



# Annual offshore performance report

to 31 December 2015

Regulatory information  
about the Australian  
offshore petroleum industry



[nopsema.gov.au](http://nopsema.gov.au)

# Preface

Welcome to the *Annual Offshore Performance Report* published by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). This report contains data gathered through NOPSEMA's regulatory functions covering occupational health and safety, well (structural) integrity and environmental management of offshore petroleum facilities and activities in Commonwealth waters (and coastal waters where functions had been conferred) to 31 December 2015.

Copies of this report are available to download at [nopsema.gov.au](http://nopsema.gov.au) or by contacting:

NOPSEMA Communications

GPO Box 2568  
Perth WA 6001

phone: +61 8 6188 8700

email: [communications@nopsema.gov.au](mailto:communications@nopsema.gov.au)

© Commonwealth of Australia 2016

This report contains data gathered through the exercise of NOPSEMA's regulatory powers and functions in Commonwealth waters (and coastal waters where powers and functions have been conferred) under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. The report is intended to provide general information only and its contents should not be relied on as advice on the law, nor treated as a substitute for professional advice. Every effort has been made to ensure the accuracy of the material contained in the report.

NOPSEMA, on behalf of the Commonwealth disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs that may be incurred as a result of information in this report. Reference to the Commonwealth includes a reference to any contractor, agent or employee of the Commonwealth.

# Contents

<b>Message from the chief executive officer</b>	<b>2</b>	<b>5. Inspections</b>	<b>44</b>
<b>Key highlights</b>	<b>4</b>	5.1 Inspection scopes	46
<b>Introduction</b>	<b>6</b>	5.2 Spotlight – OHS inspection recommendations	54
<b>1. Industry activity</b>	<b>9</b>	<b>6. Investigations</b>	<b>65</b>
1.1 Number of duty holders and regulated entities	11	6.1 Investigations of safety and integrity	67
<b>2. Assessment and submissions</b>	<b>15</b>	6.2 Investigations of environmental management	75
2.1 Submissions received	17	<b>7. Enforcements</b>	<b>78</b>
2.2 Assessment outcomes	18	7.1 Prosecutions	80
2.3 Occupational health and safety – safety cases	20	<b>Appendix 1 – classification of fatalities and injuries</b>	<b>82</b>
2.4 Well integrity	21	<b>Appendix 2 – injury groups</b>	<b>83</b>
2.5 Environmental management – spotlight on submissions	22	<b>Appendix 3 – incident notification classification scheme</b>	<b>84</b>
<b>3. Incident notifications and reporting</b>	<b>25</b>	<b>Appendix 4 – data tables</b>	<b>85</b>
3.1 Incidents – occupational health and safety	27	<b>Glossary</b>	<b>97</b>
3.2 Incidents – environmental management	33	<b>References</b>	<b>100</b>
3.3 Fatalities and injuries	36		
3.4 Total recordable cases (TRCs)	38		
3.5 Injury groups	40		
<b>4. Complaints</b>	<b>42</b>		

## Message from the chief executive officer

Welcome to the *Annual offshore performance report* for the 2015 calendar year. This report includes information collected by NOPSEMA (and formally NOPSA) in the exercise of its functions and powers within its jurisdiction from 1 January 2005 to 31 December 2015. The information has been obtained through the full range of NOPSEMA's regulatory activities, including assessments, inspections and investigations. NOPSEMA publishes this information, collected under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act) and associated regulations, as part of its role to promote compliance by the offshore petroleum industry and share lessons learnt.

NOPSEMA recognises that 2015 was a challenging year for the offshore petroleum industry due to falling oil and gas prices. We commend the industry's efforts to ensure that high safety and environmental management practices have been maintained. In particular we note that, after three consecutive years of increases, uncontrolled hydrocarbon releases decreased by 28% in 2015 compared to 2014. While we still consider the 18 reported uncontrolled hydrocarbon releases in 2015 as being too many, we acknowledge the industry's proactive response to this challenge and call on the industry to continue its actions to improve safety and environmental outcomes in all areas of its operations.

Despite the high level of offshore hours worked in 2015, the level of accidents (serious injuries) and dangerous occurrences remained comparable to the past few years. Encouragingly, environmental reportable incidents reduced by 40% on the number reported in 2014. However, 2015 saw a 49% increase in the number of injuries to the offshore workforce. The majority of these injuries were medical treatment or alternative duties injuries, but they are concerning none the less. NOPSEMA will continue to monitor and inspect offshore facilities to ensure, in the face of pricing pressures, the industry is placing the safety of its workforce, and the protection of the environment, as its utmost considerations. Where safety or environment management outcomes are non-compliant with the duties imposed by the offshore regulatory regime, NOPSEMA will not hesitate to take appropriate enforcement action to ensure a return to compliance.

I am confident that the objective-based regulatory regime administered by NOPSEMA is the best way to ensure the safety of the offshore workforce and

the protection of the Australian offshore environment. However, NOPSEMA is also actively seeking to improve community confidence in the regulatory regime it administers. In particular we are striving to provide greater transparency around the consultation with the community undertaken by industry and the results of that consultation. As part of these efforts, we have implemented proactive online notifications and amended guidance requiring the publishing of summaries for accepted environment plans to include a full report of consultation. We have also commenced publishing information on the status of environmental assessment, expected decision dates and any decisions made.

NOPSEMA is committed to ensuring a safe and environmentally responsible Australian offshore petroleum industry. As part of this commitment NOPSEMA will continue to engage with our many stakeholders to ensure the highest level of regulatory outcomes are achieved.



**Stuart Smith**  
CEO  
National Offshore Petroleum Safety and Environmental Management Authority



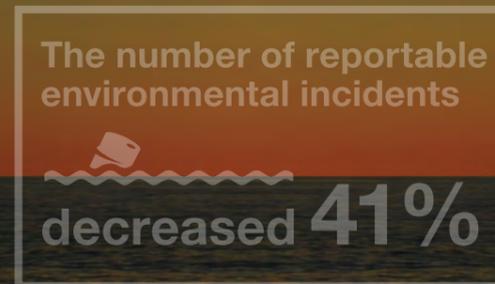
**NOPSEMA will continue to monitor and inspect offshore facilities to ensure, in the face of pricing pressures, the industry is placing the safety of its workforce, and the protection of the environment, as its utmost considerations.**

# Key highlights

1 January 2015 – 31 December 2015

## Industry performance

- Total offshore hours worked (as reported by industry) increased 7% from 14.3 million hours in 2014 to 15.3 million in 2015.
- 423 submissions were made by duty holders in 2015:
  - 171 related to occupational health and safety
  - 137 related to well integrity
  - 44 related to environmental management (41% decrease from the 75 EM submissions in 2014)
  - 15 related to petroleum safety zones
  - 56 related to regulatory advice sought by other agencies.
- No fatalities were reported in 2015.
- 12 accidents (serious injuries) were reported in 2015, compared to 9 in 2014. This ends the downtrend seen in accidents since 2010.
- 366 dangerous occurrences were reported, which is comparable to the last few years. The major categories are 'unplanned events requiring emergency response plan implementation' and 'damage to safety-critical equipment'.
- The number of OHS hydrocarbon releases decreased 28% from 25 in 2014 to 18 in 2015.
- 13 environmental reportable incident notifications were received, compared to 22 in 2014.
- 85 injuries were reported on offshore facilities in 2015, a 49% increase on the 57 injuries reported in 2014. This ends the downtrend seen in total reported injuries since 2010.
- 5 complaints against duty holders were received and investigated by NOPSEMA in 2015. 3 of these were related to occupational health and safety matters; 2 were related to environmental management matters.



## Key highlights

[nopsema.gov.au](http://nopsema.gov.au)

## NOPSEMA performance

- The vast majority of assessment submissions made to NOPSEMA in 2015 were notified within legislated timeframes (time from submission to first notification).
- The average time taken for NOPSEMA to assess submissions has continued to decrease, with 2015 having the shortest turnaround times recorded for revised safety cases and well operations management plans (both new plans and variations). However it should be noted that assessment time is often also dependent on the quality of duty holder submissions and on the duty holder providing timely responses to requests for information.
- 195 inspections were undertaken in 2015, which is the highest number to date and a 34% increase on the 146 inspections in 2014
  - OHS inspections relatively stable, 114 in 2015 compared to 111 in 2014
  - WI inspections more than doubled from 5 in 2014 to 12 in 2015
  - 130% increase in EM inspections, from 30 in 2014 to 69 in 2015 reflecting full implementation of the planned inspection policy (surpassing the original set target of 60).
- No reported incidents (accidents, dangerous occurrences or reportable environmental incidents) warranted a major investigation by NOPSEMA in 2015.
- 37 enforcement actions were issued to 14 duty holders in 2015.

# Introduction

This report provides information regarding NOPSEMA activities and the activities of the offshore petroleum industry.

The report also provides a high level summary of:

- submissions received and assessed by NOPSEMA
- industry activities and incidents
- NOPSEMA's compliance and enforcement activities.

NOPSEMA uses intelligence gathered through fulfilment of its regulatory functions to inform the assessment of submissions. For example, information gained from NOPSEMA inspections and investigations may be used to inform an assessment. Similarly, the outcomes of assessment may contribute to the development of NOPSEMA's ongoing inspections of duty holder's compliance with the regulations. For more information about assessments and regulatory documents, see the 'Safety', 'Well integrity' and 'Environmental management' pages at [nopsema.gov.au](http://nopsema.gov.au).

## Data quality

NOPSEMA has made every endeavour to ensure the data included in this report is accurate at the time of publication. Both the subjective nature of qualitative data and legislative amendments may have influenced the results. Data may vary as further information becomes available and any significant variations are noted accordingly within the document.

Both numbers and rates are variously discussed throughout this report to provide clarity. 'Rates per million hours worked' is an industry standard, and is calculated by dividing the total number against the total reported hours worked offshore and standardising to one million hours. Applying this standard allows better comparison between operators and facilities and over time allows for the identification of trends.

Percentages are used in selected charts and data tables to assist with comparisons over time and to highlight proportions. Totals may not always equal 100% due to rounding (decimal points) or because not all categories may be included in the topic under discussion (e.g. often only the top five or six categories of interest are discussed to maintain brevity). Brief accompanying text is provided for charts and tables to assist in conveying the statistical information presented in this report. NOPSEMA cautions against extrapolation of the data.

## More publications

NOPSEMA publishes its corporate plan, annual report, industry performance data, guidance on NOPSEMA's approach to administering the legislation, safety alerts and other publications and reports at [nopsema.gov.au](http://nopsema.gov.au).

## Background

NOPSEMA is Australia's independent regulator of health and safety, well integrity and environmental management for the offshore petroleum and greenhouse gas storage industries. NOPSEMA's role includes:

- working with the industry, workforce, stakeholders and other authorities to ensure the offshore petroleum and greenhouse gas storage industries properly control all health and safety, integrity and environmental risks
- independently administering offshore petroleum safety, well integrity and environmental management legislation
- promoting a legislative framework that encourages continuous improvement of health and safety, well integrity and environmental performance of the offshore petroleum and greenhouse gas storage industries
- developing its people, processes and systems to deliver efficient and effective regulation.

# Introduction

## Our vision

Safe and environmentally responsible Australian offshore petroleum and greenhouse gas storage industries.

## Our mission

Independently and professionally regulate offshore safety, well integrity and environmental management.

## Our values

**Professionalism** – we will be accountable, consistent, reasonable and act in accordance with the law.

**Ethics** – we will demonstrate respect and integrity in all we do.

**Impartiality** – we will make our decisions on the merits of the circumstances.

**Leadership** – we will be proactive, inclusive and decisive in our conduct as a pre-eminent regulator.

## Our jurisdiction

NOPSEMA's jurisdiction covers all offshore petroleum facilities and activities in Commonwealth waters, as well as designated coastal waters where regulatory functions have been conferred. Jurisdictions where powers to regulate are not conferred remain the responsibility of the relevant state or Northern Territory (NT). Currently Victoria has conferred occupational health and safety (OHS) and well integrity powers to NOPSEMA.

## Jurisdiction for safety, well integrity and environmental management

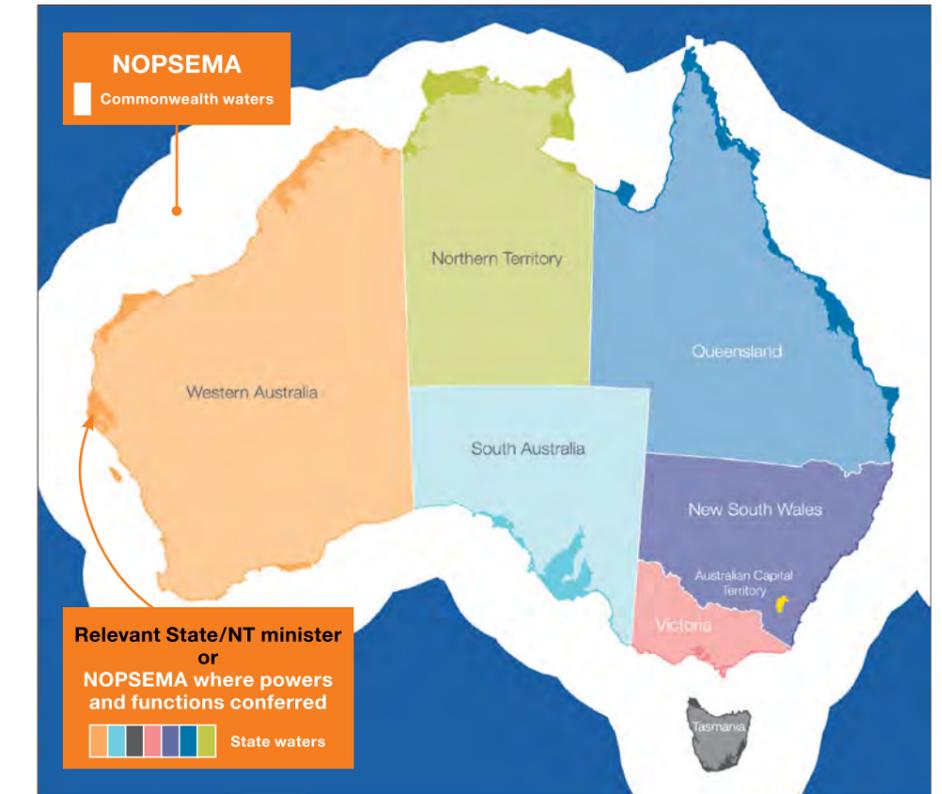


Figure 1.

Note: State and Northern Territory coastal waters conform more or less to the Australian continent and associated islands. Commonwealth waters extend seaward from the edge of the three nautical mile limit of designated coastal waters, to the outer extent of the Australian Exclusive Economic Zone at 200 nautical miles.

## Regulatory assessments

By law, offshore petroleum activities cannot commence before the duty holder has demonstrated to NOPSEMA's satisfaction that the relevant risk management requirements will be met. This satisfaction is achieved through NOPSEMA's assessment of duty holders' documented submissions, which must demonstrate that risks to health and safety will be reduced to as low as reasonably practicable (ALARP), and impacts and risks to the environment will be reduced to ALARP and acceptable levels. The key risk management regulatory documents submitted by duty holders to NOPSEMA are:

- **safety case** – covering an operator's assessment and management of health and safety risks
- **well operations management plan (WOMP)** – covering a titleholder's management of risk to well integrity
- **environment plan** – covering a titleholder's management of impacts and risks to the environment.

NOPSEMA makes regulatory decisions according to processes, criteria and legislated functions under the OPGGS Act and associated regulations.

**Objective based regulation is recognised internationally by regulatory authorities, risk management professionals and academics as being the most appropriate regulatory framework for high hazard industries.**

## Objective based regulation – responsibility rests with operators, titleholders and their employees (duty holders)

The Australian offshore petroleum and greenhouse gas storage regulatory regime is objective based. Under an objective based regime general duties are imposed on parties to the regime, especially operators, titleholders and their employees. The principle underlying the regime is: the primary responsibility for ensuring health and safety and the protection of the environment lies with those who create risks and those who work with them. That is because these parties have the necessary detailed knowledge, decision-making authority and resources to ensure the management of the risks they create in compliance with the duties imposed by the regime. Objective based regulation:

- ensures that those who create risks are responsible for identifying and managing those risks
- is adaptable, flexible and scalable to the particular circumstances of individual activities and the environments in which they take place
- provides the opportunity for the offshore industry to adopt advances in technology and apply control measures that are best suited to the individual circumstances of the activity
- encourages adoption of best practice management systems and continuous improvement in all aspects of duty holder performance
- is recognised internationally by regulatory authorities, risk management professionals and academics as being the most appropriate regulatory framework for high hazard industries.

## Ongoing compliance monitoring

NOPSEMA monitors duty holders' compliance with the duties imposed by the legislation and monitors their ongoing implementation, and compliance with, the relevant risk management regulatory documents. Where non-compliance is identified NOPSEMA will, where appropriate, take enforcement action to ensure a return to compliance.

# 1. Industry activity

NOPSEMA collects data relating to offshore petroleum activity via industry reports and submissions received, supplemented with other information. The total number of hours reported to have been worked offshore in 2015 was 15.4 million hours, up from 14.3 million in 2014.

NOPSEMA refers collectively to the parties with legislated responsibilities under the OPGGS Act as 'duty holders'. An offshore petroleum duty holder making submissions to NOPSEMA may be:

### An operator of a facility

The organisation responsible for the day-to-day management and control of a facility and its activities.

Operators are responsible for making safety case submissions under OHS related legislation.<sup>1</sup>

### A titleholder

The organisation that holds a permit to conduct offshore petroleum activities.

Titleholders are responsible for making submissions under environment management and well operations related legislation.



During 2015...

**148**  
active facilities  
in 2015

There were  
**38**  
active facility operators



**Total offshore hours worked increased by 7%**



**63%**  
of total offshore hours were reported from mobile facilities

<sup>1</sup> Other parties also make submissions under OHS legislation, for example, diving contractors (Diving Safety Management System).

NOPSEMA reports offshore petroleum industry activity based on regulatory divisions:

Division	Occupational Health And Safety (OHS)	Well Integrity (WI)	Environmental Management (EM)
Duty holder	Operators	Titleholders	Titleholders
Regulated entity	<b>Facilities</b> Include: platforms, floating production, storage and offloading vessels (FPSOs), mobile offshore drilling units (MODUs), vessels, pipelines	<b>Titles and wells</b> Titles and wells	<b>Petroleum activities</b> Include: surveys, drilling, construction, operation, decommissioning
How activity is reported	All operators of facilities submit a monthly report which contains the number of hours worked when in the regime and undertaking petroleum activities.  These indicate OHS activity levels.	Permissioning documents are submitted when well activities are proposed on titles and wells.  These indicate well integrity activity levels.	Permissioning documents that identify petroleum activities are submitted.  In combination with levy information, these indicate EM activity levels.
	For more information about NOPSEMA's occupational health and safety regulatory functions, see the 'Safety resources' page at <a href="http://nopsema.gov.au">nopsema.gov.au</a> .	For more information about NOPSEMA's environmental management regulatory functions, see the 'Well integrity resources' page at <a href="http://nopsema.gov.au">nopsema.gov.au</a> .	For more information about NOPSEMA's environmental management regulatory functions, see the 'Environmental resources' page at <a href="http://nopsema.gov.au">nopsema.gov.au</a> .



### 1.1 Number of duty holders and regulated entities

Active facility operators (OHS)

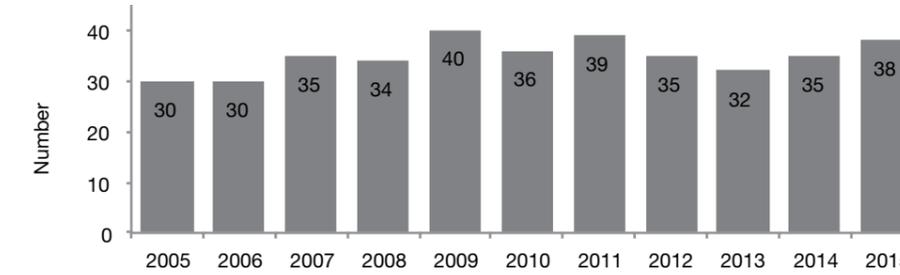


Figure 2.

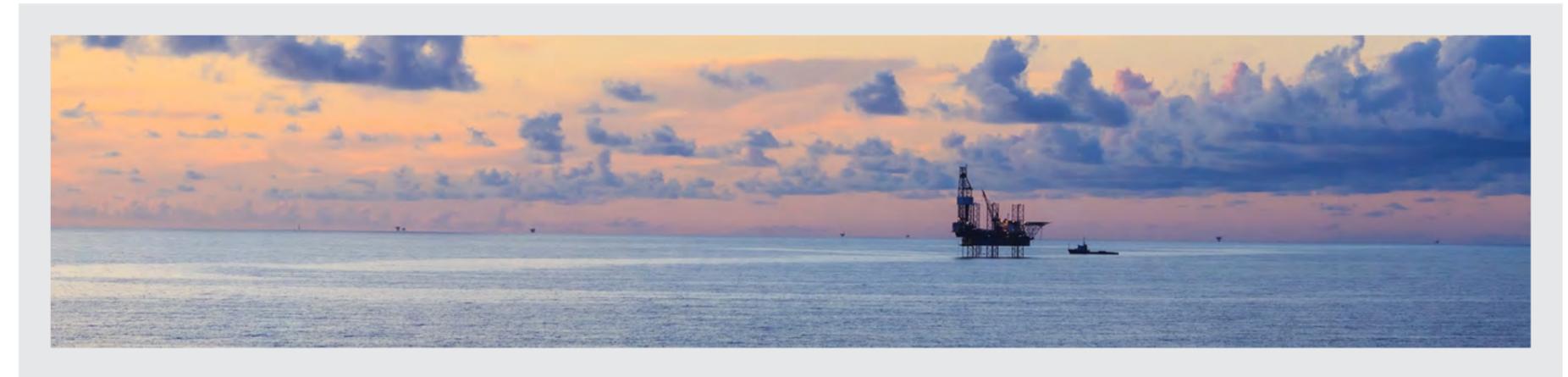
The number of active<sup>2</sup> facility operators increased from 35 to 38 in 2015.

<sup>2</sup> Facility operators are classified as 'active' based on their submission to NOPSEMA of one or more monthly injury summary reports during a reporting period. Facility operators classified as 'inactive' may be registered with NOPSEMA, but not undertaking offshore petroleum activity in NOPSEMA's jurisdiction in a given period.

There were 148 active facilities in 2015, the same as in 2014 but with a slight variation in facility types.

Active facility types	2014	%	2015	%
Pipelines	76	52%	81	55%
Vessels – accommodation, construction, pipelay, multi-service	17	11%	17	11%
Platform – normally attended production platforms (Platform – M)	20	14%	17	11%
FPSO/FSOs – floating (production) storage and offloading facilities	11	7%	13	9%
MODUs – mobile offshore drilling units	12	8%	11	7%
Platform – not normally attended platforms (Platform – NNM)	12	8%	9	6%
<b>Total</b>	<b>148</b>	<b>100%</b>	<b>148</b>	<b>100%</b>

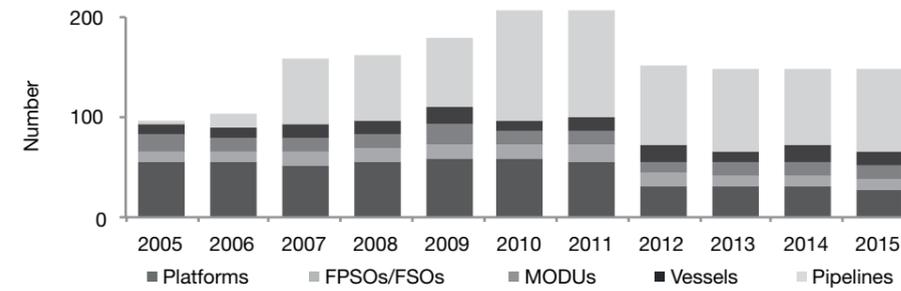
Table 1.



## Industry activity

NOPSEMA also groups facilities as fixed or mobile. Fixed includes platforms, pipelines and FPSO/FSOs. Mobile facilities are MODUs and vessels only.

### Facility Type



Note: a number of facilities reverted back to state jurisdiction in 2012.

Figure 3.

The number and location of facilities fluctuates as mobile facilities enter and depart the jurisdiction, or when functions are conferred on NOPSEMA to regulate in designated state and Northern Territory coastal waters.

In 2015, 63% of the hours worked occurred on mobile facilities and 37% on fixed facilities.

### Total offshore hours worked

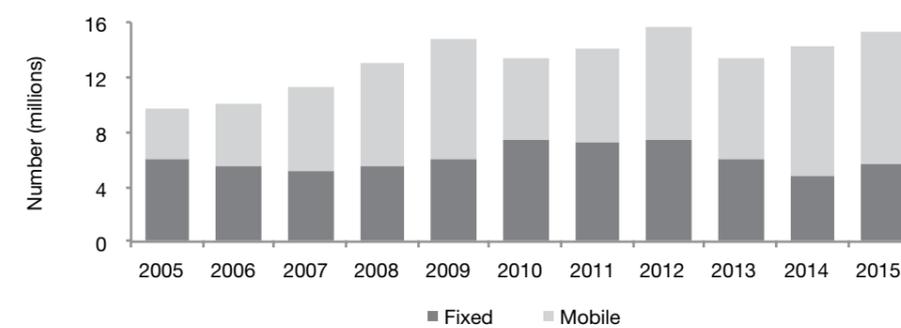


Figure 4.



## Industry activity

### Fixed active facilities by nearest state – 2015

Note: This map does not include mobile facilities such as MODUs and vessels undertaking petroleum activity.

### Fixed active facilities by nearest state – 2015

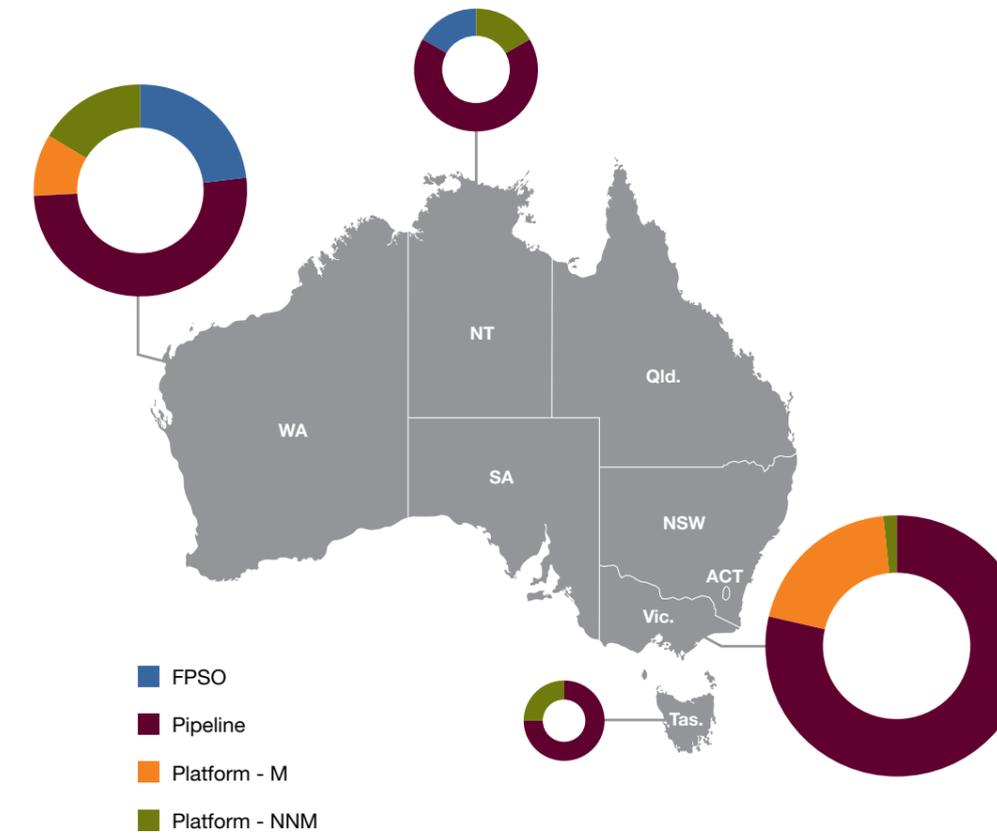


Figure 5.

