in the process and those seeking to improve their engagement with oil and gas companies. We will continue to add and improve this section of the website and welcome any feedback from our stakeholders.

In the same month, NOPSEMA's regulatory specialists and managers staffed an exhibition booth at the Australian Petroleum Production & Exploration Association's (APPEA) oil and gas conference and exhibition in Perth. I also took part in a panel discussion to share lessons learned from an environmental enforcement action. While the premise of the enforcement action and the lessons learned are further detailed in the article on page 14, one of the outcomes of that discussion was an agreement that greater transparency and engagement with the community will support our social license.

To ensure key transparency outcomes are achieved, a Transparency Taskforce has been established. The taskforce comprises NOPSEMA, relevant Commonwealth and state organisations, and APPEA. The taskforce will pursue a number of work streams including consultation and engagement with environmental non-government organisations, fishing groups, and other relevant stakeholders. More information about the taskforce will be released in the coming months.

It is only by listening deeply, hearing without bias, and acting in accordance with shared values that we will be a valued part of the community.



Stuart Smith, CEO

PRIMARY ADDRESS
AND REGULATOR UNCERTAINTY

Improving trust through sharing lessons
Origin Energy and NONSERVA's perspectives
from the Crown Point Seismic Survey

Mr Stuart Smith
Chief Executive Officer
NONSERVA





Is your activity occurring where it shouldn't be?

Accurate and authoritative spatial information is essential. Without it, it's difficult to ensure that spatial exclusion controls are effective and that petroleum activities only take place within the boundaries described in the accepted environment plan. Restrictions or exclusions from sensitive areas (e.g. areas recognised for their ecological or socio-economic values) are put in place to manage environmental impacts and risks for mobile offshore petroleum activities, such as seismic surveys.

Through its compliance monitoring, NOPSEMA has recently identified three areas that it believes warrant focused attention by titleholders when implementing spatial exclusion controls.

First, titleholders should be aware that spatial information may be sourced from various third-party providers, which may not all hold accurate or authoritative data. Titleholders should only use authoritative datasets, and their quality control processes should help identify this. This is particularly relevant for datasets of gazetted spatial boundaries, such as World Heritage areas and Commonwealth marine protected area zones within which petroleum activities are prohibited.

Second, titleholders should be aware of the location of their activity at all times. Maintaining this awareness is particularly important for activities implemented by a third party. Controls such as spatial data management systems should be used to enable the titleholder to track and record the location(s) of a petroleum activity relative to defined spatial exclusions in real time. This may help minimise human error and facilitate prompt action to avoid non-compliance.

Third, people with responsibilities for implementing the activity need to be aware of the exclusions, why they are in place and how to monitor compliance with them. This includes personnel and contractors, such as the vessel master, seismic master, seismic survey planners, and seismic source operators. Delivering appropriate training to these people will help ensure compliance with exclusion zones.

NOPSEMA's environmental inspections will seek to confirm that titleholders have adequate measures in place to effectively implement spatial exclusion controls, particularly where exclusions are critical for ensuring that impacts and risks will be acceptable.

Industry good practice for saturation diving

Saturation divers work at great depths for prolonged periods of time. They live in a pressurised chamber on a diving support vessel (DSV), travelling to and from their worksite on the seabed in a similarly pressurised chamber called a diving bell. Before returning to normal atmospheric pressure, divers must first decompress slowly to eliminate inert gasses from their bodies or they risk decompression sickness and even death.

In the event of an emergency evacuation from a DSV, saturation divers enter a self-propelled hyperbaric lifeboat (SPHL) or hyperbaric rescue chamber (HRC). The SPHL or HRC is then deployed overboard, and recovered to a hyperbaric rescue vessel (HRV) to be transported to a hyperbaric reception facility (HRF) where the divers can safely decompress.

Facility operators and diving contractors consistently identify that operational failure of the SPHL or HRC is a risk during saturation diving activities. Typically, the causes of such a failure include unsuccessful deployment, dropped SPHL or HRC, loss of structural integrity (hull), mechanical damage, environmental factors, and operator error.

This type of operational failure has the potential to cause multiple diver fatalities and is classified as a major accident event. Facility operators and diving contractors must ensure that control measures are in place and are being implemented to reduce the risk of an SPHL or HRC failure to a level that is as low as reasonably practicable.

NOPSEMA is pleased that our recent assessments of safety cases and diving-related inspections show that control measures for possible SPHL or HRC failure generally reflect good industry practice. There is, however, scope for improvement. To promote continuous improvement, NOPSEMA would like to share some examples of good industry practice.

First, many safety cases include the provision of a HRV with capabilities to recover the SPHL or HRC to its deck and provide life support to the diver until the SPHL or HRC is safely delivered to a HRF.

Second, safety cases have specified that all davits or A-frames must be rated to the safe working load of the SPHL or HRC that they are being used to recover. Also, any cranes or other lifting equipment that will be used to transfer the SPHL or HRC onto another facility must be suitable for personnel lifts and be fitted with associated personnel lift controls.

NOPSEMA would like to remind facility operators and diving contractors that all safety-critical equipment and procedures should be tested and trialled before commencing a diving project. Project drills should include diver muster to the SPHL or HRC, HRV response (less than two hours to recover the HRV to deck), and desktop trials of onshore and offshore emergency response. SPHL and HRC trials should also include:

- deployment and recovery to the HRV
- HRV life-support systems
- SPHL towing trials with emergency life support umbilical
- SPHL or HRC shore-side recovery
- SPHL or HRC road transport with life-support package systems
- SPHL or HRC mating trials with HRF
- SPHL or HRC thermal balance trials.



Images courtesy of the Australian Diver Accreditation Scheme (www.adas.org.au)



NOPSEMA identifies more loss-of-position incidents

Since 2016, NOPSEMA has been raising concerns with industry about dynamic positioning (DP) systems and the susceptibility of its 'auto position' mode to be inadvertently deactivated. This concern originated from an incident in Australian Commonwealth waters where a vessel unintentionally drifted off-location. Although no-one was injured, divers working on the seabed nearby were put at risk.

The investigation into the incident found that the vessel had lost its position because the DP operator placed a notepad on the DP system's console, which inadvertently pressed down on the 'surge' button, deactivating the 'auto position' mode. NOPSEMA concluded that the incident was a result of human error made possible by a weakness in the design of the DP system. NOPSEMA shared the lessons learned in *Safety alert 62*, available under the 2016 heading at www.nopsema.gov.au/safety/safety-alerts.

NOPSEMA identified two similar incidents in the United States and United Kingdom, also attributed to human error and the design of the DP system. The similarity between these incidents prompted NOPSEMA to publicise the problem in the first issue of *the Regulator* (available www.nopsema.gov.au/resources/publications) and review historical DP incident data from an industry association. NOPSEMA identified a further 14 incidents resulting in a loss of position, with the first recorded in 2002. Every incident was caused by the inadvertent deactivation of the DP system's auto position mode. In five cases, it was the placement of a log book or clipboard that inadvertently deactivated the system.

Over the life of a facility, an operator's risk management processes should identify opportunities to improve existing control measures or implement additional control measures to ensure risks are continually being reduced to a level that is as low as reasonably practicable (ALARP). For example, at a recent facility inspection, NOPSEMA found the operator had added a Perspex guard to the DP console to reduce the likelihood of inadvertent deactivation. NOPSEMA believes this is a useful interim control measure pending manufacturer improvements, and encourages other operators to do the same.



NOPSEMA would like to remind facility operators of their duty to take all reasonably practicable steps to ensure that any plant, equipment, materials and substances at their facility are safe and without risk to the health and safety of the offshore workforce. Facility operators should ensure the safety management system described in their facility's safety case provides for the continual and systematic identification of hazards, assessment of risks, and reduction of risks to a level that is ALARP.

