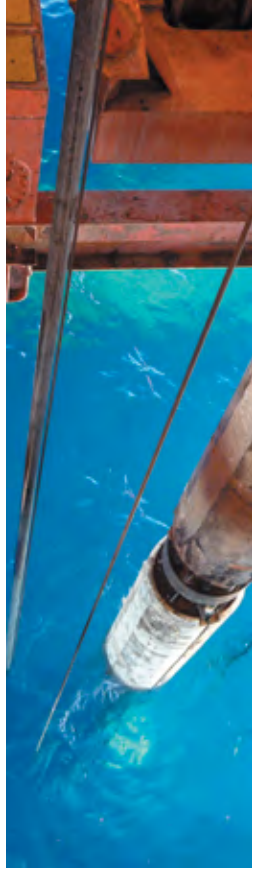
Annual offshore performance report

Regulatory information about the Australian offshore petroleum industry

to 31 December 2013



NOPSEMA

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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 integrity and environmental management of offshore petroleum facilities and activities in Commonwealth waters (and coastal waters where powers and functions have been conferred) to 31 December 2013.

Copies of this report are available to download at nopsema.gov.au or by contacting:

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Message from the Chief Executive Officer

As the national regulator of offshore safety, well integrity and environmental management, NOPSEMA is committed to providing the industry, offshore workforce and wider community with a clear understanding of industry's performance.

This annual offshore performance report aims to provide a context for the key performance indicator data published on the NOPSEMA website and to supplement the suite of regulatory guidance and information the authority publishes throughout the year. It summarises the decisions, observations and recommendations made by the authority during assessments of proposed petroleum activities, inspections at offshore facilities and investigations of safety and environmental incidents. Reporting on NOPSEMA's key regulatory activities supports our objective of promoting continuous improvement in offshore risk management and our responsibility to be accountable to our stakeholders.

I am encouraged by the reduction in the rate for injuries across all categories, with injuries requiring three or more days off work reaching the lowest level recorded since the authority commenced operations in 2005. Lower injury rates represent actual harm avoided and should be commended as it demonstrates continuing endeavours by organisations to prevent further fatalities and injuries. Offshore workers are still being hurt, however, and insights from data show that mobile facilities continue to account for the highest number of injuries reported. This reinforces the need for industry to recognise and address the impact of different circumstances on health and safety. Factors like the nature of the task, timing of the work, the nature of the facility, and its location, determine which procedures and processes are best suited to protect the offshore workforce and control environmental impacts. NOPSEMA will continue to challenge industry to define and implement procedures that are fit for purpose and responsive to changing circumstances.

The encouraging decline in injuries is countered, to some extent, by an increase in the number of uncontrolled hydrocarbon releases. An increase in uncontrolled hydrocarbon releases is a potential indicator for more severe events and is particularly disappointing following a considerable reduction reported in 2012. The prevalence of inadequate design specifications and preventive maintenance among incident root causes is an opportunity for improved performance. Prevention remains the cornerstone of best practice in safety and environmental management. The onus is on industry to implement comprehensive and expert processes to identify and manage safety and environmental risks to levels that are as low as reasonably practical. In response, NOPSEMA will consistently challenge industry to secure compliance with the legislation and drive improved outcomes.

Reductions in average assessment timeframes for environment plans over 2013 reflect efforts by industry to better demonstrate that their plans meet the requirements of the Regulations. At the same time, recommendations made on control of ignition sources and maintenance management through NOPSEMA's topic-based inspections illustrate where more work is needed by industry.

Progress will be made when safety and environmental best practice is clearly defined and implemented every day at all offshore facilities and offshore activities. Responsibility is shared across every member of the offshore workforce, at every level. Only a handful, however, are empowered as industry executives to lead their organisation's efforts. NOPSEMA is contributing to the global dialogue on safety culture through its national program of research and by proposing a definition and model highlighting the importance of executive commitment to safety. Decisions that prioritise protecting the workforce over competing business considerations are essential for positively influencing an organisation's approach to safety for the long-term.

By necessity, offshore exploration and production is highly technical and regulating safety and environmental management practice demands equal rigour and expertise. Consolidating safety, well integrity and environmental management functions into a national regulator means the legislated responsibilities of industry are communicated, monitored and secured through a single point - NOPSEMA. Efficiency must not, however, cloud our vision for an industry that is safe and environmentally responsible. For its part, NOPSEMA is committed to expertise, open dialogue, constructive challenge and shared insights. I welcome everyone to make their own contribution and to report on the shared benefits.

The onus is on industry to implement comprehensive and expert processes to identify and manage safety and environmental risks to levels that are as low as reasonably practical. In response, NOPSEMA will consistently challenge industry to secure compliance with the legislation and drive improved outcomes.

Jane Cutler

CEO
National Offshore Petroleum Safety
and Environmental Management Authority

Executive summary

Industry activity

The number of reported hours worked offshore decreased from 15.7 million in 2012 to 13.2 million in 2013. Industry activity in NOPSEMA's jurisdiction included:

- 29 facility operators across 149 active facilities, such as pipelines and production platforms
- 28 titleholders across 83 petroleum titles and 121 wells
- 42 activity operators of 129 petroleum activities.

Fatalities and injuries

In 2013, 28 injuries were reported on mobile offshore drilling units (MODUs), the highest number of injuries suffered by the offshore workforce across all facility types.

The rate for injuries requiring three or more days off work decreased to 1.03, the lowest level recorded since 2005.

Incidents

In 2013, the rate of accidents reached the lowest level recorded since 2005, at 0.96.

The rate of OHS uncontrolled hydrocarbon releases increased from 1.08 in 2012 to 1.48 in 2013.

The number of OHS uncontrolled hydrocarbon releases increased from 17 in 2012 to 20 in 2013.

Complaints

Eight complaints were made to NOPSEMA during 2013, five relating to health and safety matters at facilities, including:

- work procedures, methods and practices
- work environment – noise, heat, pollution
- management issues.

Three complaints were made relating to environmental management.

Investigations

Two major investigations into separate incidents are ongoing, including into the death of two offshore workers on the *Stena Clyde* during drilling operations in 2012.

Other matters handled by NOPSEMA's investigation team resulted in:

- 38 recommendations for improvement
- 10 enforcement actions.

Assessments and submissions

Organisations made a total of 537 submissions to NOPSEMA in 2013:

- 160 related to occupational health and safety
- 119 related to well integrity and well activities
- 129 related to environmental management
- 11 related to petroleum safety zones
- 18 related to regulatory advice sought by other agencies.

Inspections

In 2013, NOPSEMA conducted 128 inspections covering a total of 151 facilities, titles, wells and petroleum activities, to determine compliance by dutyholders for risk management and impacts on health and safety, well integrity and the environment.

Enforcements

NOPSEMA issued 79 enforcement actions against 27 operators, titleholders or activity operators in 2013, comprising:

- 13 written advice or warnings
- 34 requests for revised safety case or environment plan
- 27 improvement notices
- 3 prohibition notices
- 2 intent to withdraw an acceptance for an environment plan or WOMP.

Introduction

Background

NOPSEMA is the Australian Government's independent regulator for offshore petroleum health and safety, well integrity and environmental management. Following accepted recommendations of the Montara Commission of Inquiry, the remit of the National Offshore Petroleum Safety Authority (NOPSA) was expanded to establish NOPSEMA on 1 January 2012.

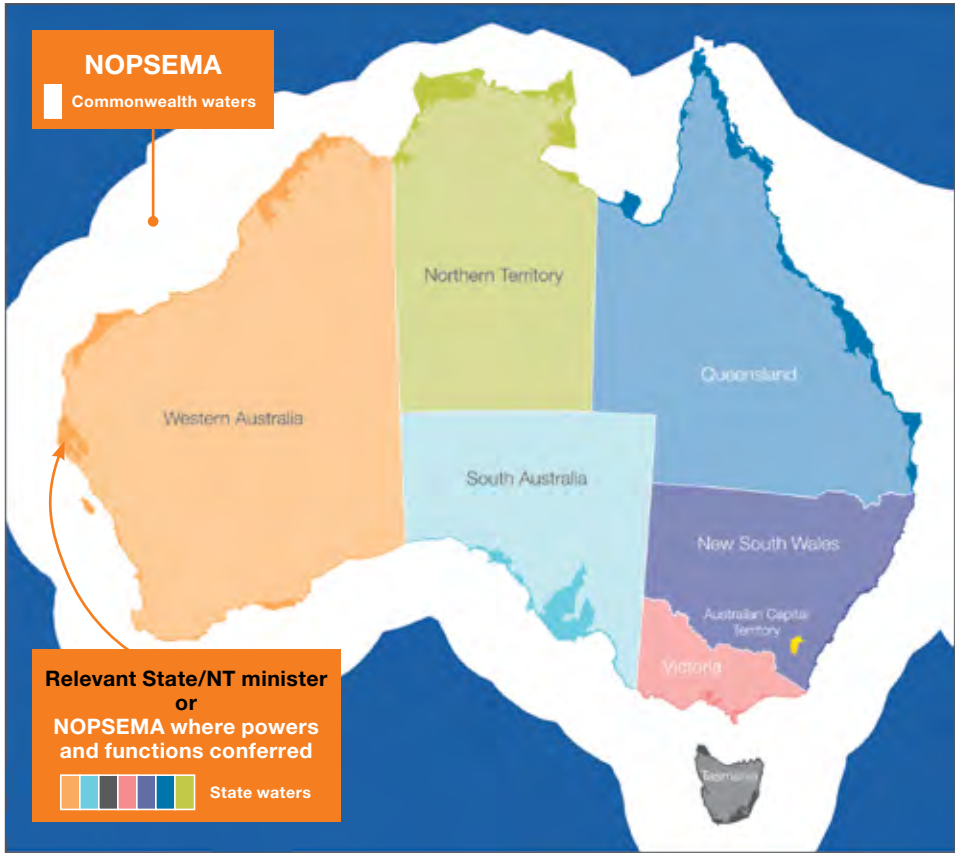
NOPSEMA is responsible for securing compliance by offshore petroleum industry organisations to:

- reduce the level of risk to the health and safety of members of the offshore workforce
- maintain the structural integrity of facilities, wells and well-related equipment
- reduce environmental risks and impacts from offshore petroleum activities.

The authority is also responsible for investigating accidents, dangerous occurrences and incidents and for promoting continuous improvement of industry's safety, well integrity and environmental management.

By law, offshore petroleum activities cannot commence before NOPSEMA has assessed and accepted the detailed risk management plan documenting and demonstrating how an organisation will manage the risks to health and safety to as low as reasonably practicable (ALARP) or the environmental impacts of an offshore petroleum activity to a level that is ALARP and acceptable.

Jurisdiction for safety, well integrity and environmental management



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.

Figure 1.

The key risk management regulatory documents submitted by dutyholders to NOPSEMA are:

- Safety case – covering an organisation's management of health and safety risk
- Well operations management plan – covering an organisation's management of risk from well activities
- Environment plan – covering an organisation's management of the impact of petroleum activities on the environment.

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

NOPSEMA makes regulatory decisions according to processes, criteria and legislated functions under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) and associated Regulations.

NOPSEMA publishes its corporate plan, annual report, industry performance data, guidance on the authority's approach to administering the legislation, safety alerts and other publications and reports at nopsema.gov.au

Scope

This *Annual offshore performance report* covers information collected by NOPSEMA (and NOPSA) from facility operators, titleholders and petroleum activity operators in the authority's jurisdiction from 1 January 2005 to 31 December 2013. The information has been obtained through the full range of NOPSEMA's regulatory activities, including inspections and investigations, and for the period in which its legislated functions were in place.

NOPSEMA publishes this information collected under the OPGGS Act and associated Regulations, as part of the authority's role to promote compliance by, and share lessons learnt with, the offshore petroleum industry.

Data quality

NOPSEMA has made every endeavour to ensure the data included in this report is accurate. Possible under-reporting, the subjective nature of qualitative data and legislative amendments may have influenced the results. Brief accompanying text is provided to assist in conveying the information presented in this report. NOPSEMA advises against extrapolation of the data.

Both numbers and rates are discussed throughout this report to gain additional clarification of an issue. Rates are calculated by dividing the total number against the total reported hours worked offshore, and standardising to one million hours. This allows direct comparison and over time allows for the identification of trends. The total number may increase from one year to the next but may not be of concern if there is also a proportionate increase in the amount of hours worked offshore. In this instance, the total number would increase but the rate would remain the same.

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 of numbers or because not all categories may be included in the topic under discussion; often only the top five or six categories of concern are discussed to maintain brevity.

Our Vision

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

Our Mission

To independently and professionally regulate offshore safety, well integrity and environmental management.

Our Values

- Professional - we will at all times be objective, accountable and maintain a high degree of professionalism in our interaction with each other and with stakeholders
- Ethical - we will demonstrate leadership, respect and integrity in all we do
- Independent - we will make our decisions impartially, efficiently and in accordance with the law.


Courtesy of ExxonMobil

1. Industry activity

NOPSEMA determines the level and type of offshore petroleum industry activity by how many regulatory reports and submissions the authority handles. The total reported hours worked offshore on mobile and fixed facilities decreased to the lowest level recorded since 2007, at 13.2 million in 2013.

NOPSEMA divides offshore petroleum industry activity into categories according to:

- the type of facility being operated (e.g. pipeline, production platform, fixed or mobile facility)
- the type of activity being carried out (e.g. exploratory drilling, seismic survey, production)
- the regulatory permission or document covering a petroleum facility or activity (e.g. safety case, well operations management plan, environment plan).

The number of organisations actively operating offshore facilities decreased from 35 in 2012 to 29 in 2013. Of the 149 facilities reporting to NOPSEMA in 2013, pipelines accounted for 56%, followed by production platforms at 21%. 29% of all well activities involved drilling and almost 20% were for well abandonment (based on well activity applications). Of the 176 activity types identified in environment plans in 2013, 24% related to operations and 23% to drilling.

Industry activity and regulatory submissions

Category	Type	2012	2013
Occupational health and safety (OHS)[1]	Facility operators	35	29
	Facilities	151	149
Well integrity (WI)[2]	Titleholders	26	28
	Titles[3]	72	83
	Wells[4]	176	121
	Well activity types	301	149
Environmental management (EM)[5]	Activity operators	36	42
	Activities	104	129
	Activity types	127	176

Table 1.

An offshore petroleum organisation that would make submissions to NOPSEMA may be:

- an operator of a facility (e.g. the organisation responsible for the day-to-day management and control of a facility)
- a titleholder (i.e. the organisation that holds a permit to conduct offshore petroleum activities, such as drilling and production)
- an operator of a petroleum activity (e.g. the organisation responsible for conducting a survey offshore).

1 Based on the number of distinct facility operators and facilities that submitted monthly injury reports to NOPSEMA.
2 Based on the number of distinct titleholders, titles and wells from well integrity submissions to NOPSEMA.
3 Titles are administered by the National Offshore Petroleum Titles Administrator (NOPTA).
4 The number of wells reflected in NOPSEMA data may be categorised according to those levied or those that were subject to activity in an AAUWA.
5 Based on the number of distinct activity operators and petroleum activities from environment plan submissions (multiple petroleum activity types can occur under an environment plan).

1.1 Organisations, facilities, wells and petroleum activities

NOPSEMA refers collectively to the parties with legislated responsibilities under the OPGGS Act as 'dutyholders'.

Active dutyholders

The number of active facility operators registered with NOPSEMA decreased from 35 to 29 in 2013. 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. For more information about NOPSEMA's OHS regulatory activities, see the 'Safety resources' page at nopsema.gov.au

There were 28 active titleholders who made well operations management plan or well activity submissions in 2013, compared to 26 in 2012.

There were 42 activity operators conducting or due to conduct petroleum activities under an accepted environment plan in 2013, compared to 36 in 2012.

Facilities

There were 149 active facilities in NOPSEMA's jurisdiction in 2013, a decrease from 151 in 2012. The number of offshore petroleum facilities operating in NOPSEMA's jurisdiction fluctuates depending on a number of factors, such as mobile facilities entering and departing the jurisdiction, or whether a state or territory has conferred powers and functions on NOPSEMA to regulate in designated coastal waters.

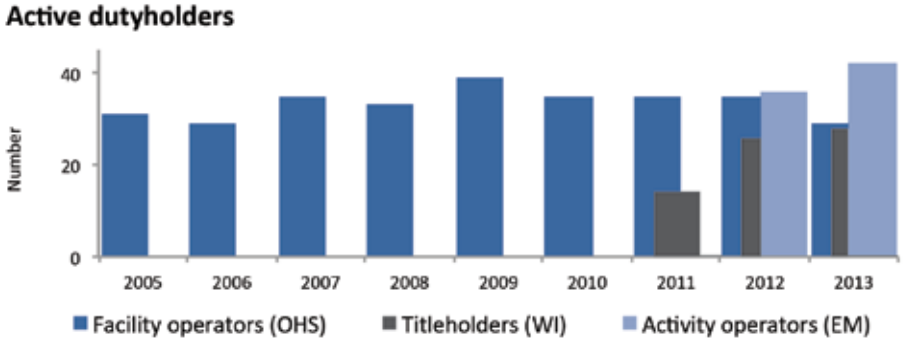


Figure 2.[6]

Facility types in NOPSEMA's jurisdiction – 2013

Facility type	Number
Pipeline	83
Production platform (normally attended and not normally attended)	31
Floating (production) storage and offloading facility (FPSO, FSO)	11
Accommodation, construction and pipelay vessel	12
Mobile offshore drilling unit (MODU)	12

Table 2.

6 'Titleholders' and 'activity operators' data is not available for all years. NOPSEMA commenced regulating well integrity from April 2011 and environmental management from January 2012.

Wells

NOPSEMA is responsible for assessing applications for approval to undertake well activities (AAUWAs) and well operations management plans (WOMPs) submitted by titleholders. NOPSEMA identifies titles and wells, and categorises well activities, from these submissions according to the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011.

The number of wells subject to well activity decreased from 176 in 2012 to 121 in 2013.

Well activity types

A well may be subject to one or more activities (as identified in an AAUWA). In 2013, drilling activities were included in 29% of AAUWAs, the same as 2012. There were relative increases in intervention, abandonment and completion activities during 2013 and decreases in suspension and testing.

Well 'intervention' is a common name for activities conducted on an existing well, which include wireline operations and workover operations with a drilling facility, hydraulic workover unit or coiled tubing unit. For more information about NOPSEMA's well integrity regulatory functions, see the 'Well integrity resources' page at nopsema.gov.au

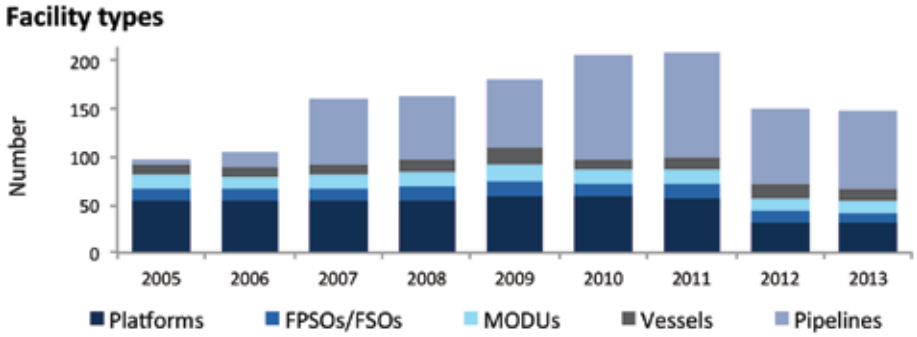


Figure 3.[7]

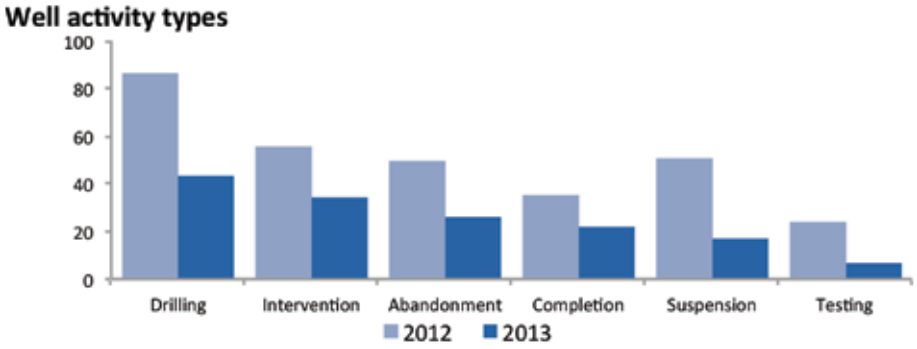


Figure 4.