### Fixed active facilities by nearest state – 2015

State	Facility Type	Total	%
<b>Vic.</b>	Pipeline	52	78.8%
	Platform – M	13	19.7%
	Platform – NNM	1	1.5%
	<b>Vic. total</b>	<b>66</b>	<b>55.5%</b>
<b>WA</b>	FPSO	10	23.3%
	Pipeline	22	51.2%
	Platform – M	4	9.3%
	Platform – NNM	7	16.3%
	<b>WA total</b>	<b>43</b>	<b>36.4%</b>
<b>NT</b>	FPSO	1	16.7%
	Pipeline	4	66.7%
	Platform – NNM	1	16.7%
	<b>NT total</b>	<b>6</b>	<b>5.1%</b>
<b>Tas.</b>	Pipeline	3	75.0%
	Platform – NNM	1	25.0%
	<b>Tas. total</b>	<b>4</b>	<b>3.4%</b>
<b>Grand total</b>		<b>119</b>	<b>100.0%</b>

Table 2.

Seismic activity by nearest state – 2015

Seismic activity by nearest state – 2015

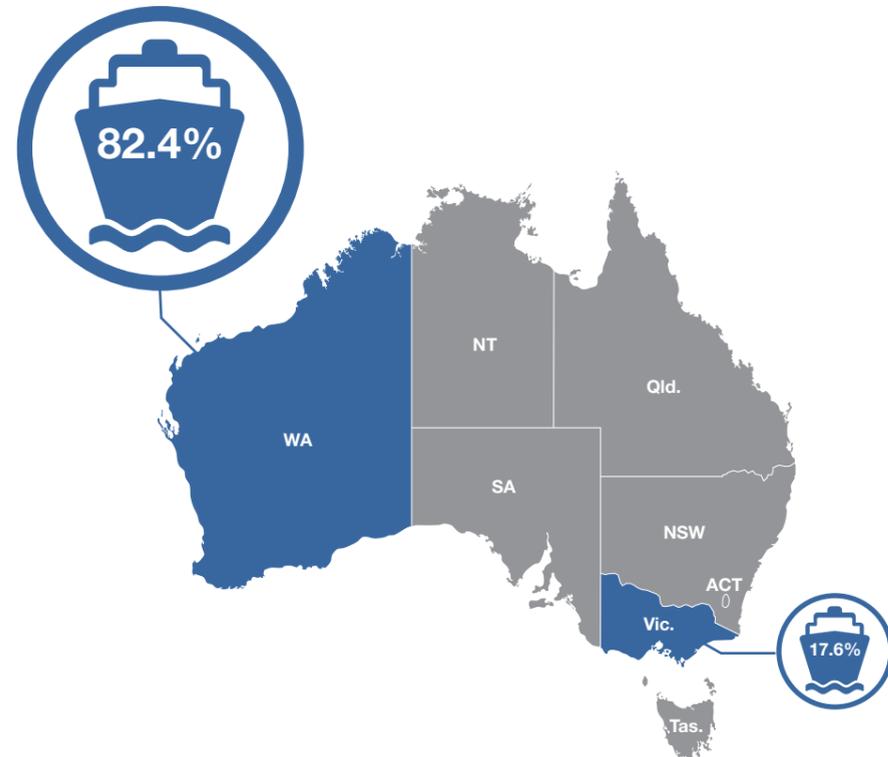


Figure 6.

Seismic activity by nearest state – 2015

State	Total	%
Vic.	3	17.6%
WA	14	82.4%
<b>Grand total</b>	<b>17</b>	<b>100.0%</b>

Table 3.

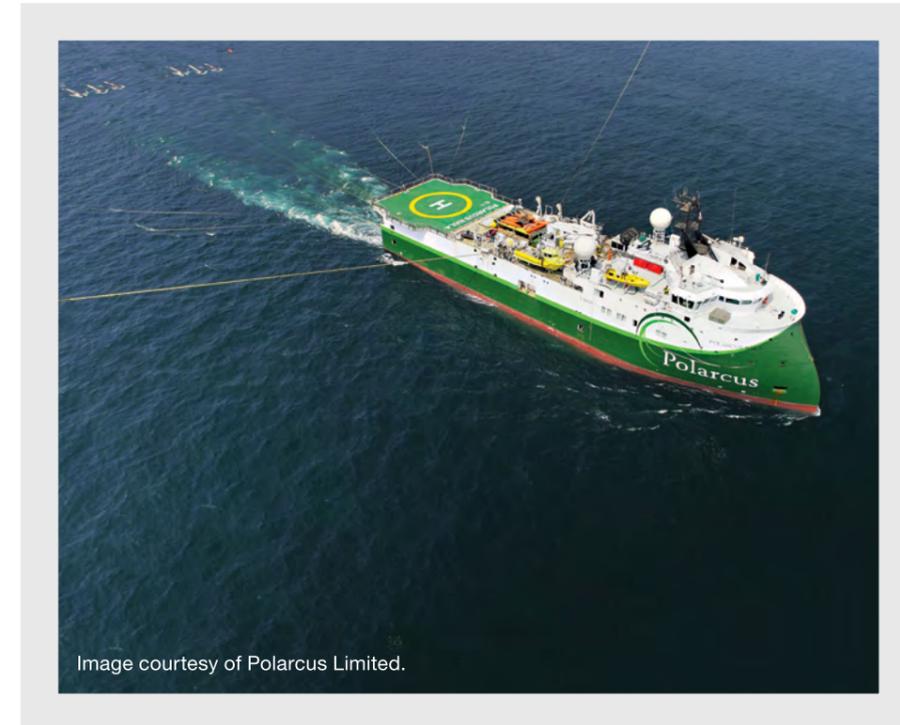


Image courtesy of Polarcus Limited.

## 2. Assessment and submissions

NOPSEMA applies a robust, thorough and consistent process to all duty holders and assessments to ensure the protection of Australia’s offshore workforce and environment. Under NOPSEMA’s jurisdiction, no petroleum activity can commence without NOPSEMA first ‘accepting’ the regulatory submission relating to the facility, well activity or petroleum activity. The key submission types assessed by NOPSEMA include:

### Assessment and submissions

Occupational health and safety (OHS)	Well integrity (WI)	Environmental management (EM)
<p><b>Safety case (SC)</b></p> <p>Is the permissioning document submitted by the operator of a facility which:</p> <ul style="list-style-type: none"> <li>identifies hazards and risks to the health and safety of people</li> <li>describes how the risks are managed</li> <li>describes the safety management system in place to ensure the controls are effectively and consistently applied.</li> </ul>	<p><b>Well operations management plan (WOMP)</b></p> <p>Is the permissioning document submitted by a titleholder that must identify the technical and managerial aspects of managing the risks to well integrity of the wells covered by the WOMP.</p> 	<p><b>Environment plan (EP)</b></p> <p>Is the permissioning document submitted by the titleholder or applicant which:</p> <ul style="list-style-type: none"> <li>identifies and evaluates impacts and risks to the environment associated with a petroleum activity</li> <li>describes how the environmental impacts and risks are to be controlled to ensure they will be of an acceptable level and reduced to ALARP</li> <li>describes the environment management system in place to ensure the controls are effectively and consistently applied</li> <li>demonstrates that appropriate consultation has and will continue to be undertaken by the titleholder.</li> </ul>
<p><b>Scope of validation (SOV)</b></p> <p>The operator and NOPSEMA must agree the scope of validation before an operator can submit a safety case or a revised safety case associated with a modification or decommissioning. It relates to the design, construction and installation of the facility or to significant modifications to the facility and not the activities undertaken at the facility or the procedures that manage those activities.</p>		

Table 4.

## Assessment and submissions

Other regulatory submissions provided for under the OPGGS Act regime include:

### Assessment and submissions

Occupational health and safety (OHS)	Well integrity (WI)	Environmental management (EM)
<p><b>Diving safety management system (DSMS)</b></p> <p>A comprehensive integrated system for managing diving safety to ensure that risks are reduced to ALARP. Should be prepared and documented by a diving contractor in consultation with the contractor's employees and/or their representatives.</p>	<p><b>Well activity application (AAUWA)</b></p> <p>Is a document submitted by a titleholder that applies for approval to undertake a well activity that leads to a physical change in the wellbore. It must describe the activity and the titleholder's proposed timetable for carrying out the activity.</p>	<p><b>Offshore project proposal (OPP)</b></p> <p>An offshore project is one or more activities undertaken for the purpose of the recovery of petroleum, other than for appraisal, including movement of recovered petroleum by pipeline. An offshore project proposal is a document submitted by a proponent which:</p> <ul style="list-style-type: none"> <li>describes an offshore project</li> <li>identifies and evaluates impacts and risks to the environment associated with the project</li> <li>describes the environmental outcomes of the project</li> <li>is made available for public comment</li> <li>includes information about comments received during the comment period and how those comments have been addressed.</li> </ul>
<p><b>Petroleum safety zones applications (PSZ)</b></p> <p>Petroleum safety zones are specified areas surrounding petroleum wells, structures or equipment which vessels or classes of vessel are prohibited from entering or being present. NOPSEMA's role in Part 6.6 of the OPGGS Act involves assessment of:</p> <ul style="list-style-type: none"> <li>PSZ applications</li> <li>written consent for vessels to enter and be present in a PSZ</li> <li>written authorisation for a vessel to enter and be present in the area to be avoided (ATBA).</li> </ul>		

## Assessment and submissions

### 2.1 Submissions received

#### Assessments submitted

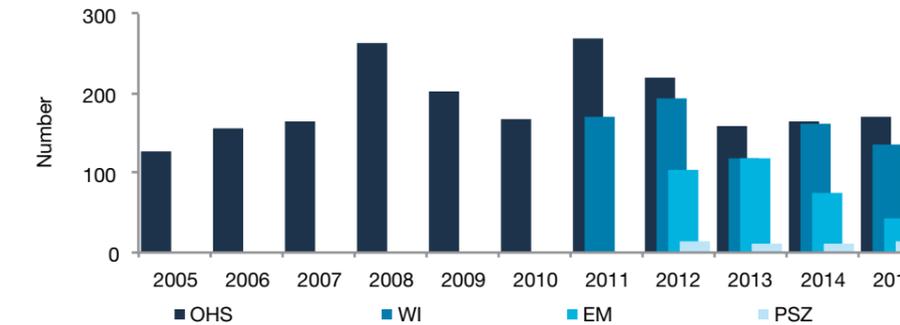


Figure 7.

NOPSEMA continues to assess submissions within the legislated timeframes:

#### Assessments notified within legislated timeframes

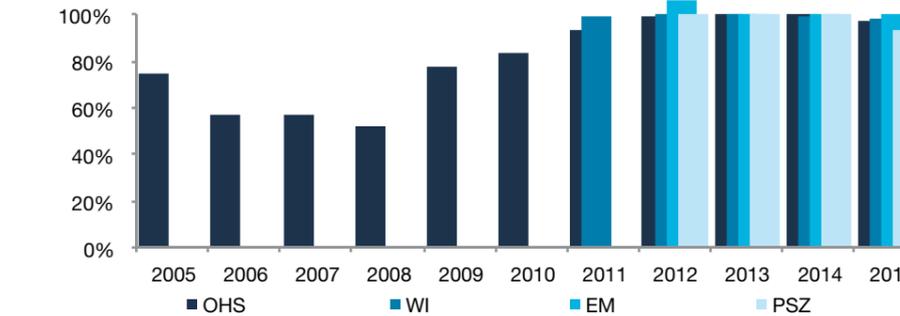
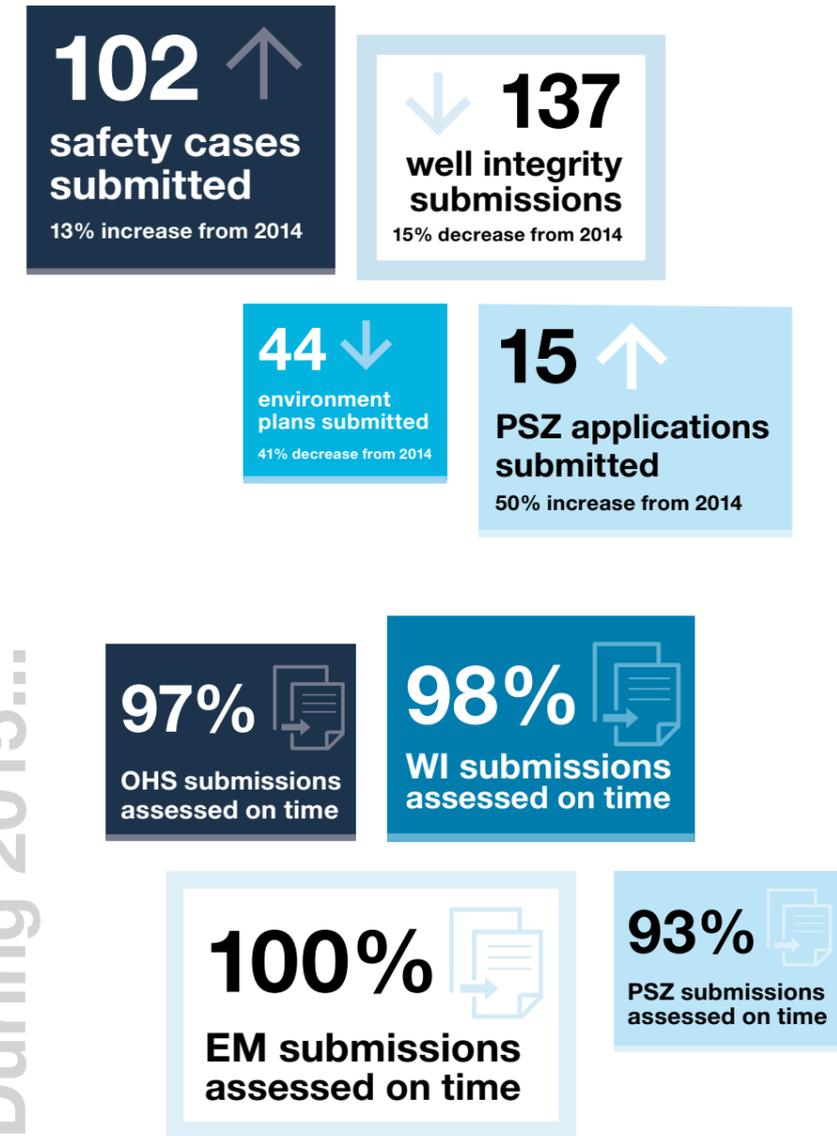


Figure 8.



## 2.2 Assessment outcomes

### When does NOPSEMA 'accept' a submission?

The occupational health and safety, well integrity and environmental management regulations administered by NOPSEMA include specific acceptance criteria which must be satisfied before NOPSEMA accepts a submission. For example, the criteria for acceptance of an environment plan require that the plan demonstrates that the environmental impacts and risks of the activity will be reduced to ALARP.

The proportion of submissions received that are 'accepted' by NOPSEMA is an indicator of several factors, including the ability of duty holders as a whole to demonstrate that all practicable risk reduction measures have been taken into consideration.

### When does NOPSEMA not accept a submission?

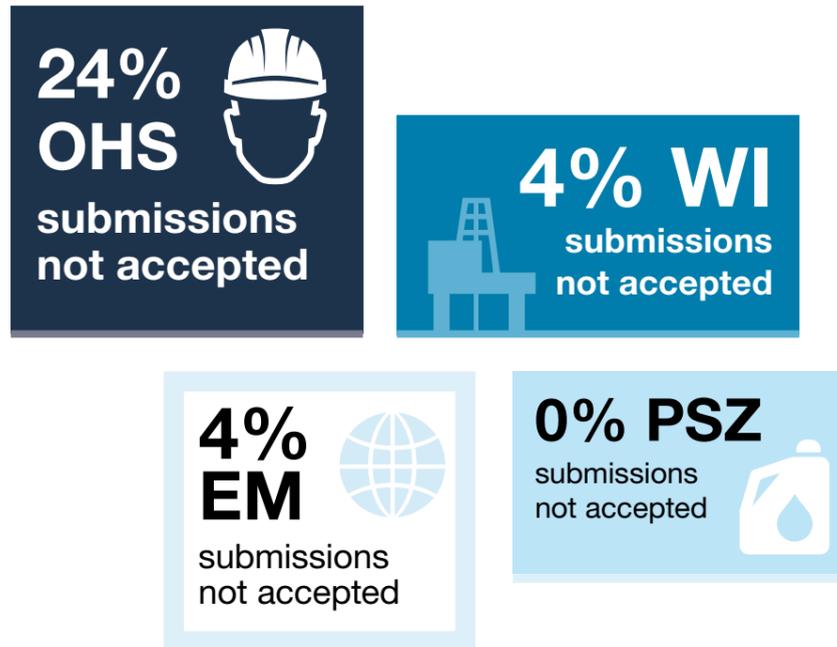
Regulatory submissions that do not meet the relevant requirements are not accepted by NOPSEMA. If an accepted submission is not in place then the operation to which it relates cannot proceed. NOPSEMA will provide the duty holder with a refusal/rejection letter that contains information on which acceptance criteria were not met.

Under the legislation, duty holders are entitled to make a new submission for the same facility/activity. In such circumstances, the assessment process re-commences from the beginning.

Of the submissions for which assessments were completed in 2015<sup>3</sup>, NOPSEMA did not accept:

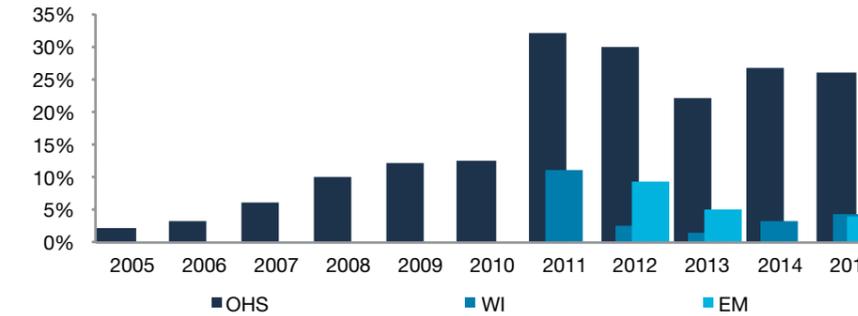
- 23 safety cases (8 new and 15 revisions)
- 4 revised diving safety management systems
- 5 well activity applications
- 1 well operations management plans
- 2 environment plans.

During 2015...



<sup>3</sup> Submissions may have been submitted prior to 2015, but had their assessment completed in 2015.

### Assessments not accepted

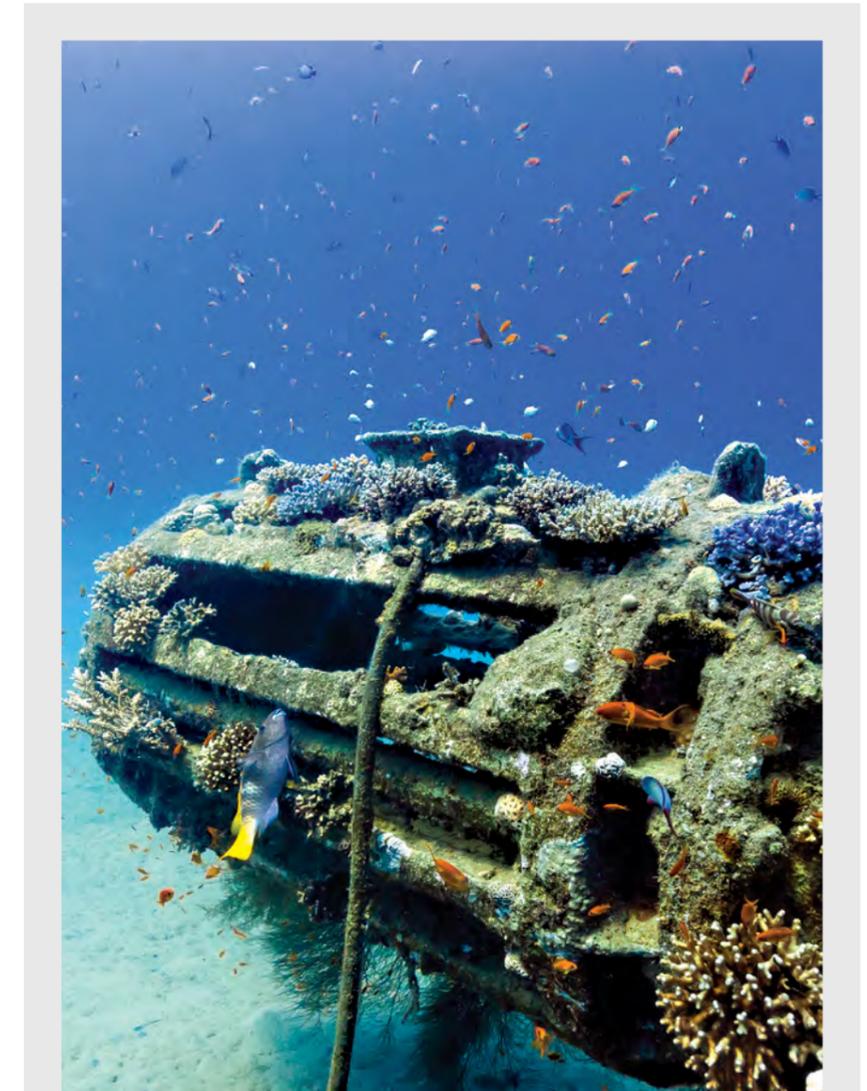


Note: Includes 'rejected', 'refused to accept', 'not agreed', 'not acceptable', 'not satisfied', 'declined'. Only includes OHS assessments with legislated timeframes.

Figure 9.

Figure 9 shows approximately 25% of OHS assessments (all types with legislated timeframes) were not accepted over the last 2 years. Less than 5% of EM and WI assessments were not accepted during this same period.

**Regulatory submissions that do not meet the relevant requirements are not accepted by NOPSEMA. If an accepted submission is not in place then the operation to which it relates cannot proceed.**



### 2.3 Occupational health and safety – safety cases

Of the 102 safety cases submitted, 27 (26%) were new submissions and 75 (74%) were revisions. The majority of submitted safety cases in 2015 were for mobile facilities (MODUs and vessels).

#### Submitted safety cases – by facility type

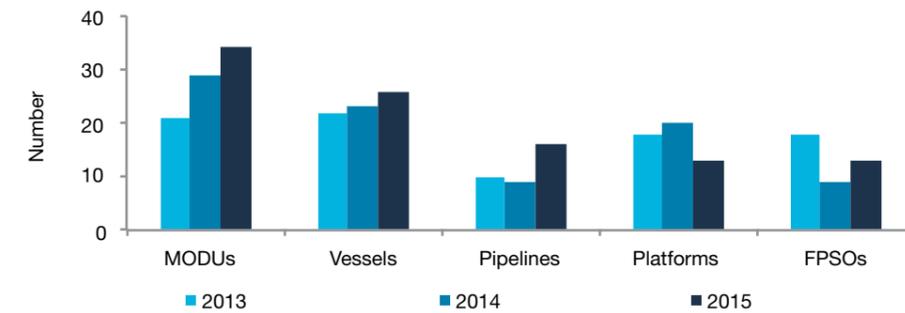
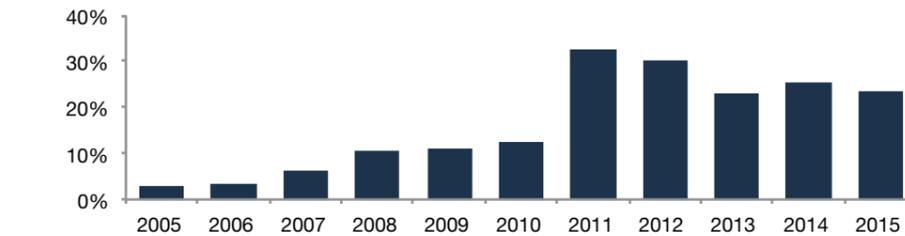


Figure 10.

#### Safety cases rejected\*



\*Note: Based on year of completion. Shows rejections as a proportion of total safety cases assessed and completed (excludes recalled/returned assessments)

Figure 11.

The assessment time taken for NOPSEMA to assess safety cases is also dependent on the operator, for example, providing timely responses to requests for further written information and validation statements.

#### Average safety case assessment timeframes

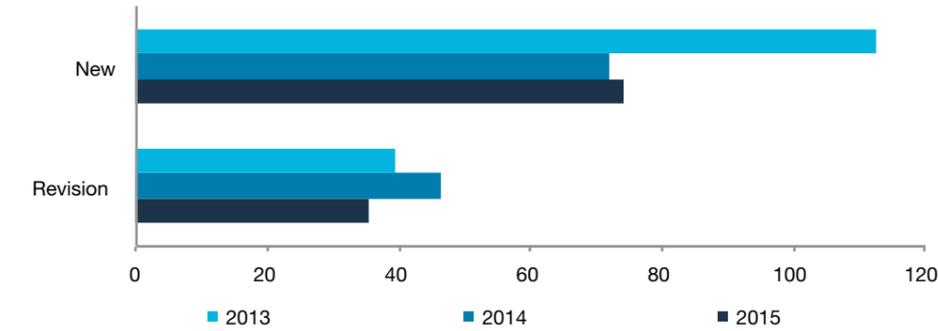


Figure 12.

**The average time to completion for new safety cases in 2015 was 74 days.**

This is comparable to last year (72 days).

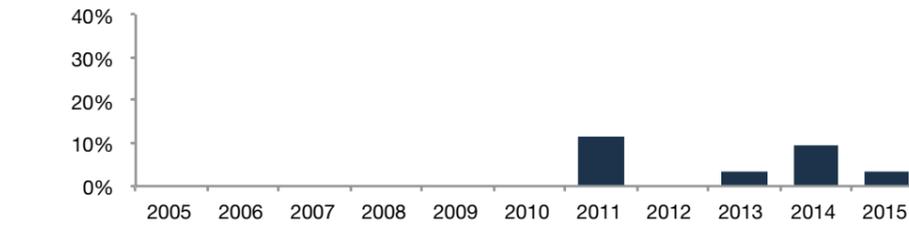
**The average time to completion for revised safety cases in 2015 was 35 days.**

This is the shortest assessment time recorded.

### 2.4 Well integrity

Titleholders submitted 30 WOMPs in 2015. Of these, 21 (70%) were new and 9 (30%) were variations. NOPSEMA completed assessment of 29 WOMPs<sup>4</sup> in 2015. Of these, 28 (97%) were accepted.

#### Well operations management plans rejected\*



\*Note: Based on year of completion. Shows rejections as a proportion of total well operations management plans assessed and completed (excludes recalled/returned assessments)

Figure 13.

One WOMP variation was rejected, primarily because it did not adequately show how the risks identified by the titleholder in relation to the well activities would be managed.

Additionally, 5 of the 113 AAUWAs were rejected (4%). The primary reasons for rejection were non-compliance with the accepted WOMP or proposed activities not being in accordance with good oilfield practice.