We also remind manufacturers that they also have a duty to take all reasonably practicable steps to ensure that the plant is designed and constructed so that, when properly used, it is without risk to the health and safety of the offshore workforce. Manufacturers must carry out the research, testing, and examination necessary to discover and eliminate, or minimise, any risk to health and safety that may arise from the use of the plant.



International meeting of environmental regulators

NOPSEMA recently attended the 2017 International Offshore Petroleum Environmental Regulators (IOPER) Annual General Meeting (AGM) in Santa Barbara, California.

The IOPER is a group of offshore petroleum environmental regulators from around the world that formed in 2013 to drive environmental improvement in the offshore petroleum industry. Members include Australia (represented by NOPSEMA), Brazil, Canada, Mexico, New Zealand, Norway, the United Kingdom, and the United States. The IOPER provides a forum in which international environmental regulators can share their individual and collective experience and exchange ideas on current and emerging challenges. For more information, visit www.ioper.org.

Since its formation, the IOPER has identified a range of common issues for collaboration between members, and engagement with the petroleum industry and other stakeholders. The issues of interest to NOPSEMA include regulating preparedness for and response to oil spills, environmental performance indicators, and marine sound.

At the AGM, IOPER members agreed to continue compiling data on oil spills and discharge of produced water, with a view to generating an initial set of environmental performance indicators which will allow regulators to benchmark industry performance. The IOPER also considered the progress of its Marine Sound Working Group (MSWG). Established in 2016, the MSWG's role is to bring greater focus to research needs and emerging issues as petroleum activities extend into less-explored areas. The MSWG is chaired by the United States, with membership comprising Australia, the United Kingdom, Canada, Mexico, and Norway.

A key outcome of the AGM was for the MSWG to engage with the International Association of Oil & Gas Producers' joint industry program on sound and marine life (www.soundandmarinelife.org). The MSWG will communicate the IOPER's perspective, ensuring that priority research needs are recognised, best practice guidance is promoted, and collaborative research initiatives are identified in areas of common priorities.

The AGM also included a symposium on outcomes of research into decommissioning, funded by the United States Bureau of Ocean Energy Management (BOEM). BOEM develops, conducts and oversees world-class scientific research that informs policy decisions about developing energy and mineral resources on the United States outer continental shelf. Many of BOEM's research outcomes (www.boem.gov/Studies/) are applicable to Australian offshore petroleum activities. NOPSEMA strongly encourages titleholders to take these outcomes into account when planning offshore projects and petroleum activities, and to ensure these are included in regulatory submissions.

At the International Oil Spill Conference, held in Long Beach, California around the same time as the AGM, the IOPER addressed oil spill preparedness and response. At the conference, a NOPSEMA oil spill specialist gave a presentation on *How much is enough* when it comes to oil spill preparedness.

The IOPER also agreed to engage with the petroleum industry in conjunction with the Interspill Conference (www.interspilevent.com) which will be held in London from 13–15 March 2018.



Oil spill response — competency and training

Titleholders rely on their personnel to initiate planned procedures in the event of an oil spill. This requires a level of judgement that can only be executed if personnel have the appropriate training and competency. Lessons learned from historical oil spills have shown us that a lack of trained and competent personnel hampers response efforts. This is because of delayed or inappropriate implementation of response measures, causing increased exposure of oil to the environment.

Over the last 12 months, NOPSEMA inspected a sample of titleholder processes and procedures for ensuring personnel with key roles in oil spill management were appropriately trained and their skills were maintained. These inspections allowed us to form a picture of training and competency standards for oil spill response across the offshore petroleum industry.

NOPSEMA inspectors discovered a shortfall in training and competency levels with some, but not all, of the inspected titleholders. Therefore, it is unlikely that these people would be able to execute a titleholder's oil spill response plans and procedures quickly and effectively.

It is unreasonable to expect a single titleholder to establish and maintain sufficiently trained personnel to staff a large oil spill response from within their organisation. The expectation is that a small and immediate response capacity is maintained within, with reliance placed on shared industry resources for the remainder. If we extrapolate these sampled results to the wider industry, NOPSEMA is concerned that there may not be sufficient resources to rely upon in some instances. It takes time to build the capacity and resources required, and with individual titleholders allowing their standards to slide, this may have a long-term impact on the industry.

NOPSEMA inspectors made specific recommendations and issued enforcement notices, where required, to ensure that titleholders can appropriately respond to oil spills. The recommendations included:

- Ensure that all personnel rostered to undertake nominated spill response roles had completed relevant training.
- Develop and implement systems, practices and procedures for ensuring training and competency activities continue to meet the environmental performance outcomes within their environment plans.

NOPSEMA will continue to monitor the implementation of training and competency commitments in environment plans, as well as in the industry as a whole, to ensure that training and competency standards for oil spill response are maintained.



Safety alert: Collared eye bolts as lifting equipment

In April 2017, NOPSEMA published a safety alert to highlight the limitations of collared eye bolts as lifting equipment. The alert was prompted by an incident in October 2016, where workers on a mobile offshore drilling unit were lifting a diverter when it and the running tool, weighing a combined 21.7 tonnes, fell up to 1.8 metres to the drilling rig floor. They fell because one collared eye bolt sheared and another became dislodged. This was attributed to the configuration of the lifting equipment and the placement of the eye bolts; both of which significantly reduced the working load limit of the eye bolts.

Fortunately, no crew members were injured, but an incident like this has the potential to cause serious injury or even death. Operators must ensure there is adequate planning and supervision when conducting lifts using collared eye bolts. To read more about the incident, the lessons learned, and NOPSEMA's recommendations, see *Safety alert 64* under the 2017 heading at www.nopsema.gov.au/safety/safety-alerts.

Environment alert: Oil spill sampling

NOPSEMA published an environment alert in May 2017 to highlight the importance of collecting oil samples as soon as practicable after identifying an oil spill. This alert was prompted by an incident in April 2017, when a titleholder discovered an oil sheen near its facility. The titleholder took samples from the oil sheen, but the personnel doing so were not experienced or trained in oil spill sampling and the techniques and equipment they used were not consistent with the approved environment plan. Consequently, the titleholder failed to obtain a representative sample of oil from the sheen, which directly impacted its ability to identify the source of the spill. In this case, NOPSEMA took enforcement action.

We remind all titleholders of their responsibility to have appropriate sampling arrangements in place to ensure a timely and proper response to oil spills. This includes suitable sampling equipment and trained personnel to collect appropriate oil samples to identify its source. To read more about the incident, the lessons learned, and NOPSEMA's recommendations, see *Environment alert 3* at www.nopsema.gov.au/environmental-management/environment-alerts.



As low as reasonably practicable — Guarding against ‘reverse ALARP’

During a recent facility inspection, NOPSEMA discovered that the operator did not have a stand-by vessel present when rope access personnel were working over the side of the facility (i.e. outboard of the handrails). Without this vessel, if a person had fallen into the sea, rescue times would have increased from approximately 10 to 150 minutes. The operator said that the mitigation control was removed due to ‘significant cost and schedule benefits.’

While there were multiple preventative barriers in place to reduce the likelihood of a fall, removing the stand-by vessel meant that there were no barriers in place in the instance of a fall. Therefore, the removal of that mitigation control represented an increase in risk.

NOPSEMA defines the practice of moving to a higher risk but cheaper approach as ‘reverse ALARP.’ Facility operators have a duty under Clause 9(1)(b) of Schedule 3 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* to take all reasonable practicable steps to ensure that all activities carried out on the facility are safe and without risk. Therefore, NOPSEMA will not accept any increase in risk based on reverse ALARP, particularly where an existing control measure, which was once considered reasonably practicable, is removed.

In this case, the operator agreed to reinstate the stand-by vessel to ensure that the rescue time was maintained at approximately 10 minutes.