7 An increase in facility numbers in 2007 and 2010 reflects legislative changes requiring submission by organisations of a pipeline management plan (2007) and separate categories for state and Commonwealth pipeline licences (2010). The decrease in the number of facilities recorded in 2013 reflects changes to conferral arrangements for offshore petroleum facilities in Western Australian designated coastal waters.

Petroleum activities

The number of petroleum activities increased from 104 in 2012 to 129 in 2013, based on activities identified in environment plans submitted to (and accepted by) NOPSEMA. Not all of the petroleum activities documented in environment plans may have commenced during 2013.

Petroleum activity types

In 2013, 176 activity types were assessed by NOPSEMA, of which 24% related to operations and 23% to drilling.

By law, petroleum exploration or development activities cannot commence without an environment plan being accepted by NOPSEMA. NOPSEMA categorises these activities according to those listed in the *Offshore Petroleum and Greenhouse Gas Storage (Regulatory Levies) Act 2003.*

Most of the petroleum activities in 2013 were related to facility/pipeline operations, subsea petroleum recovery or storage/processing/transport of petroleum. Seismic surveys are defined as a 'petroleum activity' under the OPGGS Act. An increase in petroleum activities related to operations in 2013 is attributable to NOPSEMA's requests for submission, or proposed revision, to environment plans that were accepted prior to the authority's commencement on 1 January 2012.

The 'other surveys' petroleum activity category includes geophysical and geotechnical surveys and other surveys that are required to support the exploration of petroleum. The 'other petroleum activities' category includes activities such as repairs to subsea installations, production cessation and non-production phases prior to decommissioning.

For more information about NOPSEMA's environmental management regulatory functions, see the 'Environmental resources' page at nopsema.gov.au

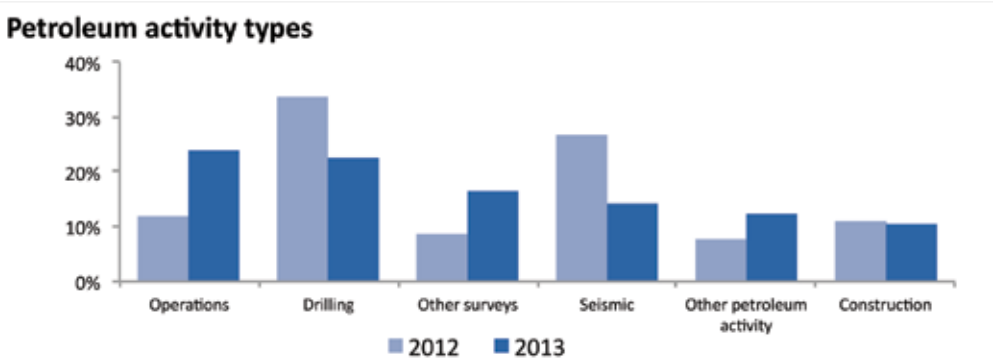


Figure 5.

By law, petroleum exploration or development activities cannot commence without an environment plan being accepted by NOPSEMA.

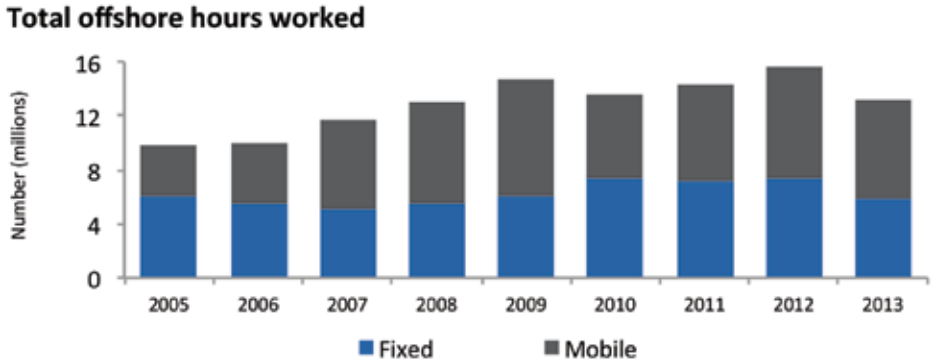
1.2 Hours worked offshore

Based on regulatory (injury summary) reports submitted by industry to NOPSEMA, the number of reported hours worked offshore decreased 16% from 15.7 million in 2012 to 13.2 million in 2013, the lowest since 2007.

In 2013, 56% of the hours worked offshore took place on mobile facilities and 44% on fixed facilities.

Annual total hours worked offshore	
Year	Number
2005	9 951 660
2006	10 334 531
2007	11 586 676
2008	13 224 089
2009	15 033 373
2010	13 589 209
2011	14 467 978
2012	15 669 197
2013	13 190 720

Table 3.



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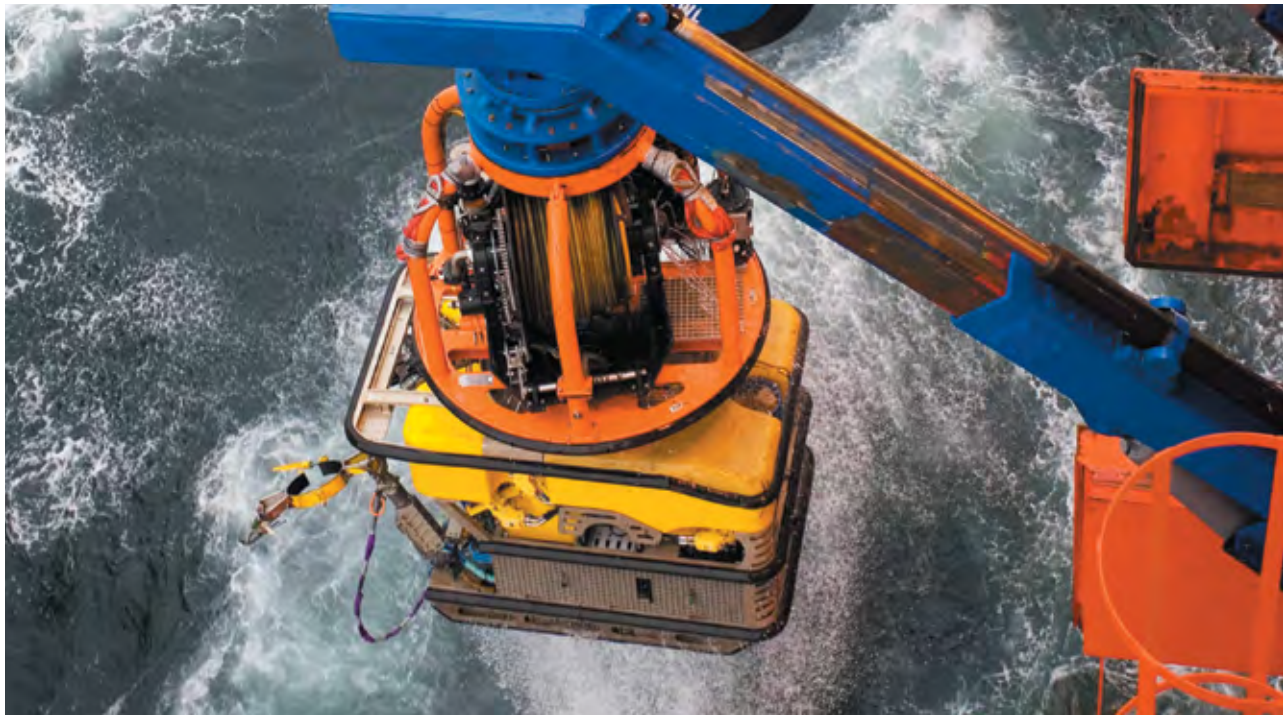


2. Fatalities and injuries

NOPSEMA is encouraged that the rate of injuries has declined across all categories, including major injuries. Offshore workers, however, continue to be hurt and most reported injuries in 2013 prevented them from carrying out their regular work. MODUs consistently account for the highest number of injuries suffered by the offshore workforce across all facility types. Organisations must continue to dedicate resources to training, equipment and processes that better protect offshore workers. The accident in 2012 in which two offshore workers were killed during drilling operations on the *Stena Clyde* reflects this imperative.

NOPSEMA compiles injury data from mandatory monthly reports submitted by operators to the authority. 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. The injury summary reports are distinct from reports of accidents and dangerous occurrences, which must be made to NOPSEMA as soon as reasonably practicable following the incident. See Chapter 3 for more information about accidents and dangerous occurrences.

Lower injury rates since 2008 should be commended as they represent *actual harm avoided* and demonstrate continuing efforts by operators to prevent further fatalities and injuries. NOPSEMA calculates the injury rate by taking the total number of injuries recorded against the total hours worked offshore 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 132.

2.1 Fatalities

NOPSEMA is continuing its independent investigation into the accident on 27 August 2012, when two offshore workers were killed on the *Stena Clyde* MODU facility in the Bass Strait, during drilling operations. More information about NOPSEMA's independent investigation into the accident and preliminary considerations is available at nopsema.gov.au. See also Chapter 5.

2.2 Major injuries

There were two major injuries recorded in 2013, which accounted for 3% of the total number of injuries. See Chapter 5 for more information.

The rate of major injuries has fluctuated between 0.15 and 1.00. Since 2008, the rate has trended downwards to a low of 0.15 in 2013.

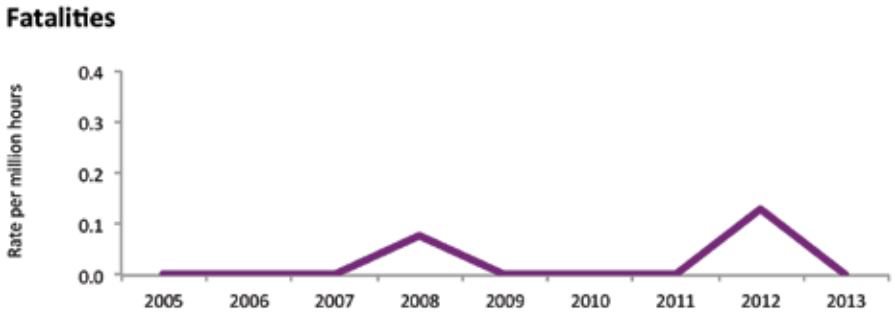
2.3 Total recordable cases

Total recordable cases (TRCs) are calculated by adding the number of lost time injuries (LTIs), alternative duties injuries (ADIs) and medical treatment injuries (MTIs).

In summary: TRC = LTI + ADI + MTI.

The total number of injuries reported for 2013 was 71, of which 41% were ADIs (i.e. a work-related injury that is not major and results in the worker not being fit to perform their regular work). See 2.5 for more information on ADIs.

The rate of total recordable cases decreased to 5.2 in 2013. See Appendix 1 and 2 for more information about the classification of injuries and groups.



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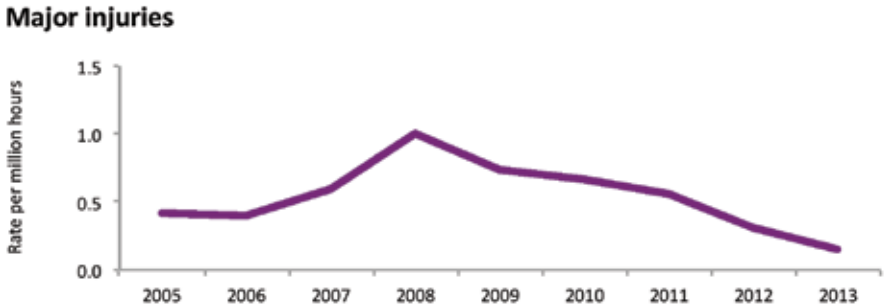

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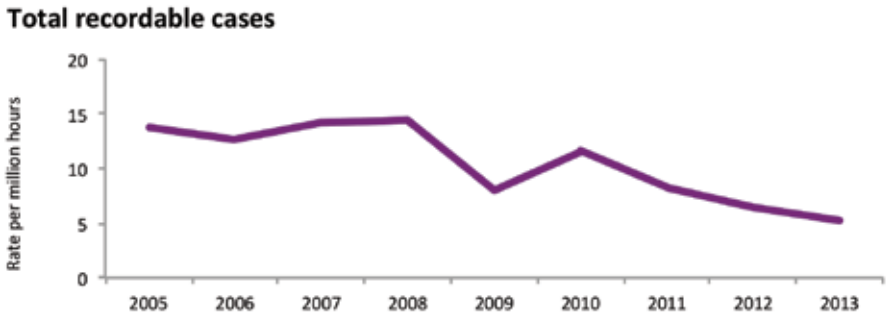


Figure 9.

2.4 Lost time injuries

Lost time injuries ≥3 days

The rate for lost time injuries requiring three or more days away from work has continued to decrease since 2010. The rate in 2013 was the lowest level recorded since 2005, at 1.03.

In 2013, 14 injuries were reported in this category, accounting for 18% of all reported injuries.[8]

Lost time injuries <3 days

There were no lost time injuries requiring less than three days away from work reported to NOPSEMA 2013. In 2012, the rate for this category was reported at 0.13.

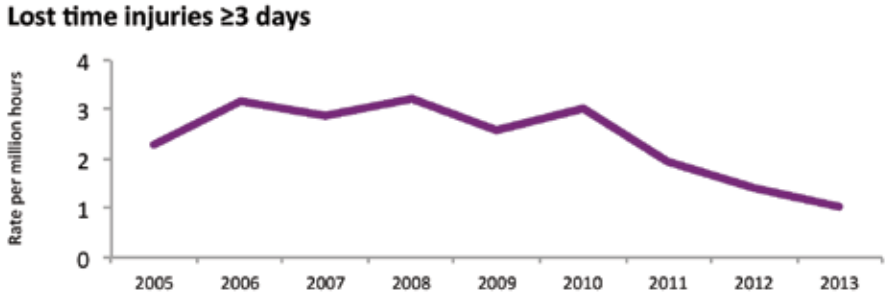
2.5 Alternative duties injuries

The rate of injuries preventing an offshore worker from carrying out their normal duties to full capacity has remained stable since 2011.

In 2013, 29 injuries were reported in this category, accounting for 41% of all reported injuries. The nature and location of these 29 injuries included:

- 50% were classified as traumatic joint/ligament and muscle/tendon injury
- 29% were wounds, lacerations, amputations or internal organ damage
- 32% were classified as hand-related injuries
- 14% involved injuries to the knee.

The rate of ADIs decreased from 2.74 in 2012, to 2.14 in 2013.



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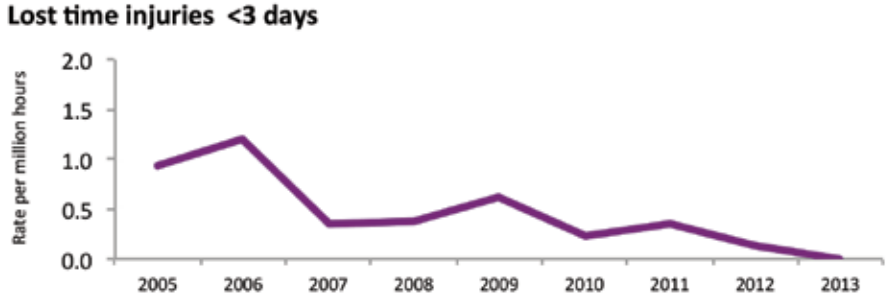

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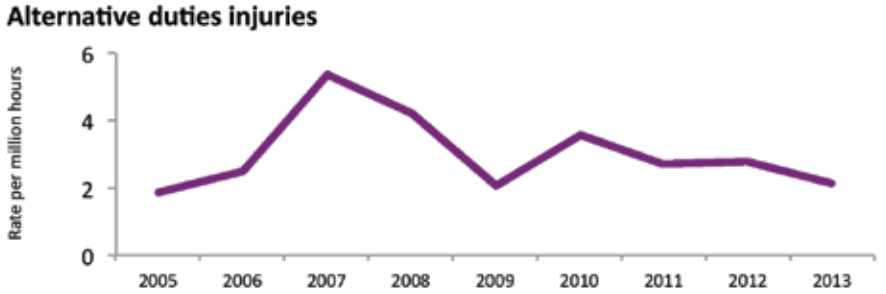


Figure 12.

8 Injury summary reports are distinct from initial notifications of accidents and dangerous occurrences, which must be made to NOPSEMA as soon as reasonably practicable following the event. An operator may re-categorise injuries in an injury summary report as a result of increased knowledge about the impact of the event.

2.6 Medical treatment injuries

The rate of medical treatment injuries has shown an overall decreasing trend to the lowest level recorded of 2.07 in 2013.

In 2013, 28 injuries were reported in this category accounting for 39% of all reported injuries.

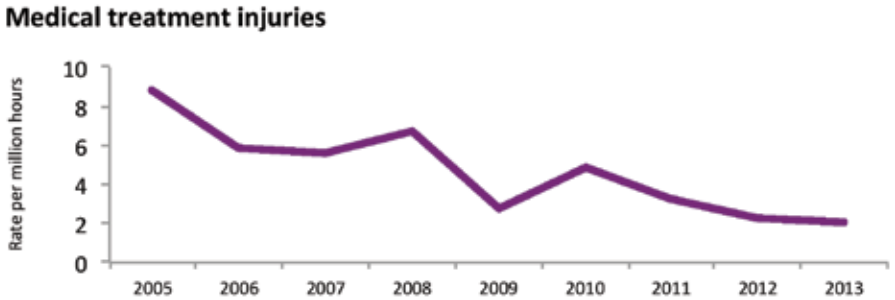


Figure 13.

2.7 Injuries by facility type

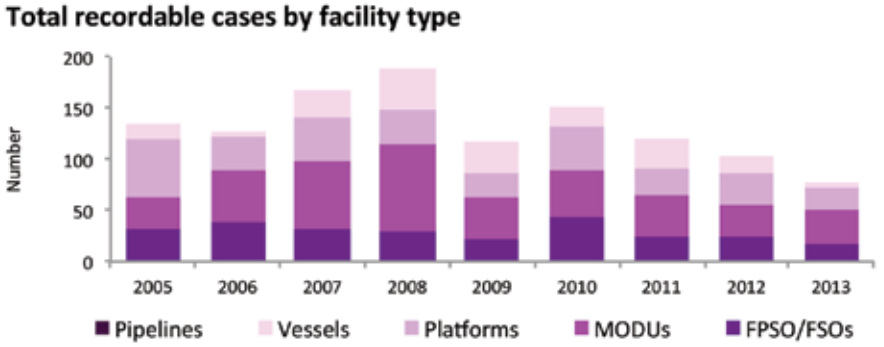
Total recordable cases by facility type

Since 2006, injuries on MODUs have typically accounted for the highest number of injuries (total recordable cases) by facility type. In 2013, 28 injuries were reported on MODUs compared to 23 on platforms, the next highest category. The number of injuries reported on FPSO/FSOs decreased from 25 in 2012 to 15 in 2013.