#### Average WOMP assessment timeframes

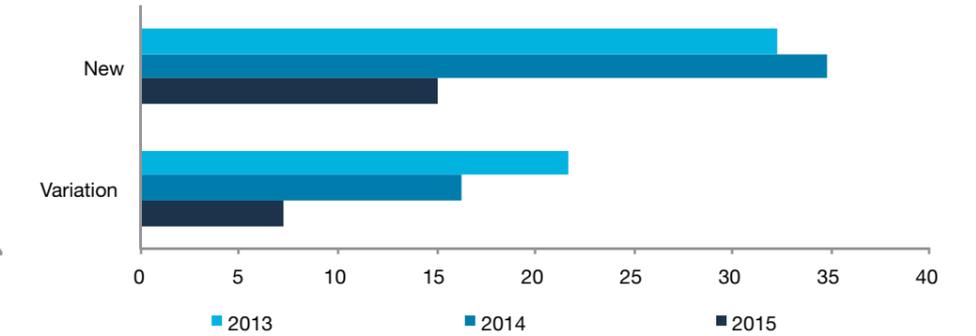


Figure 14.

**The average time to completion for new WOMPs in 2015 was 15 days.**

This is a decrease from 35 days in 2014.

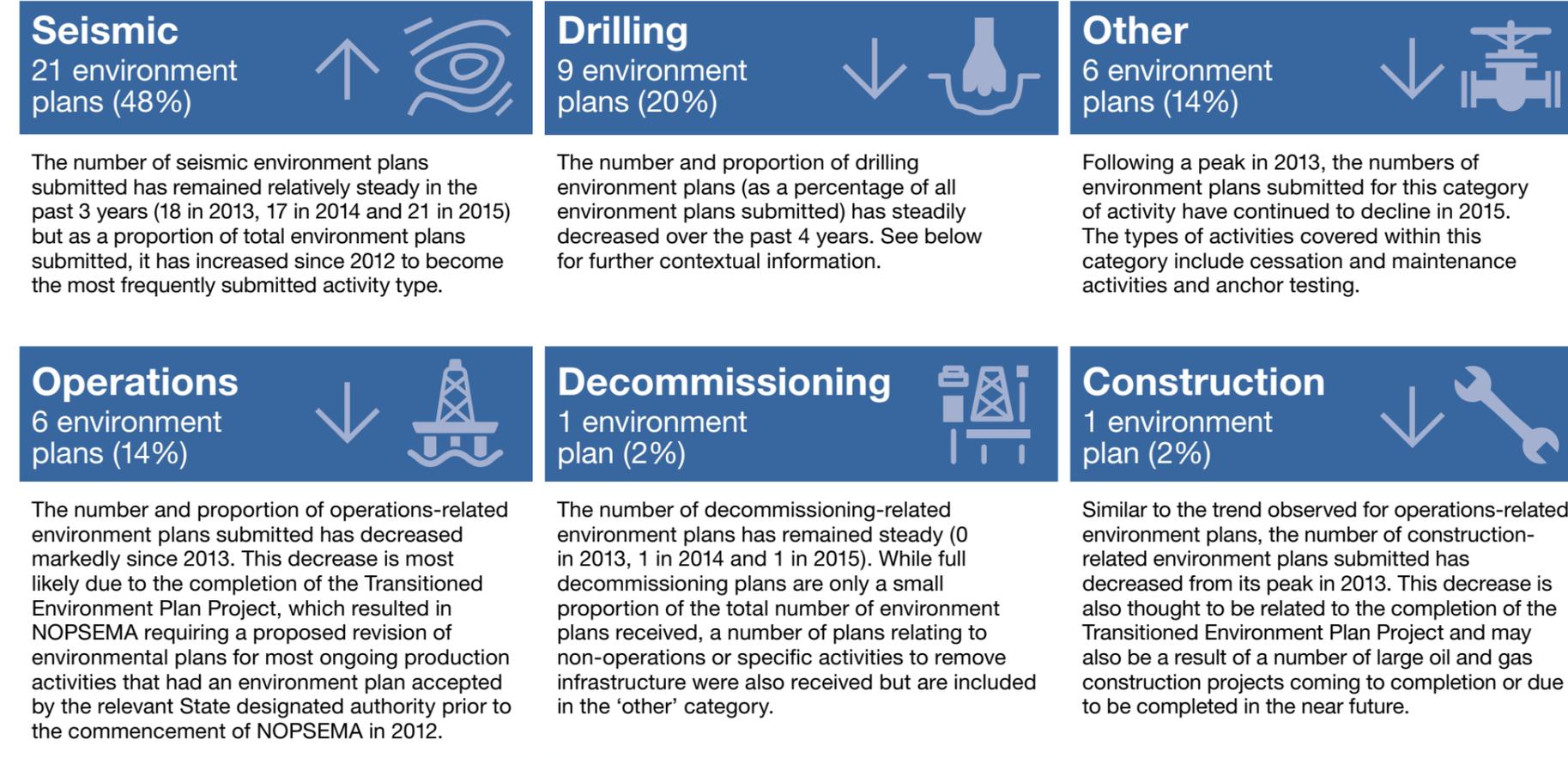
**The average time to completion for WOMP variations in 2015 was 7 days.**

This is an improvement on the 16 days recorded in 2014.

<sup>4</sup> Some WOMPs were submitted prior to 2015.

## 2.5 Environmental management – spotlight on submissions

Over the last 3 years, the submission of drilling, operations, and other environment plans have decreased while seismic survey environment plan submissions have remained steady. In 2015 there were 44 environment plans submitted for the following activity types:



### Environment plans submitted in 2015

44 environment plans submitted in 2015 (based on submission date)				
27 accepted (61%)	1 refused to accept (2%)	At year end Dec 2015: 16 still in progress (36%)		
		5 have since been accepted in Q1 2016	3 were recalled by titleholders	8 remain in progress at end Q1 2016

### Environment plan assessment outcomes (based on completion date)

Outcome	2013		2014		2015	
Accepted	96	95%	90	96%	49	96%
Refused to accept	5	5%	-	-	2	4%
Returned	-	-	3	1%	-	-
Recalled	-	-	1	3%	-	-
<b>Total</b>	<b>101</b>	<b>100%</b>	<b>94</b>	<b>100%</b>	<b>51</b>	<b>100%</b>

Table 4.

### Why has there been a drop in environment plan submissions in 2015?

Overall, while part of the drop in the number of environment plan submissions may be partly attributed to a reduction in industry activity (particularly for drilling activity in 2015), a significant proportion of the reduction is due to the conclusion of the Transitioned Environment Plan Project (particularly for production operations). As all ongoing activities must submit a proposed revision to their environment plan every five years, NOPSEMA is anticipating environment plan submissions for production activities to pick up from 2018 when due dates for proposed revisions commence.

In addition, the reduction in the number of environment plan submissions may also be related to an industry shift towards the submission of multiple activities and multi-year exploration environment plans. For example, more recently NOPSEMA has received environment plans for the drilling of multiple wells over three to five years in one environment plan, whereas in the early stages of NOPSEMA's commencement there was a tendency for industry to submit one environment plan per well.



**NOPSEMA's policy is that titleholders will be given two opportunities to modify and resubmit an environment plan before any decision to refuse it is made by NOPSEMA.**

**Requests for further information or environment plan resubmission**

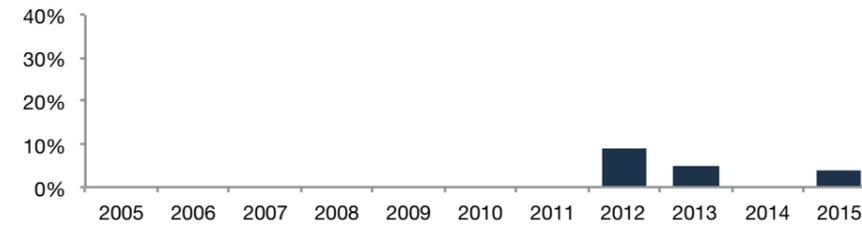
During the assessment of an environment plan, NOPSEMA may request further information from the titleholder and/or may determine that the environment plan does not meet the acceptance criteria in the environment regulations and must provide the titleholder with an opportunity to modify and resubmit the environment plan. NOPSEMA's policy is that titleholders will be given two opportunities to modify and resubmit an environment plan before any decision to refuse it is made by NOPSEMA.

Of the 51 environment plan assessments completed in 2015 (see explanation below), only 4 did not have any opportunities to modify (OMR) or requests for further written information (RFFWI) issued at any stage during their assessment process (i.e. the first submission was accepted). Of the remaining 47 completed assessments: 28 (55%) had at least 1 OMR issued; and 36 (71%) had at least 1 RFFWI issued<sup>5</sup>.

During 2015, NOPSEMA issued a total of 41 OMRs and 40 RFFWIs (i.e. some environment plans had more than 1 OMR or RFFWI issued). Two environment plans that NOPSEMA refused to accept in 2015 (one revision and one new) were unable to demonstrate that the environmental impacts and risks of the activity would be of an acceptable level, nor did they demonstrate that risks would be reduced to ALARP. One of these also failed to include an appropriate implementation strategy and appropriate level of consultation.

A small proportion of environment plans have been rejected each year; and the number rejected has decreased from 5% in 2013 to 4% in 2015 (based on completion<sup>6</sup> date).

Environment plans rejected\*



\*Note: Based on year of completion. Shows rejections as a proportion of total environment plans assessed and completed (excludes recalled/returned assessments)

Figure 15.



<sup>5</sup> Note: the numbers above do not sum to 47 as NOPSEMA may issue both OMRs and RFFWIs during an environment plan assessment.

<sup>6</sup> Note: data will vary depending on whether measured on submission date or completion date. An EP may be submitted in one year but not completed until the next year.

### 3. Incident notifications and reporting

Since 2012, industry performance has been encouraging, with a reduction in the rate of notifiable incidents compared to the upward trend in total hours worked. NOPSEMA will continue to work with industry to ensure that incident corrective actions are appropriately targeted and will hold duty holders to account for any identified breaches of their duties or responsibilities.

**Notification and reporting**

Duty holders are required to notify NOPSEMA of offshore petroleum incidents as per the legislation. Full reports for notifiable incidents are required. Additionally, duty holders must provide monthly summary reports as per the legislation. For operators of facilities (OHS) these comprise death and injury data, and for environmental management titleholders these comprise recordable environmental incidents.



**Incident root causes**

As part of the legislative requirement for operators to report accidents and dangerous occurrences to NOPSEMA, operators (OHS) must provide a root cause analysis as part of each report. This contributes to a better understanding of the factors influencing offshore incidents and informs improvements to design, training, systems, processes and equipment in support of better health and safety outcomes.

During 2015...

The number of reportable environmental incidents decreased **41%**

There was a **28%** decrease in total OHS hydrocarbon releases

Inadequate preventive maintenance was the most prevalent root cause for OHS incidents

The rate of **LTI ≥ 3 days** continued to trend down

## Incident notifications and reporting

Notifiable incidents		Recordable incidents		
These incident types must be notified as soon as possible to NOPSEMA (according to legislative timeframes) and comprise:		These incident types must be reported to NOPSEMA on a monthly basis.		
OHS Incidents		EM Incidents		OHS Injuries
Accidents	Dangerous occurrences	EM Reportable	EM Recordable	Injuries
Incidents where an offshore worker is killed, suffers a serious injury, suffers an injury or illness requiring three or more days off work.	Incidents that did not, but could reasonably have, caused an accident.	Incidents relating to an offshore petroleum activity that have caused, or have the potential to cause, moderate to significant environmental damage.	Refer to breaches of an environmental performance outcome(s) or standard(s) contained in the environment plan that applies to an offshore petroleum activity.	Fatalities and injuries requiring treatment other than first aid e.g. major injuries, lost time injuries, alternative duties injuries and medical treatment injuries.



## Incident notifications and reporting

### 3.1 Incidents – occupational health and safety

#### Accidents (12)

No fatalities were reported to NOPSEMA in 2015.

NOPSEMA was notified of 5 serious injuries and 7 LTI  $\geq$  3 days.

Accident breakdown by facility type:

Vessels	4	MODUs	3	FPSO/FSOs	3	Platforms	2
---------	---	-------	---	-----------	---	-----------	---

#### Accidents

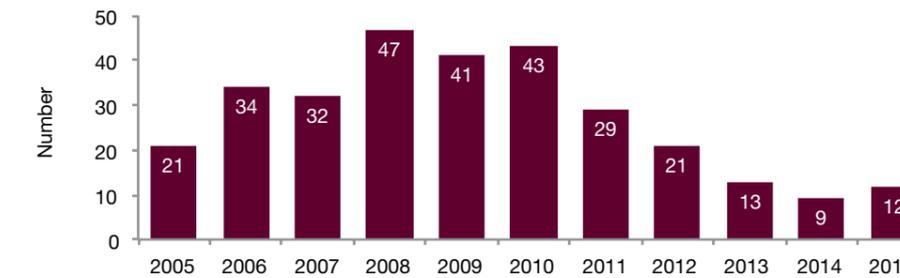
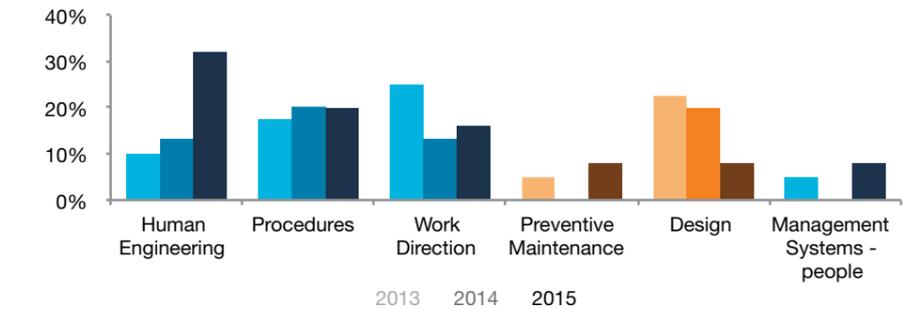


Figure 16.

The serious injury rate remains low but has slightly increased from 0.14 last year to 0.33 in 2015.

The basic causes of accidents were mainly human performance difficulties (blue shades in figure 15.), particularly human engineering.

#### Accidents basic causes – OHS



Blue = Human performance difficulties Orange = Equipment difficulties

Figure 17.



## Incident notifications and reporting

### Dangerous occurrences

(366)

There was a 5% increase in dangerous occurrences reported from 2014 (346). 53% of dangerous occurrences occurred on FPSOs, followed by 27% at platforms and 14% at MODUs.

The rate of dangerous occurrences increased for the following incident categories:

Could have caused death or serious injury	Fire or explosion	Pipeline incidents	▲
Damage to safety-critical equipment	Uncontrolled PL release >80 – 12 500 L	Other kind needing immediate investigation	▲

Table 5.

### Dangerous Occurrences

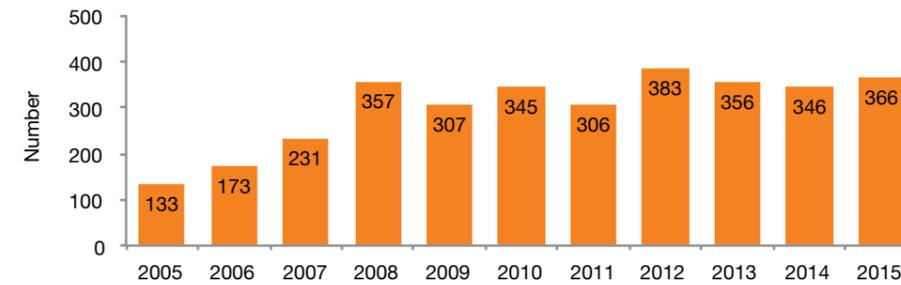
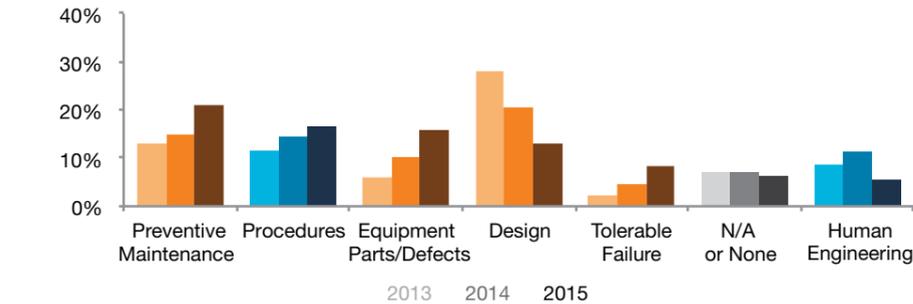


Figure 18.

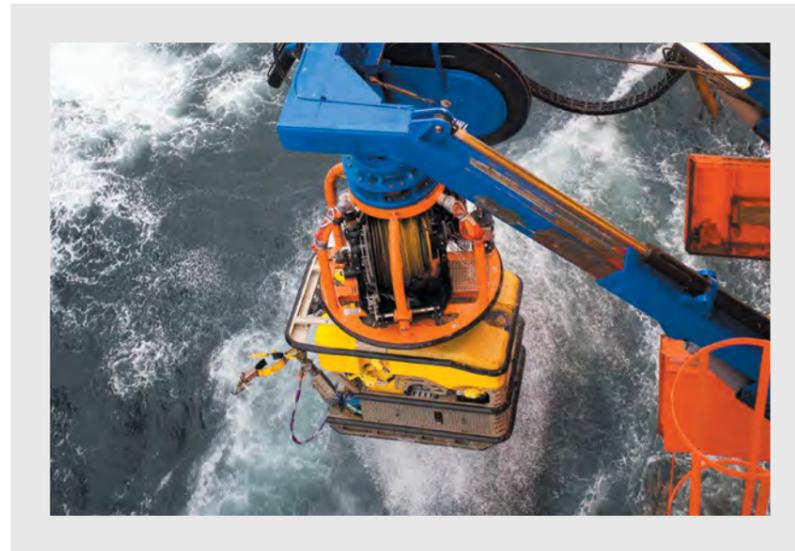
The basic causes of dangerous occurrences are a mix of human performance and equipment difficulties.

### Dangerous Occurrences basic causes – OHS



Blue = Human performance difficulties Orange = Equipment difficulties

Figure 19.



## Incident notifications and reporting

# SPOTLIGHT OHS hydrocarbon releases

18 reported in 2015

This spotlight focuses on OHS hydrocarbon releases only.

Note: some reported hydrocarbon releases<sup>7</sup> qualify under both sets of reporting criteria and as such are both OHS and EM incidents.

**There were two uncontrolled releases reported as both OHS and environmental hydrocarbon releases in 2015.**

### OHS Hydrocarbon releases

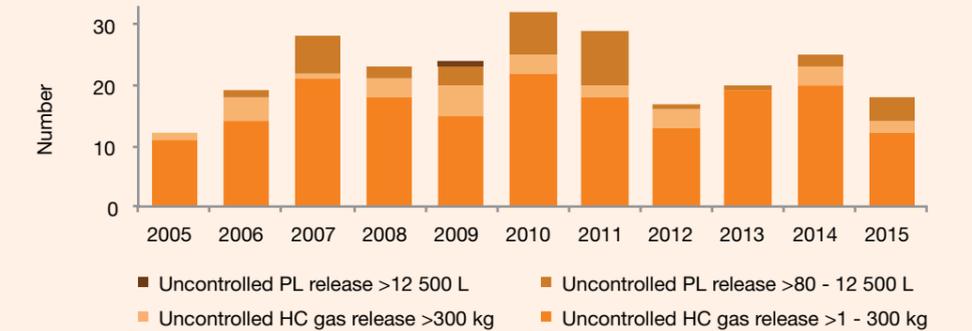


Figure 20.

61% occurred on platforms

14 819 kg of gas released in total

The majority do not result in harm to people



	2014	2015
28% decrease in total HC releases (gas and liquid). Decrease in gas releases from 23 to 14, liquid releases actually doubled from 2 last year to 4 in 2015	25	18
HC gas releases >300 kg decreased slightly	3	2
10 (55%) occurred at normally attended platforms, 6 (33%) on FPSOs, 1 (6%) was at a not normally attended platform and 1 was from a pipeline		

Table 6.

<sup>7</sup> Uncontrolled hydrocarbon releases are notifiable and reportable by operators under the safety regulations. Environmental management requirements differ in that the notifiable and reportable volumes are titleholder specific as outlined in the accepted environmental plan.

# SPOTLIGHT OHS hydrocarbon releases (continued)

18 reported in 2015

Four basic root causes were equally attributed to hydrocarbon releases in 2015 – design, equipment parts/defects, tolerable failure and preventive maintenance.

## Hydrocarbon release basic causes – OHS

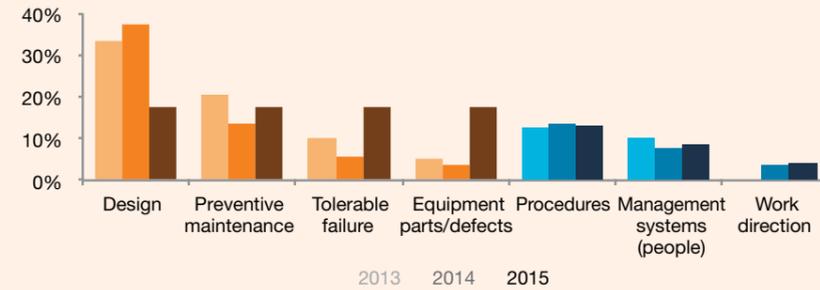


Figure 21.



The gas release trend for Australia is comparable with IRF countries over the three years to 2014 (noting that IRF data is not currently available to compare for 2015).

## Total OHS gas release

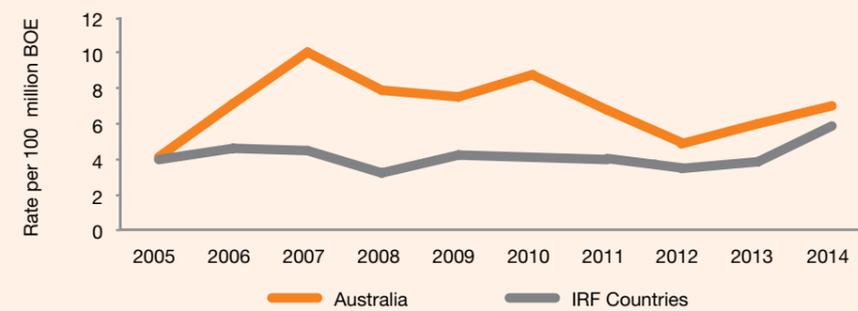


Figure 22.

Pressure and corrosion have consistently been identified as the two main mechanisms involved in OHS hydrocarbon releases.

## OHS Hydrocarbon releases – mechanism of incident

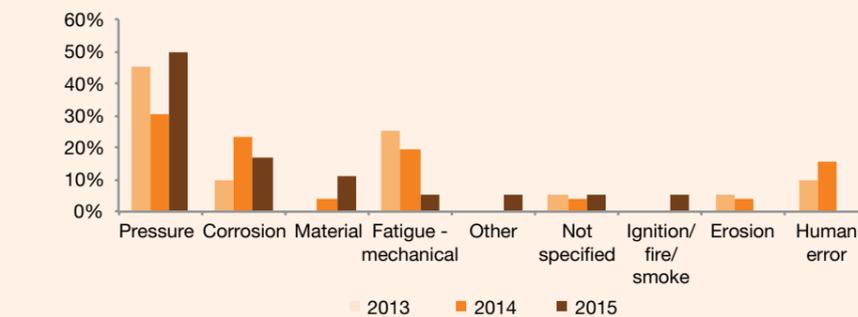


Figure 23.

# SPOTLIGHT Fires and explosions

10 reported in 2015



## Fire/explosion casual factors

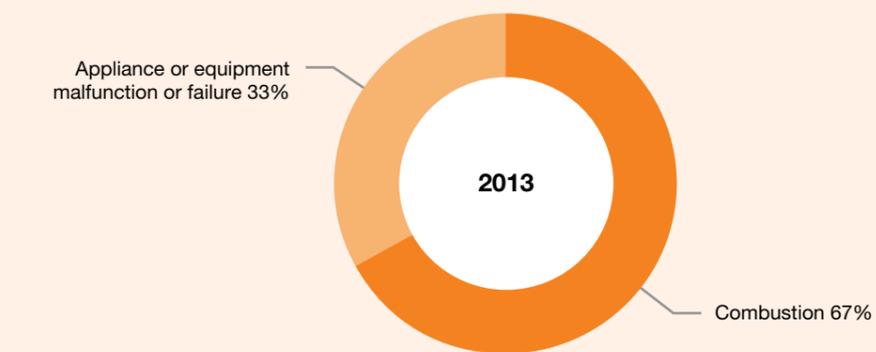
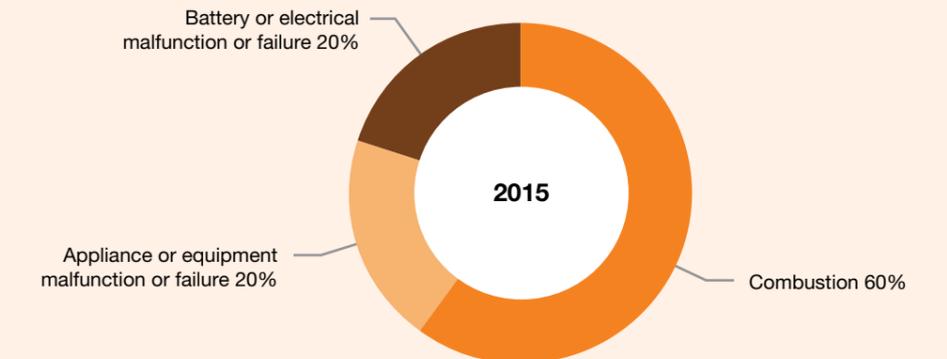
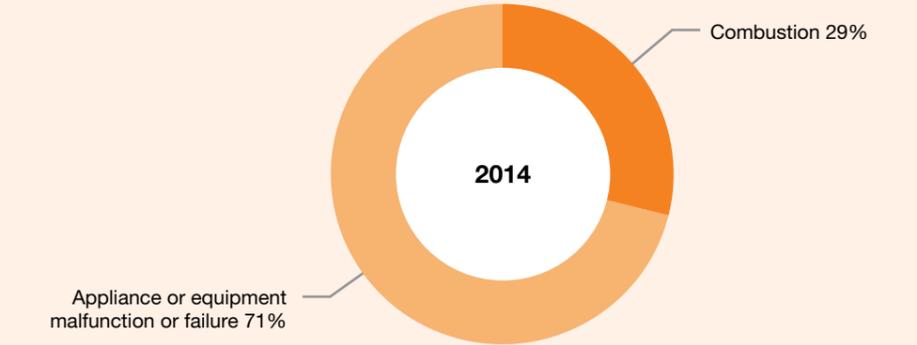


Figure 24.



# SPOTLIGHT Fires and explosions (continued)

10 reported in 2015

<b>Incident rate</b>	The rate of fires and explosions has been relatively stable and low.
<b>Detection methods</b>	All were detected visually except one which relied on the facility fire and gas detection system.
<b>Causal factors</b>	6 were due to spontaneous combustion (please refer to the charts at left).
<b>Root causes</b>	70% of fires attributed to equipment difficulties (e.g. design, defects), 30% to human performance difficulties (e.g. procedures, work direction).