Section 3 of NOPSEMA’s *ALARP guidance note* (www.nopsema.gov.au/assets/Guidance-notes/A138249.pdf) outlines the principles that underpin ALARP and discusses the reverse ALARP concept. While this document is written as a safety case guidance note focusing on major accident events, the principles should be used for all hazards identified at the facility. This is particularly relevant in the current market conditions where industry continues to focus on reducing operating expenditure.

Lessons learned from environmental enforcement action

At the 2017 Australian Petroleum Production & Exploration Association conference and exhibition, NOPSEMA participated in a plenary discussion on *Addressing trust challenges and regulatory uncertainty*, to share lessons learned from a recent environmental enforcement action, along with the titleholder Origin Energy Resources Limited (Origin).

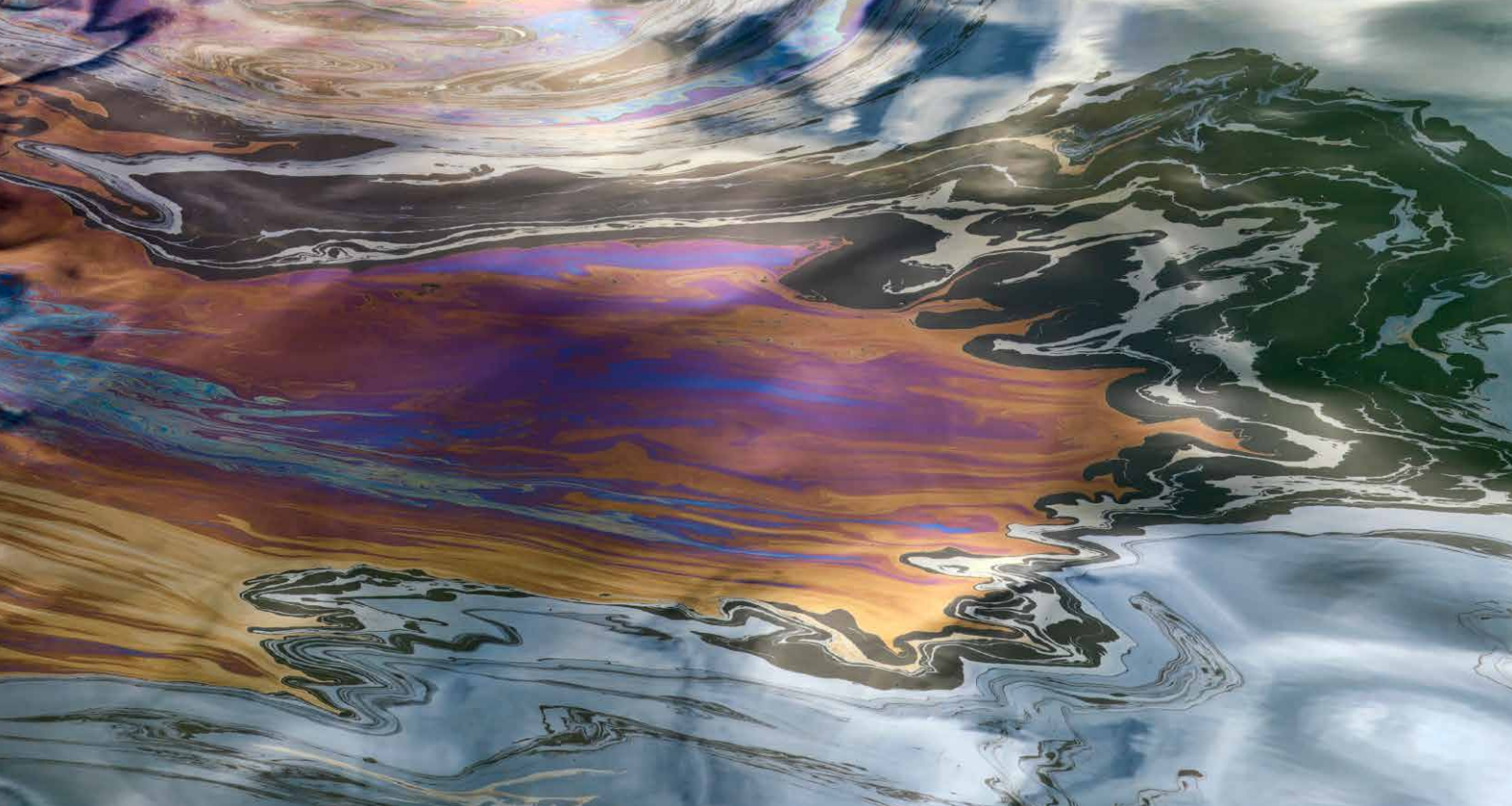
The environmental enforcement action centred on Origin's *Crowes Foot seismic survey*, which was undertaken in November 2016 offshore of Portland, Victoria in the Otway basin. An accepted environment plan was in place well ahead of the survey, but before the survey commenced, new scientific research on the effects of seismic noise on rock lobsters was released and raised concerns among the local fishing industry.

NOPSEMA issued an environmental enforcement action to Origin because it failed to manage a change in the known impacts of their survey by not adequately taking into account the new research. As a result, Origin was required to delay their survey to apply more rigorous control measures at short notice.

Origin's CEO, David Baldwin, shared his observations on the emphasis a titleholder may place on technical aspects of petroleum projects, particularly at critical times before start-up, which could come at the expense of stakeholder engagement and adequate environmental management. He also discussed an organisation's internal focus on data that supports its existing beliefs (confirmation bias), which could hamper the organisation's ability to recognise change and apply additional resources to respond.

NOPSEMA's CEO, Stuart Smith, acknowledged that the expectations of the regulator must be communicated more clearly and directly; not only in situations where there are greater environmental risks—which is usually the trigger—but also in situations where time is of the essence or there are elevated stakeholder concerns. Mr Smith also recognised the benefits of regulators highlighting more serious advice and feedback to titleholders, so that work can be focused on the areas of greatest concern and benefit. He stated that NOPSEMA should escalate regulatory compliance matters with titleholders earlier in the process, so that the titleholder's upper management may drive improvements.





Third-party certification of safety-critical equipment

Many Australian and international standards require that the certification of safety-critical equipment, prior to use, is undertaken by a suitably competent person that is independent of the manufacturer or supplier. This independence provides the regulator, workforce and community with greater assurance and confidence that the equipment is fit-for-purpose. Also, duty holders may use third-party certification to demonstrate their compliance with commitments in their accepted safety case.

At a recent facility inspection, NOPSEMA inspectors found the operator was not adhering to their selected design and maintenance standards, which required independent third-party certification of their safety-critical equipment. Specifically, items in the operator's well control system, including a blowout preventer (BOP), didn't have third-party certification and their own assurance processes had not identified this failure.

A BOP certification should include, but may not be limited to, the following:

- statements of compliance for the BOP's design and manufacture from the manufacturer
- an independent review certificate, also known as a 'type approval', certifying that the design of the BOP meets the selected standards
- an independent certificate of conformity, also known as a product certificate, referencing the BOP's serial number and certifying that it has been manufactured according to the design
- ongoing, independent certification and assurance documents, including a major re-certification every five years.

Operators have a duty to take all reasonably practicable steps to ensure that all plant and equipment at the facility is safe and without risk to the health and safety of the offshore workforce. Operators must ensure that the adequacy of the design, construction, installation, maintenance, and modification of their facilities is undertaken in accordance with the standards specified in their accepted safety cases. This includes the provision for independent, third-party certification those standards incorporate.



How NOPSEMA makes decisions about environment plan approvals



NOPSEMA recognises that transparency in our approvals and decision-making processes for environment plans is necessary to meet the expectations of our stakeholders including titleholders, environmental non-government organisations, parliament and the public.

To address this, NOPSEMA has published a guideline on decision-making (GL1721), which describes how we consider environment plans against the criteria for acceptance specified in the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. This guideline is part of our ongoing program to improve transparency and engagement.