Injury rates by facility type

There have been improvements in the rates of injuries recorded both in the fixed and mobile facility categories. The rates recorded against FPSOs (fixed) and vessels (mobile) are the lowest recorded since 2005, at 6.13 and 2.34 respectively.

Since 2005, the rate of injuries reported on FPSOs has remained the highest recorded for all facility types. The rate of injuries on MODUs decreased to 5.39 in 2013, from 6.23 in 2012. There have been no recorded injuries for pipeline facilities since 2005, reflecting that pipelines are not normally attended.



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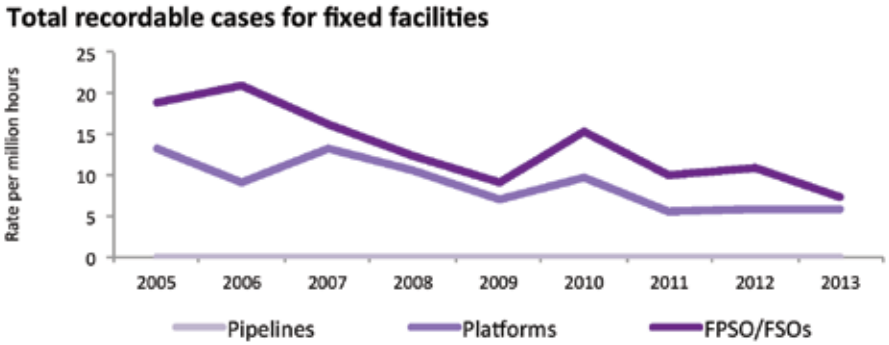


Figure 15.

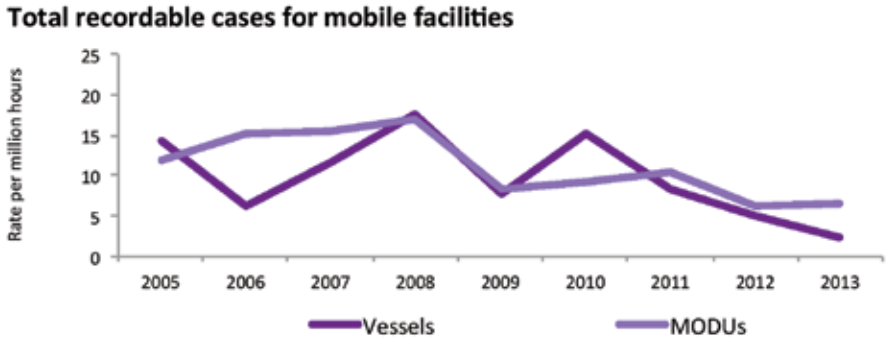


Figure 16.

2.8 Injury classification

A review of reported injuries to NOPSEMA in 2013 against the Type of Occurrence Classification System (TOOCS) used by Safe Work Australia[9] shows:

Nature of injuries

- 29% of reported injuries were 'traumatic joint, ligament and muscle, or tendon' injuries
- 27% of reported injuries were 'wounds, lacerations, amputations, internal organ damage'.

Location of injuries

- 21% of reported injuries were to workers' hands
- knee injuries were also prominent, making up 40% of all 'traumatic joint/ligament and muscle/tendon' injuries.

Mechanism of incidents

- 31% of reported injuries were caused by workers being hit by moving objects
- 19% of reported injuries were due to workers hitting stationary objects
- 23% of reported injuries were caused by body-stressing
- the number of operators not specifying the mechanism of incident increased to 27% in 2013 from 9% in 2012.

Agency of injuries

- 31% of all reported injuries involved non-powered hand-tools, appliances and equipment.

For more information about TOOCS go to the Safe Work Australia website.

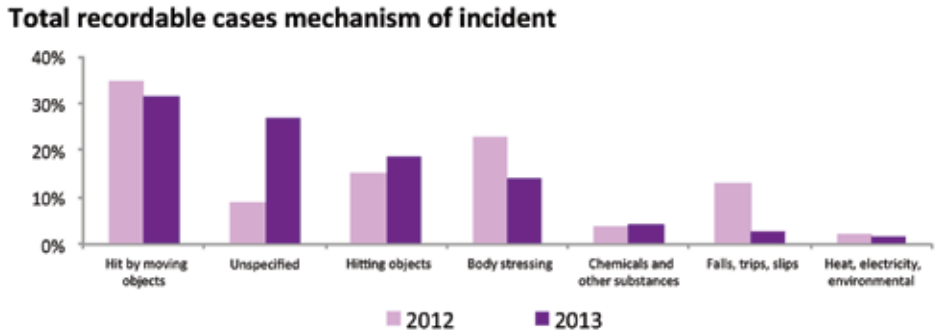


Figure 17.

MODUs consistently account for the highest number of injuries suffered by the offshore workforce across all facility types.

9 NOPSEMA and Safe Work Australia operate under entirely separate legislation. NOPSEMA has no role in workers' compensation arrangements in Australia and refers to the TOOCS system in this report as an information tool only.

3. Incidents

In 2013, the total number of accidents and dangerous occurrences decreased, but uncontrolled hydrocarbon releases increased. Hydrocarbon releases are a focus for NOPSEMA, given the risk of ignition from gas and liquids and the associated potential threat to lives and the environment. The continuing prevalence, among incident root causes, of inadequate design specifications, inadequate preventive maintenance, and inadequate procedures, signals an opportunity for organisations to focus on these aspects of their operations for improved performance.

NOPSEMA holds organisations to account for any breaches of their responsibilities, in order to deliver the best possible safety and environmental outcomes. See Chapter 8 for more information about enforcement action taken by NOPSEMA to secure compliance.

By law, operators are required to alert NOPSEMA to offshore petroleum incidents, which the authority categorises into two groups, as provided in the legislation:

1. Reportable OHS and environmental incidents

These incident types must be notified immediately to NOPSEMA and comprise:

Accidents – incidents where an offshore worker is killed, suffers a serious injury, suffers an injury requiring three or more days off work or contracts an illness or disease requiring three or more days off work.

Dangerous occurrences – incidents that did not, but could reasonably have, caused an accident (see above); fires or explosions; collisions; uncontrolled hydrocarbon releases; well kicks; unplanned events that resulted in the implementation of emergency response plans; damage to safety-critical equipment; damage to a pipeline; or any other incident a reasonable operator would deem requires an immediate investigation.

Environmental reportable incidents – an incident, relating to an offshore petroleum activity, which has caused or has the potential to cause moderate to significant environmental damage.

2. Recordable environmental incidents

These incident types are covered by a monthly report recording all breaches of an operator's environmental performance objective(s) or environmental performance standard(s) contained in their environment plan. By law, it is mandatory for operators to report these incidents to NOPSEMA, but they can choose whether to lodge a 'nil incidents' monthly report, if applicable.

NOPSEMA publishes quarterly updates at nopsema.gov.au on the following key industry performance indicators (KPIs):

- accident rate
- dangerous occurrence rate
- hydrocarbon release rate
- international benchmarks.

To access these updates, go to the 'Industry performance' page at nopsema.gov.au

Incidents

Organisations (mainly facility operators) reported the following incidents to NOPSEMA in 2013:

- 371 OHS reportable incidents (see 3.1)
- 34 environmental reportable incidents (see 3.3)
- 172 environmental recordable incidents (see 3.3).

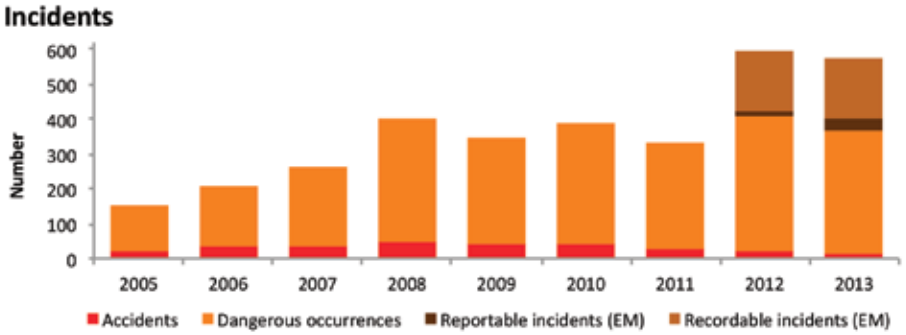


Figure 18.

3.1 Occupational health and safety incidents

Of the 371 OHS incidents reported in 2013, 13 were classified as accidents and 358 as dangerous occurrences. The total number represents an 8% decrease from 2012.

NOPSEMA calculates incident rates by taking the total number of incidents or type of incident recorded against the total hours worked offshore and then standardising to one million hours. This allows for direct comparison between years.

Accidents

The number of accidents decreased from 19 in 2012 to 13 in 2013 (32%). The accident rate for 2013 reached the lowest level recorded since 2005, at 0.96.

The 13 accidents reported to NOPSEMA in 2013 comprised two serious injuries and 11 lost time injuries requiring three or more days off duty. For more information, see Chapter 2, Chapter 5 and Appendix 1, 2 and 3.

Dangerous occurrences

Compared to 2012, in 2013 the number of dangerous occurrences decreased by 26 to 358.

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

- uncontrolled hydrocarbon releases
- well kick > 50 barrels
- unplanned event requiring the activation of the emergency response plan
- other kind needing immediate investigation
- collision marine vessel and facility
- could have caused death or serious injury.

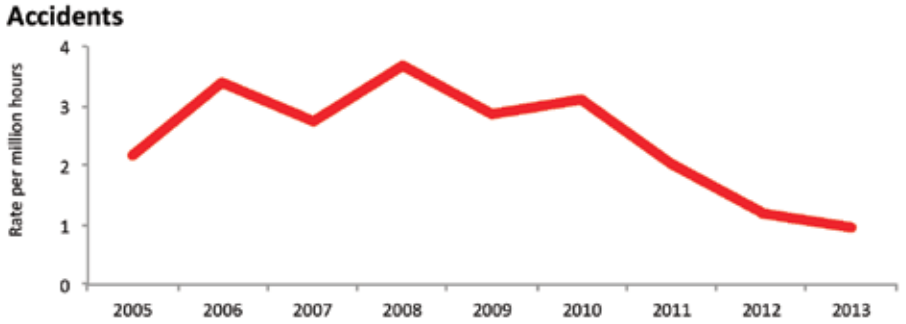


Figure 19.[10]

Figure 20.

10 The increase in the rate of reported OHS incidents from 2005 to 2008 may reflect a combination of factors, including increased operator awareness of legislated reporting requirements and/or an increase in offshore petroleum activity.

Incidents

NOPSEMA categorises a range of incident types as dangerous occurrences, as stated in the OPGGS Act, and listed in Appendix 3.

For ease of reference to the graphs in this section, NOPSEMA has combined data for several categories of dangerous occurrences (see also Appendix 3).

Figure 21 shows the following:

'Could have caused death, serious injury or LTI' comprises two dangerous occurrence categories:

Could have caused death or serious injury
Could have caused incapacity (Lost time injury ≥3 days)

'Total hydrocarbon (HC) releases' comprise four dangerous occurrences categories:

Uncontrolled hydrocarbon gas release >1-300 kg
Uncontrolled hydrocarbon gas release >300 kg
Uncontrolled petroleum liquid release >80-12 500 L
Uncontrolled petroleum liquid release >12 500 L

See also the 'Spotlight on hydrocarbon releases' section in this chapter.

The rate of reported fires or explosions offshore decreased from 0.57 in 2012 to 0.30 in 2013.

The rate of dangerous occurrences classified as 'could have caused death, serious injury or lost time injury' also decreased in 2013 to 3.11 from 3.95 in 2012.

The rate of OHS uncontrolled hydrocarbon releases (gas and liquid) increased from 1.08 in 2012 to 1.48 in 2013. For more information, see the 'Spotlight on uncontrolled hydrocarbon releases' in this chapter.

Figure 22 shows the following:

'Pipeline incidents' comprise three dangerous occurrences categories:

Pipelines – substantial risk of accident
Pipelines – kind needing immediate investigation
Pipelines – significant damage

The rates of collisions and well kicks remain low, but increased slightly in 2013 to 0.23 and 0.08 respectively. The rate of pipeline incidents remained at 0.

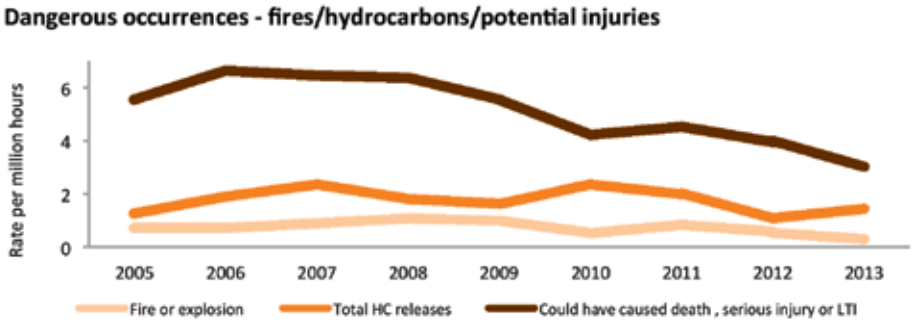


Figure 21.

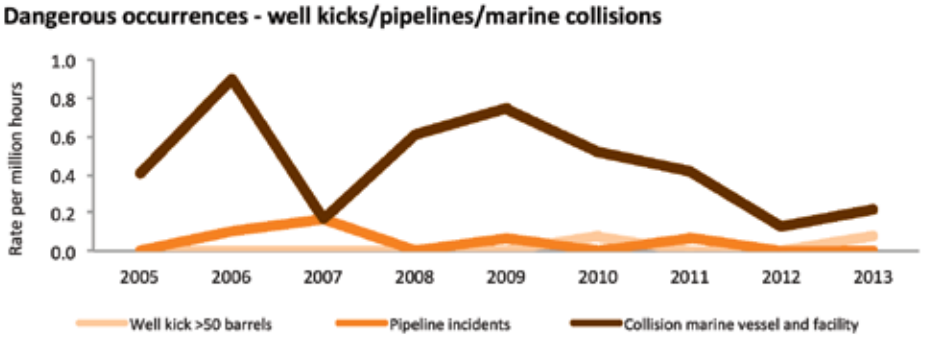


Figure 22.

By law, operators are required to alert NOPSEMA to offshore petroleum incidents.

Incidents

The rate of reported damage to safety-critical equipment decreased from 8.16 in 2012 to 7.38 in 2013. NOPSEMA published a safety alert and newsletter article relating to the testing and reporting of damage to safety-critical equipment. See ‘Safety Alert 58’ and ‘Testing of safety-critical equipment’ in Issue 5 2013 of *the Regulator* at nopsema.gov.au

The rate of reported incidents classified as ‘Other kind needing immediate investigation’ increased from 1.66 in 2012 to 3.17 in 2013 and related to a variety of incidents such as dropped objects, valve failures and lifting operations.

The rate of emergency response plan (ERP) incidents increased from 8.86 in 2012 to 10.77 in 2013.

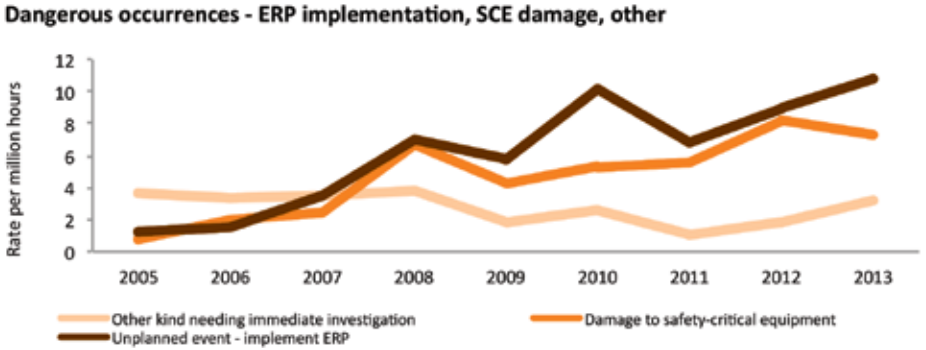


Figure 23.

3.2 Spotlight on hydrocarbon releases

OHS hydrocarbon releases

Following an improvement in industry performance against this indicator in 2012, the number of OHS related uncontrolled hydrocarbon releases reported to NOPSEMA increased from 17 in 2012 to 20 in 2013.

Operator reports of OHS uncontrolled hydrocarbon releases deserve special attention, due to the high risk of ignition of the gas or petroleum liquid, potential widespread damage and associated threat to lives.

The majority of OHS uncontrolled hydrocarbon releases reported in 2013 occurred at fixed platform facilities. Of the 20 releases that occurred, 13 were at normally attended platforms, four were at FPSOs, and the remaining three were divided equally among MODUs, not normally attended platforms and pipeline facilities.

The rate of hydrocarbon liquid releases has been stable at 0.07 from 2012 to 2013, with only one release in each year. The rate of hydrocarbon gas releases has increased from 1.02 in 2012 to 1.40 in 2013.

The root causes identified for OHS uncontrolled hydrocarbon releases in 2013 indicate a need for greater focus by industry on design (39%), preventive maintenance (18%) and management systems (12%). See Chapter 9 for more information.

Environmental hydrocarbon releases

The release of hydrocarbons can also impact on the environment, therefore, some reported incidents constitute both OHS and environmental incidents.

The number of environmental uncontrolled hydrocarbon releases reported to NOPSEMA increased from 2 in 2012 to 8 in 2013.

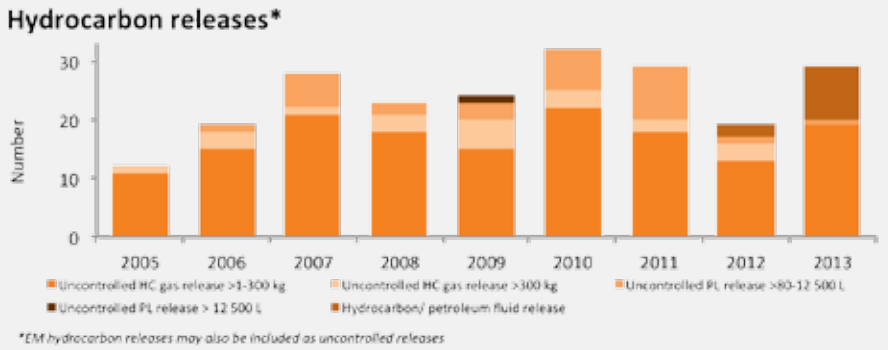


Figure 24.

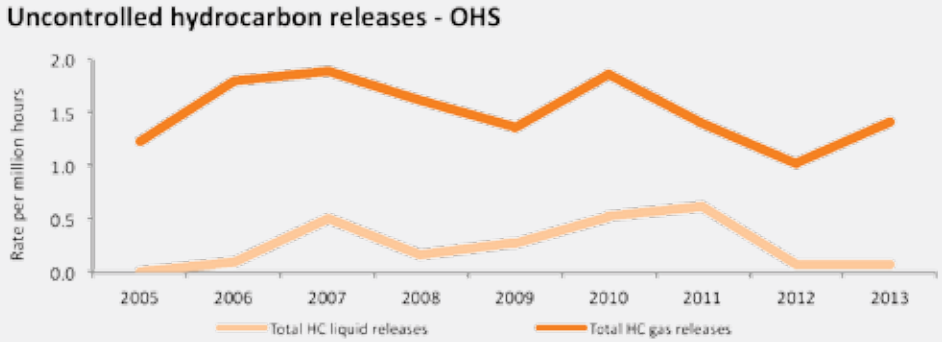


Figure 25.