Location	Type	Specific Causes
MODU	Fire	Hot work (grinding) close to mud pits caused an ignition.
MODU	Fire	Welding on degasser pipework led to an ignition of the residual content in the pipe.
Platform	Fire	Leakage of electrolyte in battery room causing a short circuit and fire.
Vessel	Fire	Fat in a drip tray which was located directly over heating element ignited.
Platform	Fire	During maintenance an unattended valve leaked glycol on to hot exhaust pipework causing an ignition of the glycol.
MODU	Fire	Driller left the auxiliary brake engaged after use. Continued use of the draw-works caused a friction heat build-up in the band brake lining. This caused the band brake lining to ignite.
MODU	Fire	Fatty deposits built-up behind the oven and grill rear cover plate. These fatty deposits ignited due to heat from grill.
MODU	Explosion	Failure of a circuit breaker caused a short circuit within battery bank. The short circuit caused an explosion.
MODU	Fire	Rainwater ingress caused a short circuit in a solenoid valve. The heat generated by the short circuit caused a fire.
MODU	Fire	A welding lead extension connection short circuited. The resulting heat melted and ignited the cable insulation.

## 3.2 Incidents – environmental management

### Environmental reportable incidents (13)

The number of environmental management reportable incidents decreased 41% over the last year to 13.

Incident breakdown:

Hydrocarbon vapour or petroleum liquid releases	8	62%
Chemical releases	2	15%
Other <sup>8</sup>	2	15%
Fauna incident	1	8%

Table 7.

The majority of incidents occurred during operations-related petroleum activities (77%). The remaining activity types include 'other' (15%) and drilling (8%).

### Reportable environmental incidents

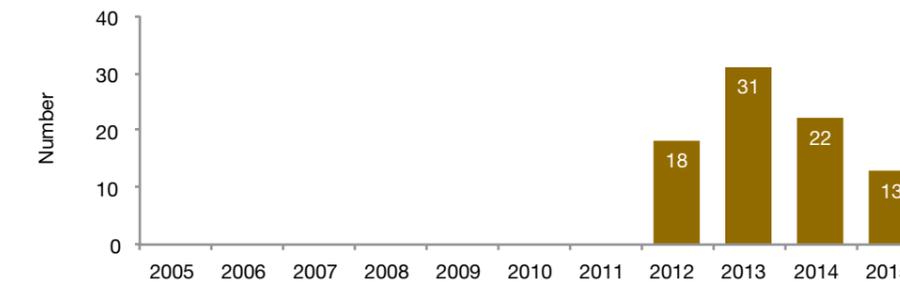


Figure 25.

<sup>8</sup> Note: incidents in this 'other' category include equipment parting and a facility moving off-station.

<sup>9</sup> Note: in 2015 incidents in this 'other' category relate to interactions with other marine users.

### Environmental recordable incidents (273)

The number of environmental management recordable incidents increased 17% over the last year.

There were notable changes in the following categories:

	2014	2015	% change
Solid waste discharge or dropped object	22	69	+214%
Breach of procedural control	53	91	+72%
HC gas release/air emissions	41	7	-83%
Other <sup>9</sup>	11	3	-73%
Chemical spill	16	8	-50%

Table 8.

Note: not all categories are listed.

### Recordable environmental incidents

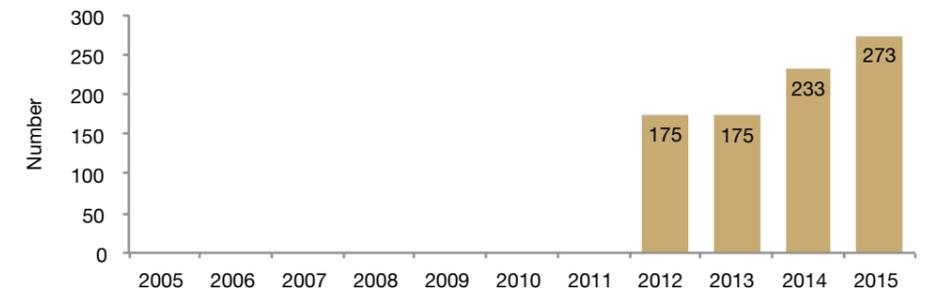


Figure 26.

# SPOTLIGHT Environmental management – hydrocarbon releases

8 reported in 2015

8 reportable and 57 recordable hydrocarbon spills

Total oil spilled ~ 2 500 L

Of the 13 reportable incidents, 8 (62%) were either hydrocarbon vapour; or petroleum liquid releases.

Of the 273 recordable incidents, 57 (21%) were hydrocarbon spills; or gas release/air emissions.

Reportable environmental incidents

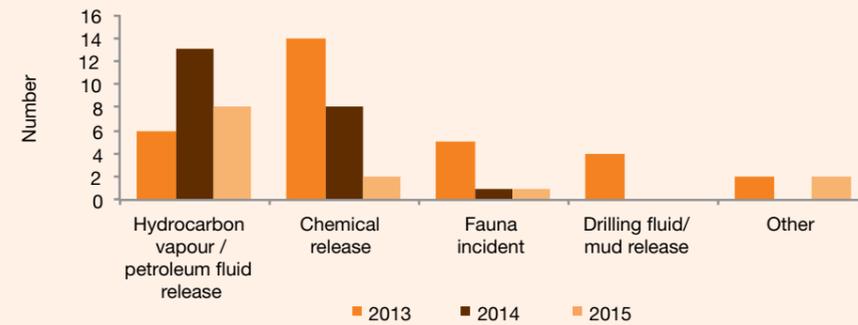


Figure 27.

Recordable environmental incidents

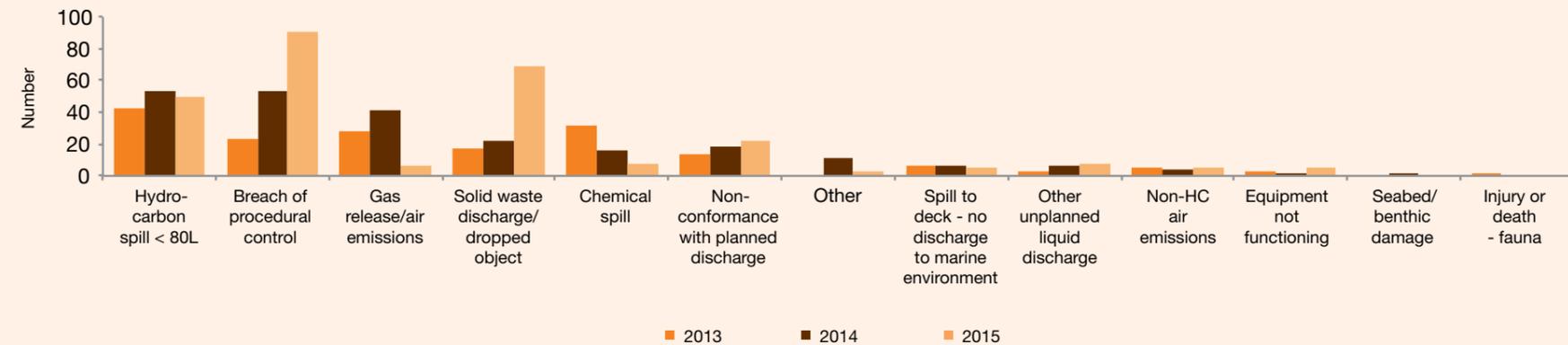
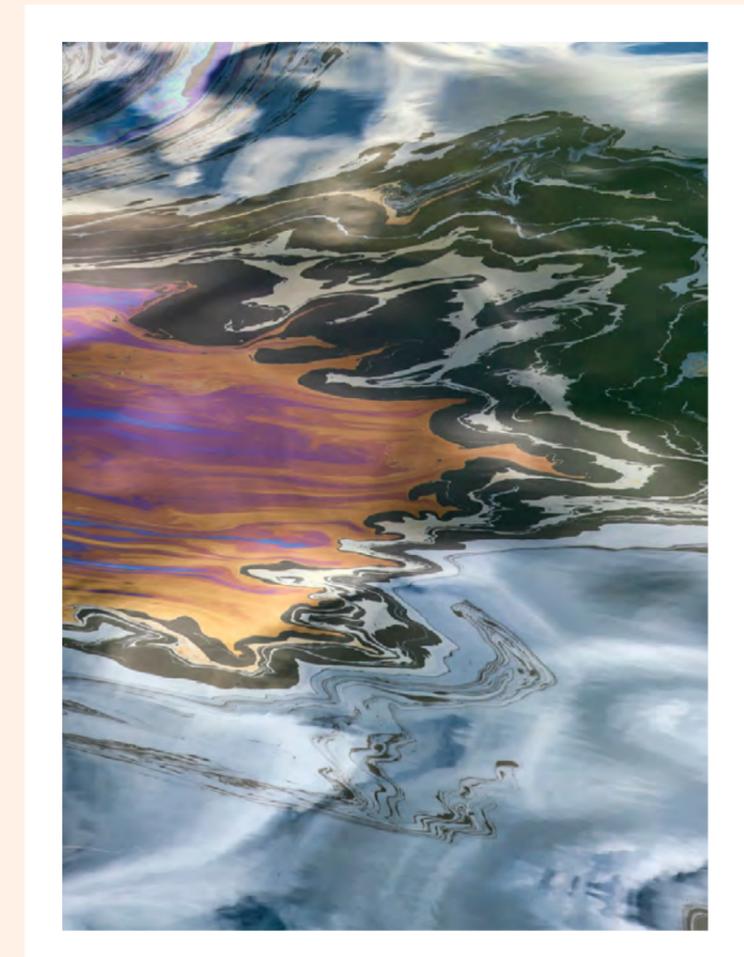


Figure 28.

# SPOTLIGHT Environmental management – hydrocarbon releases (continued)

8 reported in 2015

Type	Volume	Description	Cause
Hydraulic oil	100 L	A hydraulic oil leak from crane	Small bore hose failure. Flexible hydraulic line had been rubbing on equipment and worn through.
Crude oil	20 L	Oil sheen observed on water	Crude ingress into water ballast tank from leak in a ballast header line in a centre cargo oil tank.
Crude oil	1900 L	Crude oil discharge to sea over 48hrs	Breakaway hose coupling parted.
Petroleum fluid	200 L	Crude/emulsion spill overboard with produced water	Sand was blocking/restricting the impulse line of the flow transmitter.
Diesel	120 L	Diesel spill on deck and to the sea	Unplanned tensional loading on bunker hose caused by thruster failure.
Crude oil	<80 L	Sheen observed on water. Well leak (oil and small volume of gas)	Loss of well barrier, casing/cement failure.
Gas	1390 m <sup>3</sup>	Gas leak to atmosphere	Unlit flare – facility flare became extinguished for approximately 2 minutes.
Oil	>80 L	Unburnt hydrocarbon liquid coming from the flare spilled to the sea	Failed level switch in the scrubber prior to flare.



### 3.3 Fatalities and injuries

The injury rate increased

**NO** offshore fatalities were reported

During 2015...

Vessels reported **32** injuries (38% of all injuries)

**MODUs reported 14 injuries** (lowest number to date)

#### What injury data does NOPSEMA collect?

NOPSEMA compiles injury data from mandatory monthly reports submitted by operators to NOPSEMA. By law, the injury summary reports cover all fatalities, injuries, illness and disease suffered by workers offshore requiring medical treatment or time off regular duties.

#### What does the injury data indicate?

While injury rates are typically not an indicator of major accident events, the general downward trend of injury rates since 2008 should still be commended as this represents actual harm avoided and demonstrate continuing efforts by operators in keeping the workforce injury free.

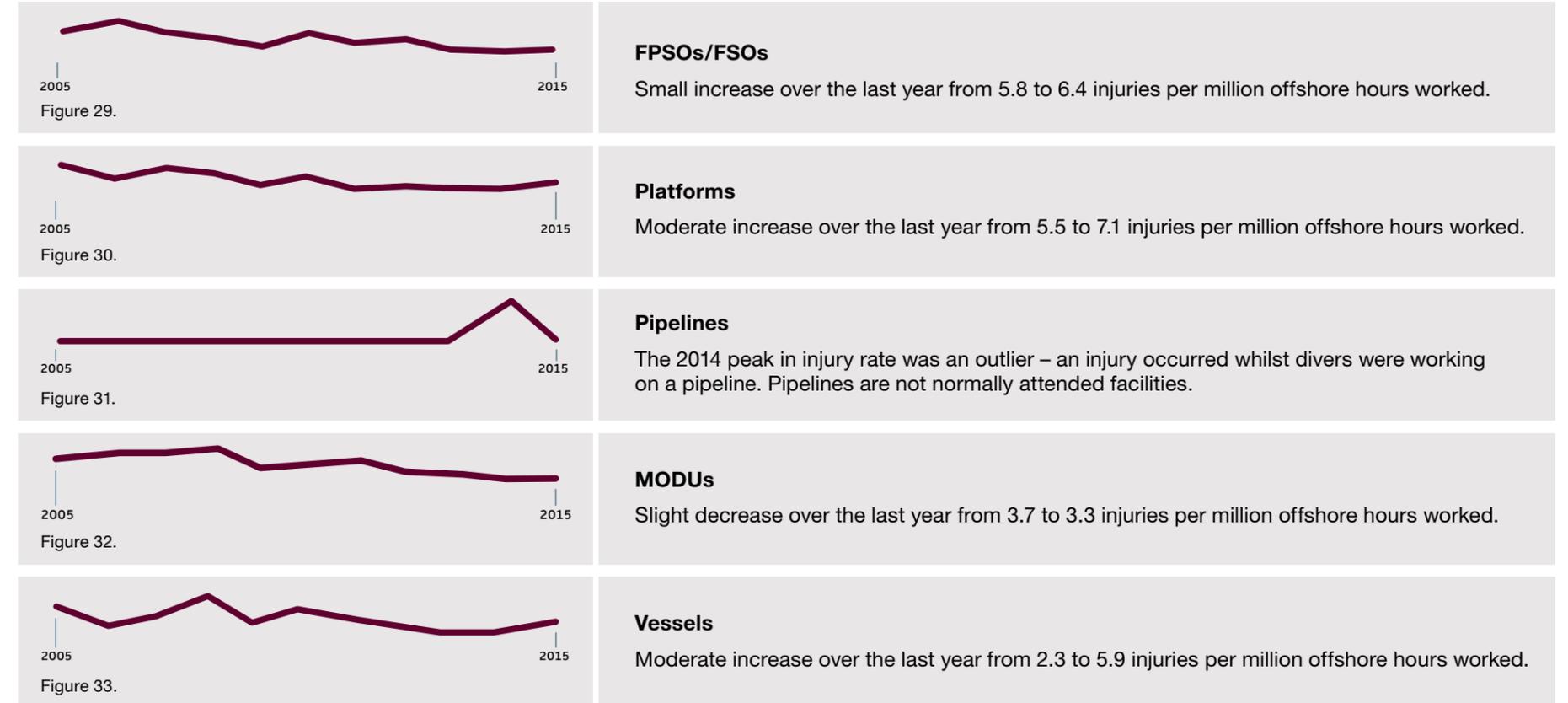
#### How is the injury rate calculated?

NOPSEMA calculates the injury rate by taking the total number of injuries recorded against the total hours worked and then standardising to one million hours. This allows for direct comparison between years. The average number of injuries reported per year since 2005 is 117.

**Duty holders must continue to strive for better health and safety outcomes for offshore workers.**

### Total injury rate – trends by facility type from 2005 to 2015

The sparklines below (Figures 29 to 33) indicate the trend of reported injury rates since 2005.



NOPSEMA notes that the rate of total injuries per million hours worked had been in a relatively steady decline over the last few years, but have increased in 2015. Offshore workers continue to suffer work related injuries preventing them from performing their normal duties. Duty holders must continue to strive for better health and safety outcomes for offshore workers. Notifications of accidents and dangerous occurrences must be reported to NOPSEMA as soon as reasonably practicable following the event.

### 3.4 Total recordable cases (TRCs)

TRCs (commonly referred to as 'total injuries') are calculated by adding the number of fatalities, major injuries, lost time injuries (LTIs), alternative duties injuries (ADIs) and medical treatment injuries (MTIs) reported.

Fatalities	Major injuries	Lost time injuries	Alternative duties injuries	Medical treatment injuries	Total injuries (TRCs)
0	5	9	30	41	85

- There were 85 TRCs reported in 2015; a 49% increase from 2014. The TRC rate in 2015 also increased from 3.97 to 5.66, ending the downtrend observed since 2010.
- 36% of injuries reported in 2015 were wounds and amputations. 23% of reported injuries were musculoskeletal, systemic or an infectious disease.
- 31% of reported injuries were to worker's upper limbs. 29% were to the head or neck.

Total recordable cases

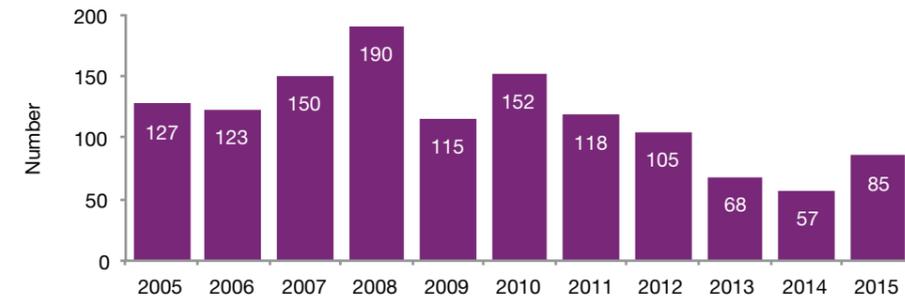
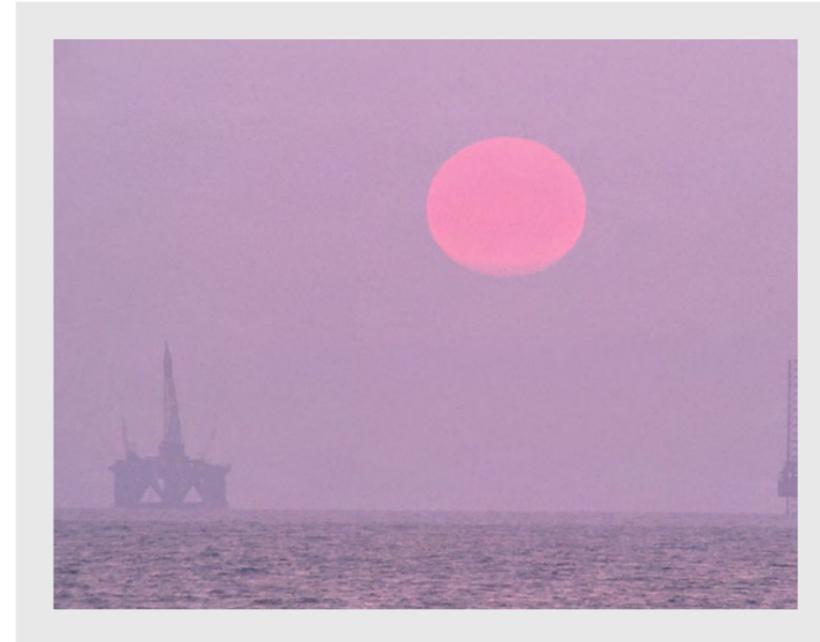


Figure 34.



The four bar charts (below) show injuries reported to NOPSEMA in 2015 against the Type Of Occurrence Classification System (TOOCS) used by Safe Work Australia:

- **nature of the injury** – the injury or disease type/outcome
- **location of the injury** – the part of the body where the injury occurred
- **mechanism of the incident** – the overall action, exposure or event that describes the circumstances that resulted in the injury
- **agency of the injury** – the object, substance or circumstance principally involved in, or most closely associated with, the breakdown/tipping point which ultimately led to the injury.

Total recordable cases – nature of injury

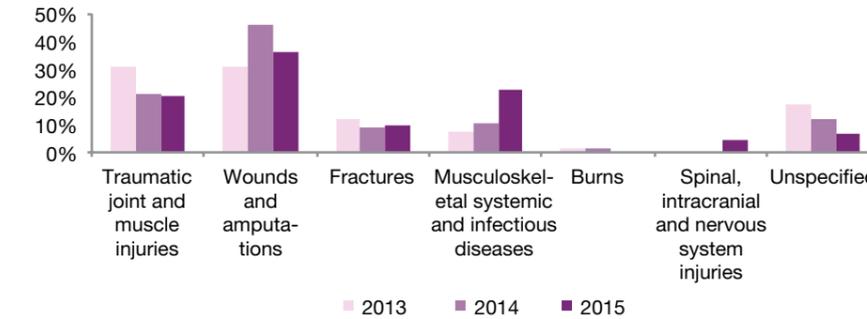


Figure 35.

Total recordable cases – mechanism of incident

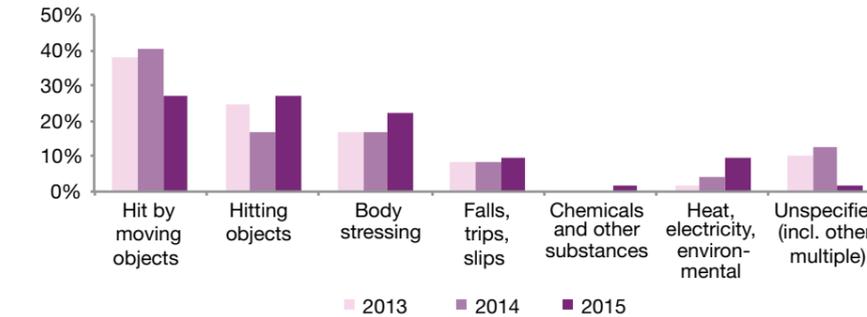


Figure 36.

Total recordable cases – location of injury

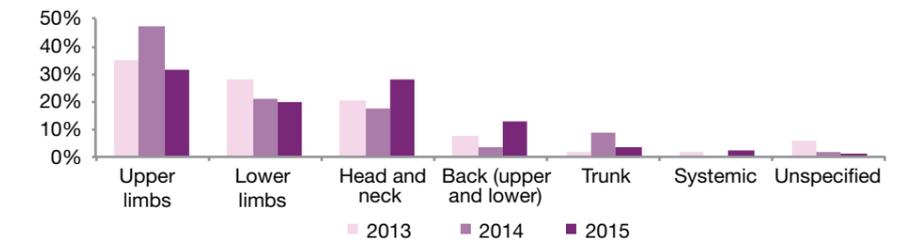


Figure 37.

Total recordable cases – agency of injury

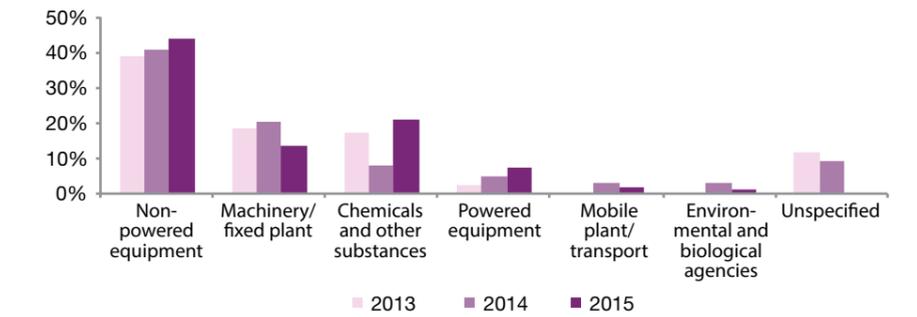


Figure 38.

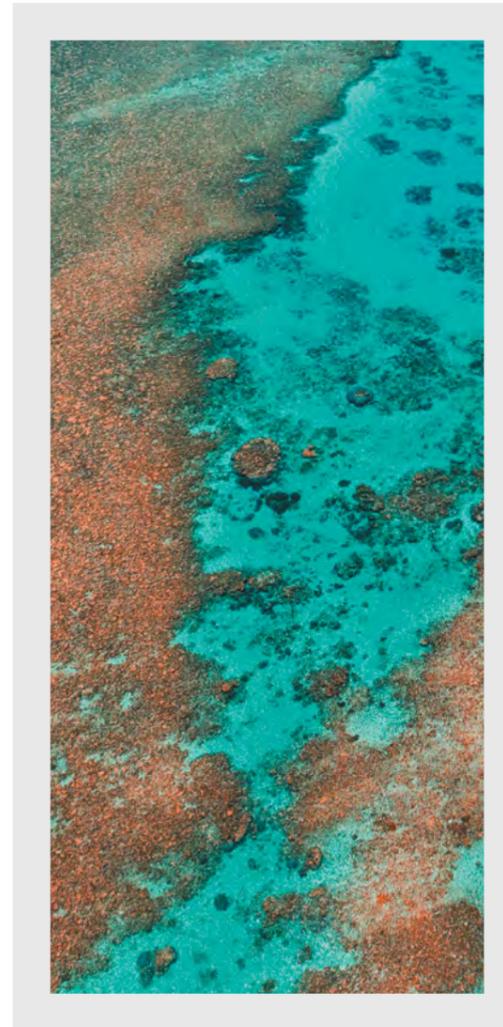
### 3.5 Injury groups

#### Serious injuries

<b>Major injuries (MIs)</b> <b>5</b>	<b>Lost time injuries ≥3 days (LTIs ≥3)</b> <b>7</b>
Result in hospitalisation, unconsciousness, fractures etc <sup>10</sup> .	Result in a worker having three or more days off work.

The sparklines below indicate injury trends from 2005 to 2015

<b>RATE</b>	Increase from 0.07 in 2014 to 0.33 in 2015 (per million hours worked offshore)	Increase from 0.35 in 2014 to 0.46 in 2015 (per million hours worked offshore)
<b>NATURE</b>	4 fractures (80%) 1 wound/laceration (20%)	4 wounds/ lacerations (58%) 1 fracture (14%) 1 muscle/joint injury (14%) 1 other (14%)
<b>LOCATION</b>	2 leg (40%) 2 arm (40%) 1 hand (20%)	5 hands (71%) 1 eye (14%) 1 other (14%)
<b>MECHANISM</b>	2 being hit by moving objects (40%) 2 falls (40%) 1 stepping on object (20%)	3 from being trapped by moving objects (43%) 2 other (29%) 1 hit by falling objects (14%) 1 falls (14%)
<b>AGENCY</b>	2 by non-powered equipment (40%) 2 by machinery/fixed plant (40%) 1 by mobile plant/transport (20%)	3 by powered equipment (43%) 2 by machinery/fixed plant (29%) 1 by non-powered equipment (14%) 1 materials/substances (14%)



<sup>10</sup> Refer to glossary for full definition.

#### Less serious injuries

<b>Lost time injuries &lt;3 days (LTIs &lt;3)</b> <b>2</b>	<b>Alternative duties injuries (ADIs)</b> <b>31</b>	<b>Medical treatment injuries (MTIs)</b> <b>42</b>
Result in a worker having one or two days off work.	Result in a worker being assigned duties other than normal duties.	Result in a worker requiring medical treatment other than first aid.

The sparklines below indicate injury trends from 2005 to 2015

<b>RATE</b>	Decrease from 0.14 in 2014 to 0.13 in 2015 (per million hours worked offshore)	Decrease from 0.14 in 2014 to 0.13 in 2015 (per million hours worked offshore)	Increase from 1.53 in 2014 to 2.67 in 2015 (per million hours worked offshore)
<b>NATURE</b>	1 wound/laceration (50%) 1 circulatory system disease (50%)	14 were traumatic joint and muscle injuries (45%)	20 were wounds (48%)
<b>LOCATION</b>	1 hand (50%) 1 head (50%)	9 back (29%) 5 hand (16%)	14 eye (33%) 10 hand (24%)
<b>MECHANISM</b>	1 hit by moving objects (50%) 1 heat exposure (50%)	10 caused by body stressing (32%) 9 hit by moving objects (29%)	12 from chemical/substances (29%) 10 hit by moving objects (24%) 5 body stressing (12%)
<b>AGENCY</b>	2 by non-powered equipment (100%)	24 by non-powered equipment (77%)	17 from chemicals/substances (40%) 14 by non-powered equipment (33%)

## 4. Complaints

NOPSEMA receives and investigates complaints against duty holders relating to conditions and issues that may affect the occupational health and safety of workers at a facility, or the environmental management of an activity.