The guideline complements NOPSEMA's existing environment plan assessment policy (PL1347). We updated the policy so it gives standing to the guideline, clarifies how NOPSEMA considers third-party correspondence in assessments, and makes titleholders aware of the topics we select for assessment during the assessment process.

NOPSEMA undertook extensive consultation to finalise the guideline. We have produced a report about the consultation, which describes the feedback we received, how we considered that feedback and the changes we made to the guideline as a result of that feedback.

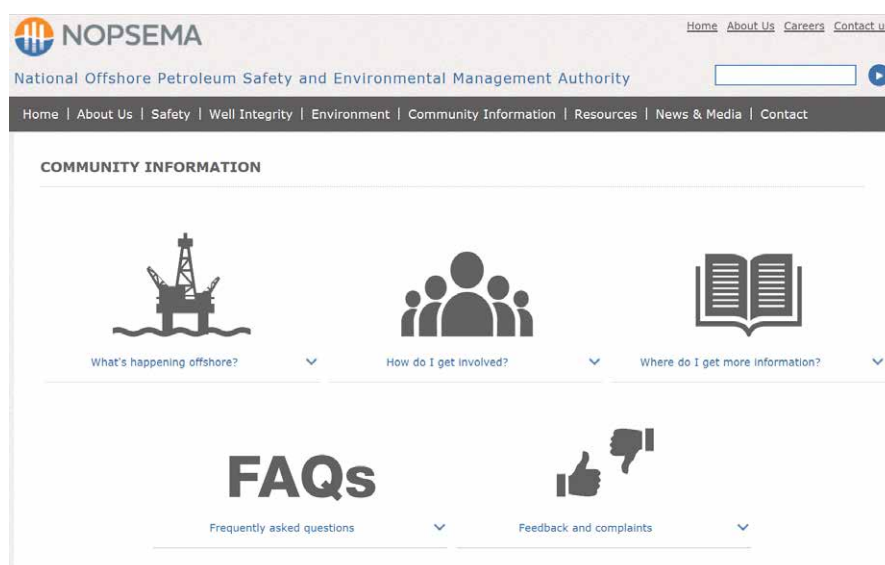
Our decision-making guideline (GL1721), consultation report, and environment plan assessment policy (PL1347) are available at www.nopsema.gov.au/environmental-management/assessment-process/decision-making-guidelines.

NOPSEMA launches dedicated Community Information section on its website

NOPSEMA has launched a dedicated section on its website where the community can now find helpful information on the offshore petroleum approval process. NOPSEMA's new *Community information* section is part of our ongoing program to improve environmental consultation practices within the offshore petroleum industry and the transparency of our own decision-making and practices. Visit www.nopsema.gov.au/community-information.

The pages provide easy access to information on offshore petroleum activities, and advice and support for community members wanting to be involved in the process, and for those seeking to improve their engagement with titleholders. Frequently asked questions, information brochures, and contact details for questions or feedback are also provided.

NOPSEMA will continue to improve the *Community information* section and we welcome feedback from our stakeholders. To provide feedback, or if you can't find what you are looking for, please contact communications@nopsema.gov.au.



Continual improvement of international well integrity standards

Adopting and applying relevant standards and guidelines is an integral part of a regulator's toolbox when assessing and inspecting a titleholder's capability to effectively carry out their well operations. This includes well design, well construction, production, testing, well intervention, suspension and abandonment operations. Whether a regulator administers a prescriptive or non-prescriptive regulatory regime, the standards and guidelines used are tools which help identify if a titleholder is adhering to good industry practice.

Following the Macondo and Montara blowouts in 2009 and 2010, API, ISO, NORSOK, Oil and Gas UK and other bodies have developed and updated standards and guidelines specifically for well integrity in an effort to avoid repeating the costly mistakes of the past. The International Regulators Forum (IRF), of which NOPSEMA is a member, accepts the following as good industry practice:

- ISO 16530 Well Integrity — Part 1: Life Cycle Governance
- ISO 16530 Well Integrity — Part 2: Well Integrity for the Operational Phase
- NORSOK Standard D-010 — Well Integrity in Drilling and Well Operations
- Oil & Gas UK Well Integrity Life Cycle Guidelines
- Oil & Gas UK Guidelines for the Abandonment of Wells
- Oil & Gas UK Guidelines for Qualification of Materials for the Abandonment of Wells.

There are approximately 250 specific well integrity related standards and guidelines that fall under the international standards, written by various standards bodies. The standards and guidelines pertaining to well integrity can be split into the following categories:

- general guidance — hazards, risks and personnel competencies and technical guidelines such as the management of safety-critical elements and well control operations
- equipment standards
- testing standards for materials and equipment
- high pressure high temperature standards and guidelines
- drilling and completion fluids standards
- cementing and cementing equipment standards.

The ongoing challenge for industry is to ensure continual identification of gaps in the standards and guidelines they choose to adopt. NOPSEMA, in collaboration with its international counterparts in the IRF, has identified the following potential gaps to assist industry in this task:

Drilling

- guidance on monitoring of well indicators during drilling such as real-time pore pressure prediction and finger printing on connections and gas indicators
- guidance on how sub-surface personnel perform pore pressure fracture gradient predictive work

Cementing

- standardisation between various international guidance documents for placement and length of cement plugs
- guidance on cementing operations, such as cement placement and acceptance criteria for cement jobs



Well barriers

- standards for shoe-track as a barrier — consider qualifying float equipment as a barrier
- surface controlled sub-surface safety valves — guidance on the different statuses such as safety-critical, primary barrier or emergency only
- guidance on when it is appropriate to use storm chokes
- quality control of connector bolts (refer to BSEE Quality Control-Failure Incident Team findings)
- guidance on risk assessment of wells with sub-hydrostatic reservoirs (barrier requirements)

Suspension and abandonment

- standardised definition is required for shut-in, suspension, temporary suspension, temporary abandonment and abandonment
- recommended duration of suspension and temporary abandonment periods such as risk of degradation of metallic and elastomeric barriers
- clearer recommendations on monitoring and inspection of long-term suspended or temporarily abandoned wells
- guidance on using geological formations as abandonment barriers (based on the Norway/UK/GoM model)
- standards for epoxy resin plugs to be used as suspension or abandonment plugs
- more guidance on abandonment with tubing and completion jewellery in place such as adhesion of cement to oil wet tubulars, placement methods of cement barriers using small volumes

It is important for industry to be aware of their duty to continually identify and address any gaps in the existing standards and guidelines in order to manage well integrity risks to as low as reasonably practicable. NOPSEMA encourages industry to assist standards bodies to address the gaps listed above to ensure they continue to understand, demonstrate and apply current good industry practice.

New safety case guidance for vessel facilities

Following an extended comment period, NOPSEMA is now considering industry feedback on its draft safety case guidance note for vessel facilities subject to external hydrocarbon hazards (GN1733). We developed the draft note to assist vessel facility operators to effectively document in their safety cases how they will manage external hydrocarbon hazards and reduce the associated risks to a level that is as low as reasonably practicable. This draft guidance note supplements our guidance note on content and level of detail for safety cases (GN0106).

NOPSEMA will write to the parties that provided comments that are beyond the scope of the draft guidance note, are impractical to implement, or are outside of NOPSEMA's responsibilities. We expect the guidance note to be published in July 2017. To find our safety case guidance material, visit www.nopsema.gov.au/safety/safety-case.



New guidance addresses change of titleholder with operational control of activities

NOPSEMA has recently issued a new draft guidance note called *Change to the titleholder with operational control of activities*. The guidance note is intended to assist incoming and existing titleholders in ensuring ongoing compliance with regulatory requirements where there is a change to the titleholder with operational control of a well or petroleum activity.

We identified the need for this guidance note through our regulatory activities, which highlighted numerous examples of non-compliances following changes to the titleholder with operational control of a well or petroleum activity. NOPSEMA developed the guidance note in consultation with the National Petroleum Titles Administrator and the Department of Industry, Innovation and Science.