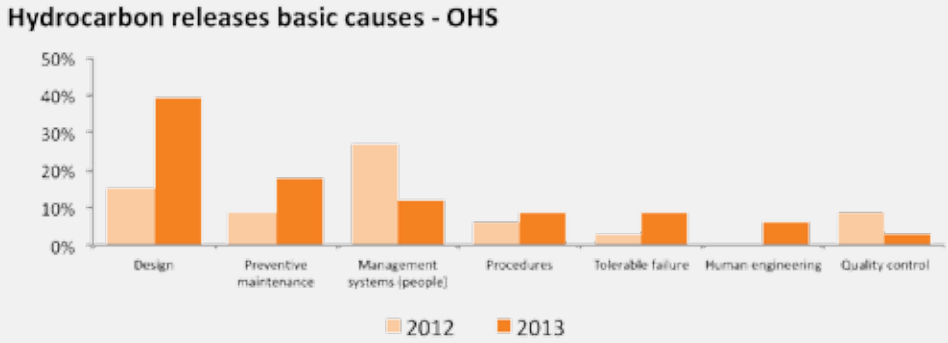


Figure 26.

3.3 Environmental incidents

Reportable environmental incidents

The number of reportable environmental incidents reported to NOPSEMA increased from 17 in 2012 to 34 in 2013. The incidents occurred across a range of petroleum activities, including seismic surveys, construction and installation work, drilling and operations. Of the 34 incidents reported in 2013, 14 (41%) were chemical releases. An increase in the number of reportable incidents under the category of chemical releases reflects incidents at the advanced stages of construction projects and subsea installation activities. Chemical releases were generally due to inadvertent operation of discharge equipment attributable to failure to follow procedures or incorrect use of equipment. While environmental impacts were not significant, the releases indicate a need to improve prevention measures to avoid loss of containment.

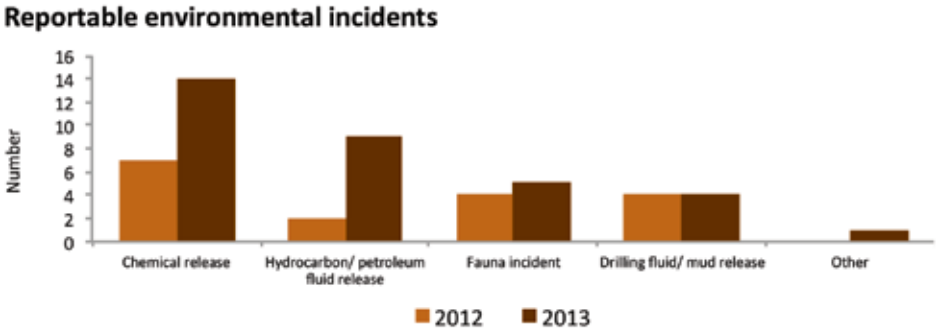


Figure 27.

Incidents classified as ‘other’ in Figure 27 include incidents identified in environment plans (e.g. other spills of substances such as hydraulic fluid or waste).

Recordable environmental incidents

In 2013, the number of recordable environmental incidents reported to NOPSEMA decreased to 174, from 175 in 2012.

The number of recordable incidents by category is similar to 2012, apart from a decrease in incidents involving ‘solid waste discharges and dropped objects’, and an increase in ‘chemical spills’.

The ‘chemical spills’ category covers volumes between several litres and tens of kilolitres, and involves chemicals such as subsea hydraulic fluids, drilling muds, blow-out preventer fluids and spills of topside chemicals (e.g. corrosion inhibitor and mono-ethylene glycol).

More than half of the environmental recordable incidents (58%) in 2013 occurred on facilities during production activities (including FPSOs, platforms and subsea facilities), 16% occurred during drilling, 9% during construction and installation of facilities, 6% during seismic surveys, 5% during construction and installation of pipelines, and 7% during any other types of petroleum activities.

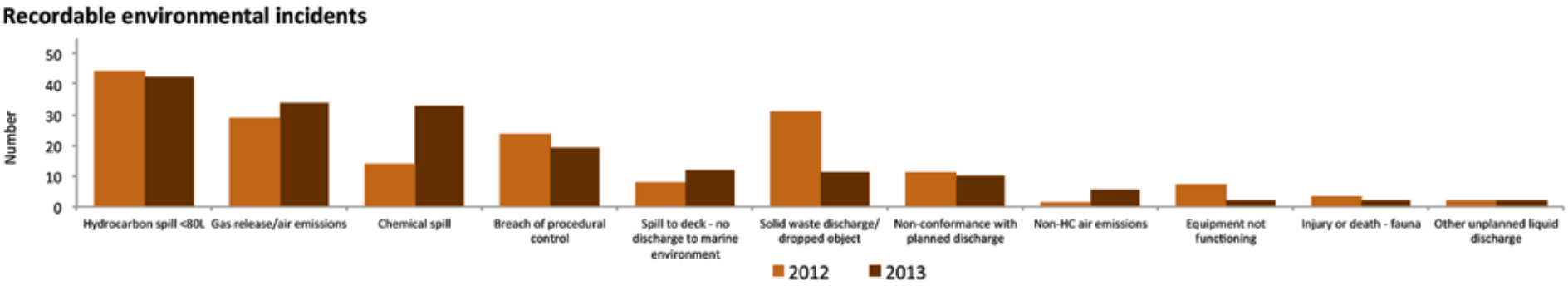


Figure 28.

3.4 Occupational health and safety incident root causes

As part of the legislative requirement to report accidents and dangerous occurrences to NOPSEMA dutyholders are required to provide a root cause analysis as part of each accident or dangerous occurrence 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 safety outcomes.

The consistent pattern of root causes identified in incident reports to NOPSEMA indicates organisations have an opportunity to focus their risk management and control measures on particular problem areas and yield better safety outcomes.[11]

In recognition that many operators refer to the TapRoot® scheme to identify root causes of incidents, NOPSEMA converts additional or alternative reported root cause categories to the TapRoot® classifications, to present information consistently. Under the TapRoot® scheme, causes of OHS incidents are divided into two categories:

- human performance difficulties
- equipment difficulties.

In 2013, issues with equipment design continued to be the most common basic cause identified in OHS reported incidents. Matters related to 'preventive maintenance' were more prominent in 2013 (12%) than in 2012 (8%), elevating it to the second most prevalent root cause identified. Procedural failures have been one of the three most common root causes identified since 2005.

Within each type of basic cause category are specific root cause categories. For example, OHS incidents in 2013 can be attributed to issues with design (29%), the specific root causes identified were:

- design specifications – problem not anticipated (17%)
- design specifications – needs improvement (5%)
- design specifications – design not to specification (3%)
- other design root causes (3%).

Basic root cause classification	
Human performance difficulties (HPD)	Procedures
	Training
	Quality control
	Communications
	Management systems
	Human engineering
	Work direction
Equipment difficulties (ED)	Design
	Equipment/parts defects
	Preventive maintenance
	Management systems
	Tolerable failure

Table 4.

Basic causes of OHS incidents – 2013	
Cause type	%
Design	29
Preventive maintenance	12
Procedures	11
Management systems – people	9
Human engineering	8
Not applicable/not identified	7
Work direction	6

Table 5.

11 There is no legislated requirement for operators to attribute root causes for reported environmental incidents. Amendments to the Environment Regulations made in 2014 provide NOPSMEA the power to request further written information in relation to an incident, this could include a root-cause analysis where appropriate.

Accidents

In 2013, the top three root causes identified in reported accidents were ‘work direction’ (25%), ‘design’ (22.5%) and ‘procedures’ (17.5%).

Accident basic causes				
2009	2010	2011	2012	2013
Procedures	Work direction	Procedures	Management systems – people	Work direction
Work direction	Procedures	Work direction	Human engineering	Design
Human engineering	Design	Human engineering	Procedures	Procedures
Design	Training	Management systems – people	Work direction	Human engineering
Other	Human engineering	Design	Design	Training

Table 6.

Dangerous occurrences

Problems associated with equipment design continue to account for the majority of dangerous occurrences reported to NOPSEMA in 2013 (29% of all root causes identified). The second most prevalent root cause was ‘preventative maintenance’ (13%), followed by ‘procedures’ (11%).

Dangerous occurrences basic causes				
2009	2010	2011	2012	2013
Procedures	Design	Design	Design	Design
Design	Procedures	Procedures	Procedures	Preventative maintenance
Equipment parts/Defects	Preventive maintenance	Preventive maintenance	Preventive maintenance	Procedures
Human engineering	Equipment parts/defects	Equipment parts/defects	Equipment parts/defects	Management systems – people
Preventive maintenance	Management systems – people	Management systems – people	Management systems – people	Human engineering

Table 7.

NOPSEMA holds organisations to account for any breaches of their responsibilities, in order to deliver the best possible safety and environmental outcomes.

4. Complaints

As part of NOPSEMA's role to secure compliance by offshore petroleum organisations, the authority can receive and investigate complaints about conditions and issues that may affect the occupational health and safety of workers at a facility or in relation to an environmental activity. NOPSEMA encourages members of the offshore workforce to raise any health and safety or environmental management concerns with facility management and safety committee representatives.

NOPSEMA received eight complaints in 2013; five complaints were in relation to health and safety matters and three were in relation to environmental management matters.

All complaints were reviewed by NOPSEMA's investigation team. One complaint was substantiated and, following an investigation, enforcement action was taken.

Three of the complaints received in 2013 were related to FPSOs/FSOs, two to MODUs, and three involved seismic surveys.

In 2012, NOPSEMA introduced a new category, 'Information only', for general and specific information provided to NOPSEMA without an expectation of action to be taken. 'Information only' notifications are not categorised as a substantiated OHS or EM complaint. For example, this category could cover information received about a supply vessel operating outside of NOPSEMA's jurisdiction. NOPSEMA does not investigate these notifications. In previous years, 'Information only' notifications were classified as complaints, as reflected in the data prior to 2012 in Table 8 and Figure 29.

NOPSEMA calculates the complaint rate by taking the total number of complaints recorded against the total hours worked in a calendar year and then standardising to one million hours. The complaint rate for 2013 is 0.68 per million hours worked.

Complaint numbers[12]									
Complaint type	2005	2006	2007	2008	2009	2010	2011	2012	2013
Occupational health and safety	34	38	28	28	16	16	24	5	5[13]
Environmental management	-	-	-	-	-	-	-	0	3

Table 8.

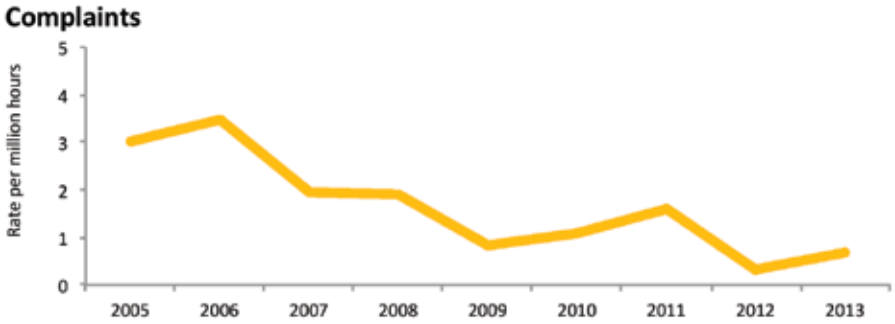


Figure 29.

12 From 2012, NOPSEMA introduced a category, 'Information only'. These are not reflected in the table from 2012 onwards.
13 One complaint also included EM matters.

Complaints

Complaint[14] topics									
Topic	2005	2006	2007	2008	2009	2010	2011	2012	2013
Management issues	6	12	3	8	3	5	8	2	3
Culture/general safety issues	6	10	4	3	6	5	9	1	3
Work procedures/methods/practices	3	4	5	5	5	8	6	0	2
Competency/staffing	4	9	4	5	3	2	4	0	0
Equipment	5	5	6	5	4	3	1	1	0
Safety-critical equipment	4	5	7	2	2	2	5	0	0
Work environment – noise, heat, pollution	5	7	4	3	1	2	2	0	1
Services/galley/accommodation	3	2	2	3	2	2	2	1	0
Reporting investigations/incidents, remedial actions	2	1	5	2	0	2	3	1	0
Fatigue/shifts/rosters	2	3	1	5	2	1	1	1	0
Bullying/intimidation	1	1	2	2	1	1	5	2	3
Cyclone evacuations	0	3	1	1	1	2	3	0	0
HSR matters/safety committees	1	1	1	1	0	2	0	0	0
General environmental matters/pollution	-	-	-	-	-	-	-	0	1
Stakeholder consultation activities	-	-	-	-	-	-	-	0	3
Timing of petroleum activities	-	-	-	-	-	-	-	0	3
Total topics	**42**	**63**	**45**	**45**	**30**	**37**	**49**	**9**	**19**
Total complaints	**34**	**38**	**28**	**28**	**16**	**16**	**24**	**5**	**8**

Table 9.

14 From 2012, NOPSEMA introduced a category, 'Information only'. These are not reflected in the table from 2012 onwards.

5. Investigations

NOPSEMA conducts independent investigations into accidents, dangerous occurrences, reportable environmental incidents and substantiated complaints to identify breaches of the offshore safety and environmental management legislation and to share key lessons with industry.

NOPSEMA's investigations can be lengthy and complex, as was the case with the successful prosecution over the Montara well blowout in 2009. NOPSEMA is continuing its independent investigation into the accident on 27 August 2012, when two offshore workers were killed on the *Stena Clyde* MODU facility in the Bass Strait, during drilling operations. The authority is committed to conducting a thorough and independent investigation. To date, the investigation has involved the review of a considerable amount of evidence. NOPSEMA has published preliminary considerations at nopsema.gov.au and remains committed to sharing further information in due course.

The NOPSEMA investigation team received and processed 401 incident notifications in 2013. A number of these incidents were escalated up to an investigation. The summaries included in this chapter contain root causes[15] (for OHS incidents) and corrective actions identified or taken by the operator. The legislation does not provide for NOPSEMA to publish full inspection (investigation) reports.[16] Investigations into some of the incidents summarised in this report commenced prior to 2013 and are ongoing.

Investigations as a result of a complaint about health and safety or environmental management matters are not included, in the interests of protecting the identity of complainants and encouraging continued reporting. For more information about complaints relating to offshore health and safety, and environmental management matters, see Chapter 4.

By law, operators are required to notify NOPSEMA of offshore incidents and can do so by calling (08) 6461 7090.

For more information about reporting an accident, dangerous occurrence or environmental incident, see the guidance on reporting and notification under the 'Safety' and 'Environmental management' tabs at nopsema.gov.au

15 For more information about incident root cause classification, see Chapter 3 and Appendix 3.
16 Distribution of reports from NOPSEMA investigations into health and safety matters is covered in Schedule 3 to the OPGGS Act.

5.1 Accidents and dangerous occurrences[17]

OHS incidents are presented in chronological order. The summaries list the facility operator and facility on which the incident occurred. For more information about the incident notification classification, see Appendix 3.

Dangerous occurrence – Could have caused death or serious injury – Failure of rigging equipment		
Stena Drilling (Australia) Pty Ltd	*Stena Clyde* (MODU)	30 January 2013
Incident description	During a coiled tubing unit (CTU) operation on the drill floor, a 2-tonne sling used to secure the CTU injector upright parted	
Immediate cause	The 2-tonne sling was wrapped around a sharp edge of a derrick beam (mechanical damage)	
Root causes	Poor lifting practice adopted by the drill crew failed to be identified at a time out for safety	
Corrective actions	Revise/audit the rig-specific lifting manual to ensure good lifting practice is implemented	
Further actions	One improvement notice	

Dangerous occurrence – Other kind needing immediate investigation – Run out of anchor chain/wire		
Atwood Oceanics Pacific Ltd	*Atwood Falcon* (MODU)	15 February 2013
Incident description	During an anchor handling operation to perform an anchor winch wire crossover, the operator clutched in the winch to lower the wire prior to commencing the changeover. The chain began to creep, then accelerated, and about 200 feet of chain was completely paid out	
Immediate cause	The anchor winch brake band yielded under the applied load and the braking system (pawl) was not engaged as a failsafe	
Root causes	The manufacturer's operating manual was not consulted for the correct procedures that required the user to engage the pawl	
Corrective actions	Develop a rig specific procedure that covers anchor winch operations in line with the original equipment manufacturer (OEM) operators manual	

17 For more information about the classification of offshore incidents, see Chapter 3. For an explanation of the terms used in this chapter, see Appendix 1, 2 and 3 and the Glossary.

Dangerous occurrence – Could have caused death or serious injury – Elevator handle fell to drill floor		
Atwood Oceanics Pacific Ltd	*Atwood Eagle* (MODU)	18 February 2013
Incident description	During a skidding operation to land out the blowout preventer, a handle from the 750 tonne elevator came into contact with the compensator hose bundle and broke. The handle weighing 2 kilograms fell 12 metres to the drill floor	
Immediate cause	The position and type of motion compensator hose bindings were not identified as a potential hang up point	
Root causes	Weather conditions caused the motion compensator hoses to sway, to the extent that they came into contact with elevators when the motion compensator was stroking out (due to heave)	
Corrective actions	Revise the assistant driller's checklist to ensure the location of the compensator hoses binding/clamp is outside the stroke-out zone of the motion compensator	

Dangerous occurrence – Damage to safety-critical equipment – Bolts on riser worked loose		
Ensco Australia Pty Ltd	*ENSCO 109* (MODU)	18 February 2013
Incident description	During a drilling operation, the majority of the nuts on the flange between the high pressure riser and fast lock adaptor were found to be loose	
Immediate cause	The HP riser and fast lock adapter flange connection status was not confirmed at the well handover between the facility operator and drilling contractor	
Root causes	The well construction plan that required the HP riser 'fast lock' connection to be checked was not communicated to the workforce doing the job	
Corrective actions	Revise well hand over documentation to include a specific reference in the daily instructions issued by the drilling supervisor. Verify the status of all wellhead equipment delivered to the rig	
Further actions	Four recommendations	

Dangerous occurrence – Other kind needing immediate investigation – Sinking of riser turret mooring		
PTTEP Australasia (Ashmore Cartier) Pty Ltd	*Jabiru Venture* (FPSO)	2 March 2013
Incident description	Australian Customs and Border Protection Service contacted the facility operator advising that the riser turret mooring (RTM) was no longer visible on radar	
Immediate cause	Unknown	
Root causes	None identified	
Corrective actions	Make the RTM safe to prevent any additional unplanned outcomes or release of the adjacent mid depth buoys	

Investigations

Dangerous occurrence – Could have caused death or serious injury – Aviation light fell from top of derrick		
Sedco Forex International Inc	*Jack Bates* (MODU)	11 March 2013
Incident description	A navigation light cover and globe fell 43 metres from the top of the derrick to the pipe deck	
Immediate cause	Corrosion of the retaining bracket and secondary retention	
Root causes	Failure to follow the maintenance system and lack of supervision of the independent/third party dropped objects prevention scheme (DROPS) survey	
Corrective actions	Review the DROPS independent survey process to ensure the recommendations are tracked and closed out	
Further actions	Two improvement notices and one recommendation	

Dangerous occurrence – Damage to safety-critical equipment – Subsea tie in tee valve passing		
Origin Energy Resources Ltd	*Otway subsea pipeline VIC/PL36* (Pipeline)	8 March 2013
Incident description	When testing the double block and bleed valves on the subsea tie in tee, a leak was identified on the upstream valve	
Immediate cause	A technical infringement of the isolation philosophy that positive isolation, in the form of a blank flange on the downstream block valve of the double block, was not applied	
Root causes	The isolation configuration did not conform with the project equipment isolation requirements	
Corrective actions	Integrate the subsea isolation document for process isolations into the corporate isolation philosophy	