Complaints against duty holders

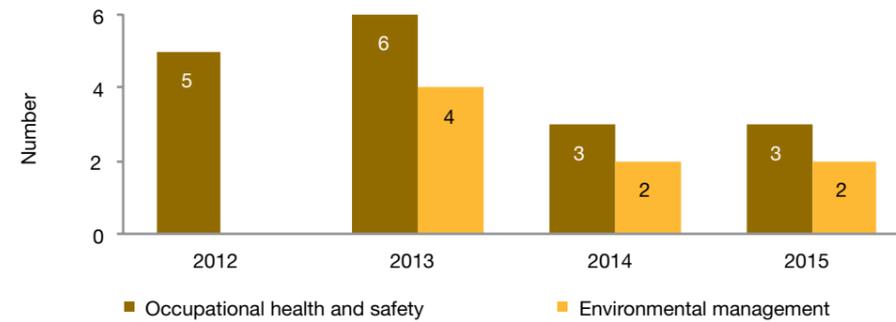
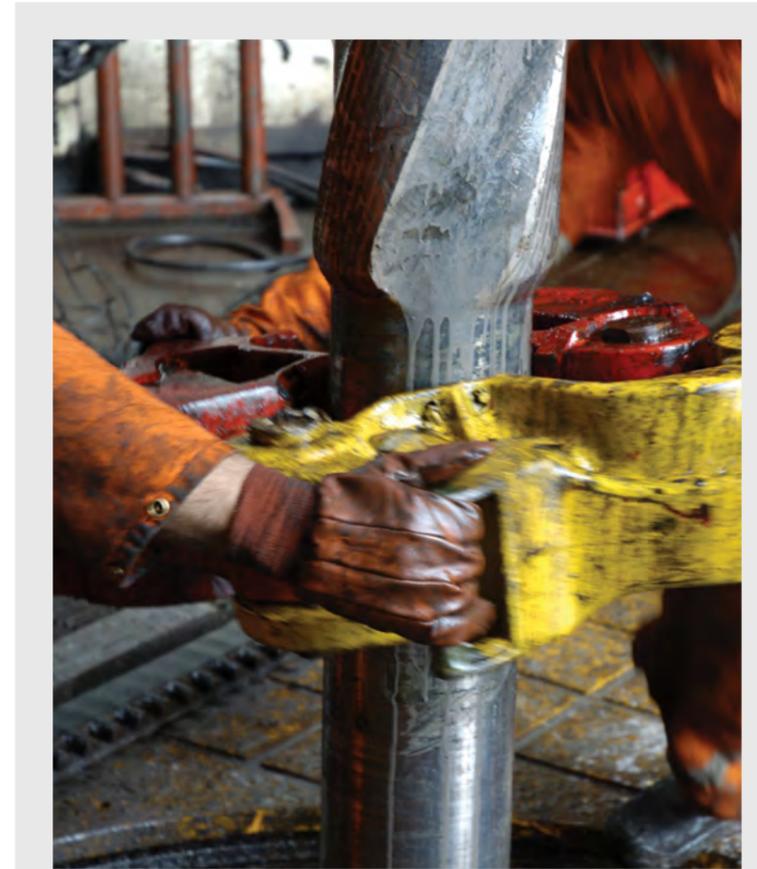


Figure 39.

**5 complaints** were received in 2015, the same as 2014. Each complaint was investigated by NOPSEMA.

Complaints related to multiple issues, such as:

- fatigue and over-exposure
- staffing levels being contrary to that stated in safety case
- poor procedures and personal protective equipment (PPE)
- continued exposure to hazardous substances
- insufficient time provided for consultation response to seismic survey
- seismic survey occurring in a fisheries area without notifications
- degradation of workgroup and HSR consultation standards
- inadequate reporting of multiple cases of dermatitis.



## Complaints

**NOPSEMA encourages members of the offshore workforce to first raise any health and safety or environmental management concerns with facility/activity management and safety committee representatives.**



## 5. Inspections

NOPSEMA conducts inspections to monitor duty holders' compliance with their legislative duties and to gain assurance that they have implemented, and are complying with, the risk management systems described in their accepted regulatory permissioning documents. Where duty holders are found to be non-compliant, NOPSEMA takes appropriate and proportionate action to improve OHS, well integrity and environmental management performance.

In 2015, 195 inspections were conducted (covering a total of 208 facilities, titles and petroleum activities). This number of inspections is the highest number carried out to date, and a 34% increase on the 146 inspections that were undertaken in 2014. The 126 OHS and well integrity inspections were conducted at 69 facilities or associated business premises across Australia. This inspection activity reflects NOPSEMA's risk-based inspection policy of inspecting normally attended production facilities and MODUs twice per year. Environmental management inspections have more than doubled, from 30 in 2014 to 69 in 2015. This number of inspections surpasses the target of 60 that was originally set for 2015.

For more information about NOPSEMA inspections, see the 'Inspections' pages at [nopsema.gov.au](http://nopsema.gov.au). For information on enforcement action issued by NOPSEMA, see Chapter 7.

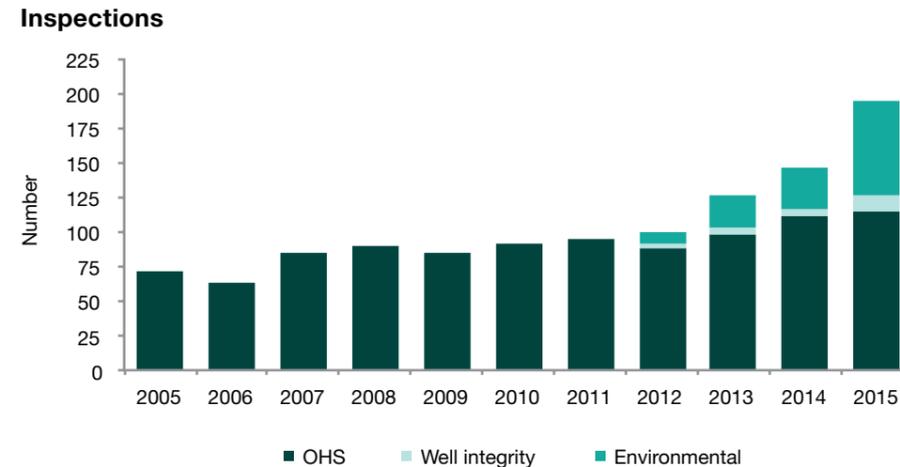


Figure 40.

**In 2015, 195 inspections were conducted (covering a total of 208 facilities, titles and petroleum activities). This number of inspections is the highest number carried out to date, and a 34% increase on the 146 inspections that were undertaken in 2014.**

## Inspections

During 2015...

**NOPSEMA**  
continued using  
a **risk-based**  
inspection  
policy



**195 inspections**  
were conducted

(covering 208 facilities,  
titles and activities)

The number of  
**environmental**  
management  
inspections  
has more than  
doubled



The number of  
**well integrity**  
inspections  
has more than  
doubled



## 5.1 Inspection scopes

A wide range of potential scope items are considered when planning an inspection. Any number of these items may be selected for focus by NOPSEMA inspectors during an inspection.

NOPSEMA issues inspection reports and recommendations to duty holders based on findings against the inspection scope items.

NOPSEMA inspectors must prepare and issue an inspection report as soon as practicable, which includes any recommendations arising from the inspection. NOPSEMA uses a regulatory management system (RMS) to record and track recommendations, duty holder's response to recommendations and the proposed timeframe for addressing recommendations.

Where appropriate, enforcement notices may be issued, however, these notices will only be issued in accordance with relevant legislative requirements and NOPSEMA's enforcement policy. NOPSEMA inspectors prepare inspection scopes in accordance with the NOPSEMA inspection policy (available at [nopsema.gov.au](http://nopsema.gov.au)).



For the relevant NOPSEMA divisions inspection scopes are informed by:

### OHS inspection scopes

When programming OHS inspection scopes, NOPSEMA inspectors employ a risk-based methodology that considers the following:

- relevant risk factors
- previous performance and compliance history (informed by inspections, investigations, incident history and other performance factors)
- industry incident trends
- responses to recommendations from previous inspections.

### Well integrity inspection scopes

The NOPSEMA well integrity inspection scopes are designed to examine a titleholder's management of well operations and their compliance with their accepted well operations management plan and duties with respect to wells. These are based on the accepted WOMP and the activities associated with the WOMP. Well integrity inspections are generally conducted in two parts:

- an onshore inspection at a titleholder's regulated business premises
- an offshore inspection on the facility carrying out the well activity.

### Environmental management inspection scopes

As with OHS inspections, programming of environmental inspections is undertaken using a risk-based methodology. The activities targeted for inspection are those considered to carry the highest environmental risk, including activities:

- that are a first for a titleholder
- involving exploration, development and production of heavier crude oils
- that overlap biologically important areas or habitats critical to the survival of threatened and migratory species.

### Inspection scopes in 2015 included:

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• loss of containment</li> <li>• workforce involvement</li> <li>• management of change (MoC)</li> <li>• performance standards</li> <li>• emergency management</li> <li>• inspection, maintenance and repair</li> <li>• dropped objects.</li> </ul> | <ul style="list-style-type: none"> <li>• well barrier management</li> <li>• management systems</li> <li>• titleholder communications with third parties</li> <li>• document control and records management</li> <li>• MoC</li> <li>• training and competency</li> <li>• loss of well control/source control.</li> </ul> | <ul style="list-style-type: none"> <li>• produced formation water management</li> <li>• monitoring, audit, management of non-conformance and review</li> <li>• chemical selection and management</li> <li>• emergency response arrangements</li> <li>• environmental management (acoustic disturbance)</li> <li>• incidents, report, notification and records</li> <li>• drilling mud and cuttings management.</li> </ul> |
|---|---|---|

Note: NOPSEMA also regularly incorporates inspection scope items to verify that actions are implemented to close out recommendations arising from previous inspections.

## Inspections

NOPSEMA focuses some of its inspection effort on selected risk area topics that have common relevance to either all of the Australian offshore petroleum industry or to a particular sector within the industry. In 2015, NOPSEMA concluded a series of OHS topic-based inspections covering workforce involvement, MoC and performance standards. These topic-based inspections were included as part of NOPSEMA's ongoing program of planned, risk-based OHS inspections. NOPSEMA also completed a series of separate well integrity and environmental management inspections on topics including well barrier management, environmental discharges and emissions, environmental management systems and oil spill preparedness. These inspections involved further examination of information provided during environment plan and well integrity assessments. This chapter shares NOPSEMA's general observations for the benefit of the broader industry, offshore workers and community stakeholders.

### OHS – workforce involvement

What is workforce involvement?	Why is workforce involvement an area of NOPSEMA inspection focus?	How can duty holders improve workforce involvement?
<p>Workers at all levels within an organisation have roles and responsibilities to ensure offshore facilities are safe and without risk to health. Workforce involvement provides a systematic approach for enabling active participation of all workers, contractors, supervisors and management in the design, development, implementation and improvement of safety management systems and processes for managing risk. Duty holders have similar processes for involving members of workforce, these include: meetings (toolbox, shift change, health and safety), risk assessment workshops, job safety assessments (JSAs/JHAs) or step back 5x5s, Permits to Work, MoC, incident investigation and root cause analysis, involvement in development and implementation of maintenance and operation standards, procedure and work instruction updates/changes, hazard hunts and monitoring, reviewing and auditing.</p>	<p>Members of the offshore workforce are directly involved in operating and maintaining facilities and hence are directly exposed to hazards. Their involvement in identifying these hazards, and either removing, substituting or minimising the risks from those hazards is essential as they are often the most knowledgeable people with respect to the day-to-day details of operating processes and maintaining equipment on facilities. They may also be the sole source for some types of knowledge gained through their unique experiences. Most importantly, workforce involvement ensures that mechanisms exist for workers to access information and contribute effectively in the support of the effective implementation of facility arrangements for risk management.</p>	<p>In general, NOPSEMA inspectors have found that commitments contained within operator's safety cases regarding workforce involvement are being implemented and are functional. However, duty holders can enhance their workforce involvement through:</p> <ul style="list-style-type: none"> <li>improving communications with the workforce during and after development of the safety case to ensure that the outcomes and reasons underpinning any decisions, in particular any rejected controls or ideas, are clearly communicated to the workforce</li> <li>increasing workforce involvement in reviewing the appropriateness of controls for major accident events (MAEs) during the life of the safety case</li> <li>increasing workforce MAE training to enable the workforce to participate effectively when required.</li> </ul> <p>More detailed information on 'Workforce Involvement' specific to safety cases is available at <a href="http://nopsema.gov.au">nopsema.gov.au</a>.</p>

## Inspections

### OHS – management of change (MoC)

What is MoC?	Why is MoC an area of NOPSEMA inspection focus?	How can duty holders improve MoC?
<p>MoC is a defined process within an organisation's safety management system that is utilised to safely manage all types of change. Examples of changes that should apply a documented MoC process include changes to:</p> <ul style="list-style-type: none"> <li>safety-critical equipment that repeatedly malfunctions or fails (technical change)</li> <li>safety-critical procedures (procedural change)</li> <li>personnel (organisational change).</li> </ul>	<p>Appropriate change management processes are critical to effective management of risk and ensure:</p> <ul style="list-style-type: none"> <li>the impact of technical change and associated risk is assessed at every stage of the change</li> <li>system and procedural change is assessed, evaluated and tested by subject matter experts prior to implementation</li> <li>appropriate engagement and consultation of the workforce through stages of change and, in particular, ensures buy-in by members of the workforce likely to use or be affected by the change.</li> </ul>	<p>Duty holders are encouraged to:</p> <ul style="list-style-type: none"> <li>regularly engage the workforce in the MoC process, following the 'What? How? When? and Why?' process</li> <li>clearly articulate the triggers for initiating MoC, such as repeated safety-critical equipment failures, deferral of critical inspection activities, temporary bridging requirements etc.</li> </ul>

### OHS – performance standards

What is a performance standard?	Why is performance standards an area of NOPSEMA inspection focus?	How can duty holders improve performance standards?
<p>A performance standard is a description of the performance characteristics that the operator will hold their safety critical-equipment and safety-critical procedures to in order to ensure they are fit for purpose. A performance standard can be established for any system, process, procedure, device or other means that is identified for eliminating, preventing, reducing or mitigating the risk of a MAE. The design and operating effectiveness of performance standards are essential to the management of MAEs.</p>	<p>Performance standards are critical to management of risks because they are adopted for each safety-critical control to ensure its effectiveness and to ensure that control failures are detected and remedied. The overall effectiveness of a control measure can be judged by assessing its performance against its performance standard.</p>	<p>Duty holders, as part of their commitment to ensure risks to personnel are reduced to ALARP, are encouraged to:</p> <ul style="list-style-type: none"> <li>monitor, assess and audit performance of safety-critical equipment and procedures in relation to performance standards for controls for MAEs in terms of their design intent and operating effectiveness</li> <li>set key performance indicators (KPIs) or a 'health check dashboard' to ensure control measures that manage MAEs are functional, available, reliable and survivable, where relevant.</li> </ul>

Well integrity – well barrier management

What is well barrier management?

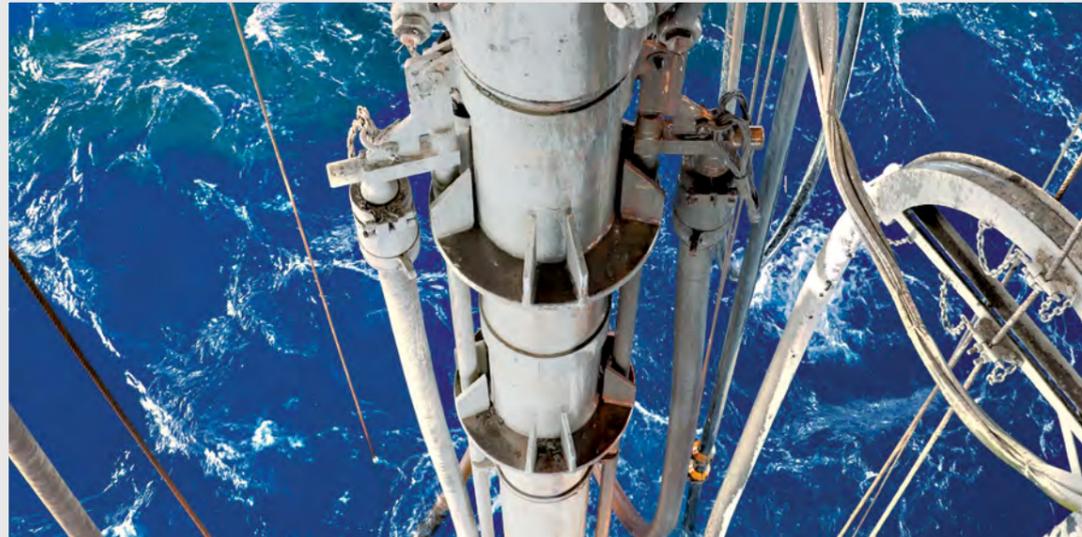
A well barrier system typically includes the envelope of several well barrier elements preventing fluids from flowing unintentionally from the formation into the wellbore, into another formation, or to the external environment. Well barriers are defined prior to commencement of an activity or operation by identifying the required well barrier elements (WBE) to be in place, their specific acceptance criteria and monitoring method.

Why is well barrier management an area of NOPSEMA inspection focus?

After the Montara and Macondo incidents, it is now recognised by industry that it is good practice to define the well barriers available during all well activities and operations, including temporarily suspended or permanently abandoned wells.

How can duty holders improve well barrier management?

- Duty holders can improve well barrier management by ensuring:
- a minimum of two well barriers are available during all well activities and operations, including temporarily suspended or permanently abandoned wells
  - well barrier policies, including abandonment procedures, are defined recognising international standards
  - regular titleholder inspections examine the well operation and final plug and abandonment schematics to verify standards have been implemented in compliance with the accepted WOMP
  - titleholder inspections review the material qualifications for the abandonment of the well(s), in accordance with relevant internationally accepted standards and guidance.



Environmental management – environmental discharges and emissions

What are environmental discharges and emissions?

Discharges from offshore activities arise from a range of sources and may result in liquid, solid and acoustic emissions to the environment. Some of the more predominant are briefly outlined below.

Often water is extracted from a hydrocarbon reservoir along with the target hydrocarbons. Produced water is the water that is separated from oil and gas during early stages of the petroleum recovery process. Produced water may be managed in a variety of ways, one of which is overboard discharge into the ocean; considered to be one of the highest risk liquid waste emissions from offshore production facilities.

Cuttings are produced during offshore drilling activities. They may be associated with the drilling fluids that are used to lubricate drilling equipment and maintain integrity of the well bore. Cuttings vary in terms of their volume, physical and chemical characteristics and the way they are managed, including discharge to the environment.

Acoustic emissions associated with seismic surveys are some of the most significant emissions associated with exploration activities. The seismic source is typically an airgun array that can generate a pulsed energy signal that is used to interpret subsurface geology.

Why are environmental discharges and emissions an area of NOPSEMA inspection focus?

Environmental discharges and emissions generate risk for the environment that is evaluated in the environment plan. Titleholders approach the management of these discharges in a variety of ways, each tailored to the operational circumstances and environmental setting of their activities.

Given the above, inspections are a tool used to establish whether titleholders' particular management measures are being implemented and are functioning appropriately. For example, the effectiveness of the methods used to monitor and manage produced water quality, and its potential impacts on the environment, have received focus by NOPSEMA during inspections. Management of drilling fluids, muds and cuttings is also a continued area of focus for NOPSEMA inspectors given that these discharges are a planned component of offshore drilling activities. These inspection scopes may cover a range of aspects including the environmental management systems, implementation of procedures, equipment maintenance and calibration and records of emissions.

As chemicals are used for a wide variety of purposes during offshore petroleum activities, chemical selection processes and monitoring of discharge parameters are common items for NOPSEMA environment management inspections. NOPSEMA inspections of seismic surveys include a focus on implementation of control measures to appropriately protect marine wildlife, including listed species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), from the potential effects of sound emissions generated by seismic sources.

How can duty holders improve environmental management of discharges and emissions?

- Duty holders should ensure that:
- the reliability and accuracy of discharge monitoring can be appropriately demonstrated through the relevant systems, practices and procedures in place, throughout the lifecycle of the activity
  - appropriate systems/procedures are in place to ensure consideration is given to the use of substitute chemicals
  - where environmental monitoring is undertaken, the nature of information collected is appropriate to validate predictions
  - decision-making guidance is used to support adaptive management measures to avoid impacts to marine fauna, and to ensure timely implementation of such measures.

Environmental management – environmental management systems

What are environmental management systems?

The implementation strategy of an environment plan describes the systems in place for monitoring, recording, audit, management of non-conformance and review of environmental performance to ensure the performance outcomes and standards in the EP are met. Titleholders use these processes to monitor their implementation of the environment plan and ensure they continue to comply. Titleholders also use internal MoC processes to consider the environmental and regulatory consequences of proposed change to management arrangements for offshore operations.

Why are environmental management systems an area of NOPSEMA inspection focus?

Monitoring, audit, management of non-conformance and review process were commonly inspected to ensure that titleholders have a robust implementation strategy and ensure that the environmental management measures outlined in the EP are appropriately implemented.

MoC has received specific attention to ensure that titleholders' use of this process does not result in diminished levels of environmental management performance.

In 2015, NOPSEMA checked that appropriate records were kept for notifiable incidents, and that these are correctly reported and corrective actions are followed through to completion.

How can duty holders improve environmental management systems?

Titleholders should ensure that:

- 'corrective action' tracking systems are consistently applied so that the outcomes and effectiveness of internal audits and compliance monitoring can be appropriately demonstrated
- breaches of environmental performance standards are managed as non-compliances and are consistently reported and addressed.



Environmental management – oil spill preparedness

What is oil spill preparedness?

An environment plan must include an Oil Pollution Emergency Plan (OPEP) which sets out the duty holder's arrangements to respond to hydrocarbon spills from the activity. The OPEP must detail the resources in place to ensure an appropriately scaled and timely response in the event of a significant incident.

Why is oil spill preparedness an area of NOPSEMA inspection focus?

The maintenance of adequate oil spill response arrangements is an important risk management measure. The ability to implement a timely response with sufficient response resources to address the worst case scenario spill plays a pivotal role in minimising the consequence of an oil spill should a significant spill event occur.

A key focus of inspections in 2015 was ensuring titleholders maintained their spill response arrangements, particularly in relation to the ability to access key resources required for a response in a timely manner.

How can duty holders improve oil spill preparedness?

Duty holders should ensure that:

- response arrangements are available and or implemented to the capacity described in the accepted EP and OPEP
- response arrangements are regularly monitored and audited against capability requirements, including those provided by third party providers
- oil spill response equipment is incorporated into equipment maintenance systems
- oil spill response exercises are designed to test the preparedness for response arrangements
- training and competency for personnel with oil spill response roles is maintained and recorded.



## 5.2 Spotlight – OHS inspection recommendations

The purpose of conducting analysis is not only to provide operators with an overview of risk profiling within the oil and gas industry, but more importantly, to identify critical areas for improvement in NOPSEMA's and industry's goal of ensuring that risks to personnel are reduced to ALARP. NOPSEMA inspectors prepare OHS inspection scopes in accordance with NOPSEMA's inspection policy (available at [nopsema.gov.au](http://nopsema.gov.au)).

In 2015, NOPSEMA performed 114 OHS inspections across all facilities registered under the safety regulations. A total of 1503 recommendations, 31 improvement notices and 2 prohibition notices were also issued as a result of OHS weaknesses, deficiencies and findings from these inspections.

### Major accident events (MAEs)

NOPSEMA employs a risk-based methodology to identify inspection scopes. In 2015, the relevant risk factors along with operator reported OHS incidents, triggered a greater number of NOPSEMA inspections compared to previous years, to assess the risk control measures associated with MAEs posing the highest level of risk. Three of the MAEs that contribute significantly to risk, and were therefore the focus of many NOPSEMA inspections, were loss of containment, dropped objects (lifting operations)<sup>11</sup> and diving operations. These three inspections scope topics are identified as MAEs due to the nature of the potential consequences associated with the failure of controls.

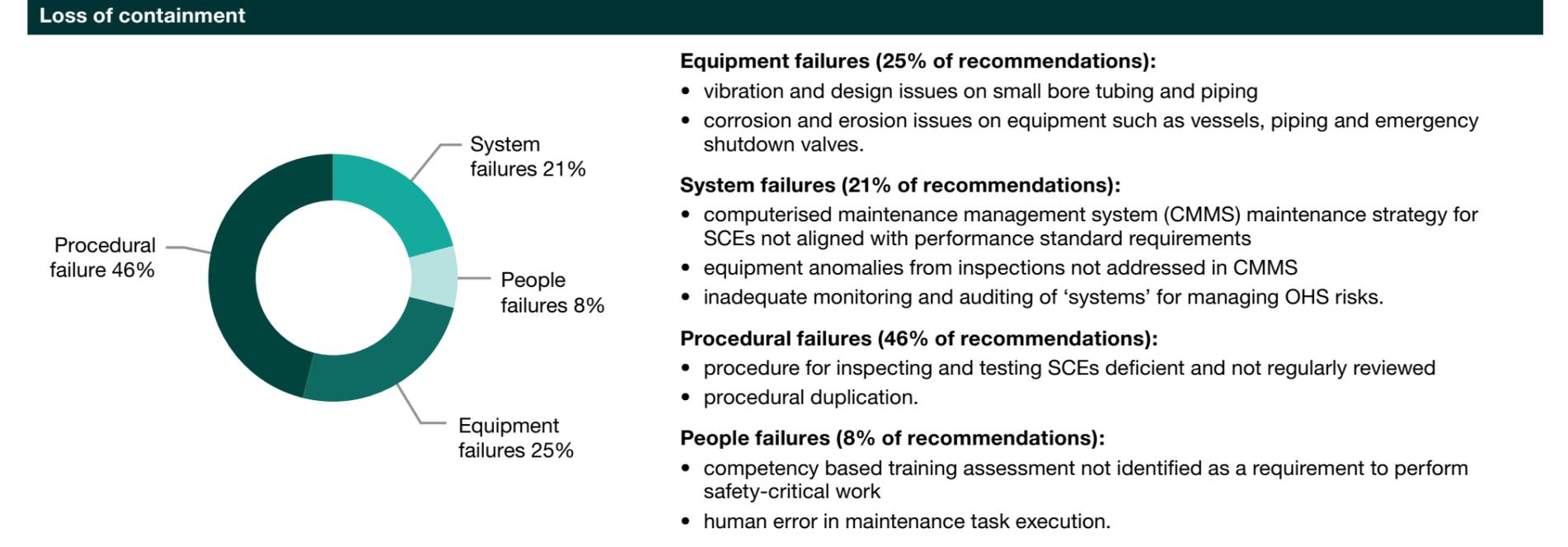
### Key issues identified during inspection

Loss of containment	Dropped objects (lifting operations)	Diving operations
<ul style="list-style-type: none"> <li>Safety-critical equipment such as emergency shutdown valves, blow down valves and pressure safety devices did not meet their performance standards e.g. leak rates, time to close, failure to close, etc.</li> <li>Deficiencies found during inspection of pressure equipment (and in some cases third party inspection findings) were not addressed.</li> </ul>	<ul style="list-style-type: none"> <li>Deficiencies were found in the inspection, maintenance and certification of lifting equipment (including facility cranes).</li> <li>Third party lifting equipment did not align with the operator's own lifting equipment inspection/testing requirements.</li> <li>Exclusion/dropped object zones were not adequately identified and barricaded prior to conducting lifts.</li> </ul>	<ul style="list-style-type: none"> <li>Saturation diving emergency response plan/procedures did not adequately align with regulatory requirements.</li> <li>Deficiencies were found in relation to the monitoring and auditing of diving systems and equipment, and emergency response plans. In some cases the duty holders failed to ensure that diving systems and emergency response plans were appropriately maintained and fit for purpose.</li> </ul>

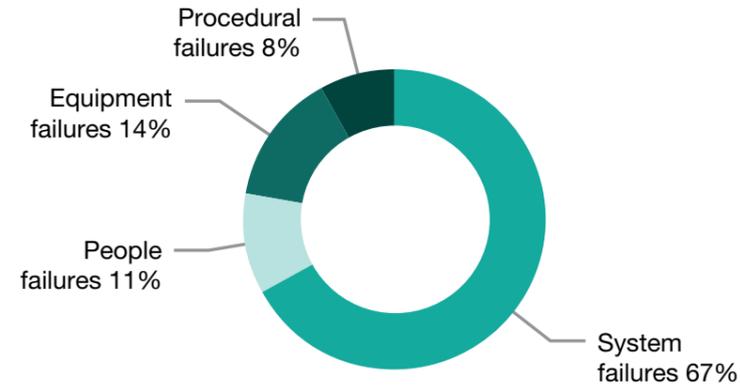
<sup>11</sup> 'dropped objects (lifting operations)' are generally identified as MAEs due to the nature of the hazard combined with the typical operating environment (e.g. lifting over and near oil and gas handling equipment). Consequently dropped objects hazards in a non-petroleum producing environment could be considered as a serious harm/single fatality consequence risk event.

