

# Annual offshore performance report

Regulatory information about the  
Australian offshore petroleum industry



to 31 December 2012



NOPSEMA

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



# Preface



Welcome to the *Annual Offshore Performance Report* published by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). This report contains data gathered through NOPSEMA's regulatory functions covering occupational health and safety, well (structural) integrity and environmental management of offshore petroleum facilities and activities in Commonwealth waters (and coastal waters where functions had been conferred) to 31 December 2012.

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

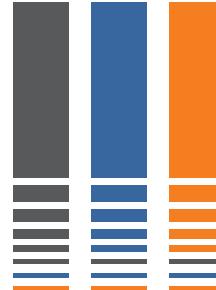
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**NOPSEMA shares this information in the expectation that, with continued effort, industry performance will improve and one day the impact of high risk offshore activities on the lives of offshore workers and the environment will be negligible.**



# Message from the Chief Executive Officer



NOPSEMA's *Annual Offshore Performance Report* is the yearly stocktake of risk management by the Australian offshore petroleum industry. It records the results of the industry's efforts to protect offshore workers and manage impacts on the environment and communities. Publishing the successes, opportunities and challenges of industry's recent performance reinforces the responsibility of offshore petroleum organisations to 'own the risk' they create through their activities.

I encourage industry leaders and the workforce to examine this report, in the context of their organisations' experiences, for insights into how offshore petroleum facilities and activities can run more safely and responsibly. NOPSEMA shares this information in the expectation that, with continued effort by all, the impact of high risk offshore activities on the lives of offshore workers and the environment will be negligible. I reinforce this goal in memory of the two men killed on an offshore facility in the Bass Strait in August 2012.

In acknowledging that 2012 proved a costly year in terms of lives lost, I am encouraged by the reduction in the rate of people being hurt while carrying out work offshore. Lower injury rates should be commended as they represent actual harm avoided and demonstrate continuing endeavours by organisations to prevent further fatalities and injuries. This is crucial in the context of the increasing hours collectively spent on duty by thousands of offshore workers each year.

Furthermore, the rate of uncontrolled hydrocarbon releases is the lowest since data collection by the authority began in 2005. The successful prosecution by NOPSEMA over the Montara blowout, following a lengthy and technically complex investigation, served as a timely reminder of the constant need for vigilance in all operations offshore. The continuing prevalence among incident root causes of inadequate design specifications and workers not following procedures, signals an opportunity for organisations to focus on these aspects for improved performance.

An accountable, transparent and independent regulator is a reasonable expectation of those with a stake in Australia's offshore activities; be they operators, the offshore workforce or the communities that help sustain the industry. In addition to sharing information, NOPSEMA will continue to treat with discretion and professionalism the information it collects in the course of its core functions. NOPSEMA values its reputation as an agency of trust which, in turn, serves to encourage and sustain the offshore industry's proactive record of reporting incidents. Diligence in handling sensitive information is also crucial for holding to account any parties that fail in their responsibility to effectively manage risk.

I invite you to share and discuss the information in this report to build a better understanding of offshore activities and NOPSEMA's role in support of a safe and environmentally responsible Australian offshore petroleum industry. I encourage you to act on the lessons and observations in the following pages on behalf of those who could not finish their shift offshore or go home to their loved ones.

A handwritten signature in black ink, appearing to read "Jane Cutler".

**Jane Cutler**  
CEO  
National Offshore Petroleum Safety and Environmental Management Authority

# Executive summary



## Industry activity

The number of reported hours worked offshore increased to 15.7 million in 2012.

NOPSEMA's jurisdiction covered:

- 36 facility operators across 151 active facilities, such as pipelines and production platforms
- 25 titleholders across 223 petroleum titles and 257 wells
- 36 activity operators of 110 petroleum activities, including drilling and seismic surveys.

## Fatalities and injuries

Two workers were killed during drilling operations on a mobile offshore drilling unit facility in the Bass Strait in 2012.

The rate of injuries requiring three or more days off work decreased to 6.7 per million hours worked offshore.

## Incidents

In 2012, the rate of accidents reached the lowest level recorded since 2005, at 1.28 per million hours worked offshore.

The rate of uncontrolled hydrocarbon releases per million hours also decreased to its lowest level since 2005.

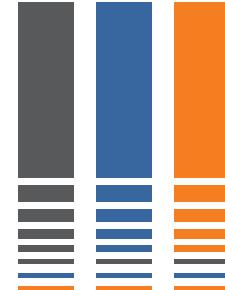
The number of uncontrolled hydrocarbon releases reported decreased by 41% in 2012.

## Complaints

13 complaints were made to NOPSEMA during 2012, mainly relating to health and safety issues, such as:

- fatigue, shifts and rosters
- work procedures, methods and practices
- management.

One complaint was made relating to environmental management.



## Investigations

In August 2012, PTTEP AA was convicted of three occupational health and safety (OHS) offences and one non-OHS offence in relation to the Montara well blowout in 2009.

Two major investigations into separate incidents are ongoing, including into the death of two offshore workers in 2012.

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

- 42 recommendations for improvement
- 3 enforcement actions.