Dangerous occurrence – Damage to safety-critical equipment – Electrical faults resulting in repeated blackout of facility		
Maersk Drilling Australia Pty Ltd	*Nan Hai VI* (MODU)	13 March 2013
Incident description	During a well test operation, the voltage to the emergency shut down (ESD) system was lost, resulting in total black out	
Immediate cause	Numerous electrical faults each contributed to, and compounded, the situation	
Root causes	A fault on the changeover switch from the emergency switch board 440V/220V transformer resulted in lost voltage to the ESD system thereby causing a total black out	
Corrective actions	Employ an independent expert to visit the facility to assess the whole ESD and emergency switch board system in order to make recommendations for improvements and report on the general condition of the system	

Dangerous occurrence – Could have caused death or serious injury – Uncontrolled descent of fast rescue craft during recovery from water		
Woodside Energy Ltd	*Northern Endeavour* (FPSO)	24 March 2013
Incident description	While the fast rescue craft was being recovered with four crew members in the boat it was lifted to the main deck level (approx. 12 metres) when the hydraulics failed and the boat descended to the water	
Immediate cause	The installation of an incorrect hydraulic valve and failure to detect this during third part testing	
Root causes	Failure of supply chain QA/QC processes. Deficiencies in third party testing and certification procedures. Facility operator maintenance procedures not fully followed by contractor	
Corrective actions	Review supply chain QA/QC procedures and ensure maintenance procedures are fully complied with and completion recorded	
Further actions	One prohibition notice, two improvement notices and 12 recommendations	

Dangerous occurrence – Well kick >50 barrels – Well kick during drilling operations		
Sedco Forex International Inc	*Jack Bates* (MODU)	1 April 2013
Incident description	During a drilling operation, a pit gain of 76 barrels was picked up by the driller. The well was shut-in and the influx circulated out using the driller's method	
Immediate cause	Pore pressure predictions were underestimated and led to a reduced awareness when entering the reservoir section	
Root causes	Procedures were not followed, which caused the well control situation to escalate	
Corrective actions	Instruct drillers and toolpushers to go through their key responsibilities and acknowledge their understanding of procedures	

Dangerous occurrence – Damage to safety-critical equipment – Emergency shut down failed to isolate non-hazardous rated area electrical equipment		
ENI Australia B.V.	*Blacktip wellhead platform* (Production platform)	18 April 2013
Incident description	During testing of the emergency shut down (ESD) system, the function to isolate power to the communications cabinets failed. This function is required to reduce the ignition probability as these cabinets are not ex-rated	
Immediate cause	Failure of the ESD to initiate a power shutdown of the electrical loads in nonhazardous areas	
Root causes	The single motor-controlled circuit breaker (MCCB) design required 110V DC electrical supply to both open and close. Any single fault to the MCCB functioning would result in a failure of the 110V DC supply and therefore a failure of the ESD to meet all of its requirements	
Corrective actions	Issue a temporary work instruction requiring the work team to carry out a test of the 110V DC MCCB on arrival and prior to any work being carried out on the facility	
Further actions	Three recommendations	

Investigations

Dangerous occurrence – Other kind needing immediate investigation – Dropped object – Swivel D-ring pin		
Noble Leasing II (Switzerland) GMBH	*Noble Clyde Boudreaux* (MODU)	22 April 2013
Incident description	During the operation to run marine riser, a casing running tool was attached to the section of riser joint. A pin from of the shackle rigged up to the running tool fell 2.5 metres to the rig floor and another 6 metres to the main deck	
Immediate cause	The pneumatic winch pulling on the shackle created a lever motion that increased the force on the D-ring	
Root causes	The crew were not aware of a swivel failure mode. This failure mode is not described fully in the rigging and lifting manual	
Corrective actions	Provide training on the correct use of the swivel hoist ring utilising the information contained within the relevant manual	

Dangerous occurrence – Other kind needing immediate investigation – Part of wireline tool string dropped whilst being lifted		
Esso Australia Pty Ltd	*West Kingfish* (Production platform)	22 April 2013
Incident description	During a wireline operation, a lubricator together with a portion of a tool string was lifted from a horizontal to vertical position. As the rig winch commenced taking the load from the platform crane, a portion of the tool string fell from inside the lubricator striking the pipe deck	
Immediate cause	The tool string had unscrewed from the weight bar when installing the grease head which was inside the lubricator and could not be seen. The lubricator bottom safety cap was not installed prior to lifting as the tool string was longer than the lubricator	
Root causes	The contractor procedure for rig up was for a vertical assembly only, it did not cover horizontal rig up	
Corrective actions	Revise the wireline contractor's procedure for horizontal rig up to mandate the use of the end cap	

Dangerous occurrence – Other kind needing immediate investigation – During routine inspection it was identified that riser turret mooring was not on location		
BHP Billiton Petroleum Pty Ltd	*Griffin Venture* (FPSO)	18 May 2013
Incident description	During a routine inspection visit, it was observed that the remaining riser turret mooring structure of the decommissioned facility was missing, presumed submerged. Remotely operated vehicle inspection later confirmed this	
Immediate cause	Unknown	
Root causes	None identified	
Corrective actions	Revise the field decommissioning plan for the facility abandonment safety case	
Further actions	Two improvement notices and three recommendations	

Dangerous occurrence – Other kind needing immediate investigation – Excessive conductor movement at well head identified		
Apache Energy Ltd	*Stag Central* (Production facility)	20 May 2013
Incident description	Whilst investigating the sighting of an oil sheen, the operator noticed excessive wellhead and conductor movement on a production well	
Immediate cause	Conductor centralisation failed at 8 metres below the water line resulting in the excessive movement of the conductor, wellhead and flow lines at the surface	
Root causes	Unknown	
Corrective actions	Install temporary conductor centralisation	

Dangerous occurrence – Could have caused death or serious injury – Dropped object in pump room		
Apache Energy Ltd	*Ningaloo Vision* (FPSO)	13 June 2013
Incident description	During the lifting of a timber pallet with two cargo pump shafts secured to it, one shaft weighing 40 kilograms slipped from the pallet. The dropped object fell 4 metres to a grated walkway below	
Immediate cause	A loosely secured pump shaft fell out from a timber pallet	
Root causes	A lifting plan was not developed to check the security of load	
Corrective actions	Review and update the crane operations procedure to incorporate that a lift plan is to be used for all lifts	
Further actions	Three recommendations	

Dangerous occurrence – Damage to safety-critical equipment – Shut down valve failure		
Woodside Energy Ltd	*CWLH OKHA* (FPSO)	14 June 2013
Incident description	A process shut down valve failed to close completely (50%) following a spurious trip of the flash gas compressor	
Immediate cause	The valve did not meet the specification requirements	
Root causes	There was a known problem with the valve actuator sizing. The valve was inspected and stroked several times and became operational. The valve had been identified as requiring to be changed out	
Corrective actions	Manage the valve in line with the previously developed strategy of monthly valve stroking between emergency shut down tests until the longer term fix of valve and actuator replacement is executed	
Further actions	Two recommendations	

Investigations

Dangerous occurrence – Could have caused death or serious injury – Electric shock while connecting 440V refrigeration container		
Woodside Energy Ltd	*North Rankin complex* (Production facility)	15 June 2013
Incident description	A deck crew member was attempting to connect a refrigeration unit to an adapter cable in the galley lay down area and received an electric shock when they touched the socket of the adapter lead	
Immediate cause	The adaptor lead was left plugged into the ex-outlet in the galley lay down area	
Root causes	There was a lack of understanding of the 'On/Off' position and therefore the energised state of the ex-rated outlets	
Corrective actions	Remove the need for the 'adaptor lead' by using compatible, switchable devices	

Dangerous occurrence – Could have caused death or serious injury – High potential dropped object		
Atwood Oceanics Pacific Ltd	*Atwood Eagle* (MODU)	23 June 2013
Incident description	During the lifting of a drill string valve, the valve slipped out of its rigging and fell 6.8 metres from the raised catwalk to the deck below	
Immediate cause	Wire slings were used to lift tubulars; lifting caps were not used	
Root causes	The procedure (lifting tackle) in place for lifting, handling, and moving subs did not identify the need for a lift cap	
Corrective actions	Create a rig specific procedure that has guidance for suitable safe lifting practices of subs and small tools Including the use of lifting caps	

Dangerous occurrence – Other kind needing immediate investigation – Minor damage to crane		
Maersk Drilling Australia Pty Ltd	*Nan Hai VI* (MODU)	12 July 2013
Incident description	The starboard crane was being used to pick up a stinger to do some lifts when the boom made contact with the port crane boom above the aft end of the catwalk causing damage to both booms	
Immediate cause	The port crane was left unattended over the catwalk and the starboard crane was booming down in close proximity	
Root causes	The safety management system requirements were not complied with	
Corrective actions	Issue a standing instruction to ensure that cranes on board the facility are not to be left unattended unless they have been placed in the boom rest and correctly shut down	

Dangerous occurrence – Could have caused death or serious injury – Dropped object – Wireline isolation sleeve fell 15 metres		
Atwood Oceanics Pacific Ltd	*Atwood Osprey* (MODU)	30 July 2013
Incident description	During a wireline operation, the wireline operator was releasing tools from the wire line lubricator tool catcher. An isolation sleeve weighing 90 kilograms came free from the recovery tool and fell 15 metres to the rig floor	
Immediate cause	The tubing hanger isolation sleeve came off the recovery tool	
Root causes	The potential for the hanger isolation sleeve to separate from the tool was not identified as the wireline contractor's 'Job Safe Assessment' was generic and not task specific	
Corrective actions	Revise the wireline contractor's job safety assessment to ensure the string weight is picked up prior to the tool catcher being released from the hanger isolation sleeve. Identify risks and put in place preventative/ mitigating measures	
Further actions	One improvement notice and six recommendations	

Dangerous occurrence – Could have caused death or serious injury – Dropped 36 inch bottom hole assembly		
Atwood Oceanics Pacific Ltd	*Atwood Eagle* (MODU)	5 August 2013
Incident description	While lifting the 36 inch bottom hole assembly (BHA) from a 20 inch half height container, the BHA wooden crate collapsed and the BHA fell 2 metres into the container	
Immediate cause	The load was not secure in the crate which allowed a shift in the centre of gravity during lift	
Root causes	The operator's packaging guidelines/standards were not followed which resulted in unsuitable packaging being used for the transport of the 36 inch bit	
Corrective actions	Develop a deck/crane general lifts procedure to instruct deck crew to open and identify any wooden box that is encountered and lift contents by other means	

Accident – Death or serious injury – Serious foot injury to floorman working at monkey board level		
Noble Leasing II (Switzerland) GMBH	*Noble Clyde Boudreaux* (MODU)	13 August 2013
Incident description	During a tripping operation using the pipe racking system, a floorman was deployed to the fingerboard to monitor the function of the finger latches. While attempting to kick a latch open, the stand of drillpipe sprung back trapping his foot between the tubular and the finger board	
Immediate cause	The latching system was not functioning correctly and required manual intervention	
Root causes	Original equipment manufacturer (OEM) maintenance routines contained insufficient detail about the functioning of latches on the finger boards. There was alack of access to maintain the latches when the pipe is stored in the fingers for extended periods of time	
Corrective actions	Consult the OEM for the fingerboard and obtain information on the correct actions to take if a finger fails to operate correctly. Incorporate these instructions into the work instruction for working in the derrick	
Further actions	One improvement notice and four recommendations	

Dangerous occurrence – Other kind needing immediate investigation – Loss of communication between Bream A and Bream B		
Esso Australia Pty Ltd	*Bream B* (Production facility)	21 August 2013
Incident description	Loss of communications between facilities and the onshore production control room	
Immediate cause	A loss of power to the media converter resulted in a loss of data transfer from the fibre optic cable to the receiver on bream B	
Root causes	It was not anticipated that a loss of power to the media converter would impact on communications	
Corrective actions	Update the procedures to include the use of a very high frequency system to remotely shutdown the offshore facility and to include a reference to the loss of communication procedure	

Dangerous occurrence – Damage to safety-critical equipment – Uncontrolled descent of aft davit on lifeboat		
Sedco Forex International Inc	*Deepwater Frontier* (MODU)	26 August 2013
Incident description	During maintenance on a lifeboat, a harbour pin was removed from the aft davit which resulted in an unexpected decent of the aft davit arm	
Immediate cause	The harbour pin was removed from the aft davit arm before the counterweight of the brake clutch was reinstalled on the winch	
Root causes	Third party representatives lacked competency	
Corrective action	Review the maintenance procedures submitted by the service company before commencing work on the lifesaving equipment	

Dangerous occurrence – Uncontrolled HC release >1 – 300 kilograms – Gas release during drilling operations		
Sedco Forex International Inc	*Jack Bates* (MODU)	1 September 2013
Incident description	While circulating bottom up, flow rapidly increased and some mud was discharged from the rotary table. The driller stopped pumping, shut the diverter and the blowout preventers. The gas alarm activated	
Immediate cause	While circulating, a gas influx from the bottom of the hole expanded when it approached the surface	
Root causes	Ineffective management of the operation and the overall management of change system resulted in the swabbing of the hole causing a hydrocarbon influx	
Corrective actions	Revise the procedure to ensure that any changes to the standing instructions for drillers must be reviewed and approved by the toolpusher. Send out a reminder of the roles and responsibilities of the drillers and the toolpushers	

Dangerous occurrence – Uncontrolled HC release >1 – 300kg – Gas release in process module		
Woodside Energy Ltd	*Goodwyn Alpha* (Production facility)	5 September 2013
Incident description	A loss of power to the stripping gas compressor lube oil seal oil (LOSO) pumps caused a loss of seal oil levels. An issue with the level instrumentation in the header tank resulted in a depletion of seal oil which caused the compressor to vent pressure through the atmospheric vents and the compressor shaft	
Immediate cause	Removal of the level switch from the lube oil system and instrument drift on the remaining level transducer	
Root causes	Low level transmitter calibration error	
Corrective actions	Identify all potential leak paths for both the stripping gas compressor and the lubricating oil seal	

Dangerous occurrence – Other kind needing immediate investigation – Uncontrolled release of drilling fluid to the moonpool area		
Sedco Forex International Inc	*Jack Bates* (MODU)	6 September 2013
Incident description	A drilling fluid release due to the valve line up, which discharged approximately 130 bbl. of synthetic-based mud into the pollution pan and the moonpool	
Immediate cause	The flow line valve was not verified as being open prior to bringing the mud pumps online as required for operations	
Root causes	Inadequate written procedure for connections	
Corrective actions	Assess the feasibility of engineering solutions to reposition the flow line and install split-screen monitors	

Dangerous occurrence – Damage to safety-critical equipment – Field wiring issue on intrinsic safety barriers		
Vermilion Oil and Gas Australia Pty Ltd	*Wandoo B* (Production facility)	26 September 2013
Incident description	Field wiring on intrinsic safety (IS) barriers resulted in incorrect information being fed to master control system which affected the emergency shut down logic in emergency situations	
Immediate cause	Incorrect wiring (crossover) was found on recently installed IS loop devices on fire and gas system	
Root causes	No procedure had been created in the planned maintenance system stipulating how to wire and check/test the new terminals	
Corrective actions	Identify and check all fire and gas devices which had IS barriers replaced	

Investigations

Dangerous occurrence – Other kind needing immediate investigation – General alarm activation and muster		
Woodside Energy Ltd	*Nganhurra* (FPSO)	13 October 2013
Incident description	Communication occurred between the slop tank and an adjacent cofferdam. Inert gas (including hydrocarbon vapour) passed through the cofferdam and out of the deck vent resulting in the fire and gas system initiating a general alarm	
Immediate cause	The source of the communication was identified as an unsealed cable penetration	
Root causes	There was a lack of awareness of the status of the starboard slop tank (not in service and believed to be empty). There was also a leakage of the tank heating medium	
Corrective actions	Blank off the heating coils in the slop tanks and return the starboard slops tank to service as part of the slops processing upgrade project (centrifuge installation)	

Dangerous occurrence – Could have caused death or serious injury – Dropped object – Gantry crane shim fell 25 metres		
Atwood Oceanics Pacific Ltd	*Atwood Osprey* (MODU)	21 November 2013
Incident description	During function testing of the hoist on the blowout preventer (BOP) gantry crane, a stainless steel shim fell from the crane to the BOP test stump on the moonpool below	
Immediate cause	Flexing and movement of the BOP gantry structure allowed the slotted shim to dislodge and fall	
Root causes	Monthly and annual third party Dropped objects prevention scheme (DROPS) inspection did not identify the potential for basic structural mounting components of the crane to become loose	
Corrective actions	Introduce a periodic bolt change out and inspection requirement to identify any potential structural mounting components from becoming dropped objects from the gantry cranes	

Dangerous occurrence – Damage to safety-critical equipment – Subsea isolation valve hydraulic leak		
ENI Australia B.V.	*Blacktip wellhead platform* (Production facility)	28 November 2013
Incident description	A remotely operated vehicle was deployed to investigate a potential hydraulic fluid leak to the sea from the actuator on the facility's subsea isolation valve (SSIV). A hydraulic leak from the SSIV actuator seal was identified	
Immediate cause	The valve (SSIV) actuator developed a seal leak which exited through a relief port in the side of the actuator	
Root causes	Will be determined when actuator is replaced	
Corrective actions	Fit an actuator with upgraded seals	

Dangerous occurrence – Could have caused death or serious injury – Dropped object – 5.5 inch drill pipe dropped 12.8 metres		
Atwood Oceanics Pacific Limited	*Atwood Osprey* (MODU)	3 December 2013
Incident description	During a drilling operation, the drill crew were picking up a 5.5 inch drill pipe from the tubular skate. The drill pipe dropped out from the elevator and fell 12.8 metres onto the tubular skate	
Immediate cause	Incorrectly sized inserts were fitted to the elevator	
Root causes	The driller and assistant driller failed to follow the specific procedure for elevator verification	
Corrective actions	Review the job safe analysis. Department heads to confirm the specific content with cross references to the rig procedures and standards	

Dangerous occurrence – Damage to safety-critical equipment – Pin hole leak on surface flow line		
Apache Energy Ltd	*Stag Central* (Production facility)	3 December 2013
Incident description	A leak occurred on a surface flow line downstream of the wellhead and upstream of choke. 20 litres of hydrocarbon liquid leaked into the associated bund	
Immediate cause	Pin hole leak in hydrocarbon flow line	
Root causes	Microbiological induced corrosion suspected	
Corrective actions	Third party to carry out a comprehensive survey on the production flow line. Any replacement lines to have corrocoat applied internally	

5.2 Reportable environmental incidents[18]

Environmental incidents are presented in chronological order. The summaries list the type of reportable incident and the environment plan under which petroleum activities were undertaken. For more information about the incident notification classification, see Appendix 3.