## Failure mechanism contributors to the top three MAEs

Further analysis to identify 'failure mechanism contributors' provides operators more detail on some common inspection issues identified across oil and gas facilities. The use of the safe system of work model is utilised for the purpose of this exercise. The four categories within the model are: equipment failure, system failure, procedure failure and people failures. Common failure mechanisms identified in NOPSEMA inspections against the top three high-risk MAEs include:



Dropped objects (lifting operations)



**Equipment failures (14% of recommendations):**

- critical crane operation indicator devices not functional such as weight load sensor, anemometer, crane radius indicator, etc.
- failure to quarantine lifting equipment which is damaged or found not fit for purpose
- potential dropped object hazards with corroded plant and equipment becoming dislodged.

**System failures (67% of recommendations):**

- lifting equipment inspection and testing strategy in CMMS not aligned with operator or original equipment manufacturer (OEM) requirements
- inadequate monitoring and auditing of lifting equipment register and store to ensure fitness for purpose
- deficiencies in risk management to assess critical changes to lifting procedures, lifting equipment inspection frequency changes, dropped object protection and exclusion zones.

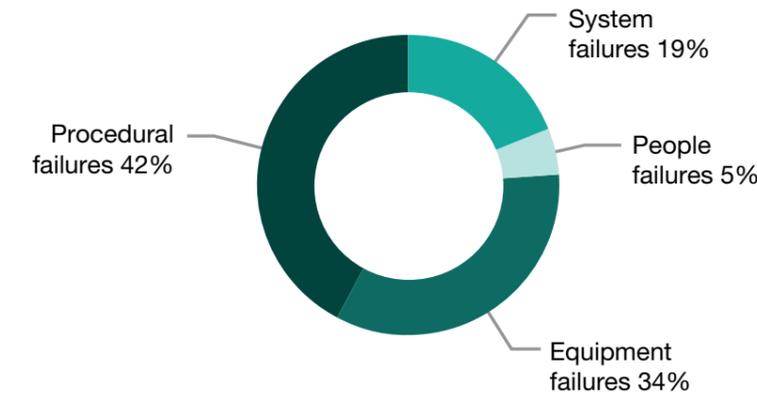
**Procedural failures (8% of recommendations):**

- lifting equipment procedural breaches and procedures sometimes overlooked by facility operators during handling of third party lifting equipment.

**People failures (11% of recommendations):**

- operator error, such as incorrect slinging of load, storage and handling of lifting equipment.

Diving operations



**Equipment failures (34% of recommendations):**

- contamination/corrosion mechanisms impacting safety-critical equipment fittings, chamber fittings and lock seals
- main bell wire and secondary lift point not meeting recognised industry standards such as Section 4 of 'International Marine Contractors Association 'Diving Equipment Systems Inspection Guidance Note (DESIGN) for Saturation Diving Systems' (IMCA D 024 Rev 1)'.

**System failures (19% of recommendations):**

- inadequate diving system monitoring and auditing, or inadequate close out of findings from monitoring and auditing, prior to and during diving activities
- diving operations not in accordance with industry-recognised IMCA guidelines.

**Procedural failures (42% of recommendations):**

- Diving Project Plans (DPP) approved by the operator of the diving project without fully meeting the DPP content requirements of regulation 4.16
- procedural irregularities, such as incorrect/outdated emergency contact details, incorrect diving checklists, etc.
- non-conformances identified during IMCA audits not being adequately addressed in updated procedures.

**People failures (5% of recommendations):**

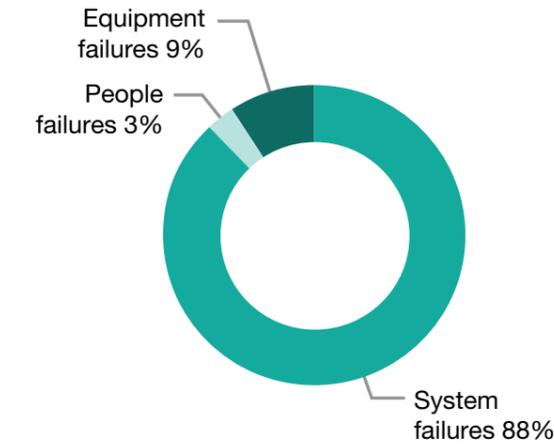
- human complacency in relation to the appropriate storage of diving equipment, including gas cylinders and Sodasorb canisters.

Safety management system elements

A safety management system (SMS) is a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies and procedures. The design and operating effectiveness of an SMS are fundamental to how an operator manages risks. The main deficiencies noted in operators SMS's were in relation to emergency management, maintenance management, MoC and performance standards. Some of the key contributing risk factors identified through OHS inspections were:

Emergency management	Maintenance management	Management of change (MoC)
<ul style="list-style-type: none"> <li>• Low level of compliance in scheduling regular emergency response drills/exercises and the follow-up of action close-out from the learnings of such drills.</li> <li>• Deficiencies relating to the provision of clear emergency escape routes and emergency lighting.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection and maintenance strategy (task lists) identified in the maintenance management system not aligned with the 'assurance task' requirements detailed in the performance standard, leading to a weakness of how a safety-critical equipment (SCE) is managed in terms of its function, availability, reliability and survivability.</li> <li>• Inconsistencies observed in the requirements to regularly monitor and audit the maintenance management systems specific to SCE monitoring, inspection, maintenance, repair and replacement works.</li> </ul>	<ul style="list-style-type: none"> <li>• MoC process less frequently utilised for changes to procedures, software, people and organisation than hardware changes, where these changes specifically impact on control of risk.</li> <li>• Monitoring and maintenance of the MoC register and compliance with the register action plan.</li> </ul>

Emergency management



**Equipment failures (9% of recommendations):**

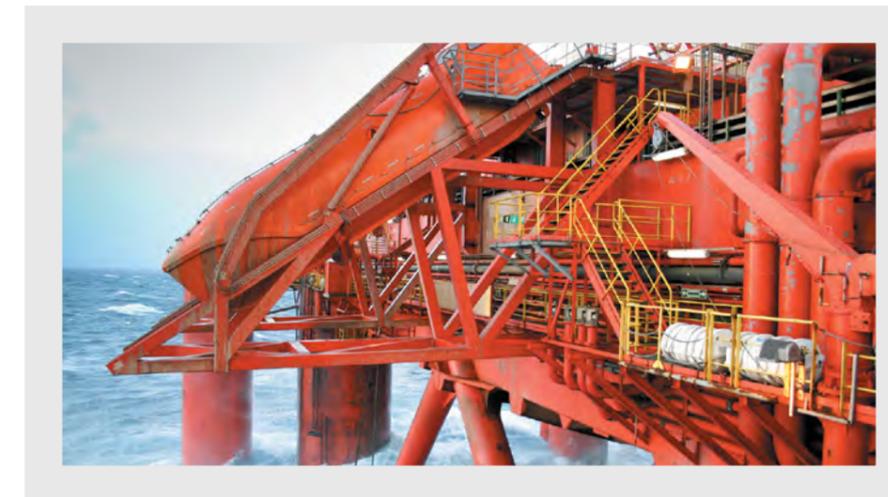
- emergency generator start-up reliability issues
- deficiencies noted in relation to emergency escape routes and emergency lighting.

**System failures (88% of recommendations):**

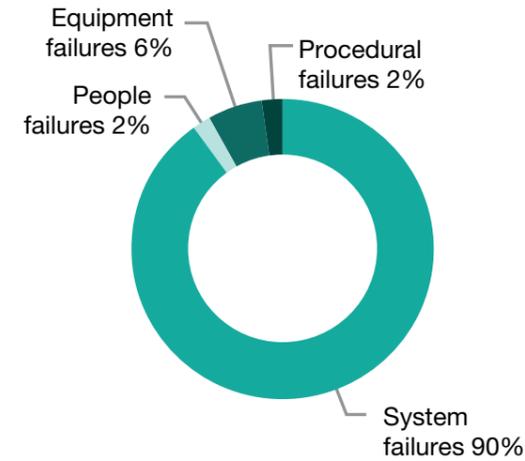
- inadequate scheduling of emergency drills
- no formal means of tracking improvement or lessons learnt from emergency drills
- deficient preventative maintenance strategy to maintain emergency equipment (escape, evacuation and rescue) as fit for purpose
- deficient cyclone response arrangements.

**People failures (3% of recommendations):**

- training and familiarisation of relevant members of the facility workforce with fire safety equipment.



Maintenance management



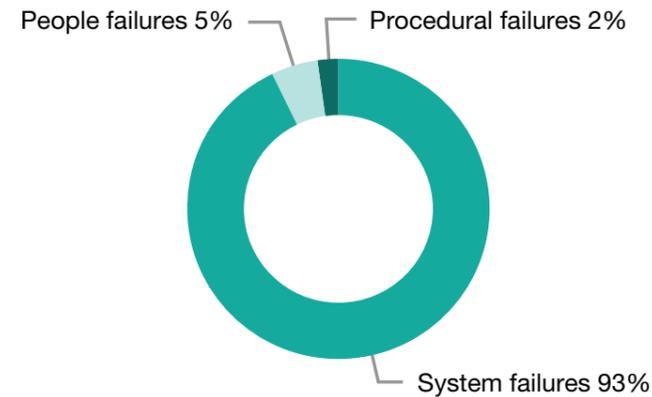
**System failures (90% of recommendations):**

- SCE performance standards not aligned with CMMS maintenance tasks lists
- non-compliance with SCE ‘work management KPIs and metrics’ not adequately challenged/interrogated by the operator’s senior management
- significant backlog of SCE maintenance tasks due to poor planning and scheduling
- in some cases, safety-critical work orders closed without execution (nor a risk assessment or a technical deviation performed to assess impacts)
- some operators manage pressure equipment inspection activities through a database/register without a CMMS interface – increasing the risk of human error.

**People failures (2% of recommendations):**

- competency issues identified in users of the CMMS.

Management of change (MoC)



**System failures (93% of recommendations):**

- the triggers of initiating MoC are not fully understood by the workforce
- the risk of change to software, process, system, people and organisation are seldom assessed as part of requirements of MoC system requirements
- generally MoC registers were deficient in tracking change record management, risk management, change approval/authorisations and actions status
- inadequate scheduling to monitor, review, assess and audit the effectiveness of the change via the MoC process.

Occupational health and safety risks

The top three occupational health and safety risk contributors (non-MAEs) in terms of the number of recommendations were:

Noise management

- Existing noise control and management plans for facilities with high noise levels did not fully meet the requirements of National Standard for Occupational Noise [NOHSC: 1007(2000)] and National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC: 2009(2004)].
- As required by regulation 3.6 of the safety regulations.
- Noise action plans not regularly reviewed and inadequate close-out of action items.

Electrocution

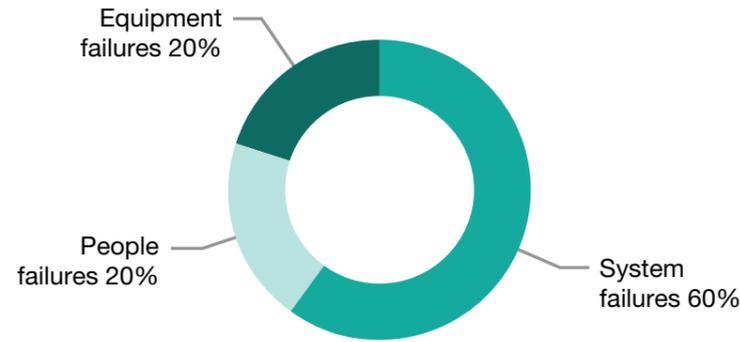
- Deficiencies in electrical isolation (incorrect electrical wiring diagrams and isolation permit requirements).
- Electrical equipment not meeting the requirements of ingress protection ratings or ‘intrinsically safe’ requirements.

Fall from heights

- Lack of inspection, testing and tagging of working at height equipment.
- Deficiencies in the development of task-specific rescue plans in the event of risk associated with suspension trauma.



Noise management



**Equipment failures (20% of recommendations):**

- equipment selection in terms of 'quiet buy'<sup>12</sup> non-compliance
- failure of acoustic cabinet/chamber seals and silencers on main engines.

**System failures (60% of recommendations):**

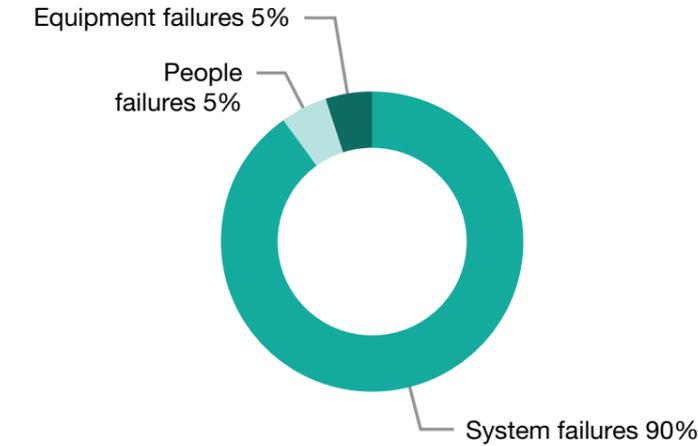
- operator noise control policy and plan not aligned with requirements of National Standard for Occupational Noise [NOHSC: 1007(2000)] and National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC: 2009(2004)]
- failure to conduct facility noise mapping with comprehensive noise management plans to prevent occupational noise-induced hearing loss
- inadequate signage for high noise areas
- lack of testing and maintenance of noise control equipment (such as noise meters, dosimeters etc.)
- failure to take action in accordance with the noise reduction action plan.

**People failures (20% of recommendations):**

- failure to conduct fit testing and training in the appropriate use of hearing protection devices, ear plugs, ear muffs and in some cases, double hearing protection
- inadequate awareness and training around noise hazards, noise prevention and control.

<sup>12</sup> The purpose of a 'quiet buy' policy is to control noise at the earliest stages of planning and design by encouraging the minimisation of noise generation by purchasing inherently quieter equipment. Australian suppliers and manufacturers of noisy equipment are required by law to provide information on the amount of noise generated by their products, so purchasers can make an informed decision.

Electrocution



**Equipment failures (5% of recommendations):**

- electrical equipment issues such as earth bonding, segregation of IS and non IS circuits, damage to electrical hermetically sealed devices, junction box sealing, inter-cell connector shrouds etc.

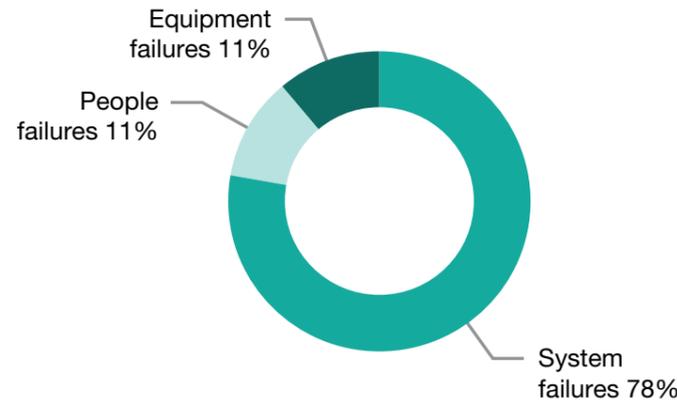
**System failures (90% of recommendations):**

- discrepancies between the list of hazardous area rated equipment and the list of maintainable hazardous area equipment in the CMMS
- electrical wiring diagrams not consistently reviewed in terms of fitness for purpose
- non-intrusive testing such as thermal imaging not considered as part of an inspection strategy to monitor electrical equipment hot spots
- operator preventive maintenance strategy for electrical equipment less comprehensive when compared against industry guidelines and OEM recommendations.

**People failures (5% of recommendations):**

- electrical isolation supervision failure (relating to identification of isolation points and the use of appropriate electrical wiring diagrams).

Fall from heights



**Equipment failures (11% of recommendations)**

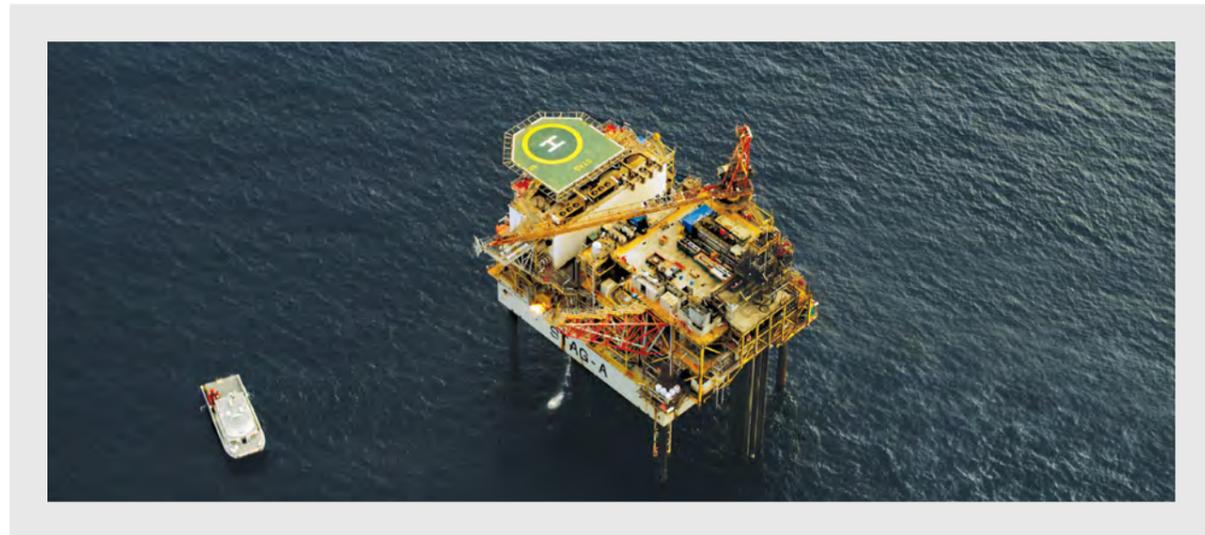
- self-closing gates not installed on fixed vertical ladders
- walkway corrosion issues.

**System failures (78% of recommendations)**

- MoC or risk assessment not conducted as part of changes to maintenance strategy for working at height equipment
- inconsistencies in standards and procedures for 'working at height' and, in some cases, duplication of procedures.

**People failures (11% of recommendations)**

- deficiencies in the competencies of those authorised to sign off on 'working from height' permits.



## 6. Investigations

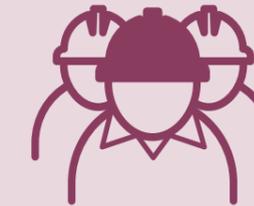
NOPSEMA inspectors carry out investigations to assist NOPSEMA to consistently and efficiently fulfil its functions under the OPGGS Act. We will commence an investigation when we suspect or become aware of a potential non-compliance with the legislation. Events that will be investigated include accidents, dangerous occurrences, reportable environmental incidents and complaints. NOPSEMA will investigate those with duties under the offshore regulatory regime.

There are differing levels of investigation:

<b>Major investigation (commences immediately)</b>	A major investigation will be conducted where information has been obtained or provided to NOPSEMA regarding an incident where an agreed threshold has been met and its relative seriousness will justify seeking evidence of non-compliance with principal legislation as a basis for enforcement.  Investigations where there is the potential for prosecution on the completion of the investigation are considered major investigations.
<b>Investigation is undertaken as soon as possible</b>	These types of investigations are conducted to seek information regarding potential non-compliance with relevant legislation as a basis for enforcement other than prosecution.
<b>Investigation is undertaken within 45 days</b>	NOPSEMA's strategy selection for investigations consider the potential risk caused by the incidents compared with the benchmark risk (e.g. residual risk if the responsible party had taken all practicable measures to the reduce risk) associated with the particular circumstances.
<b>Investigation is undertaken (at next planned inspection)</b>	Follow-up investigation strategies range from inclusion in annual incident statistics to investigating the incident via an inspection with varying degrees of timing from an immediate inspection to inclusion of the investigation as part of the inspection scope of the next planned inspection.

### Responsible persons can include but are not limited to:

operators, titleholders, persons in control of parts of a facility or particular work, employers, manufacturers, suppliers, persons who are installing facilities or installing equipment, persons who provide accommodation for persons working on a facility, persons installing or operating pipelines, persons carrying out diving operations and any other persons who by their act or omission can create a risk or increase an existing risk to themselves or any other persons at or from a facility.



Generally investigations are initiated in response to incidents (that duty holders are required by law to notify to NOPSEMA). In 2015 NOPSEMA received and processed over 400 incident notifications, some of which were escalated to an investigation.

NOPSEMA inspectors review incident data in the first instance to ensure there is sufficient factual information to consider the risks involved in the incident. NOPSEMA inspectors utilise their skills and experience in conjunction with available information about hazards and control measures to make an initial assessment of risk and the inherent risk gap. Consideration is given to removal of immediate risk, a return to compliance or possible enforcement action if required.

## Investigations

When a notification meets the major investigation threshold<sup>13</sup> (see below), an automatic escalation occurs supported by NOPSEMA management. Members of the investigation team are engaged and a forward plan is established. A lead inspector for the investigation is assigned, gathering sufficient evidence to establish whether or not there is a prima facie case that an offence has been committed against relevant offshore legislation. Investigations may result in NOPSEMA requiring duty holders to take corrective actions and may also result in NOPSEMA initiating enforcement action.

Major OHS investigation thresholds	Major environmental management investigation thresholds
A work related fatality	A release of toxic fluid to the marine environment that is one or more of the following: <ul style="list-style-type: none"> <li>• uncontrolled</li> <li>• greater than 10 t (10 m<sup>3</sup>, 10 000 L)</li> <li>• requires external assistance/resources to contain/control/clean up (e.g. government agencies, third party response, MOU partners)</li> <li>• spreading more than 500 m from the facility</li> <li>• spreading to within 1 nautical mile of land</li> <li>• for which onshore duty holder management response has been initiated.</li> </ul>
A critical injury (life-threatening) where hospitalisation in an intensive or critical care unit is required, including an injury likely to cause total permanent disability, such as, but not limited to: <ul style="list-style-type: none"> <li>• injured person unable to ever continue in their usual occupation</li> <li>• total and irrecoverable loss of the use of 2 limbs</li> <li>• total and irrecoverable loss of the sight of both eyes</li> <li>• cognitive loss.</li> </ul>	Significant interference, entanglement or harassment of a cetacean
Any event leading to emergency abandonment of a facility	Fatality of a whale, dolphin, whale shark or dugong as a direct result of the petroleum activity <sup>14</sup>
<b>Investigation of complaints and information provided to NOPSEMA</b> NOPSEMA also investigated circumstances where a complaint was made or information was provided to NOPSEMA. To protect the identity of complainants and informants and encourage continued reporting, NOPSEMA does not normally include details of complaint investigations in this report. For more information about complaints, see Chapter 4.	Multiple fatality of other marine fauna species as a direct result of the petroleum activity <sup>15</sup>
	Petroleum activity has occurred in a World Heritage Area
	Significant or deliberate damage to coral reef
	Interference with other maritime user rights greater than the extent necessary for the exercise of petroleum rights.

<sup>13</sup> These thresholds will be reviewed from time to time in accordance with NOPSEMA policy to ensure they remain appropriate as a basis for initiating a major Investigation.

<sup>14</sup> Except where unavoidable due to safety of people.

<sup>15</sup> Ibid.

## Investigations

### 6.1 Investigations of safety and integrity

There were no accidents or dangerous occurrences in 2015 that warranted NOPSEMA initiating a major investigation.

Twenty incidents had high risk categories and were subsequently investigated as a priority:

- 10 were related to dropped objects and/or lifting operations
- 3 of these incidents caused an injury to a member of the workforce.

The priority investigations were conducted at the following facility types:

- MODUs – 9 investigations
- platforms – 5 investigations
- vessels – 4 investigations
- FPSOs – 2 investigations.

In addition, a further 162 significant incidents were included as inspection topic items and included for follow up at the next planned periodic inspection visit to the facility.

In 2015, 219 incidents were considered to have a minimal risk potential and not followed-up but the information provided by the operator, such as root causes and preventative actions, in the 3-day and 30-day reports are included in Chapter 3.



## Investigations

NOPSEMA has herein included information on six OHS investigations conducted in 2015 to share lessons learnt with the industry and other stakeholders.