## Assessments and submissions

Organisations made a total of 537 submissions to NOPSEMA in 2012:

- 221 related to occupational health and safety
- 197 related to well integrity and well activities
- 104 related to environmental management
- 15 related to petroleum safety zone applications
- 6 related to regulatory advice sought by other agencies.

## Inspections

In 2012, NOPSEMA conducted 99 inspections to determine compliance by offshore petroleum organisations for risk management covering:

- a total of 156 facilities, titles and wells and petroleum activities
- impacts on health and safety, well or structural integrity and the environment.

## Enforcements

NOPSEMA issued 69 enforcement actions against 18 facility or activity operators in 2012, comprising:

- 1 prohibition notice
- 5 requests for revised safety case or environment plan
- 49 improvement notices
- 14 written advice or warnings.

# Introduction

## Background

NOPSEMA is Australia's independent regulator for offshore petroleum health and safety, well (structural) integrity and environmental management.

NOPSEMA was established in January 2012 following the *Final Government Response to the Report of the Montara Commission of Inquiry* and a decision to extend the health and safety remit of the National Offshore Petroleum Safety Authority (NOPS).

NOPSEMA's jurisdiction covers offshore petroleum facilities and activities in Commonwealth waters and designated coastal waters where functions have been conferred.

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 or the environmental impacts of an offshore petroleum activity to a level that is as low as reasonably practicable and acceptable.

**NOPSEMA is Australia's independent regulator for offshore petroleum health and safety, well integrity and environmental management.**



## Jurisdiction for safety, well integrity and environmental management

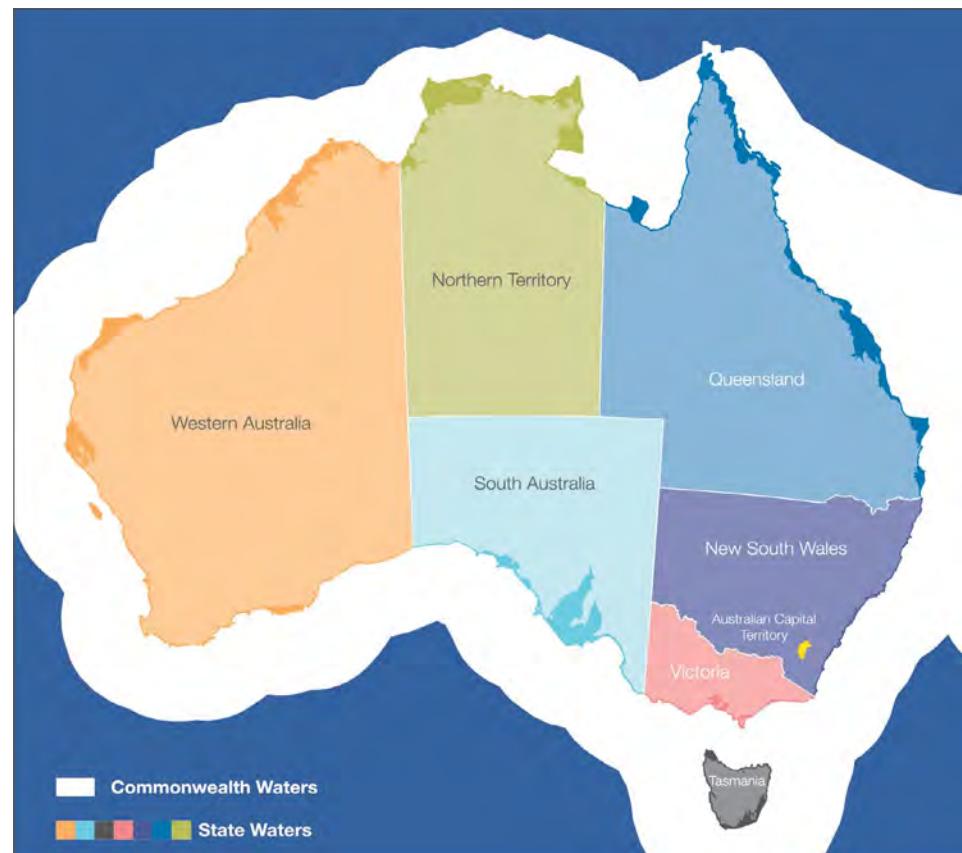


Figure 1.



The three key risk management regulatory documents 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 the management by organisations of impact on the environment.

The *Offshore Petroleum Greenhouse Gas Storage Act 2006* (OPGGS Act) and associated Regulations cover these regulatory arrangements and the responsibilities of offshore petroleum organisations in greater detail. NOPSEMA publishes extensive guidance on its approach to administering the legislation at [nopsema.gov.au](http://nopsema.gov.au)

**An accountable, transparent and independent regulator is a reasonable expectation of those with a stake in Australia's offshore petroleum activities.**

## 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 2012. The information has been obtained through the full range of NOPSEMA's regulatory activities, including inspections and investigations.

For the first time, this report includes information on environmental management and reflects NOPSEMA's expanded functions since April 2011 (for well integrity) and January 2012 (for environmental management). The data available for these aspects of this report is limited to that collected since these dates.