Hydrocarbon fluid release		
PTTEP Australasia (Ashmore Cartier) Pty Ltd	Montara operations environment plan	26 January 2013
Incident description	115 litres of hydraulic oil released to sea through defective bow thruster seal on supply vessel	
Immediate cause	Damage to bow thruster equipment and poor decision making to continue with operation	
Corrective actions	Repairs to bow thruster and improve communication among crew and duty holder	

Chemical release		
Chevron Australia Pty Ltd	Gorgon gas development and Jansz feed gas pipeline installation management plan	31 March 2013
Incident description	900 litres of hydraulic fluid (glycol/water mix) released to sea in three separate releases during subsea tie in of control umbilical	
Immediate cause	One release was caused by a dislodged back seal and damaged hydraulic poppets, two were planned releases during the connection of the umbilical terminal assembly to the midpoint connection assembly, but were not identified in the environment plan in force	
Corrective actions	Suspend the activity and recover the umbilical terminal assembly to deck for inspection, update and submit proposed revision to the environment plan to properly address planned release of subsea hydraulic fluid during the activity	

Chemical release		
Esso Australia Resources Pty Ltd	Bass Strait environment plan	7 April 2013
Incident description	3260 litres of ethylene glycol mix was released to sea through a partially open drain valve on glycol pump suction header	
Immediate cause	Drain valve left open and no secondary barrier of plug or cap fitted	
Corrective actions	Remove drain tube, and plug and cap drain valve. Review engineering design of drain system. Communicate incident to all offshore platforms and have facilities checked on a local level for exposure to events of this nature	

18 For more information about the classification of offshore incidents, see Chapter 3. For an explanation of the terms used in this chapter, see Appendix 1, 2 and 3 and the Glossary.

Chemical release		
Origin Energy Resources Limited	Otway phase 3 Geographe installation campaign environment plan	13 April 2013
Incident description	83 litres of subsea control fluid (mono-ethylene glycol/water mix) released to sea during pressure test of subsea trees	
Immediate cause	Control fluid leaked due to non-conforming washers in the subsea control modules	
Corrective actions	Cease hydraulic pressure testing of subsea facilities. Remove and replace subsea control module	

Fauna incident		
PTTEP Australasia (Ashmore Cartier) Pty Ltd	Jabiru field well abandonment environment plan addendum: Disposal of RTM and mid-water buoys	21 April 2013
Incident description	During the planned toppling of the riser turret mooring, a mooring chain was cut by remote operated vehicle (ROV) and landed on top of a turtle, pinning it to the seabed and most likely killing it instantly	
Immediate cause	Accidental crushing of the turtle by the sinking riser turret mooring chain. It was not possible to monitor the length of the mooring chain, personnel were unaware that the turtle was at risk due to its location	
Corrective actions	The operator did not identify corrective actions	

Chemical release		
Origin Energy Resources Limited	**Otway phase 3 Geographe installation campaign environment plan**	**3 May 2013**
Incident description	300 litres of subsea control fluid (mono-ethylene glycol/water mix) released to sea during pressure test of subsea trees	
Immediate cause	Control fluid leaked due to non-conforming washers in the subsea control modules	
Corrective actions	Cease hydraulic pressure testing of subsea facilities. Remove and replace subsea control module	

Investigations

Chemical release		
Chevron Australia Pty Ltd	Gorgon gas development and Jansz feed gas pipeline installation management plan	12 May 2013
Incident description	500 litres of Oceanic HW740R subsea hydraulic fluid (umbilical control fluid) released to sea during umbilical terminal assembly connection operation, which was not identified in the environment plan in force	
Immediate cause	Planned release, but not identified in the environment plan in force	
Corrective actions	Update and submit proposed revision to the environment plan to properly address planned release of subsea hydraulic fluid during the activity	

Drilling fluid release		
Total E&P Australia	WA-408-P Browse Basin Australia environment plan	1 June 2013
Incident description	1100 litres of synthetic based mud released to sea through defective slip joint packer	
Immediate cause	Low air pressure to packer	
Corrective actions	Restore correct air pressure to packer	

Chemical release		
Origin Energy Resources Limited	Otway phase 3 Geographe installation campaign environment plan	16 June 2013
Incident description	117 litres of hydraulic fluid released to sea from atmospheric vent on hydraulic production unit returns tank	
Immediate cause	Overfilling of a return tank as a relief valve was operating incorrectly (set to an incorrect monitoring pressure) and passing fluid when not required	
Corrective actions	Identify and rectify source of the leak. Re-set pressure regulator to prevent overfill	

Hydrocarbon fluid release		
Apache Energy Limited	Stag facility environment plan	2 September 2013
Incident description	Ongoing minor releases from well conductor which met the threshold for reportable environmental incident	
Immediate cause	A residual inventory of oil established in conductor/mudline area originating from offspec produced water re-injected into well	
Corrective actions	Reduce inventory using surface pumps and identify carry out workover to rectify problem	

Hydrocarbon fluid release		
Esso Australia Resources Pty Ltd	Bass Strait environment plan	2 September 2013
Incident description	744 litres of crude oil leaked from Cobia to Halibut pipeline	
Immediate cause	Corrosion of pipe section, typical of microbiological induced corrosion (MIC)	
Corrective actions	Depressurize pipeline and shut in platform production. Recover oil and repair pipeline	

Drilling fluid release		
Total E&P Australia	WA-408-P Browse Basin Australia environment plan	2 September 2013
Incident description	13 000 litres of synthetic based mud released to sea due to diverter malfunction	
Immediate cause	Flow line not verified as open prior to bringing mud pumps online as required for operations	
Corrective actions	Focus on training and accountability of personnel. Assess engineering of fitting interlocks, relocate flowline/trip tank panel	

6. Assessment and submissions

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. 'Acceptance' occurs once NOPSEMA is satisfied that the dutyholder has taken into consideration all practicable risk reduction measures during, and as a result of, the preparation of the submission.

Dutyholders must demonstrate to the authority's satisfaction that they will manage the risks to health and safety to ALARP or the environmental impacts of an offshore petroleum activity to a level that is ALARP and acceptable.

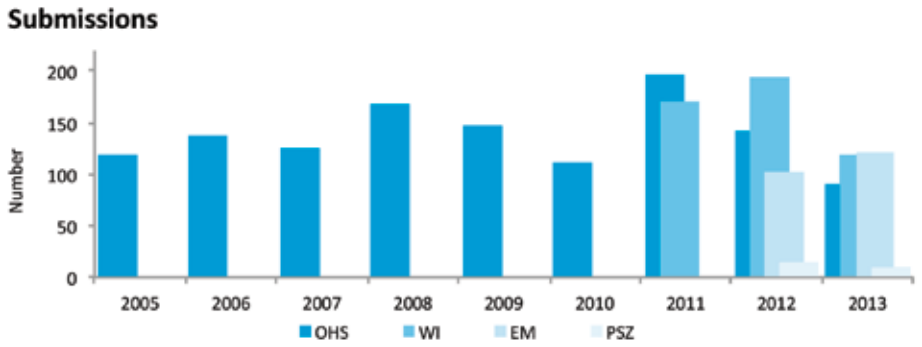


Figure 30.

6.1 Submission types

The categories of regulatory documents submitted for assessment by NOPSEMA are defined by law and span the occupational health and safety, well integrity and environmental management functions performed by the authority.

Information gained from NOPSEMA inspections and investigations may be used to inform an assessment. Similarly, the outcomes of assessment contribute to development of NOPSEMA's ongoing inspection of dutyholders 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

Number of submissions

NOPSEMA received 428 submissions by operators, titleholders and activity operators in 2013.

Number of assessment submissions										
Submission types		2005	2006	2007	2008	2009	2010	2011	2012	2013
Occupational health and safety	Safety case new	20	11	22	29	17	26	25	27	20
	Safety case revised	68	105	93	109	110	74	151	106	69
	Diving project plan	14	9	1	0	0	0	0	0	0
	Diving SMS new	0	0	2	2	6	5	6	5	1
	Diving SMS revised	10	0	1	4	2	1	3	4	1
	Diving start-up notice	19	25	23	14	14	24	20	23	24
	Pipeline SMP new	6	11	3	7	2	2	2	0	0
	Pipeline SMP revised	1	2	4	17	10	3	9	0	0
	Scope of validation	1	2	21	78	46	53	63	55	45
	Request for exemption	0	0	2	2	1	0	0	0	0
Well integrity	Well activity approval	-	-	-	-	-	-	141	162	87
	WOMP new	-	-	-	-	-	-	28	27	26
	WOMP variation	-	-	-	-	-	-	1	4	6
Environmental management	Environment plan new	-	-	-	-	-	-	-	92	80
	Environment plan revised	-	-	-	-	-	-	-	11	40
Petroleum safety zones	PSZ application new	-	-	-	-	-	-	-	7	3
	PSZ application renewal	-	-	-	-	-	-	-	3	2
	PSZ access application	-	-	-	-	-	-	-	0	1
	ATBA access application	-	-	-	-	-	-	-	5	5
Other	Regulatory advice to other agencies	7	14	16	19	8	3	10	6	18
Total		**146**	**179**	**188**	**281**	**216**	**191**	**459**	**537**	**428**

Table 10.

6.2 Assessment notification time

The time taken for an assessment varies according to the type of submission. Some submission types have legislated timeframes for notification of NOPSEMA's decisions. Other submission types have timeframes defined by the regulator. NOPSEMA has continually improved its adherence to all notification timeframes; for 2013, 98% of all submissions were notified within the legislated or policy timeframe. For those with legislated timeframes, 100% of assessments were notified on time.

6.3 Assessment outcomes

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

Regulatory submissions that do not meet these requirements, following opportunities to provide further information or resubmit, are not accepted by NOPSEMA. In 2013, 38 assessments were not accepted by NOPSEMA (8.9% of all assessments received).

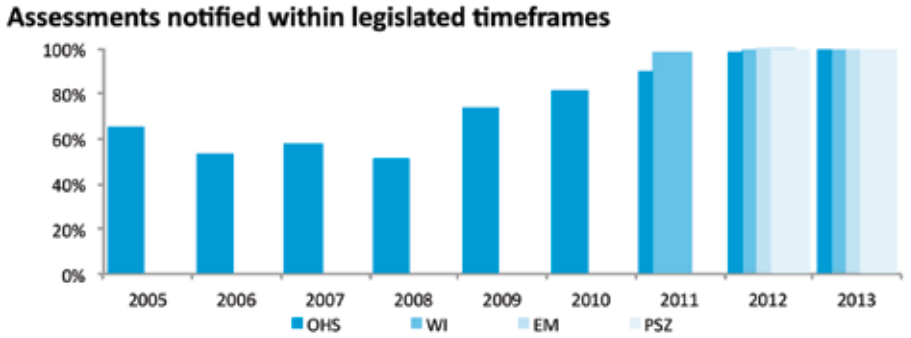


Figure 31.

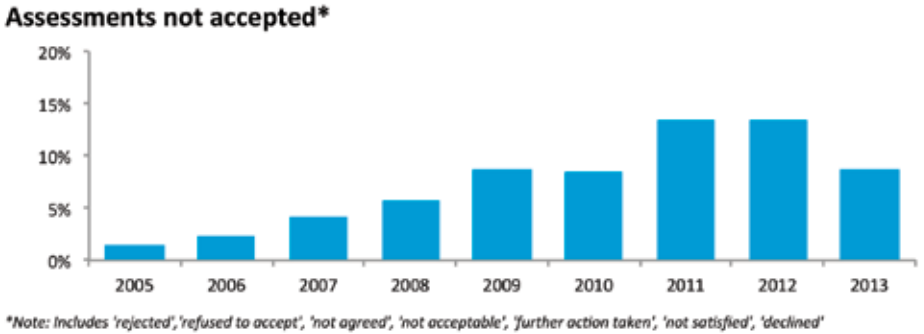


Figure 32.

'Acceptance' occurs once NOPSEMA is satisfied that the duty holder has taken into consideration all practicable risk reduction measures...

Assessment and submissions[19]

Safety cases

NOPSEMA rejected 19 of the safety cases submitted in 2013; 15 of these were safety case revisions.

Safety case assessments				
Outcome	2012		2013	
In progress	0	0%	6	7%
Accepted	100	75%	62	70%
Recalled[20]	8	6%	2	2%
Rejected	25	19%	19	21%
Total	**133**	**100%**	**89**	**100%**

Table 11.

Safety cases rejected

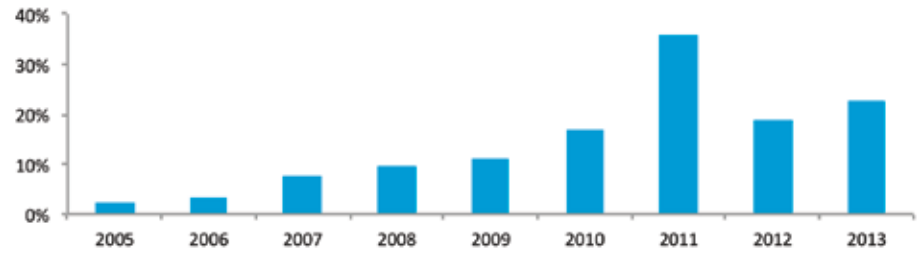


Figure 33.

Well operations management plans

NOPSEMA rejected one and accepted 31 WOMP submissions in 2013.

WOMP assessments				
Outcome	2012		2013	
In progress	0	0%	1	3%
Accepted	30	91%	31	89%
Returned	3	9%	0	0%
Recalled	0	0%	1	3%
Rejected	0	0%	2	6%
Total	**33**	**100%**	**35**	**100%**

Table 12.

19 Figures for 2012 may differ slightly from last year's publication, due to assessments previously classified as 'In progress' being completed and re-categorised.

20 Submissions that are lodged with NOPSEMA and subsequently withdrawn by the organisation.

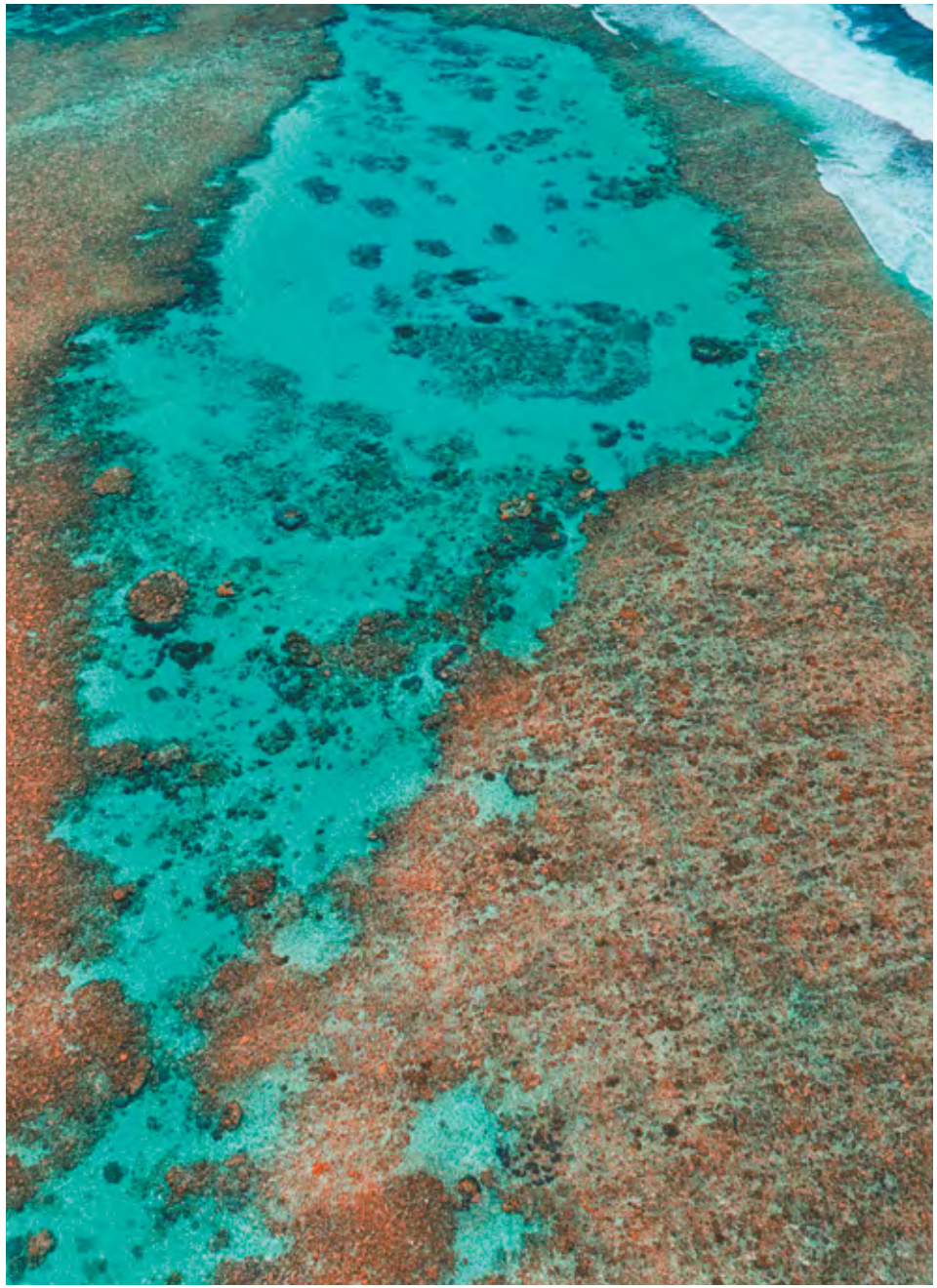
Environment plans

NOPSEMA refused to accept one and accepted 81 environment plans submitted for assessment in 2013.[21]

Two environment plans were accepted with limitations on the scope of the plan, due to specific circumstances presented by the operator that enabled the requirements of the Environment Regulations to be met. NOPSEMA communicated with dutyholders, including at operator liaison meetings, to discuss specific shortcomings in submissions and clarify NOPSEMA's assessment approach.

Environment plan assessments				
Outcome	2012		2013	
In progress	1	1%	37	31%
Accepted	85	83%	81	68%
Recalled	7	7%	1	1%
Refused to accept	10	10%	1	1%
Total	**103**	**100%**	**120**	**100%**

Table 13.



21 In 2013, NOPSEMA made decisions to 'not accept' five environment plans submitted for assessment in 2012.

6.4 Spotlight on environment plan assessment timeframes

The average assessment timeframe for environment plans has decreased from 111 days in 2012 to 89 days in 2013. This reflects an improved capacity by dutyholders to submit and modify environment plans that meet the requirements of the Regulations. To facilitate this, NOPSEMA has focused on communicating and clarifying these requirements in operator liaison meetings.

The timeframe taken to complete an assessment of a plan varies according to factors such as the complexity of the activity and the quality of the dutyholder's submission. The average assessment time for each category of petroleum activity, apart from seismic surveys, decreased between 2012 and 2013. Under the Environment Regulations, NOPSEMA provides dutyholders an opportunity to make modifications and resubmit a plan during an assessment. This is reflected in Figure 35.

NOPSEMA publishes updated assessment timeframes on the 'Environmental resources' page at nopsema.gov.au

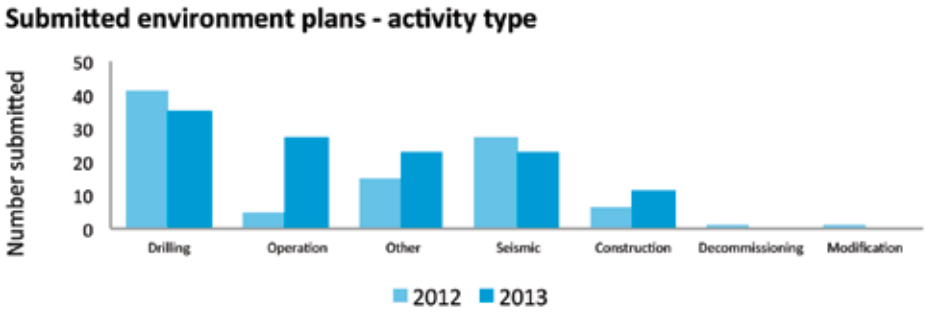


Figure 34.