Incident type	Damage to safety-critical equipment
<b>Date</b>	July 2015
<b>Incident description</b>	Vessel was performing a periodical reboot of the main dynamic positioning (DP) controllers and operator stations during a planned maintenance stop and while holding 200 t of pipeline tension the vessel started to move astern and to starboard in an unplanned movement. As a result of this unplanned movement the pipeline in the firing line moved ahead. The firing line is a manned area and any unplanned movement of the pipe has the potential to cause injury.  No persons were injured during this incident.
<b>Root causes</b>	<ul style="list-style-type: none"> <li>• inadequate procedures</li> <li>• inadequate communication</li> <li>• inadequate supervision during work</li> <li>• inadequate training.</li> </ul>
<b>Corrective actions</b>	The operator developed a step-by-step procedure for the reset of DP controller process stations.
<b>Outcome of NOPSEMA investigation</b>	Four recommendations and three enforcements were issued in connection with this investigation: <ul style="list-style-type: none"> <li>• recommendation that the operator ensure that a system is in place to manage and communicate any Job Safety Assessment (JSA) changes to affected personnel</li> <li>• recommendation that the operator ensure all electrical and emergency stops located within the area of the firing line are provided with clear signage</li> <li>• recommendation that the operator replace firing line equipment damaged by the incident</li> <li>• recommendation that the operator review and update their safety case and operational procedures to accurately describe the technical and other control measures in place to reduce the risks associated with an uncontrolled movement or loss of pipeline to a level that is ALARP</li> <li>• improvement notice requiring the operator to revise and effectively implement emergency response procedures</li> <li>• improvement notice relating to training, competency and supervision of performing work activities in, or associated with, the firing line</li> <li>• prohibition notice to prevent the operator performing software updates and/or rebooting of the DP control system when lay pipe is positioned within the firing line while personnel are undertaking work within the firing line in close proximity to the lay pipe.</li> </ul>

## Investigations

Incident type	Fire or explosion
<b>Date</b>	September 2015
<b>Incident description</b>	While a night welder was grinding a new section of pipework for the degasser over a mud pit, an adjoining pit ignited from sparks produced from this grinding. The mud pit number contained approximately 370 bbl of completions base oil and brine.
<b>Immediate cause</b>	Grinding sparks ignited hydrocarbons in the mud pit.
<b>Root causes</b>	<ul style="list-style-type: none"> <li>• inadequate procedures</li> <li>• inadequate communication</li> <li>• inadequate supervision during work</li> </ul>
<b>Corrective actions</b>	The operator implemented actions to ensure that all area supervisors and permit authorities receive individual training in their responsibilities under permit to work and hot work procedures, including a signed confirmation of understanding from all individuals ensuring they understand and apply the rules of the risk model.  Other actions included: <ul style="list-style-type: none"> <li>• ordering a new portable foam inductor system for the pit room</li> <li>• development of procedures addressing the standards for storing fluids returned from the wellbore</li> <li>• issue of a fleet-wide notice for this incident, highlighting permit to work process and issue of storing fluids with hydrocarbons in mud pits</li> <li>• working with the client to develop alternatives for fluid management that removes completely the need to place the flammable fluid in the MODU mud pits.</li> </ul>
<b>Outcome of NOPSEMA investigation</b>	Two recommendations, one prohibition notice and two improvement notices were issued in connection with this investigation: <ul style="list-style-type: none"> <li>• recommendation for the operator to investigate fitting a flame or heat detection system at the open mud pits area or implement other suitable technical controls for the detection of fire in the area</li> <li>• recommended for the operator to install an aqueous film forming foam application system at the mud pits or implement other suitable technical controls for emergency response to fire in the area</li> <li>• prohibition notice preventing hot work in hazardous areas until improvements are completed to ensure systems of work are safe and without risk to health and safety</li> <li>• improvement notice issued requiring the operator to ensure the job safety analysis process provides sufficient detail for the workforce to fully understand the nature of the hazards and to identify the controls necessary for the management of those hazards and risks</li> <li>• improvement notice issued requiring the operator to ensure that the permit to work procedures are followed and that systems of work are safe and without risk to health and safety.</li> </ul>

## Investigations

Incident type	Could have caused death or serious injury
<b>Date</b>	November 2015
<b>Incident description</b>	Members of the deck crew were moving containers with the crane. A container had just landed on the deck when a roustabout went in to disconnect the tagline from the container, but the crane shifted the container slightly and pushed the roustabout against another container. The roustabout was taken to the medic, an ultrasound was conducted on board the facility and no broken bones or other injuries were identified.
<b>Immediate cause</b>	<ul style="list-style-type: none"> <li>contravention of procedures</li> </ul>
<b>Root causes</b>	<ul style="list-style-type: none"> <li>inadequate training</li> <li>inadequate supervision during work</li> <li>inadequate design specification.</li> </ul>
<b>Corrective actions</b>	<p>The operator implemented a number of actions, including:</p> <ul style="list-style-type: none"> <li>crane boom specific training to be carried out for all crane operators</li> <li>review an engineered solution to achieve flat deck across the starboard forward pipe deck</li> <li>revise portable rigging equipment standard to incorporate exclusion zones around suspended and landed loads</li> <li>review and revise all relevant work instructions to incorporate exclusion zones (2 m) around suspended and landed loads</li> <li>coach crews in the revised requirements of work instructions</li> <li>deck crew to be counselled in line with the operator's cultural model.</li> </ul>
<b>Outcome of NOPSEMA investigation</b>	<p>NOPSEMA made a number of recommendations in connection with this investigation, including:</p> <ul style="list-style-type: none"> <li>implementation of the operator's competency assurance program as it is intended to be applied and ensure that assessments are completed in accordance with time limits specified in the program</li> <li>include a definition for critical and complex lifts in the relevant lifting documents</li> <li>implement a hand-over process between deck supervisors and crane operators to ensure there are no unreported faults with the operations and/or controls of the knuckle boom crane.</li> </ul>

## Investigations

Incident type	Damage to safety-critical equipment
<b>Date</b>	November 2015
<b>Incident description</b>	While in the process of proof-loading an anchor line to its maximum mean load, a sudden loss of tension was observed.
<b>Immediate cause</b>	Entanglement.
<b>Root causes</b>	<ul style="list-style-type: none"> <li>equipment defect (handling)</li> </ul>
<b>Corrective actions</b>	The fibre rope was replaced and inspected by original equipment manufacturer.
<b>Outcome of NOPSEMA investigation</b>	<p>NOPSEMA made a number of recommendations in connection with this investigation, including:</p> <ul style="list-style-type: none"> <li>operator to ensure adequate history, including storage details, are reviewed and documented for fibre ropes used in mooring systems to ensure that risks associated with the use of fibre ropes are reduced to ALARP.</li> <li>operator to develop and implement performance standards to ensure that fibre ropes used in mooring applications are fit for purpose.</li> <li>operator to ensure that mooring failure drills are regularly scheduled and conducted at the facility.</li> <li>operator to develop and implement a procedure for continued operations in the event of single leg failure of the mooring system with reference to the mooring analysis.</li> <li>operator to develop and implement a maintenance process detailing at what point a deployed mooring system requires a time based inspection in order to ensure that the mooring system remains fit for purpose.</li> </ul>

## Investigations

Incident type	Dropped object
<b>Date</b>	December 2015
<b>Incident description</b>	A basket was being moved by a davit hoist when the davit arm raising/lowering air hoist chain partly failed. This partial failure resulted in the basket dropping approximately 1 m to the cellar deck and the davit arm lid plate detaching and falling approximately 7 m to cellar deck.
<b>Immediate cause</b>	Broken link in lifting arm hoist chain.
<b>Root causes</b>	<ul style="list-style-type: none"> <li>Inadequate administrative controls.</li> <li>Inadequate procedures.</li> </ul>
<b>Corrective actions</b>	Complete MoC for hoists to indicate clear specifications for hoists to be used on davit cranes, including: <ul style="list-style-type: none"> <li>identifying appropriate air driven hoists for use on the davit cranes</li> <li>documenting specifications for hoists</li> <li>review of all integral lifting equipment offshore (fixed installation) and ensure that design documentation/specification and equipment strategies are appropriate.</li> </ul>
<b>Outcome of NOPSEMA investigation</b>	NOPSEMA made a number of recommendations in connection with this investigation, including: <ul style="list-style-type: none"> <li>to ensure the operator and its workforce fully understand the root causes of the incident and to ensure systemic issues are identified and remedied</li> <li>conduct a comprehensive investigation and analysis of human and organisational factors</li> <li>the operator to ensure procedures and equipment are available to reduce the risks associated with casualty rescue at the facility to ALARP.</li> </ul>

## Investigations

Incident type	Mooring failure – MODU dragged off location by cyclone. <sup>16</sup>
<b>Date</b>	March 2015
<b>Nature of incident</b>	Following passage of a tropical cyclone, a MODU lost 5 of its 12 anchors and moved three nautical miles off location. This movement resulted in the MODU being in close proximity to third party subsea infrastructure.
<b>Immediate cause</b>	Mooring failure
<b>Root causes</b>	<ul style="list-style-type: none"> <li>inadequate design</li> <li>inadequate procedures</li> <li>inadequate inspection.</li> </ul>
<b>Corrective actions (OHS)</b>	Following the incident the operator implemented a number of actions including: <ul style="list-style-type: none"> <li>revised the operations mooring analysis and site approval procedure</li> <li>developed and implemented a procedure to inspect, measure, and test mooring lines</li> <li>investigation and identification of a mooring wire rope which provides improved corrosion protection for use in warm water</li> <li>replacement of all traction mooring wires</li> <li>revised anchor handling procedure.</li> </ul>
<b>Outcome of NOPSEMA investigation</b>	A number of OHS related recommendations were made to the operator of the facility as a result of this investigation: <ul style="list-style-type: none"> <li>ensure that the application of higher return period cyclonic conditions with higher safety factors is appropriate</li> <li>ensure that a detailed mooring system risk assessment is completed that encompasses consideration of credible vulnerabilities and hazards to the integrity of the system</li> <li>ensure that the site survey checklists described in the facility safety case are completed</li> <li>resolve deficiencies in the design review and approval process</li> <li>ensure that any mooring system deviations are risk assessed and reviewed using a robust MoC process</li> <li>ensure that all fibre-ropes used in the mooring system are inspected and maintained</li> <li>ensure that maintenance records for the fibre ropes demonstrating fitness for purpose are adequately maintained</li> <li>review the competency assurance system for personnel to ensure that they are trained and competent.</li> </ul>

<sup>16</sup> Note: due to the nature of this incident NOPSEMA also conducted an environmental management inspection and made a number of recommendations to the titleholder.

## Investigations

Incident type	Mooring failure – MODU dragged off location by cyclone. <sup>16</sup> (cont'd)
<b>Outcome of NOPSEMA investigation (cont'd)</b>	<ul style="list-style-type: none"> <li>confirm the maximum variable deck load for any operating condition and amend relevant documentation, including the safety case</li> <li>implement a verification process to ensure that the cyclone evacuation checklist is completed prior to evacuating the facility</li> <li>ensure that adequate operating procedures for managing mooring line tensions for cyclonic conditions are implemented at the facility</li> <li>ensure that all the mooring system components are inspected and maintained in accordance with the facility safety case and the operator's Minimum Operating Standard</li> <li>implement audits of third party management systems and equipment to ensure that pre-lay mooring systems are fit for purpose</li> <li>ensure that emergency drills are carried out with participation of all parties as stated in the safety case</li> <li>consider installing a system that provides a reliable means of real time position indication in the event of MODU loss of position events</li> <li>consider making provisions for emergency pre-rigged towing bridles that can be safely engaged from an unmanned rig in response to a rig mooring failure.</li> </ul>
<b>Additional actions by NOPSEMA</b>	<p>NOPSEMA conducted a MODU mooring workshop with industry to:</p> <ul style="list-style-type: none"> <li>provide information about the incident and lessons learned</li> <li>communicate NOPSEMA's regulatory requirements and perspectives</li> <li>discuss opportunities for improvement.</li> </ul>

## Investigations

### 6.2 Investigations of environmental management

#### There were no environmental incidents reported in 2015 that warranted NOPSEMA initiating a major investigation.

NOPSEMA received notification of 13 reportable environmental management incidents in 2015.



All were reviewed and assessed as per the NOPSEMA non-major investigation policy and procedure:

- 12 were followed up as part of the planned inspection program. Selected examples of investigations that were followed up via the environmental management inspection program are outlined below
- the other incident (1) was followed up through a targeted incident-specific inspection within 45 days. Information relevant to this incident and the subsequent inspection is outlined below.

NOPSEMA has herein included information on 4 of the environmental investigations conducted in 2015 to share lessons learnt with the industry and other stakeholders.

Notification type	Complaint – failure to appropriately notify stakeholders
<b>Date</b>	April 2015
<b>Nature of complaint</b>	A seismic survey activity was occurring in an area with potential to interfere with other marine users. The complainant alleged that other marine users had been requested to move away from the survey area and that there had been interruption to their activities as a result of them not being aware of the survey taking place at specific times and locations. Allegedly, prior notification of the seismic survey did not occur in a manner consistent with the process that was understood by stakeholders.
<b>Outcome of NOPSEMA investigation</b>	<p>NOPSEMA's initial investigation of this complaint determined it was appropriate to investigate further through an environmental management inspection.</p> <p>NOPSEMA's investigation found that the complaint was made on strong grounds as the titleholder did not inform all other marine users of activity details in the manner described in the environment plan. A recommendation was made for the titleholder to improve the rigour of its implementation of environment plans.</p>

## Investigations

Notification type	Reportable environmental incident – hydrocarbon release
<b>Date</b>	April 2015
<b>Nature of information</b>	During diesel bunkering, a thruster fault caused the vessels to move apart. Although diesel transfer was halted, the hose was placed under sufficient tension for it to fail, causing the release of approximately 120 L of diesel at sea.
<b>Outcome of NOPSEMA investigation</b>	NOPSEMA's initial investigation of this incident resulted in follow-up via an environmental management inspection. The inspection found that the titleholder conducted an internal investigation of the incident which identified root causes and a range of actions that had been closed out or were being progressed. These actions included amendment to bunkering-related procedures. During the course of this inspection of the titleholder's response to the bunkering incident, NOPSEMA inspectors identified and recommended improvement to aspects of the titleholder's incident reporting processes.

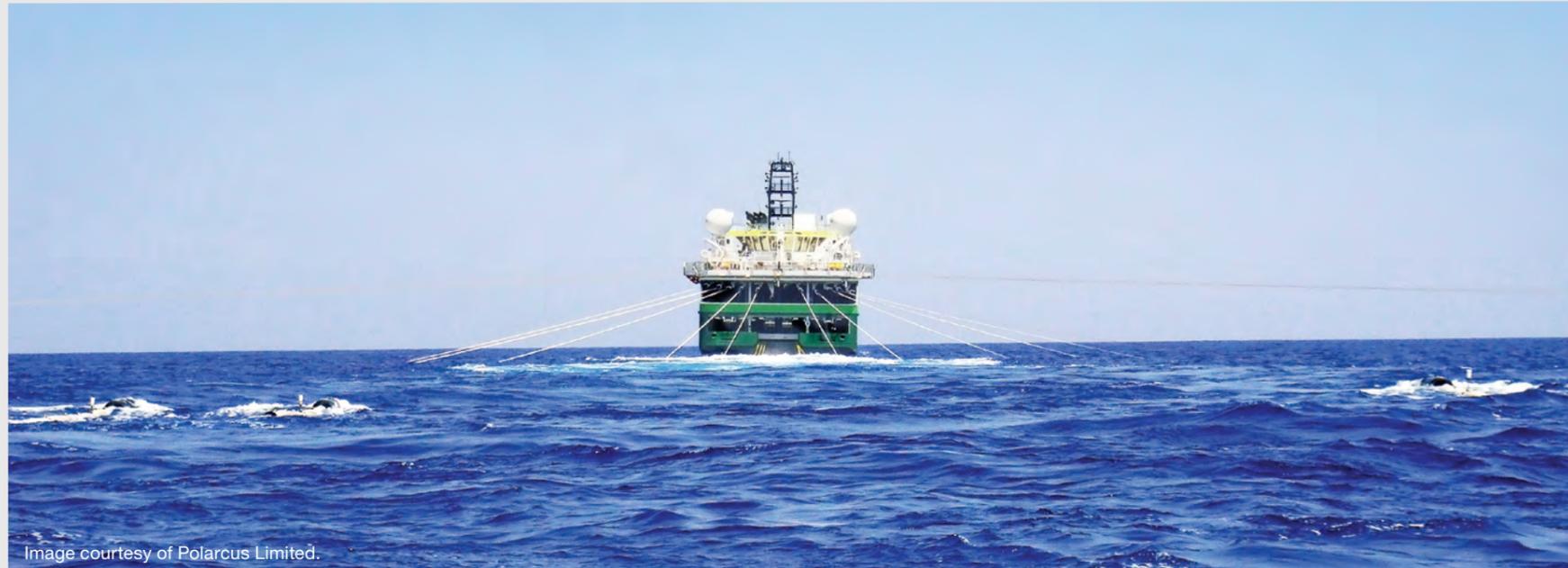


Image courtesy of Polarcus Limited.

## Investigations

Notification type	Hydrocarbon release
<b>Date</b>	June 2015
<b>Nature of information</b>	During crude oil export activities a floating export hose parted at the breakaway coupling. The titleholder reported that the hose was sealed off and pumps shut down as designed. Initial estimates of a 60 L crude oil release to the ocean were later upgraded to approximately 1900 L after the hose was retrieved from the ocean and found to have lost its content, which had been displaced by seawater.
<b>Outcome of NOPSEMA investigation</b>	NOPSEMA's initial investigation determined that further follow-up would take place via an environmental management inspection. While corrective actions detailed by the titleholder were reasonable, the inspection identified and recommended improvement to aspects of crude oil export equipment maintenance and export procedures.

Notification type	Recordable environmental incident – hose breakaway coupling parted and section of export hose set adrift
<b>Date</b>	March 2015 (notified October 2015)
<b>Nature of information</b>	The titleholder initially determined through internal risk assessment that the incident above did not constitute a recordable or reportable environmental incident under the Environment Regulations. It commenced an internal investigation into the incident, commissioned modelling of the possible drift paths of the hose and undertook aerial search. The hose was found aground on an island some 90 km from the facility around 20 days after it was likely to have parted.
<b>Outcome of NOPSEMA investigation</b>	NOPSEMA became aware of the incident and the titleholders response to it during a planned environmental inspection which included investigation of other aspects of crude export management.  NOPSEMA's inspection found non-compliance with regulation 26 of the Environment Regulations in view of the titleholder's failure to notify NOPSEMA of a reportable incident. NOPSEMA took enforcement action, warning the titleholder of its obligations to notify NOPSEMA of a reportable incident and the ramifications of failing to do so. The titleholder subsequently notified NOPSEMA of the incident above.
<b>Enforcement action</b>	A letter of warning was issued to the titleholder.

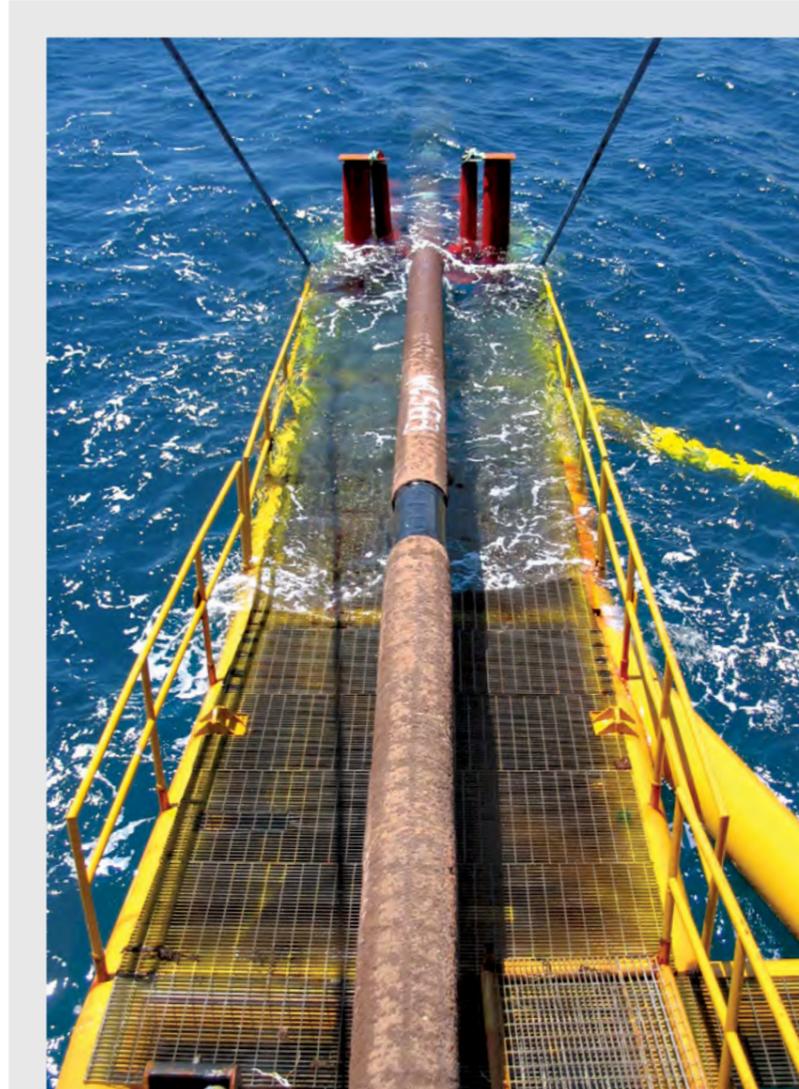
## 7. Enforcements

NOPSEMA takes action to enforce compliance (enforcement action) when it identifies non-compliance with obligations imposed by the OPGGS Act and associated regulations. Enforcement action is also taken when there is an immediate and/or significant threat to the health and safety of a person or to the environment.

NOPSEMA inspectors are guided by NOPSEMA policy when choosing appropriate enforcement action(s) to obtain a duty holder's compliance with the legislation. The ability to select from a range of enforcement actions, depending upon the severity of the misconduct or breach of statutory requirements, enables the application of an appropriately proportionate and targeted enforcement action which can also be directed at achieving future behavioural change, in addition to a return to compliance. The range of enforcement actions also allow NOPSEMA inspectors to determine an initial enforcement expectation in each case and modify it if required based on a range of potentially material factors.<sup>17</sup> NOPSEMA's enforcement actions are informed by:

- assessments
- planned inspections
- investigations and reporting of accidents, dangerous occurrences and reported environmental incidents
- investigation of complaints
- duty holder compliance history and previous enforcement actions
- Australian and international incidents
- industry trends.

<sup>17</sup> It should be noted that continued non-compliance that is subject to an enforcement action can result in escalation of the initial action with criminal and civil penalties being pursued as appropriate. For more information about NOPSEMA's enforcement policy, see the 'Enforcement' page at [nopsema.gov.au](http://nopsema.gov.au).



## Enforcements

Of the 37 enforcement actions taken by NOPSEMA in 2015, 33 were related to OHS issues and 4 to environmental management issues.

### OHS enforcements – by facility type

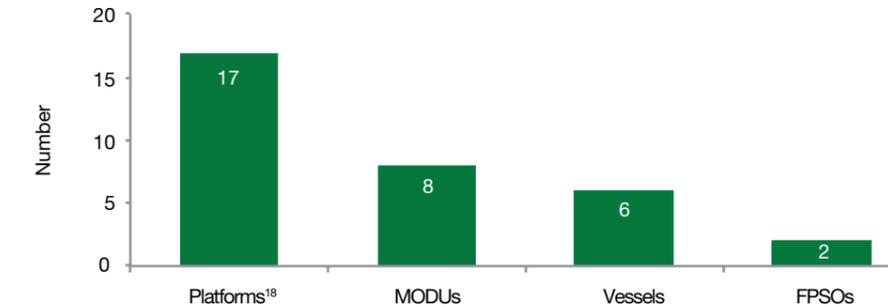


Figure 41.

### Compliance tools available to NOPSEMA

- prohibition notices
- improvement notices
- warning letters
- prosecution
- adverse publicity orders
- civil penalties
- do not disturb notices
- directions
- infringement notices
- injunctions
- request to revise a permissioning document
- withdrawal of acceptance of a permissioning document

<sup>18</sup> Note: NOPSEMA issued 13 improvement notices (across 13 platform facilities) to a single operator for failing to ensure that the transfer of liquid hoses to and from supply vessels is carried out in a manner that is safe and without risk to the facility dogman

**37** enforcement actions were issued to 14 duty holders

**NO** WI enforcement actions were issued

**2 OHS** prohibition notices were issued

**1 EM** improvement notice was issued

During 2015...

## Enforcements

### 7.1 Prosecutions

In 2015 NOPSEMA completed two prosecutions of duty holders who contravened the OPGGS Act.

Name	ACN	Date of outcome	Fine	Category	Legislation	Section/clause	Court
<b>Stena Drilling Australia Pty Ltd</b>	116 801 435	03/09/2015	\$330,000	Failure to implement and maintain systems of work that are safe and without risk to health	OPPGS Act	Clause 9(2)(d) of Schedule 3	Magistrates' Court of Victoria

Stena Drilling Australia Pty Ltd (Stena Drilling Australia) is a registered Australian company that specialises in offshore drilling in the oil and gas industry. The sole shareholder of Stena Drilling Australia is Stena. Stena is based in the United Kingdom and is the nominated facility operator for the Stena Clyde semi-submersible mobile offshore drilling unit (MODU). The Stena Clyde MODU was constructed in the Rauma Repola yard in Mäntyluoto, Finland in 1976 and has operated in Australian waters for many years. It has a NOPSEMA accepted safety case. A revised safety case for it to carry out work for Origin Energy Resources in the Otway Basin was accepted in 2011.

The conviction relates to an accident on the Stena Clyde MODU that occurred during drilling operations in Commonwealth waters in the Bass Strait in the Otway Basin Geographe 3 subsea development well approximately 100 kilometres south of Port Campbell in Victoria on 27 August 2012. The accident resulted in the deaths of Stena Clyde floorman Peter Meddens and toolpusher Barry Denholm.

#### Background:

On 24 August 2012 the Stena Clyde MODU was drilling ahead when the drill pipe stuck. The weather conditions deteriorated. Despite repeated attempts to free the drill pipe, it remained stuck in the hole. On 27 August 2012 an instruction was received to rig up the wire line equipment in preparation for running explosive charges down the drill string with the intention to sever the drill pipe. For more information on this accident please see the summary of facts at [nopsema.gov.au](http://nopsema.gov.au).

## Enforcements

Name	ACN	Date of outcome	Fine	Category	Legislation	Section/clause	Court
<b>Hammelmann Australia Pty Ltd</b>	059 603 431	14/12/2015	\$20,000	Failure to comply with the duties of care owed by manufacturers of equipment	OPPGS Act	Clause 12 of Schedule 3	Magistrates' Court of Western Australia

Hammelmann was founded in Germany in 1949. The company has over 60 years of experience in the high pressure water jetting industry. It is an international company that manufactures and supplies a range of high pressure pumps and accessories for use mainly in high pressure water jetting, blasting and cutting operations.

Hammelmann Australia Pty Ltd specialises in the supply of this type of equipment to a range of industries which includes the offshore petroleum and diving industries in Australia.

The conviction relates to an accident that occurred in March 2011 at a facility, where a diver was seriously injured whilst using an underwater high pressure jetting gun that was manufactured and supplied to a diving contractor by Hammelmann Australia Pty Ltd. The subsequent investigation by NOPSEMA identified that when the high pressure spray gun was supplied, it was not accompanied with any operating instructions that would provide specific information or directions on its safe use and maintenance. The relevant clause of the OPGGS Act requires that manufacturers of plant supplied to offshore facilities must take all reasonably practicable steps to make written information available about the design, construction and safe use of that plant. This prosecution is the first of a manufacturer taken under the OPGGS Act. The employer of the injured diver, Technip Oceania Pty Ltd, was also prosecuted and convicted separately in 2014 in connection with the same accident. Details of that prosecution are available at [nopsema.gov.au](http://nopsema.gov.au)

## Appendix 1 – classification of fatalities and injuries

Code	Category	Definition
FT	Fatality	Any work-related death that occurs within one year of the incident: <ul style="list-style-type: none"> <li>• includes missing persons</li> <li>• does not include fatalities that are due to natural causes.</li> </ul>
MI	Major injury	Any work related injury that results in: <ul style="list-style-type: none"> <li>• amputation: includes whole or partial amputation of parts of the body (does not include loss of fleshy tip of finger, nail, or tooth)</li> <li>• skeletal injuries: includes bone fractures (including chipped or cracked bone or hairline fractures) and dislocation</li> <li>• burns: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation</li> <li>• injuries to internal organs: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation</li> <li>• eye injuries resulting in loss of sight (permanent or temporary)</li> <li>• eye injuries resulting in a penetrating eye injury or a chemical or hot metal burn to the eye</li> <li>• any acute illness caused by exposure to harmful chemicals or biological agents and physiological effects e.g. decompression illness, loss of hearing, and radiation sickness</li> <li>• hypothermia or heat-induced illness (unconsciousness)</li> <li>• any injury resulting in unconsciousness, resuscitation, or admittance to hospital.</li> </ul>
LTI ≥ 3	Lost time injury ≥3 days	Any work-related injury (other than a 'major injury') which results in a person being unfit for work on any day <sup>19</sup> after the day of occurrence of the injury and remains off work for three days or more.
LTI <3	Lost time injury <3 days	Any work-related injury (other than a 'major injury') which results in a person being unfit for work on any day <sup>19</sup> after the day of occurrence of the injury and remains off work for one or more days but less than three days.
ADI	Alternative duties injury	Any work-related injury (other than a 'major injury') which results in a person being unfit for full performance of their regular job on any day after the occupational injury. Work performed might be: an assignment to a temporary job, part-time work at the regular job or working full-time in the regular job, but not performing all the usual duties of the job. Where no meaningful work is being performed, the incident should be recorded as a lost workday case
MTI	Medical treatment injury	Cases that are not severe enough to result in lost work day cases or alternative duty cases but are more severe than requiring simple first aid treatment.