The guidance note defines a titleholder with operational control of a well or petroleum activity as 'the entity that has responsibility for the day-to-day oversight and management of the activity under that entity's corporate policies, management systems, contracts and other arrangements.'

Changes to the titleholder with operational control can occur in various instances, including, but not limited to, the following:

- Operational control is transferred from one existing titleholder to another existing titleholder for the title on which the activity is taking place.
- All or part of a titleholder's interest in the title is sold to another entity, which results in the incoming entity becoming a titleholder and assuming operational control.
- An existing titleholder with operational control is subject to a change of parent company. The entity holding the title remains unchanged, but the entity comes under new ownership.

A change in operational control is likely to change the manner in which a well or petroleum activity is managed. This may make it more challenging for the titleholder that has acquired operational control to demonstrate compliance with regulatory requirements, including compliance with in force well operations management plans and/or environment plans for an activity.

NOPSEMA is seeking feedback on the draft guidance note. In particular, we are interested to know if it will assist in ensuring that compliance with regulatory requirements can be maintained during a transfer of operational control for a well or petroleum activity. The draft note is available on our website at www.nopsema.gov.au/news-and-media. Please provide feedback to feedback@nopsema.gov.au by 22 September 2017. Following the comment period, NOPSEMA will evaluate your feedback and publish the final guidance.

Reducing the risk of human error through critical task analysis

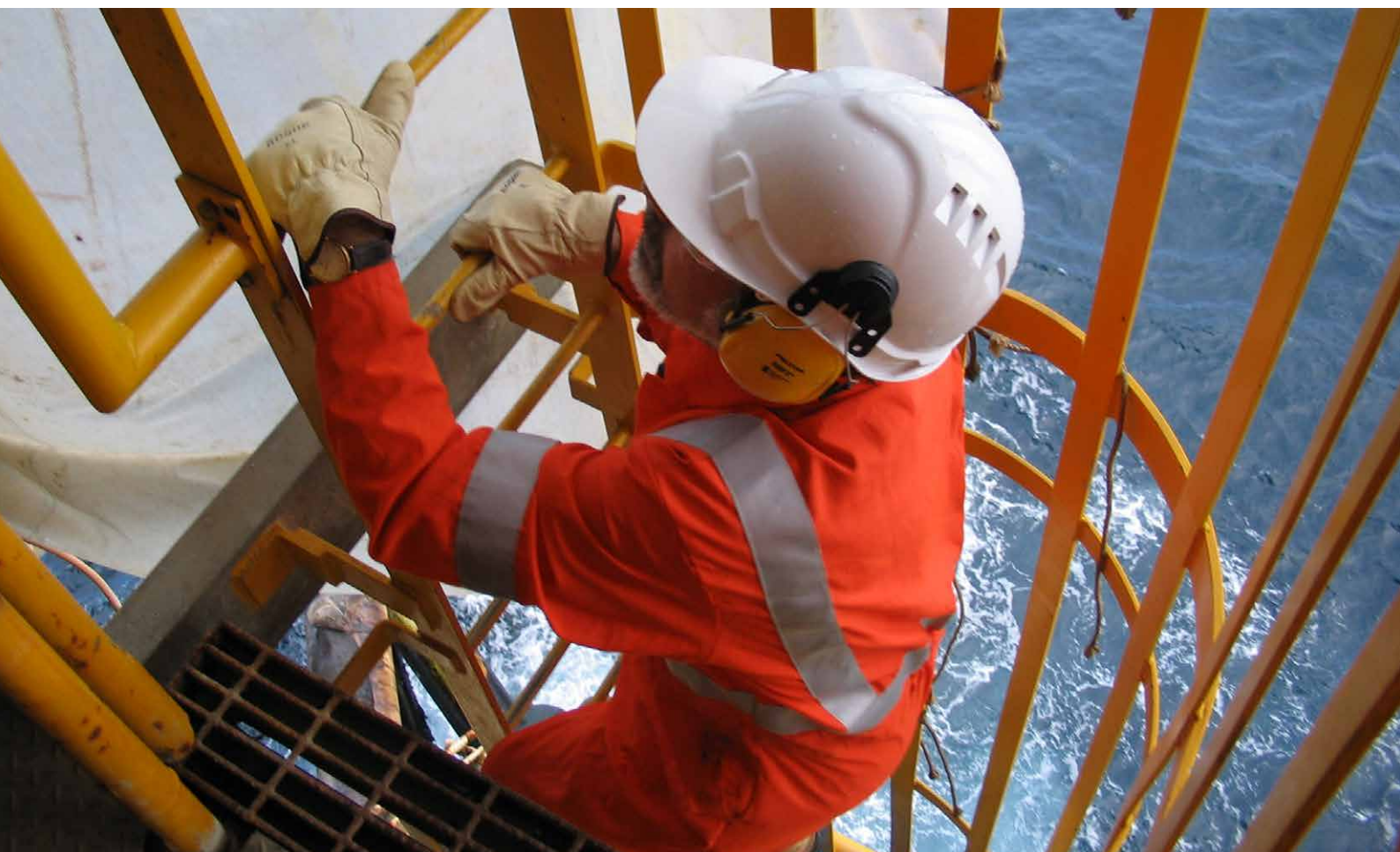
Critical task analysis (CTA) involves applying analysis techniques to tasks that are critical to safety, integrity, and environment, to identify uncontrolled or poorly controlled error risk. Identifying such risks can drive the development of more robust control measures to reduce risk to a level that is as low as reasonably practicable (ALARP).

Human performance difficulties have been identified as a root cause in 48 per cent of all notifications reported to NOPSEMA, contributing to 81 per cent of all occurrences resulting in serious injury and 76 per cent of occurrences that could have resulted in serious injury or death. This data suggests that existing risk management methods are failing to reduce error risk to ALARP. Error risk management processes must improve.

NOPSEMA has recently published an information paper (IP1704) to provide duty holders with a basic description of how to conduct CTA. The information paper supplements our *Human error risk reduction to ALARP* information paper (IP1509).

Both papers are part of the 'human factors' series of information papers, which provide duty holders with information about the ways in which organisational, individual and job factors influence human reliability. The papers also show organisations how to minimise or optimise the effects of these factors, how to assist in the prevention and mitigation of hazardous events, and how to drive improvement in safety, integrity and environmental performance.

To access IP1704 or other human factors information papers covering topics such as error risk management, performance-shaping-factors, and continuous improvement, visit www.nopsema.gov.au/resources/human-factors.





New national recovery plan for marine turtles

As the sole environmental regulator for offshore petroleum activities, NOPSEMA cannot accept an environment plan for an activity that may have unacceptable impacts on a listed threatened species, such as species of marine turtle, or is inconsistent with an in-force national recovery plan.

Titleholders should be aware that the national *Recovery plan for marine turtles in Australia* came into force on 3 June 2017. The new recovery plan was approved by the Minister for Environment and Energy and outlines the conservation requirements for six of the world's seven species of marine turtle that occur in Australian waters.

The species covered by the new recovery plan, and their threatened status, are:

- loggerhead turtle (*Caretta caretta*) — endangered
- olive ridley turtle (*Lepidochelys olivacea*) — endangered
- leatherback turtle (*Dermochelys coriacea*) — endangered
- green turtle (*Chelonia mydas*) — vulnerable
- flatback turtle (*Natator depressus*) — vulnerable
- hawksbill turtle (*Eretmochelys imbricata*) — vulnerable.

NOPSEMA would like to remind titleholders that they should have mechanisms in place to ensure they identify new or amended recovery plans relevant to their proposed or current offshore petroleum activities. The information in the plans should then be used to define acceptable levels of impact, inform environmental impact assessment processes, and inform the design and implementation of ongoing management of those activities.