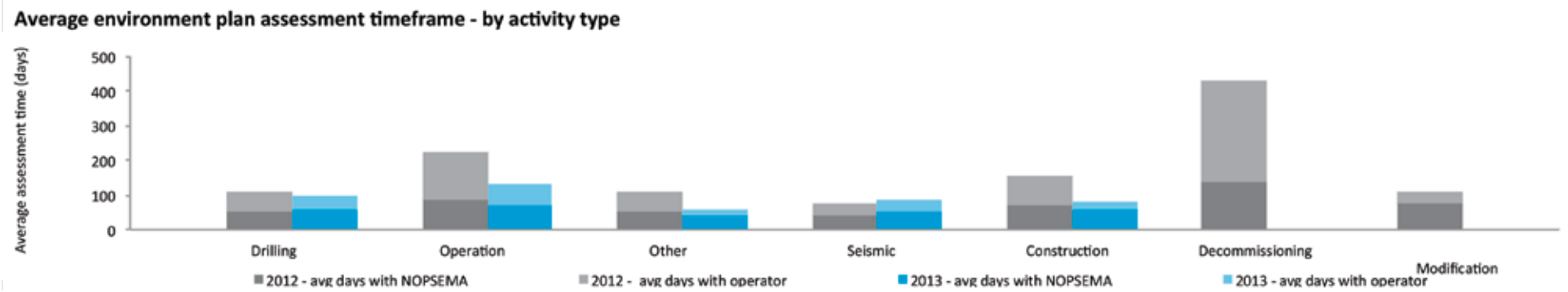


Figure 35.

7. Inspections

NOPSEMA conducts inspections to monitor operators' compliance with their duties as required by the legislation and determine if they have implemented the risk management systems described in their accepted regulatory submissions. Where organisations are found not to be in compliance, NOPSEMA takes action to enforce improved performance.

The number of inspections conducted by the authority at facilities has steadily increased in response to the Montara well blowout in the Timor Sea (2009), the Macondo well blowout in the Gulf of Mexico (2010) and due to the addition of well integrity (2011) and environmental management (2012) to NOPSEMA's regulatory remit.[22]

For more information about NOPSEMA inspections, see the 'Inspections' and 'Compliance inspections' pages at nopsema.gov.au. For summaries of enforcement action issued by NOPSEMA, see Chapter 9.

7.1 Number of inspections

In 2013, 128 inspections were conducted (covering a total of 151 facilities, titles, wells and petroleum activities).

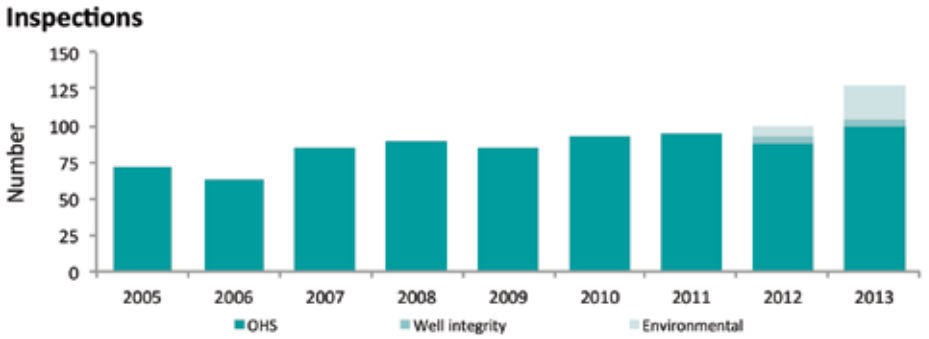


Figure 36.

22 For more information about *Final Government response to the Report of the Montara Commission of Inquiry* (2011) and establishment of NOPSEMA see the 'History of NOPSEMA' page at nopsema.gov.au

7.2 Inspection scopes

NOPSEMA considers more than 80 scope items when planning an inspection and any number of these may be selected for focus by NOPSEMA inspectors during an inspection. As required, NOPSEMA issues inspection reports and makes recommendations based on findings against inspection scope items. Where appropriate, NOPSEMA may take enforcement action. NOPSEMA will only take enforcement action to address immediate threats to health or safety or breaches of the legislation. The most common scope items covered in planned inspections include:

- checking the status of actions arising from previous NOPSEMA recommendations
- meeting with health and safety representative(s)
- loss of containment
- maintenance management
- emergency management
- emergency preparedness – emergency power generation
- dropped objects
- general occupational health hazards
- spill preparedness and response arrangements
- management of planned emissions and discharges
- training and competency.

7.3 Occupational health and safety inspections

In 2013, the greatest number of recommendations from OHS inspections related to loss of containment (i.e. the unplanned release of gas and liquid hydrocarbons) and maintenance management.

OHS inspection recommendation examples – 2013
Ensure that the risk of vibration induced fatigue of small bore pipework is reduced to ALARP
Ensure that all safety-critical equipment in the maintenance management system have appropriate maintenance plans
Provide competency based training on the computerised maintenance management system
Provide two independent means of starting arrangements for the emergency generator in accordance with the 1989 MODU Code Chapter 5.3.8.2
Review the arrangements in place for an alternative muster location and ensure appropriate equipment, training and procedures are in place to support its use
Ensure that dynamic load factors and limiting weather parameters are included in the job safety analysis for heavy lifts
Ensure that the fire doors in the safe habitat are inspected, tested and maintained as per the performance standard
Ensure the emergency response training matrix is up to date, such that it demonstrates a robust system is in place to manage competency and ensure personnel in emergency response roles are trained and competent
Ensure adequate records are kept for tank and inert gas safety critical maintenance and operations

Table 14.

In 2013, 128 inspections were conducted (covering a total of 151 facilities, titles, wells and petroleum activities).

7.4 Environmental management inspections

NOPSEMA conducted inspections covering a range of petroleum activities, including drilling and seismic surveys and at organisations offices and facilities in 2013. The inspections identified non-compliance with the accepted environment plan and further opportunities for improvement.

Environmental management inspection findings – 2013
Improve processes governing monitoring and measurement of discharges, such a produced formation water and drilling muds, to the marine environment
Ensure appropriate levels of training, competencies and awareness for all personnel involved with an activity
Implement chemical selection procedures and processes
Environmental checklists and inspection documentation to follow commitments specified in the environment plan
Improve ability to implement spill response measures in a timely manner
Undertake spill response testing/exercises in accordance with the environment plan/oil spill contingency plan
Resources to conduct operational and scientific monitoring of hydrocarbon releases are available, maintained and commensurate to the level of risk associated with the activity
Documents to be retained to demonstrate compliance with all performance objectives, standards and commitments in the environment plan

Table 15.

7.5 Environmental management themed inspections

In 2013, NOPSEMA conducted themed inspections of six operators to determine compliance with commitments on oil spill preparedness and response capability submitted in the environment plans. The inspections were conducted as part of NOPSEMA's focus on oil spill response preparedness and focused on third party arrangements.

Environmental management inspection findings Oil spill preparedness and response capability – 2013
Guarantee availability of sufficient resources to ensure effective oil spill response implementation
Ensure spill response resources can be deployed within timeframes specified in the environment plan/oil spill contingency plan
Formalise and clarify scope of arrangements with key spill response service providers
Improve arrangements to resource all key spill response roles identified, such as members of the incident command team
Maintain records of training and competency

Table 16.

8. Topic-based inspections

In 2013, NOPSEMA concluded a series of health and safety topic-based inspections covering vessel and aircraft control, emergency preparedness, maintenance management and control of ignition sources focussing on hazardous area equipment. In selecting the themed inspection topics, NOPSEMA used information collected through incident reports and previous inspection findings to identify areas that warranted attention by organisations for improved health and safety outcomes. These topic-based inspections were included as part of NOPSEMA's ongoing program of planned, risk-based occupational health and safety inspections. This chapter shares NOPSEMA's general observations for the benefit of the broader industry and offshore workers.

For information about NOPSEMA's planned inspection program, see Chapter 7. For information about enforcement action, such as improvement notices, issued by NOPSEMA, see Chapter 8.

Image courtesy of Woodside Energy Limited

8.1 Helicopter operations

Helicopter operations are critical in the day to day functions of any offshore facility. It is important for organisations to implement and maintain controls to ensure these operations are executed in a safe manner, particularly when offshore petroleum activities occur in remote areas.

NOPSEMA selected 18 facilities with different helicopter operations procedures and operators for this topic-based inspection. The type of facilities chosen included mobile offshore drilling units (MODUs), floating production storage and offloading (FPSO) facilities, fixed production platforms and not normally attended platforms.

Topic-based inspections

During this topic-based inspection period, NOPSEMA made 106 recommendations and issued one improvement notice. The recommendations mainly related to helicopter refuelling procedures and training, helicopter firefighting and rescue, meteorological information, helicopter operations procedures, structural aspects, planned maintenance, markings and audits.

Helicopter operations – key observations	
Focus area	Inspection observation/finding
Policy and procedure	All operators had a documented helicopter operations procedure with varying levels of detail
	Lack of adequate meteorological equipment to measure and record the movement of the helideck
	Lack of policy or higher level documentation specifically dealing with performance standards of helicopter operations and associated assurance activities
Helicopter refuelling	Helicopter refuelling procedures (including drainage systems) did not reflect the actual system configuration
	Workers involved in helicopter refuelling were unfamiliar with the content of the procedures
Helicopter firefighting and rescue	Lack of labelling and level monitoring on the 'aqueous film forming foam' delivery system
	Firefighting and rescue procedures did not reflect the actual equipment and its operation
	Lack of practical test exercises to provide assurance that the firefighting system performs as required (e.g. CAP 437 requires foam to be produced within 15 seconds and to bring a helicopter fire under control within 30 seconds of initial activation)
Planned maintenance	Deficiencies in painting and minor repairs
	In general, structural inspections of the helideck were conducted by both core crew members or contracted workers
	Some operators could not demonstrate adequate maintenance and testing systems assure complete performance requirements of safety-critical equipment
Signage	Some operators did not have appropriate signage at access points to the helideck, including cautions on danger zones and safe practices for helicopter embarkation
	Some helideck markings were not legible or did not reflect the correct load markings
Personnel competency	Lack of periodic refresher training in order to maintain minimum competency requirements
	Lack of training for radio operator and fire and rescue training specific to helicopter incidents for helicopter landing officers (HLO) and helicopter landing assistants (HLA)
Auditing	Majority of operators had helicopter operations as an audit item in their audit planning schedules
	Some non-compliance with planned helicopter operations audit schedules
	Audit findings were not actioned and closed out in a timely manner

Table 17.

8.2 Emergency preparedness – emergency power generation

Although major accidents are rare, operators need to have robust controls in place to ensure that if an incident was to occur, they are adequately prepared to control and mitigate the risk of escalation. Emergency power generation systems on facilities play a critical role, as many other safety-critical controls required during an emergency are dependent on power.

NOPSEMA selected facilities with differing emergency power systems, associated operations and maintenance procedures for this topic-based inspection. The type of facilities chosen included MODUs, FPSOs and normally attended platforms.

During this topic-based inspection period, NOPSEMA made 115 recommendations. Shortcomings contributing to the number of recommendations issued included: failure to fit air intake isolation valves and/or spark arresters to the emergency generators prime mover, maintenance tasks either not specified or inadequate, and performance standards that were either missing or inadequate.

Original equipment manufacturer (OEM) documentation, audits and personnel competency were found to be well managed. Performance standards were found to be in place on the majority of production facilities inspected, however, were not in place on the majority of MODUs inspected.

Emergency preparedness – emergency power generation	
Focus area	Inspection observation/finding
Emergency generator and switchboard	Air intake isolation valves and/or spark arresters not fitted to the emergency generators prime mover
	Dust build up on alternators and emergency switchboards
	Lack of, or improvement required, for emergency generator/alternator maintenance tasks
Uninterruptable power supplies and associated batteries and chargers	Lack of, or improvement required, for uninterruptable power supplies maintenance tasks
	Batteries not adequately secured
	Lack of, or improvement required, for battery charger systems maintenance tasks
Emergency/escape lighting	Lack of maintenance tasks for emergency/escape lighting
	Undocumented testing frequency for emergency/escape lighting
Operations and maintenance documentation and performance standards	Original equipment manufacturer (OEM) operations and maintenance manuals readily available to personnel on the facilities
	Performance standards for the uninterruptable power supply (UPS) did not contain the following: • Endurance times of UPS • Battery charging systems • Emergency starting batteries
Auditing implementation and effectiveness	All operators had internal or external auditing systems in place for facilities, including where appropriate Class and Flag State statutory surveys
Personnel competency	All facility operators had systems in place to assure the initial competency (pre-employment) of personnel and their on-going training, development and competency assurance

Table 18.

8.3 Maintenance management

Maintenance management systems are fundamental to the ability of an organisation to deliver effective operational, maintenance, health and safety and environmental management objectives. Successful maintenance management includes maintaining the condition and functionality of machinery over the life of the facility, reducing critical incidents and 'near-misses', raising the skills and experience of maintenance staff and increasing the reliability and availability of systems and equipment.

NOPSEMA selected a number of operators and different types of facilities to include in this topic-based inspection program to provide a fair reflection of maintenance management in the authority's jurisdiction. Facility types included MODUs, FPSOs and normally attended platforms.

NOPSEMA's inspection focus was driven by the operators' commitments made in the facility safety case and performance standards set for safety-critical equipment. The inspection scope included following the maintenance process through to completion of the work recorded in the maintenance management system, and confirmation that any corrective action had been raised.

During this topic-based inspection period, NOPSEMA made 53 recommendations and issued three improvement notices. The authority identified several key recurring shortcomings regarding: the link between safety-critical equipment performance standards and maintenance system tasks, inadequate closure of work orders, failure to close out work orders in reasonable time period, poor quality or no audits being undertaken, and lack of performance standards for the facility.

The integration of performance standards for safety-critical equipment and systems into the facility maintenance system is key to providing assurance, over the life of the facility, that the necessary controls are in place and fully functional to prevent a major accident event. The results of this topic-based inspection program highlight an opportunity for improvement by operators in the way performance standards are developed and integrated into the facility maintenance management system. NOPSEMA has introduced a new topic-based inspection program on 'performance standards' for 2014. To access NOPSEMA guidance on control measures and performance standards see the 'Safety resources' page nopsema.gov.au

Maintenance management	
Focus area	Inspection observation/finding
Maintenance management system functionality	Missing, poor or inaccurate procedures and performance standards
	Failure to review maintenance regimes following safety-critical equipment failures
	Failure to review and capture third party reports
	Lack of, or inadequate, procedures/work instructions
	Deficiencies in relation to performance standards, included: • lack of a performance standard for maintenance management systems • performance standards not specified or poorly defined • lack of performance standards for safety-critical equipment • lack of detail in performance standards, such as closure times • insufficient information in work instructions to demonstrate compliance with the performance standards • insufficient or no checking between performance standards and procedures
Maintenance system auditing	Inadequate auditing of maintenance management systems: audits conducted rarely examining the systems in sufficient detail, or with sufficient understanding, to identify issues discovered during NOPSEMA's offshore inspections
	Failure to monitor audit results and close out actions
	Lack of sufficient evidence to demonstrate auditing of maintenance management system
	Lack of sufficient action to close out audit findings
	Lack of auditing by knowledgeable people, with meaningful action raised and completed
	Single facility audit findings applied to multiple facilities with no actual auditing of the other facilities being performed
Maintenance management implementation	Cases where incomplete work was signed off as complete, or corrective work was not initiated
	Failure to adequately monitor the close-out of work
	Failure to raise corrective work
	Insufficient monitoring of work awaiting approval list containing work orders
	Production critical tasks being carried out prior to safety-critical work, and items being left in a hazardous condition for a significant period of time
	Insufficiently defined responsibilities for closing out corrective work resulting in work being delayed and repairs not being performed on safety-critical items
	Failure to identify and take appropriate action on safety-critical equipment not meeting performance standards e.g. fire water deluge nozzles that failed to supply the required flow rate on demand, were cleaned and retested and marked as passed within the maintenance system, with no further action taken
	Significant results from third party reports are recorded in the maintenance systems for corrective action, but the less significant defects are not

Table 19.

8.4 Control of ignition sources – hazardous area equipment

In the event of a release of hydrocarbons or other flammable materials, failure to control an ignition source could cause a fire or explosion that may lead to fatalities and the loss of the facility. Managing ignition sources is therefore critical to safety and the prevention of major accident events.

NOPSEMA selected 15 hydrocarbon facilities to include in this topic-based inspection program including MODUs, FPSO facilities, attended production platforms and a not normally attended wellhead platform. The inspection scope included performance standards covering design and implementation, functionality, availability, maintainability, reliability, survivability, audits, and competence.

During this topic-based inspection period, NOPSEMA made 113 recommendations and issued 14 improvement notices and two prohibition notices.

Recurrent findings include omissions in the hazardous area classification, inadequate installation of contractor equipment on the facility, poorly defined hazardous area equipment maintenance procedures, inadequate detailed inspection maintenance records, lack of robust hazardous area equipment auditing systems and inadequate assurance of contractor competence in hazardous area equipment installation and maintenance.

NOPSEMA has also included this topic in the *NOPSEMA Annual Operating Plan 2013-2014.*

Managing ignition sources is critical to safety and the prevention of major accident events.

Control of ignition sources – hazardous area equipment	
Focus area	Inspection observation/finding
Design and implementation of hazardous areas	All facilities identified hazardous area classification and electrical equipment in hazardous areas individually or collectively as technical controls for the prevention of fire and explosion
	Hazardous areas associated with the storage of compressed welding gases (exceeding minor storage levels), paint lockers, battery rooms, and test laboratories were often omitted from consideration
	Lack of safeguard controls for pressurised enclosures or equipment rooms within hazardous areas, including appropriate design standards, gas detections, dampers, air-locks and shutdown systems
Hazardous area classification documentation	Lack of hazardous area management procedures and processes
	Deficiencies in the hazardous area registers including missing equipment and erroneous data
	Incomplete or expired certification
	Absence of performance standards
Functionality and compliance	Electrical equipment in hazardous areas (EEHA) found non-compliant with applicable engineering standards. Examples include incorrect zone, group or temperature classification, incorrect installation, compromised ingress protection and damaged or corroded luminaires (flame-proof lighting)
	Lack of adequate risk assessment for continued operation of non-compliant equipment in hazardous areas
	Contractor hazardous area equipment managed inadequately
Maintenance	Lack of clear maintenance policies and defects categorisation guidelines
	Deficient hazardous area maintenance procedures with inadequate external and detailed internal inspections as per applicable industry standards
	Lack of complete inspection history within the facility computerised maintenance management systems
	Large backlogs of hazardous area defects (lack of timely rectification)
	Low prioritisation of defect rectification due to poor awareness of the risk
Auditing	Lack of verification of hazardous area equipment and hazardous area classification or equipment to performance standards
	Infrequent internal or external audits and reviews of hazardous area documents and procedures
Competency	Gaps in the competence of personnel involved in hazardous area equipment management

Table 20.

9. Enforcements

NOPSEMA takes enforcement action to ensure that operators, and other responsible parties, take action to deal immediately with serious risks, to promote and achieve sustained compliance and, to ensure that dutyholders including directors and managers, are held to account where they fail in their responsibilities.

NOPSEMA's enforcement policy is designed to ensure consistency and promote transparency, by applying an enforcement management model, in NOPSEMA's enforcement decision-making process. It allows the offshore petroleum industry and others to understand the principles behind any enforcement action. The enforcement management model provides regulatory guidance to NOPSEMA and its inspectors on how to respond to industry non-compliance and determine appropriate enforcement action in accordance with the legislation.

NOPSEMA's enforcement actions are informed by:

- assessments
- planned inspections
- investigations and reporting of accidents, dangerous occurrences and reportable environmental incidents
- investigation of complaints
- operator compliance history and previous enforcement actions
- Australian and international incidents
- national programs
- industry performance trends.