Note: For more information about these codes and categories, see NOPSEMA's guidelines – 'N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries' under the 'Safety – Reporting Accidents and Dangerous Occurrences – Forms – Monthly Summary Report' at [nopsema.gov.au](http://nopsema.gov.au).

<sup>19</sup> 'Any day' includes rest days, weekend days, leave days, public holidays, or days after ceasing employment.

## Appendix 2 – injury groups

Group code	Group name	Category	Category name
TRCs	Total recordable cases	LTI ≥3 days	Lost time injury of three or more days
		LTI <3 days	Lost time injury of less than three days
		ADI	Alternative duties injury
LTIs	Lost time injuries	LTI ≥3 days	Lost time injury of three or more days
		LTI <3 days	Lost time injury of less than three days
MI	Major injuries	LTI, ADI, MTI	Can be any type, but usually LTIs

Note: For more information about these codes and categories, see NOPSEMA's guidelines – 'N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries' under the 'Safety – Reporting Accidents and Dangerous Occurrences – Forms – Monthly Summary Report' at [nopsema.gov.au](http://nopsema.gov.au).



## Appendix 3 – incident notification classification scheme

Incident type		
OHS incidents	Accidents	<ul style="list-style-type: none"> <li>Death or serious injury</li> <li>Incapacitation ≥3 days LTI</li> </ul>
	Dangerous occurrences	<ul style="list-style-type: none"> <li>Could have caused death or serious injury</li> <li>Could have caused incapacitation ≥3 days LTI</li> <li>Fire or explosion</li> <li>Collision – marine vessel and facility</li> <li>Uncontrolled HC release &gt;1 – 300 kg</li> <li>Uncontrolled HC release &gt;300 kg</li> <li>Uncontrolled PL release &gt;80 – 12 500 L</li> <li>Uncontrolled PL release &gt;12 500 L</li> </ul> <ul style="list-style-type: none"> <li>Unplanned event – implement ERP</li> <li>Damage to safety-critical equipment</li> <li>Other kind needing immediate investigation</li> <li>Pipeline – kind needing immediate investigation</li> <li>Pipeline – substantial risk of accident</li> <li>Pipeline – significant damage</li> <li>Well kick &gt;50 barrels</li> </ul>
Environmental incidents	Reportable	<ul style="list-style-type: none"> <li>Hydrocarbon vapour / petroleum fluid release</li> <li>Chemical release</li> <li>Drilling fluid/mud release</li> <li>Fauna incident</li> <li>Matters protected under Part 3 of the EPBC Act</li> <li>Other</li> </ul>
	Recordable	<ul style="list-style-type: none"> <li>Non-hydrocarbon air emissions</li> <li>Hydrocarbon gas release/air emissions</li> <li>Hydrocarbon spill &lt;80 L</li> <li>Chemical spill</li> <li>Other unplanned liquid discharge</li> <li>Spill to deck – no discharge to marine environment</li> </ul> <ul style="list-style-type: none"> <li>Non-conformance with planned discharge</li> <li>Solid waste discharge / dropped object</li> <li>Injury or death – fauna</li> <li>Seabed/benthic damage</li> <li>Equipment not functioning</li> <li>Breach of procedural control</li> <li>Other</li> </ul>

## Appendix 4 – data tables

### 1 Industry activity

#### Active duty holders

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Facility operators (OHS)	30	30	35	34	40	36	39	35	32	35	38
Titleholders (WI)							14	27	27	30	20
Titleholders (EM)								37	42	31	26

#### Facility types

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Platforms	54	54	53	55	60	58	57	32	31	32	26
FPSOs/FSOs	12	13	14	14	14	15	14	13	11	11	13
MODUs	16	13	14	15	19	14	16	12	12	12	11
Vessels	10	9	11	12	17	10	13	14	12	17	17
Pipelines	6	16	68	68	70	110	109	80	83	76	81
<b>Total</b>	<b>98</b>	<b>105</b>	<b>160</b>	<b>164</b>	<b>180</b>	<b>207</b>	<b>209</b>	<b>151</b>	<b>149</b>	<b>148</b>	<b>148</b>

#### Petroleum activity types

	2013	2014	2015
Operations	29%	42%	7%
Other petroleum activity	3%	19%	26%
Drilling	32%	16%	23%
Seismic	10%	14%	28%
Other surveys	10%	7%	7%
Construction	16%	2%	7%
Decommissioning			2%

#### Total offshore hours worked

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fixed	6 045 187	5 489 338	5 183 438	5 541 693	6 030 100	7 372 400	7 197 149	7 359 360	5 958 080	4 876 541	5 685 783
Mobile	3 668 039	4 511 902	6 037 559	7 452 468	8 712 551	6 040 231	6 942 732	8 323 697	7 400 623	9 465 947	9 668 875
<b>Total</b>	<b>9 713 226</b>	<b>10 001 240</b>	<b>11 220 997</b>	<b>12 994 161</b>	<b>14 742 651</b>	<b>13 412 631</b>	<b>14 139 881</b>	<b>15 683 057</b>	<b>13 358 703</b>	<b>14 342 488</b>	<b>15 354 658</b>

## 1 Industry activity (cont'd)

### Fixed active facilities by nearest state – 2015

State	Facility Type	Total	%
Vic.	Pipeline	52	78.8
	Platform – M	13	19.7
	Platform – NNM	1	1.5
	<b>Vic. Total</b>	<b>66</b>	<b>55.5</b>
WA	FPSO	10	23.3
	Pipeline	22	51.2
	Platform – M	4	9.3
	Platform – NNM	7	16.3
<b>WA Total</b>	<b>43</b>	<b>36.1</b>	
NT	FPSO	1	16.7
	Pipeline	4	66.7
	Platform – NNM	1	16.7
	<b>NT Total</b>	<b>6</b>	<b>5.0</b>
Tas.	Pipeline	3	75.0
	Platform – NNM	1	25.0
	<b>Tas. Total</b>	<b>4</b>	<b>3.4</b>
<b>Grand Total</b>		<b>119</b>	<b>100.0</b>

## 2 Assessments and submissions

### Submissions by division

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OHS	127	156	165	265	202	167	269	220	160	165	171
WI							170	193	119	162	137
EM								103	119	75	44
PSZ								15	11	10	15

### Submissions by division

	Assessment type	Sub-types	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
<b>Occupational health and safety</b>	Safety cases	Safety case new	20	11	21	29	17	26	25	27	20	28	27	
		Safety case revised	68	105	93	109	110	74	151	106	69	62	75	
	Diving	Diving project plan	14	9	1	0	0	0	0	0	0	0	0	0
		Diving SMS new	0	0	2	2	6	5	6	5	1	0	2	
		Diving SMS revised	10	0	1	4	2	1	3	4	1	6	5	
		Diving start-up notice	19	25	23	14	14	24	20	23	24	20	8	
	Other	Pipeline SMP new*	6	11	3	7	2	2	2	-	-	-	-	
		Pipeline SMP revised*	1	2	4	17	10	3	9	-	-	-	-	
		Scope of validation	1	2	21	78	46	53	63	55	45	49	54	
		Request for exemption	0	0	2	2	1	0	0	0	0	0	0	
<b>Well integrity</b>	Well operations management plans	Well activity approval	-	-	-	-	-	-	141	162	87	130	107	
		WOMP new	-	-	-	-	-	-	28	27	26	23	21	
		WOMP variation	-	-	-	-	-	-	1	4	6	9	9	
<b>Environmental management</b>	Environment plans	Environment plan new	-	-	-	-	-	-	-	92	79	57	38	
		Environment plan revised	-	-	-	-	-	-	-	11	40	18	6	
		Offshore project proposals	-	-	-	-	-	-	-	-	-	0	0	
<b>Petroleum safety zones</b>	Safety zones	PSZ application new	-	-	-	-	-	-	-	7	3	10	2	
		PSZ application variation	-	-	-	-	-	-	-	3	2	0	2	
		PSZ access application	-	-	-	-	-	-	-	0	1	0	0	
		ATBA access application	-	-	-	-	-	-	-	5	5	0	11	
<b>Other</b>	Advice	Regulatory advice to other agencies	7	15	18	14	8	2	10	6	18	56	21	
<b>Total</b>			<b>146</b>	<b>180</b>	<b>189</b>	<b>276</b>	<b>216</b>	<b>190</b>	<b>459</b>	<b>537</b>	<b>427</b>	<b>468</b>	<b>423</b>	

\*From 2012 the requirement to submit Pipeline SMPs was superseded by the requirement for pipeline's to have an accepted safety case.

Appendix 4 – data tables

2 Assessments and submissions (cont'd)

Assessments notified within legislated timeframes

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OHS	75%	57%	58%	52%	74%	83%	91%	98%	100%	100%	97%
WI							99%	100%	100%	99%	98%
EM								100%	100%	100%	100%
PSZ								100%	100%	100%	93%

Assessments not accepted

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OHS	2%	3%	6%	9%	12%	14%	30%	30%	20%	27%	26%
WI							3%	2%	2%	3%	4%
EM								10%	2%		4%

Safety cases by facility type

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MODUs	31	49	56	68	62	33	45	39	21	29	34
Vessels	21	16	12	19	27	22	25	23	22	23	26
Pipelines					2	9	51	11	10	9	16
Platforms	23	37	35	28	14	19	38	35	18	20	13
FPSOs	8	12	9	22	21	15	14	25	18	9	13

Safety cases rejected

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
% rejected	3%	3%	6%	11%	11%	12%	32%	30%	23%	25%	24%

Appendix 4 – data tables

Average safety case assessment timeframes (days)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
New	72	90	86	65	128	103	113	123	113	72	74
Revision	31	43	47	35	34	43	47	56	39	46	35

Well operations management plans rejected

	2011	2012	2013	2014	2015
% rejected	12%	0%	3%	10%	3%

Average well operations management plan timeframes (days)

	2011	2012	2013	2014	2015
New	23	22	32	35	15
Variation	15	17	22	16	7

Submitted environment plans – activity type

	2012	2013	2014	2015
Drilling	41	34	22	9
Seismic	27	20	18	21
Other	15	23	11	6
Operations	5	27	15	6
Construction	7	11	2	1
Decommissioning				1

Environment plans rejected

	2012	2013	2014	2015
% rejected	9%	5%	0%	4%

## Appendix 4 – data tables

### 3 Incidents

#### Total accidents

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Accidents	21	34	32	47	41	43	29	21	13	9	12

#### Total dangerous occurrences

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Dangerous occurrences	133	173	231	357	307	345	306	383	356	346	364

#### Accidents basic causes – OHS

	2013	2014	2015
Human engineering	10%	13%	32%
Procedures	18%	20%	20%
Work direction	25%	13%	16%
Preventive maintenance	5%	0%	8%
Design	23%	20%	8%
Management systems – people	5%	0%	8%

#### Dangerous occurrences basic causes – OHS

	2013	2014	2015
Preventive maintenance	13%	15%	21%
Procedures	12%	14%	17%
Equipment parts/defects	6%	10%	16%
Design	28%	20%	13%
Tolerable failure	2%	5%	8%
N/A or none	7%	7%	6%
Human engineering	9%	11%	6%

## Appendix 4 – data tables

### OHS Hydrocarbon releases

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Uncontrolled HC release >1 – 300 kg	11	15	21	18	15	22	18	13	19	20	12
Uncontrolled HC release >300 kg	1	3	1	3	5	3	2	3	0	3	2
Uncontrolled PL release >80 – 12 500 L	0	1	6	2	3	7	9	1	1	2	4
Uncontrolled PL release >1 – 300 kg	0	0	0	0	1	0	0	0	0	0	0

### Hydrocarbon releases basic causes – OHS

	2013	2014	2015
Design	33%	37%	17%
Preventive maintenance	20%	13%	17%
Tolerable failure	10%	6%	17%
Equipment parts/defects	5%	4%	17%
Procedures	13%	13%	13%
Management systems (people)	10%	10%	9%
Work direction	0%	4%	4%

### Total OHS gas releases

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Australia – rate per 100 million BOE	4.14	7.18	10.06	7.86	7.47	8.77	6.79	4.93	5.97	7.01	N/A
IRF Countries – rate per 100 million BOE	3.94	4.61	4.49	3.18	4.21	4.17	4.05	3.51	3.89	5.90	N/A

### Fire/explosion causal factors

	2013	2014	2015
Appliance or equipment malfunction or failure	33%	71%	20%
Battery or electrical malfunction or failure	0%	0%	20%
Combustion	67%	29%	60%
Other	0%	0%	0%
Not specified	0%	0%	0%

### 3 Incidents (cont'd)

#### Reportable environmental incidents

	2012	2013	2014	2015
Hydrocarbon vapour / petroleum fluid release	2	6	13	8
Chemical release	7	14	8	2
Fauna incident	4	5	1	1
Drilling fluid / mud release	5	4	0	0
Other	0	2	0	2
<b>Total</b>	<b>18</b>	<b>31</b>	<b>22</b>	<b>13</b>

#### Recordable environmental incidents

	2012	2013	2014	2015
Hydrocarbon spill <80 L	42	42	53	50
Breach of procedural control	28	23	53	91
Gas release/air emissions	27	28	41	7
Solid waste discharge / dropped object	32	17	22	69
Chemical spill	14	32	16	8
Non-conformance with planned discharge	10	14	16	22
Other	1	0	11	3
Spill to deck – no discharge to marine environment	7	6	7	5
Other unplanned liquid discharge	2	3	6	8
Non-HC air emissions	1	5	4	5
Equipment not functioning	7	3	1	5
Seabed/benthic damage	0	0	1	
Injury or death – fauna	4	2	0	
<b>Total</b>	<b>175</b>	<b>175</b>	<b>231</b>	<b>273</b>

### 3.3 Fatalities and injuries

#### Injury rates by facility type

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
FPSO/FSOs	16.35	20.42	14.88	12.36	8.78	14.98	9.84	11.53	6.94	5.75	6.43
Platforms	12.66	9.16	13.07	10.80	7.21	9.82	5.58	6.23	5.47	5.46	7.13
Pipelines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.73	0.00
MODUs	11.81	14.26	14.55	16.44	7.78	9.00	10.76	6.23	5.32	3.68	3.28
Vessels	13.43	5.24	9.37	18.79	7.84	13.44	8.30	5.07	2.34	2.32	5.95

#### Total recordable cases

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fatalities	0	0	0	1	0	0	0	2	0	0	0
Major injuries	8	5	7	12	12	9	8	5	2	1	5
Lost time injuries	26	39	24	35	36	35	26	19	12	7	9
Alternative duties injuries	14	21	58	53	28	47	37	43	28	27	30
Medical treatment injuries	79	58	61	89	39	61	47	36	26	22	41
<b>Total</b>	<b>127</b>	<b>123</b>	<b>150</b>	<b>190</b>	<b>115</b>	<b>152</b>	<b>118</b>	<b>105</b>	<b>68</b>	<b>57</b>	<b>85</b>

#### Total recordable cases – nature of injury

	2013	2014	2015
Traumatic joint and muscle injuries	31%	21%	20%
Wounds and amputations	31%	46%	37%
Fractures	12%	9%	9%
Musculoskeletal, systemic and infectious diseases	7%	10%	22%
Burns	1%	2%	0%
Spinal, intracranial and nervous system injuries	0%	0%	5%
Unspecified	18%	12%	7%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Appendix 4 – data tables

3.3 Fatalities and injuries (cont'd)

Total recordable cases – location of injury

	2013	2014	2015
Upper limbs	35%	47%	32%
Lower limbs	28%	21%	20%
Head and neck	21%	17%	28%
Back (upper and lower)	7%	4%	13%
Trunk	2%	9%	4%
Systemic	1%	0%	2%
Unspecified	6%	2%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Total recordable cases – mechanism of incident

	2013	2014	2015
Hit by moving objects	38%	40%	27%
Hitting objects	25%	17%	27%
Body stressing	17%	17%	22%
Falls, trips, slips	8%	9%	10%
Chemicals and other substances	0%	0%	2%
Heat, electricity, environmental	2%	4%	10%
Unspecified (incl. other, multiple)	10%	13%	2%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Total recordable cases – agency of injury

	2013	2014	2015
Non-powered equipment	44%	46%	50%
Machinery / fixed plant	21%	23%	15%
Chemicals and other substances	19%	9%	24%
Powered equipment	3%	5%	8%
Mobile plant / transport	0%	3%	2%
Environmental and biological agencies	0%	3%	1%
Unspecified	13%	11%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Appendix 4 – data tables

Major injuries

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Major injury rate	0.82	0.50	0.62	0.92	0.81	0.67	0.57	0.32	0.15	0.07	0.33

Lost time injuries >=3 days

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
LTI rate >= 3 days	1.75	2.50	1.87	2.23	2.10	2.39	1.41	1.02	0.90	0.35	0.46

Lost time injuries <3 days

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
LTI rate <3 days	0.93	1.30	0.27	0.46	0.34	0.22	0.42	0.19	0.00	0.14	0.13

Alternative duties injuries

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
ADI rate	1.44	2.20	5.17	4.08	1.90	3.50	2.62	2.74	1.95	1.88	1.96

Medical treatment injuries

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MTI rate	8.14	5.80	5.44	6.85	2.65	4.55	3.32	2.30	1.95	1.53	2.67

## 4 Complaints

### Complaints

	2005	2006	2007	2008
OHS complaints	5	6	3	3
EM complaints	0	4	2	2

## 5 Inspections

### Inspections

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
OHS	72	63	85	90	85	92	95	88	99	111	114
Well integrity							0	4	5	5	12
Environment								7	23	30	69

## 7 Enforcements

### Enforcements

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Enforcements	30	27	37	66	56	25	97	79	80	26	38

# Glossary

### Acronyms and common terms

Term	Definition
<b>AAUWA</b>	Applications for approval to undertake well activity
<b>Activity or petroleum activity</b>	As defined in the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
<b>ADI</b>	Alternative duties injuries
<b>ALARP</b>	As low as reasonably practicable. A principle that provides a means for assessing the tolerability of risk
<b>ATBA</b>	Area to be avoided
<b>Blowout</b>	An uncontrolled release of hydrocarbons from a well
<b>BOE</b>	Barrels of oil equivalent
<b>BOP</b>	Blow out preventer
<b>CMMS</b>	Computerised maintenance management system
<b>Dangerous occurrence</b>	See definition in clause 82 of Schedule 3 to the OPGGS Act
<b>DPP</b>	Diving project plan
<b>Duty holder</b>	Parties with legislative responsibilities under the <i>Offshore Petroleum Greenhouse Gas Storage Act 2006</i>
<b>ED</b>	Equipment difficulties
<b>EM</b>	Environmental management
<b>EP</b>	Environment plan
<b>ERP</b>	Emergency response plan
<b>HC</b>	Hydrocarbon(s) – organic compounds of carbon and hydrogen
<b>HPD</b>	Human performance difficulties
<b>HSR</b>	Health and safety representative
<b>IMCA D</b>	International Marine Contractors Association 'Diving Equipment Systems Inspection Guidance Note (DESIGN) for Saturation Diving Systems' (IMCA D 024 Rev 1)
<b>Improvement notice</b>	A notice issued to the operator of a facility requiring action to prevent any further contravention or likely contravention of listed OHS law
<b>LTI</b>	Lost time injury
<b>MAE</b>	Major accident event
<b>MoC</b>	Management of change
<b>MTI</b>	Medical treatment injuries
<b>NOHSC</b>	National Standard for Occupational Noise [NOHSC: 1007(2000)] and National Code of Practice for Noise Management and Protection of Hearing at Work [NOHSC: 2009(2004)]
<b>N/A</b>	Not applicable
<b>NOPSA</b>	National Offshore Petroleum Safety Authority (NOPSEMA superseded NOPSA on 1 January 2012)
<b>NOPSEMA</b>	National Offshore Petroleum Safety and Environmental Management Authority

## Glossary

### Acronyms and common terms (cont'd)

Term	Definition
<b>NOPTA</b>	NOPTA National Offshore Petroleum Titles Administrator
<b>OEM</b>	Original equipment manufacturer
<b>OHS</b>	Occupational health and safety
<b>Operator</b>	In relation to a facility or proposed facility, the person who, under the Regulations, is registered by NOPSEMA as the operator of that facility or proposed facility (as defined in Clause 5 of Schedule 3 of the OPGGS Act)
<b>OPGGS Act</b>	Abbreviation of the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>
<b>Personal safety</b>	A category of risk management focusing on injuries such as slips, trips, falls, 'struck-by' incidents and strains; Personal safety programs place an emphasis on personal behaviour and the wearing of personal protective equipment
<b>Performance standard</b>	The parameters against which control measures for MAEs are assessed to ensure they reduce the risks to ALARP on an on-going basis
<b>Process safety</b>	A category of risk management focusing on the prevention of uncontrolled releases of hydrocarbons, chemicals, energy, or other potentially dangerous materials (including steam) during the course of facility processes and which can cause major accident events. Process safety involves, for example, the prevention of leaks, spills, equipment malfunction, overpressures, over-temperatures, corrosion, metal fatigue and other similar conditions. Process safety programs focus on design of facilities, maintenance of equipment, alarms, effective control points, procedures and training
<b>Prohibition notice</b>	A notice issued to the operator of a facility in order to remove an immediate threat to the health or safety of any person
<b>PSMP</b>	Pipeline safety management plan. A plan for managing OHS risks to personnel at or near pipeline facilities
<b>PSZ</b>	Petroleum safety zone
<b>QA</b>	Quality assurance
<b>Risk assessment</b>	The purpose of a risk assessment is to provide the operator of a facility with a detailed understanding of all aspects of the risks to people that may arise at or near the facility.
<b>SC</b>	Safety case. A document prepared and submitted by an operator of a facility to NOPSEMA that identifies the hazards and risks at the facility, describes how the risks are controlled and the health and safety management systems which are in place to ensure that the controls are effectively and consistently applied
<b>SCAP</b>	Safety case administration procedure
<b>SMP</b>	Safety management plan
<b>SMS</b>	Safety management system
<b>TapRoot®</b>	A classification system for root cause analysis
<b>Titleholder</b>	The permittee of a petroleum exploration permit, the lessee of a petroleum retention lease, or the licensee of a petroleum production licence (as defined in subsection 51 and 572(1) of the OPGGS Act)

## Glossary

### Acronyms and common terms

Term	Definition
<b>TOOCS</b>	Type of occurrence classification system
<b>TRC</b>	Total recordable cases
<b>Wellhead</b>	A general term used to describe the component at the surface of an oil or gas well that provides the structural and pressure-containing interface for the drilling and production equipment
<b>WHA</b>	World Heritage Area
<b>WI</b>	Well integrity
<b>WOMP</b>	Well operations management plan: A document that the titleholder must submit which should specify acceptable methods of conducting well operations in accordance with sound engineering principles and good oilfield practice

### The following categories of facilities are recognised within the legislation:

<b>Facility</b>	A vessel, structure or pipeline at which offshore petroleum operations are being performed – defined in Clause 4 of Schedule 3 to the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>
<b>Accommodation, construction and pipelay vessel</b>	A maritime vessel used in the construction of subsea infrastructure
<b>Floating production, storage and offloading vessel (FPSO)</b>	Similar in appearance to an oil tanker and carries production and processing facilities, with the addition of storage tanks for the crude oil recovered from the wells
<b>Floating storage and offloading vessel (FSO)</b>	Similar to an FPSO with reduced production and processing facilities
<b>Large production platform</b>	A large scale production facility, which can be a floating or fixed marine vessel (conducting specific activities at a location)
<b>Mobile offshore drilling unit (MODU)</b>	An offshore facility (capable of independent navigation) used for drilling or servicing a well for petroleum
<b>Pipeline</b>	A pipe or system of pipes in an offshore area used for conveying petroleum (whether or not the petroleum is recovered from an offshore area)
<b>Production platform</b>	A platform from which development wells are drilled that also houses processing plant and other equipment with drilling or no drilling, can be attended (manned) or not normally attended (unmanned). Platform – M Normally attended (manned) Platform – NNM Not normally attended (unmanned)

# References

Department of Primary Industry and Energy 1995, *Procedures and Records for Administration of Safety for Offshore Petroleum Facilities, Offshore Petroleum and Greenhouse Gas Storage Act 2006*, Safety Case Administration Procedure National Accident/Incident Database (SCAP 905)

National Offshore Petroleum Safety and Environmental Management Authority 2014, *Annual Offshore Performance Report*, NOPSEMA, Perth

National Offshore Petroleum Safety and Environmental Management Authority 2013, *Annual Offshore Performance Report*, NOPSEMA, Perth

National Offshore Petroleum Safety and Environmental Management Authority 2012, *Annual Offshore Performance Report*, NOPSEMA, Perth

National Offshore Petroleum Safety Authority 2010, *Offshore Health and Safety Performance Report*, NOPSA, Perth

Standards Australia 1990, Workplace Injury and disease recording standard, Australian Standard AS 1885.1-1990

## Legislation

[Environmental Protection and Biodiversity Conservation Act 1999 \(Cth.\) \(No.91\) of 1999 as amended](#)

[Offshore Petroleum and Greenhouse Gas Storage Act 2006 \(Cth.\) \(No 14\) 2006 as amended](#)

[Offshore Petroleum and Greenhouse Gas Storage \(Environment\) Regulations 2009 \(Cth.\) Statutory Rules 1999 \(No. 228\) as amended and made under the Offshore Petroleum and Greenhouse Gas Storage Act 2006](#)

[Offshore Petroleum and Greenhouse Gas Storage \(Safety\) Regulations 2009 \(Cth.\) Select Legislative Instrument 2009 \(No. 382\) as amended and made under the Offshore Petroleum and Greenhouse Gas Storage Act 2006](#)

[Offshore Petroleum and Greenhouse Gas Storage \(Resource Management and Administration\) Regulations 2011](#)

[Regulatory Levies Act 2003. Offshore Petroleum and Greenhouse Gas Storage \(Regulatory Levies\) Act 2003 \(Cth.\) \(No. 117\) of 2003 as amended](#)

[Regulatory Levies Regulations 2004. Offshore Petroleum and Greenhouse Gas Storage \(Regulatory Levies\) Regulations 2004 \(Cth.\) Statutory Rules 2004 \(No. 315\) made under the Offshore Petroleum \(Regulatory Levies\) Act 2003](#)



**NOPSEMA expects strong and sustained leadership from industry to continue improving safety and environmental outcomes in all areas of its operations.**



# NOPSEMA

**National Offshore Petroleum Safety  
and Environmental Management  
Authority (NOPSEMA)**

ABN 22 385 178 289

## **Head Office, Perth**

Level 8, 58 Mounts Bay Road,  
Perth WA 6000  
GPO Box 2568, PERTH WA 6001

phone: +61 8 6188 8700

fax: +61 8 6188 8737

email: [communications@nopsema.gov.au](mailto:communications@nopsema.gov.au)

## **Melbourne**

Ground Floor, 493 St Kilda Road,  
Melbourne VIC 3004  
PO Box 7104, St Kilda Road VIC 8004

phone: +61 3 8866 5700

fax: +61 3 8866 5706