Titleholders should consider focusing on the aspects of the recovery plan relevant to the environmental management of their offshore petroleum activities, including, but not limited to:

- objectives of the recovery plan
- biological information that is relevant to the species and stock that may be impacted by the activity
- threats and associated actions that relate to impact pathways that may be relevant to the activity such as light, noise, planned discharges (contaminants), habitat disturbance and oil pollution
- habitats critical for survival that are specified in Table 6 of the plan.

Habitats critical for survival

The *Significant impact guidelines 1.1 — Matters of national environmental significance* states that a habitat for survival of a species is necessary for:

- activities such as foraging, breeding and dispersal
- the long-term maintenance of the species
- maintaining genetic diversity and long-term evolutionary development
- the reintroduction of populations or recovery of the species.

The habitat classifications and descriptions in the recovery plan, and their associated spatial data, may not be reflected on the Department of the Environment and Energy's (DoEE's) website; specifically, the National Conservation Values Atlas (NCVA). DoEE will address these discrepancies in the coming months. In the meantime, NOPSEMA advises titleholders to use the recovery plan as a primary tool for identifying marine turtle nesting and inter-nesting habitats, given its status as a statutory management instrument. Titleholders should note that habitats critical for survival are defined in Table 6 of the plan. For all other habitat values, such as foraging, use the NCVA in conjunction with the recovery plan.

NOPSEMA's assessments of environment plans and environmental inspections will seek to confirm that titleholders have taken the new recovery plan into consideration. The *Recovery plan for marine turtles in Australia* is available on the DoEE website at www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017. For more information relevant to the consideration of protected matters, see Attachment A of NOPSEMA's *Environment plan content requirements* guidance note (GN1344) at www.nopsema.gov.au/environmental-management/environment-resources.

Setting the agenda for improved engagement

NOPSEMA is committed to maintaining open, accountable and robust relationships with our stakeholders. Since 2014, we have taken a more proactive approach to communicating and engaging with our stakeholders. A part of this includes ensuring they have adequate opportunities to let us know their views, and in return we can provide them with targeted advice on the regulatory regime.

During 2015–16, NOPSEMA conducted over 700 liaison meetings with duty holders, government, industry, non-government organisations, and the community. Similar numbers are likely to be achieved in 2016–17. The breadth of safety, well integrity, and environmental management matters covered in these meetings can be extensive. Without proper preparation, these meetings are at risk of becoming unfocused and unproductive with less-than-optimal outcomes.

NOPSEMA believes the outcomes of stakeholder meetings can be maximised if all participants agree on the agenda and its level of detail. This allows all parties to adequately prepare for the meeting. This will also give NOPSEMA the opportunity to:

- complete any background research prior to the meeting
- have sufficient time to consider the issues and provide the best advice
- ensure appropriate staff are consulted or are available to attend the meeting.

NOPSEMA is committed to providing our stakeholders with the best opportunity to gain the full benefits of engaging with us. For more information see the *Engaging with NOPSEMA* roadmap at www.nopsema.gov.au/contact.

Survey on safety improvement initiatives

In 2012, NOPSEMA conducted an online survey to explore safety improvement initiatives in the Australian offshore petroleum industry. The survey collected data from 28 operators; representing 78 per cent of facilities with a registered operator in Australia at the time. As it has been five years since the original survey, NOPSEMA — in consultation with the Australian Petroleum Production & Exploration Association, the International Association of Drilling Contractors, and the International Marine Contractors Association — will re-administer a modified version of the survey this year.

What's changed?

The 2012 survey included open-ended questions. NOPSEMA has transformed these into multiple-choice questions to make the survey quicker to complete. Additionally, some of the questions about safety culture have been removed as they were written specifically for further research that was underway at the time. Finally, in addition to collecting data from facility operators (with an active safety case), this iteration of the survey will also seek to collect data from titleholders (with an active well operations management plan).

How is the data collected and reported?

Relevant facility operators and titleholders will receive an email with a hyperlink to the online survey. NOPSEMA will use the responses solely for data collection purposes. The responses provided will not result in compliance-related action. NOPSEMA will compare responses against the original survey to identify trends and changes in safety management practices. All responses will be treated with strict confidentiality. **Anonymity is assured through the reporting of aggregated data only.**

NOPSEMA strongly encourages all facility operators and titleholders to complete the survey. As with any research, for results to be meaningful and useful they must be drawn from representative data. A larger response rate will provide us with more reliable data, which means that conclusions can be made with greater confidence. Broad participation is critical to achieve practical findings and to make recommendations to foster continuous improvement in safety performance across the industry.

Maintenance of well-testing equipment

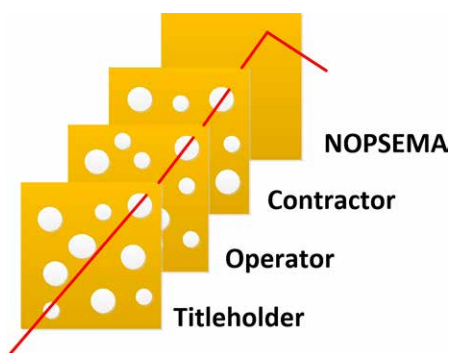
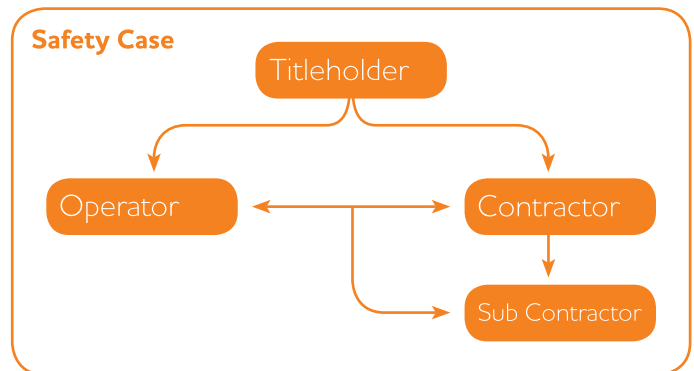
In March 2017, NOPSEMA announced at an industry conference in Perth that maintenance assurance of well-testing equipment will be a focus area for OHS inspections of mobile offshore drilling units (MODUs).

Well testing is a complex and hazardous undertaking which provides a pathway into an oil and gas reservoir, thus introducing the risk of bringing hydrocarbons onto the drilling facility where previously there were none. Well testing also presents challenges in managing contractors that are using temporary equipment packages over relatively short work campaigns, and managing multiple interfaces between the different companies and organisations involved. Given the uncertainty about how each test will eventuate, it is imperative that well testing is designed, planned, and managed effectively to safely obtain the required data without leading to a major accident event (MAE).

The titleholder is responsible for the well testing activities being conducted within their title area and has a duty to ensure the work is conducted safely and without risk. The drilling contractor, as the operator of the facility, is responsible for implementing the safety case requirements for well testing activities. In some instances, the titleholder and facility operator are the same organisation. Well testing service providers also have responsibility for safety and integrity of the plant and equipment they supply, and for their employees undertaking well testing activities. While each stakeholder has individual responsibilities under the legislation, collectively they share the responsibility for OHS during well testing.

During a recent MODU inspection, NOPSEMA identified that pressure-containing equipment supplied by the contractor to be used during well testing was not maintained or certified. This presented an immediate threat to health and safety and so NOPSEMA issued an OHS Prohibition Notice to the operator to cease well testing until the threat was removed. We also issued three OHS improvement notices to the titleholder, operator, and third-party contractor for contraventions under legislation; specifically the inadequate maintenance of safety-critical equipment which could lead to an uncontrolled hydrocarbon release and MAE.

True to the 'Swiss cheese model' of accident causation, none of the relevant parties identified that the equipment was not maintained or certified. NOPSEMA's intervention was the last barrier before the equipment was to be used. Without it, there could have been an MAE.