For more information about NOPSEMA's enforcement policy, enforcement actions and the enforcement management model, see the 'Compliance and enforcement' page at nopsema.gov.au

9.1 Enforcement action types

NOPSEMA issued 79 enforcement actions[23] in 2013 against 27 operators, titleholders or activity operators from the regulatory divisions as shown in Table 21.

Enforcement actions – 2013		
Regulatory division	Number	%
Occupational health and safety	34	43
Well integrity	2	3
Environmental management	43	54
Total	**79**	**100**

Table 21.

Of the 34 OHS enforcement actions in 2013, 38% related to MODUs, 32% to FPSOs, 26% to platforms and 3% to vessels.

Of the 43 enforcement actions for environmental management, 32 (74%) were requests for a revision to an environment plan. In 2013, NOPSEMA completed a review of environment plans that were previously accepted by state and Northern Territory designated authorities and still in force (transitioned environment plans). The review was undertaken to determine if each plan complied with the requirements of the Environment Regulations. Where the requirements of the Regulations were not met, NOPSEMA issued a request for a revision to an environment plan.

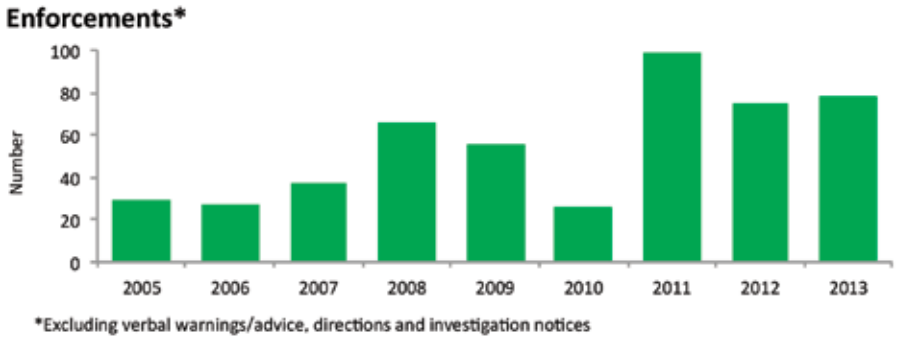


Figure 37.

23 This does not include verbal warnings or advice, revocation of directions and investigation-related notices (e.g. 'do not disturb' notices and 'removal of plant or sample' notices).

Enforcements – 2013			
Enforcement action and topic area	Issue summary	Type	No.
Improvement Notice			
Design	Failure of hydrocarbon piping due to vibration induced fatigue	OHS	1
	Firewater main construction defect caused cracking	OHS	1
	RTM sunk. Failure to ensure ongoing integrity of system operating beyond its original 15 year design life	OHS	1
Hazardous areas (and classification)	Failure to ensure equipment in hazardous areas is safe and without risk	OHS	5
Maintenance management	Failure to maintain firewalls	OHS	2
	Failure to maintain hydrocarbon piping – corrosion under insulation resulted in damage to safety critical piping	OHS	1
	No function testing of the fire and gas detectors being completed	OHS	1
Risk assessment and procedural controls	Failure of risk assessment process and compliance to procedures	OHS	1
Systems, policies, administrative controls	Failure to implement effective safe systems of work	OHS	1
	Failure to comply with safety case, operator did not have a certificate of validation for design life extension	OHS	1
	Failure to demonstrate robust continual improvement process (corrective action management)	OHS	1
	Failure to demonstrated effective compliance to subsea integrity procedures	OHS	1
	Failure to ensure that the management of lifting operations are carried out in a manner that was safe and without risk	OHS	1
	Failure to follow Asbestos Management Plan	OHS	1
	Failure to implement an effective system for equipment isolation	OHS	1
	Failure to implement and maintain an effective permit to work system	OHS	1
	Failure to reduce risk of dropped objects to ALARP	OHS	1
	Lack of FRC davit winch operating procedures/instructions	OHS	1
	Lift plan for FRC crane lift non-compliant with lifting procedures Lifted load weight not identified	OHS	1
	Lifting equipment non-compliance to lifting procedures	OHS	1
Training and competency	Dropped object training and competency improvement required	OHS	1
	Failure to provide adequate training and instruction to members of the workforce	OHS	1
Subtotal			**27**

Enforcements

Enforcements – 2013 (cont'd)			
Enforcement action and topic area	Issue summary	Type	No.
Intent to withdraw an environment plan acceptance			
Environment plan inadequate	NOPSEMA was not satisfied the in-force environment plan met the acceptance criteria of the Environment Regulations	EM	1
Subtotal			**1**
Intent to withdraw WOMP acceptance			
Systems, policies, administrative controls	Failure to abandon well in accordance with the accepted WOMP	WI	1
Subtotal			**1**
Prohibition Notice			
Maintenance Management	Failure to maintain FRC davit in safe condition	OHS	1
	Failure to maintain hydrocarbon gas pipework	OHS	1
	Failure to maintain hydrocarbon liquid equipment	OHS	1
Subtotal			**3**
Request for a revised safety case			
Safety case inadequate	Inconsistency in area descriptions between the safety case and fire and safety equipment maintenance procedures	OHS	1
	The diving system on board was unable to be used in a manner described in the safety case	OHS	1
Subtotal			**2**
Request for a revision to an environment plan			
Environment plan inadequate	Request for a revision to an in-force environment plan	EM	32
Subtotal			**32**
Written advice/warning			
Accepted environment plan not in place	Undertaking a petroleum activity without an accepted environment plan	EM	2
Reporting	Failure to notify NOPSEMA of dangerous occurrence	OHS	1
	Failure to notify and report a reportable environmental incident	EM	4
	Failure to report a reportable environmental incident within required time period	OHS	1
	Failure to notify a reportable environmental incident within required time period	EM	4
Systems, policies, administrative controls	Failure to abandon well in accordance with the accepted WOMP	WI	1
Subtotal			**13**
Total			**79**

Table 22.

10. Safety culture

Safety culture is a component of a wider organisational culture, which is thought to drive the degree to which safety is the primary concern within an organisation. It is a concept that is gaining prominence across most hazardous industries and increasingly the subject of both safety research and practical efforts to improve safety. In 2013, NOPSEMA concluded a national program aiming to explore the ways in which safety culture is understood and applied within the Australian offshore petroleum industry.

NOPSEMA gathered information from Australian facility operators via an online survey, which asked questions about their organisation's safety improvement initiatives. Operators responsible for 139 of a possible 178 facilities participated in the survey (representing 78% of facilities with a registered operator in Australia at the time). NOPSEMA then conducted a series of semi-structured interviews focusing on safety culture improvement strategies. Of the total survey respondents (participating organisations), 82% took part in the interviews. NOPSEMA's analysis of the data collected throughout the program informed the research findings that are outlined in the interim and final report published on the 'Safety Culture National Program' page at nopsema.gov.au

The national program findings show that safety culture improvement initiatives are increasingly applied across the offshore petroleum industry, with the majority of responding organisations indicating they have implemented safety culture improvement initiatives, or are planning to implement such initiatives in the near future. NOPSEMA's research also identified a marked variation in the way each participating organisation both understood the concept of safety culture and the approach used to create and drive safety culture change. This indicates that there is no single or commonly-accepted definition or model of safety culture used to frame safety culture improvement initiatives in the Australian offshore petroleum industry.

Safety culture has the potential to influence safety performance positively, but only if approaches to operationalise the concept are implemented with rigour. The labelling of initiatives as 'safety culture' when they do not target safety culture is unlikely to lead to improved safety performance; this may result in the industry believing that safety culture change is ineffective. To facilitate the development of better quality safety culture improvement initiatives that are more likely to achieve improved safety performance, NOPSEMA recommends the industry adopt a consistent definition and model of safety culture.

As an independent regulator, NOPSEMA is in a position to objectively challenge ideas and practices within the industry as a means of promoting continuous improvement and innovation in offshore operations. NOPSEMA has developed a definition and model drawing from the national program and published academic and applied literature. This aims to facilitate continuous improvement in the industry's application of the safety culture concept to safety performance improvement. The adoption of the definition or model is not requirement of the Safety Regulations.

Safety culture

Proposed safety culture definition

Safety culture refers to the shared basic assumptions, held by most members of an organisation, which create and reinforce group norms of thoughts, language and behaviour in relation to major accident event prevention.

NOPSEMA's proposed model of safety culture in Figure 38 highlights the importance of executive commitment to safety. The figure illustrates how safety outcomes are a direct result of organisational behaviour and that organisational behaviour is influenced by the level of commitment to safety found in the organisation's executive, which is reflected in the executive's decisions and behaviour.

For more information about safety culture see the 'Safety culture national program' page at nopsema.gov.au

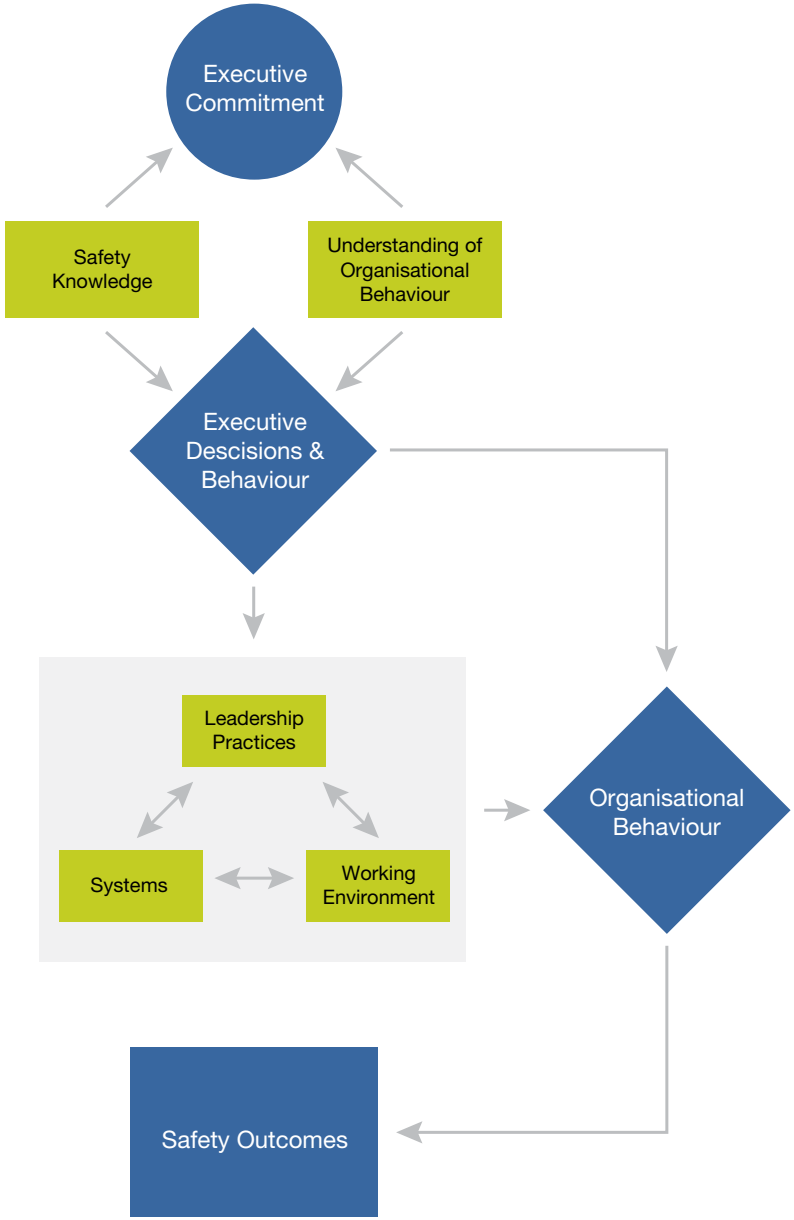


Figure 38.

Appendix 1.

Classification of fatalities and injuries

Code	Category	Definition
FT	Fatality	Any work-related death that occurs within one year of the incident and; • includes missing persons • does not include fatalities that are due to natural causes.
MI	Major injury	Any work related injury that results in: • amputation: includes whole or partial amputation of parts of the body (does not include loss of fleshy tip of finger, nail, or tooth) • skeletal injuries: includes bone fractures (including chipped or cracked bone or hairline fractures) and dislocation • burns: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation • injuries to internal organs: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation • eye injuries resulting in loss of sight (permanent or temporary) • eye injuries resulting in a penetrating eye injury or a chemical or hot metal burn to the eye • 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 • hypothermia or heat-induced illness (unconsciousness) • any injury resulting in unconsciousness, resuscitation, or admittance to hospital.

Appendix 1.

Classification of fatalities and injuries (cont'd)

Code	Category	Definition
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 after the day of occurrence of the injury and remains off work for three days or more Any day includes rest days, weekend days, leave days, public holidays, or days after ceasing employment
LTI <3	Lost time injury <3	Any work-related injury (other than a 'major injury') which results in a person being unfit for work on any day after the day of occurrence of the injury and remains off work for one or more days but less than three days Any day includes rest days, weekend days, leave days, public holidays, or days after ceasing employment
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 guideline – 'N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries' under the 'Safety resources' page at nopsema.gov.au

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
		MTI	Medical treatment 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
MIs	**Major injuries**	LTI, ADI, MTI	Can be any type, but most usually are lost time injuries

Note: For more information about these codes and categories, see NOPSEMA's guideline – 'N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries' under the 'Safety resources' page at nopsema.gov.au

Appendix 3.

Incident notification and reporting classification scheme

Incident type			
OHS incidents	Accidents	• Death or serious injury • Incapacitation ≥3 days LTI	
	Dangerous occurrences	• Could have caused death or serious injury • Could have caused incapacitation ≥3 days LTI • Fire or explosion • Collision – marine vessel and facility • Uncontrolled HC release >1-300 kg • Uncontrolled HC release >300 kg • Uncontrolled PL release >80-12 500 L • Uncontrolled PL release >12 500 L • Unplanned event – implement emergency response plan	• Damage to safety-critical equipment • Other kind needing immediate investigation • Pipeline – kind needing immediate investigation • Pipeline – substantial risk of accident • Pipeline – significant damage • Well kick >50 barrels
Environmental incidents	Reportable	• Hydrocarbon/petroleum fluid release • Chemical release • Drilling fluid/mud release • Fauna incident • Other	
	Recordable	• Non-HC air emissions • HC gas release/air emissions • HC liquid spill <80 L • Chemical spill • Other unplanned liquid discharge • Spill – no discharge to marine environment • Non-conformance with planned discharge	• Solid waste discharge/dropped object • Injury or death – fauna • Seabed/benthic damage • Equipment not functioning • Breach of procedural control • Other

Glossary

Acronyms and common terms

Term	Definition
AAUWA	Applications for approval to undertake well activity
Activity or petroleum activity	As defined in the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
Actuator	A servomechanism that supplies and transmits a measured amount of energy for the operation of another mechanism or system
ADI	Alternative duties injuries
ALARP	As low as reasonably practicable. A principle that provides a means for assessing the tolerability of risk
AOP	Annual operating plan
ATBA	Area to be avoided
BDV	Blow down valves
BHA	Bottom hole assembly
Blowout	An uncontrolled release of hydrocarbons from a well
BOP	Blow out preventer
CALM	Catenary anchor leg mooring
CMMS	Computerised maintenance management system
Coupler	A connection between two moving parts to relay the motion
Cofferdam	On a ship: A compartment separating two bulkheads or floors, as for insulation or to serve as a barrier against the escape of gas or oil
Condensate	Hydrocarbons which are gaseous in a reservoir, but which condensate to form a liquid as they rise to the surface where the pressure is much less
CTU	Coiled tubing unit
DSMS	A system for managing the OHS of personnel involved in diving activities (Diving safety management system)
DROPS	Dropped objects prevention scheme
Dutyholders	Parties with legislative responsibilities under the *Offshore Petroleum Greenhouse Gas Storage Act 2006*
ED	Equipment difficulties
EEHA	Electrical equipment in hazardous areas
EM	Environmental management
EP	Environment plan
ERP	Emergency response plan
ESD	Emergency shut down
Facility	A vessel, structure or pipeline at which offshore petroleum operations are being performed – defined in Clause 4 of Schedule 3 to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*

Acronyms and common terms (cont'd)

Term	Definition
The following categories of facilities are recognised within the legislation:	
Accommodation, construction and pipelay vessel	A maritime vessel used in the construction of subsea infrastructure
Floating production, storage and offloading vessel (FPSO)	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
Floating storage and offloading vessel (FSO)	Similar to an FPSO with reduced production and processing facilities
Large production platform	A large scale production facility, which can be a floating or fixed marine vessel (conducting specific activities at a location)
Mobile offshore drilling unit (MODU)	An offshore facility (capable of independent navigation) used for drilling or servicing a well for petroleum
Pipeline	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)
Production platform (with drilling or no drilling, can be attended (manned) or not normally attended (unmanned))	A platform from which development wells are drilled that also houses processing plant and other equipment
Gantry crane	A crane with a bridge supported on two or more legs running parallel on fixed rails
HAC	Hazardous area classification
HC	Hydrocarbon(s) – organic compounds of carbon and hydrogen
HLA	Helicopter landing assistant
HLO	Helicopter landing officer
HPD	Human performance difficulties
HSR	Health and safety representative
HWU	Hydraulic workover units
Improvement notice	A notice issued to the operator of a facility requiring action to prevent any further contravention or likely contravention of listed OHS law
IS	Intrinsic safety
KPIs	Key performance indicators
Lay-down area	Refers to the area where equipment is stored on a facility
LOSO	Lube oil sea oil
LTI	Lost time injury
MAE	Major accident event
MCCB	Motor-controlled circuit breaker
MIC	Microbiological induced corrosion

Acronyms and common terms (cont'd)

Term	Definition
MoC	Management of change
Mousehole	The storage area on a drilling rig where the next joint of drilling pipe is held until needed
MRT	Marine riser tensioner
N/A	Not applicable
NOPSA	National Offshore Petroleum Safety Authority (NOPSEMA superseded NOPSA on 1 January 2012)
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NT	Northern Territory
OEM	Original equipment manufacturer
OHS	Occupational health and safety
Operator	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)
OPGGS Act	Abbreviation of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*
OSCP	Oil spill contingency plan
Personal safety	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
PIN	Provisional improvement notice
Pipeline	See "Facility"
PL	Petroleum liquid
Process safety	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, over-pressures, 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
Prohibition notice	A notice issued to the operator of a facility in order to remove an immediate threat to the health or safety of any person
PSMP	Pipeline safety management plan; A plan for managing OHS risks to personnel at or near pipeline facilities
PSZ	Petroleum safety zone
QA	Quality assurance
QC	Quality control
ROV	Remotely operated vehicle
RTM	Riser turret mooring
SC	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

Acronyms and common terms (cont'd)

Term	Definition
Scabbard	A tube in which another tool or tube is inserted for storage or protection e.g. a kelly scabbard is a covering that protects the kelly during rig moving
SCAP	Safety case administration procedure
SCE	Safety-critical equipment, or safety-critical elements
SDV	Shutdown valve
Slip joint packer	A resilient seal located in the telescopic joint that retains the hydrostatic pressure of the wellbore fluid in the riser, while allowing the vessel to heave
SMP	Safety management plan
SMS	Safety management system
SPAE	Significant pipeline accident events
SSIV	Subsea isolation valve
Tag lines	Pieces of flexible line (usually rope) attached to a load that is to be lifted by a crane
TapRoot®	A system for root cause analysis
Titleholder	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
TOOCS	Type of occurrence classification system
TRCs	Total recordable cases
Tugger wire	A wire used in winching operations
UPS	Uninterruptable power supply
Wellhead	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
WI	Well integrity
WOMP	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
WHS Act	The *Work Health and Safety Act 2011*

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