As a result of our enforcement action, all parties reviewed their maintenance assurance processes and critical interface management arrangements, and committed to improving their performance. All published notices are available at www.nopsema.gov.au/resources/published-notices.

NOPSEMA strongly encourages the industry to consider their maintenance assurance processes and procedures and to maintain oversight of critical interface management practices. Although many duty holders do not specifically carry out well testing activities, the lessons learned from this example can be applied to the industry more broadly. NOPSEMA will continue to focus on maintenance assurance of well testing equipment through its assessment, inspection and investigations.

NOPSEMA uses its OHS planned inspections to monitor duty holders' compliance with the legislation and the commitments made in permissioning documents, such as safety cases, diving safety management systems or diving project plans. OHS planned inspections also provide us with an opportunity to gain additional assurance that the implementation of risk management systems remains effective. In 2016, NOPSEMA undertook 93 OHS planned inspections and made 1021 recommendations as a result. Inspection recommendations provide greater insight into duty holder OHS performance and are a key consideration in selecting focus areas for future inspections.



Significant changes to a facility require validation

Recently, a facility operator submitted a safety case revision for a well abandonment campaign that introduced the installation of numerous pieces of temporary safety-critical equipment at the facility in order to undertake the well abandonment work. With the introduction of additional temporary safety-critical equipment, the proposal was considered to be a modification and significant change to the facility.

NOPSEMA reminds operators that, in accordance with sub-regulation 2.30(3) of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 (Safety Regulations), if you seek to propose to modify or decommission your facility then you must develop a scope of validation and gain NOPSEMA's agreement on that scope before you submit your revised safety case. The acceptance of a revised safety case for a modification is then contingent on the provision of a satisfactory validation.

Validation is a statement in writing by an independent validator regarding the matters (design, construction, and installation) covered in an agreed scope of validation. In accordance with regulation 2.40 of the Safety Regulations, NOPSEMA may require an operator to provide validation in respect of a proposed significant change to a facility. It is NOPSEMA's policy to always require validation in the case of the installation of temporary safety-critical equipment associated with well abandonment campaigns.

To assist facility operators in meeting these requirements, NOPSEMA has developed a *Validation* guideline (GL0525). In addition, NOPSEMA has a *Scope of validation matrix* form (FM0325), which been enhanced to include the requirements for well abandonment spreads. These documents, and others, can be found on NOPSEMA's website at www.nopsema.gov.au/safety/safety-case/validation.

Reporting of well incidents — titleholders' performance



Following consultation with industry, the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 were amended in 2016 to include a list of reportable incidents for a well in a title area, to align more closely with global process safety and leading methods for reporting indicators. The regulations also now specify the requirement for titleholders to notify and report to NOPSEMA, and keep copies of reports, for all reportable incidents in relation to a well in a title area (regulations 5.26, 5.26A and 5.26B).

NOPSEMA believes there is scope for further improvement in notification and reporting of these types of incidents. We would like to remind titleholders of their responsibilities under the regulations and provide information that may assist them in fulfilling these requirements.

Under regulation 5.26, titleholders are required to provide NOPSEMA with verbal notification as soon as practicable after the first occurrence of the reportable incident. If the incident was not detected by the titleholder at the time of the first occurrence, then the titleholder must give verbal notification as soon as it becomes aware of the incident. Please call NOPSEMA's dedicated notification phone number (08 6461 7090) to notify us of reportable incidents. This line is monitored by NOPSEMA inspectors continuously.

It is important to remember that the responsibility to notify NOPSEMA rests with the titleholder and not the facility operator (unless the operator is also the titleholder). In the past, drilling contractors have attempted to make notifications instead of or on behalf of a titleholder; this is not appropriate.

Similarly, under regulation 5.26A, titleholders are required to provide NOPSEMA with a written report for a reportable incident no later than three days after the first occurrence of the incident. If the incident was not detected by the titleholder at the time of the first occurrence, then the report should be provided no later than three days after the time the titleholder becomes aware of the incident.

The report must contain all material facts and circumstances concerning the incident that the titleholder knows or is able to find out, and any action taken (or proposed to be taken) to stop, control or remedy the reportable incident and prevent re-occurrence of a similar incident. To make sure titleholders include all the required information, NOPSEMA has developed a reporting template, available on our website at www.nopsema.gov.au/well-integrity/notification-and-reporting. All written reports should be sent to submissions@nopsema.gov.au. Please note that regulation 5.26B requires titleholders to keep a copy of the written report provided to NOPSEMA for five years.

If a titleholder needs more time to provide all of the information required, it may request an extension via email to submissions@nopsema.gov.au. A clear statement indicating the reasons for the request must be included. NOPSEMA reviews requests on a case-by-case basis and will notify the titleholder when we've made a decision.

Failure to meet the requirements of the regulations is an offence of strict liability and varying penalties apply. NOPSEMA will consider taking enforcement action in accordance with our compliance strategy, available on our website at www.nopsema.gov.au/about-us/compliance-strategy.

For more information see our *Reportable incidents in relation to a well in a title area — Notification, reports and records* guidance note (GN1636), at www.nopsema.gov.au/well-integrity.

Quarterly performance dataset — Q1:2017

Industry activity and performance

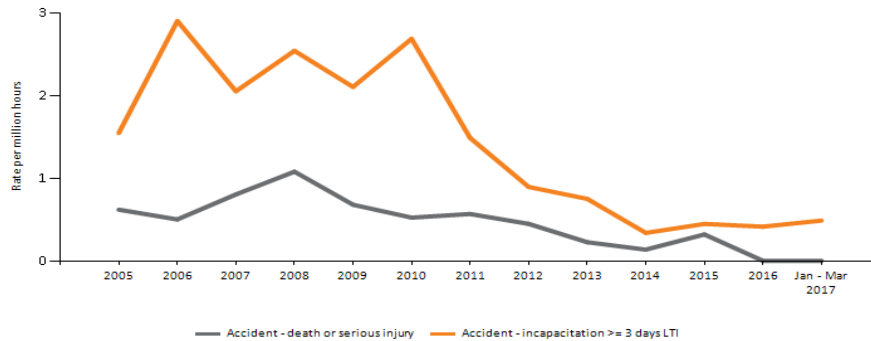
Submissions		
Category	Type of assessment	Number
Safety	Safety cases	27
	Diving safety management systems	3
	Scopes of validation	20
	Diving project plans	2
	Diving start-up notices	3
Well integrity	Well operations management plans	5
	Well activity applications	3
	Final abandonment reports	2
Environment	Environment plans	9
	Environment plan summaries	6
	End of an environment plan (Reg 25A)	33
Other	NOPTA request for title related information	11
Total		124

Incidents		
Category	Type of incident	Number
People safety	Accidents	
	Incapacitation >= 3 days LTI	1
	Injuries (Total Recordable Cases)	9
	Total injuries	10
	Dangerous occurrences	
	Could have caused death or serious injury	4
	Total dangerous occurrences (people safety)	4
Process safety	Dangerous occurrences	
	Damage to safety critical equipment	14
	Other kind needing immediate investigation	2
	Uncontrolled hydrocarbon release >1 — 300 kg	4
	Uncontrolled hydrocarbon release >300 kg	1
	Uncontrolled petroleum liquid release >80 — 12 500 L	2
	Unplanned event — implement emergency response plan (including false alarms)	23
	Total dangerous occurrences (process safety)	46
	Total dangerous occurrences (people and process safety)	50
Well integrity	Well integrity incidents	
	Well-related equipment damage or failure	2
	Potential well-related equipment damage or failure	1
	Loss of well control — any other unplanned occurrence	1
	Total well integrity incidents	4
Environment	Reportable environmental incidents	
	Hydrocarbon vapour/petroleum liquid release	2
	Other	1
	Total reportable environmental incidents	3

Note: Uncontrolled hydrocarbon releases/spills may have been reported both as an OHS and environmental incident.
Injuries may have been reported both as a Total Recordable Cases (TRC) and as an accident.

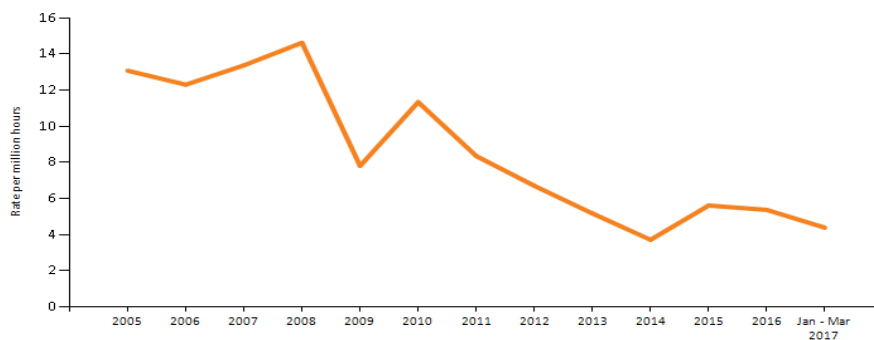
Industry performance indicators

Accidents



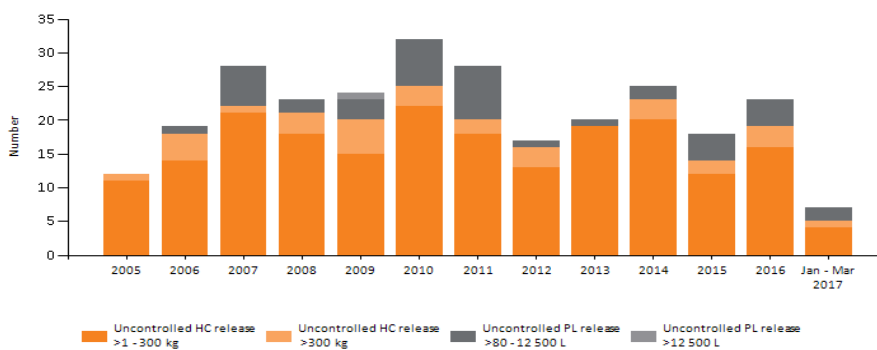
During the quarter, one accident causing incapacitation resulting in > 3 days lost time (40 days in total) was reported.

Total recordable cases - injuries



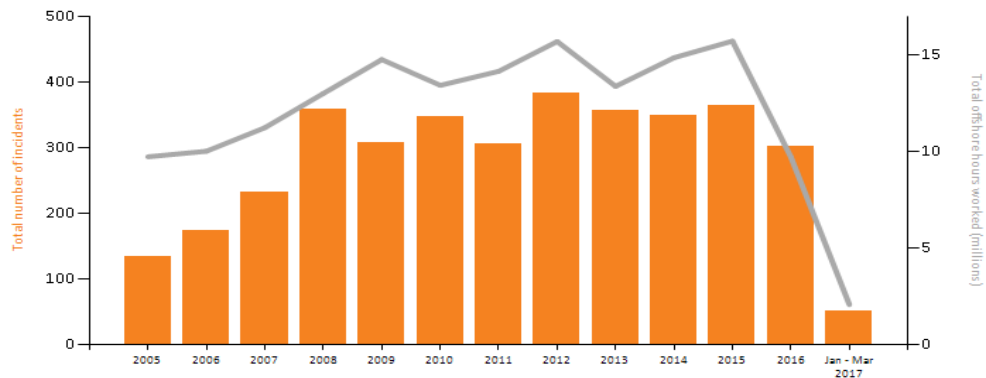
During the quarter, nine injuries were reported to NOPSEMA including six medical treatment injuries (67%), two alternative duties injuries (22%) and one lost time injury (11%).

OHS hydrocarbon releases



NOPSEMA was notified of seven occupational health and safety hydrocarbon releases during the quarter. The releases included one hydrocarbon release > 300kg (1106kg), four low-level (maximum 148kg) hydrocarbon gas releases, and two low-level (> 80-12 500L) petroleum liquid releases (maximum 6000L).

Dangerous occurrences



During the quarter, 50 dangerous occurrences were reported to NOPSEMA. This is the lowest number of dangerous occurrences reported in a single quarter since 2007.

NOPSEMA activity and performance

Improvement and compliance		
Type of activity	Category	Number
Inspections	Occupational health and safety	15
	Well integrity	3
	Environmental management	13
Enforcement actions*	Occupational health and safety	2
	Environmental management	4

*Excludes verbal warnings/advice, directions, investigation notices and inspection recommendations.

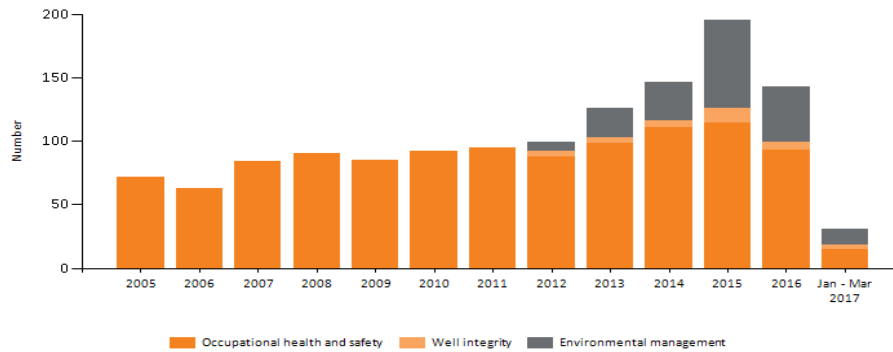
NOPSEMA performance indicators

Notified assessments



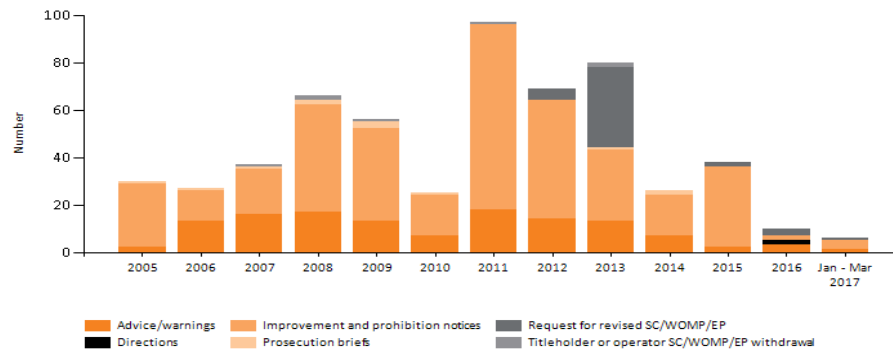
During the quarter, 100% of all assessments were notified within legislated timeframes. Only assessment types with legislated timeframes are included in the 'notified in time' data, however, it is NOPSEMA policy to apply a specified timeframe on all assessment types.

Inspections



During the quarter, NOPSEMA conducted 31 inspections across 73 facilities and petroleum activities (a single inspection may cover multiple facilities).

Enforcement actions



During the quarter, six enforcement actions were issued by NOPSEMA. The enforcement actions included three occupational health and safety improvement notices, one occupational health and safety prohibition notice, one request for a revision to an environment plan and one environmental management written advice/warning.



Schedule of events

August

21–22 August 9th Annual ProSafe 2017, Melbourne

October

2–4 October 2017 International Regulators Forum, AGM, Copenhagen

25–26 October 2017 APPEA Health, Safety & Environment Conference, Perth

November

16 November INSTOK Well and Reservoir Technologies Conference, Perth

Events listed are those at which NOPSEMA is presenting or exhibiting or has an organisational role.

Published presentations from past events are available at www.nopsema.gov.au/resources/presentations.