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.



The number of reported hours worked offshore on mobile and fixed facilities increased to 15.7 million in 2012.

# 1. Industry activity

NOPSEMA determines offshore petroleum industry activity by how many regulatory reports and submissions are handled by the authority. The number of reported hours worked offshore on mobile and fixed facilities increased to 15.7 million in 2012. The scope of reported activity expanded in 2012, reflecting the first year NOPSEMA regulated environmental management.

The majority of environmental management ‘petroleum activities’ in 2012 was related to offshore drilling (34%), followed by seismic surveys (25%). The number of organisations actively operating offshore facilities was equal to the number conducting petroleum activities in 2012, at 36. Pipelines made up more than half of those facilities, followed by production platforms. Just over a quarter of well-related regulatory applications and activities under NOPSEMA’s jurisdiction<sup>1</sup> covered drilling operations.

By law, NOPSEMA divides offshore petroleum industry activity into categories according to:

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



| Number of regulatory submissions to NOPSEMA |                           |      |      |
|---------------------------------------------|---------------------------|------|------|
| Category                                    | Type                      | 2011 | 2012 |
| Occupational health and safety (OHS)        | Facility operators        | 35   | 36   |
|                                             | Facilities                | 209  | 151  |
| Well integrity (WI)                         | Titleholders <sup>2</sup> | 13   | 25   |
|                                             | Titles                    | 193  | 223  |
| Environmental management (EM)               | Wells                     | 146  | 257  |
|                                             | Activity operators        | -    | 36   |
|                                             | Activities <sup>3</sup>   | -    | 110  |

Table 1.

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

These categories form some of the parties with legislated responsibilities under the OPGGS Act and which NOPSEMA collectively refers to as ‘dutyholders’.

<sup>1</sup> See ‘Introduction’ for a map of NOPSEMA’s jurisdiction.

<sup>2</sup> Titles are administered by the National Offshore Petroleum Titles Administrator (NOPTA), which is a separate Commonwealth agency to NOPSEMA.

<sup>3</sup> Based on the number of environment plans submitted to NOPSEMA.



## 1.1 Organisations, facilities, titles and petroleum activities

### Active dutyholders

The number of active facility operators registered with NOPSEMA has remained steady over the two years to December 2012, at 36. 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](http://nopsema.gov.au)

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

An increase in the number of active titleholders from 13 in 2011 to 25 in 2012 reflects the period the authority has regulated well integrity, from April 2011.

### Facilities, titles and petroleum activities

There were 151 active facilities under NOPSEMA's jurisdiction in 2012. The number of offshore petroleum facilities operating under NOPSEMA's jurisdiction can change depending on whether a state or the Northern Territory has conferred functions on NOPSEMA to regulate in designated coastal waters. The decrease in the number of facilities recorded in 2012 reflects changes to conferral arrangements for offshore petroleum facilities in Western Australian designated coastal waters.

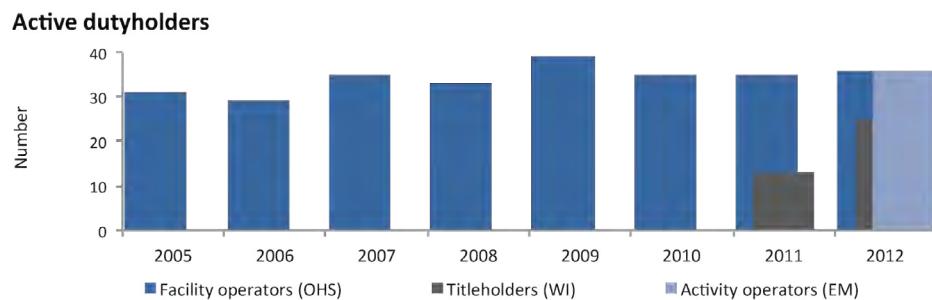
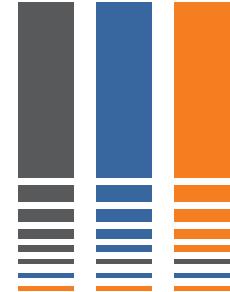


Figure 2.

### Facilities under NOPSEMA jurisdiction – 2012

| Facility type                                                     | %  |
|-------------------------------------------------------------------|----|
| Pipeline                                                          | 53 |
| Production platform (normally attended and not normally attended) | 21 |
| Floating (production) storage and offloading facility (FPSO, FSO) | 9  |
| Accommodation, construction and pipe lay vessel                   | 9  |
| Mobile offshore drilling unit (MODU)                              | 8  |

Table 2.



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).

An increase in the total number of titles related to titleholder well activities and submissions in 2012 reflects the addition of well integrity regulation to the authority's remit in April 2011.

The number of offshore environmental management petroleum activities is based on the number of environment plans submitted to NOPSEMA in 2012. Not all of these petroleum activities were carried out in 2012. Seismic surveys are defined as a 'petroleum activity' under the OPGGS Act.

**There were 151 active facilities under NOPSEMA's jurisdiction in 2012.**

Facilities, titles and activities

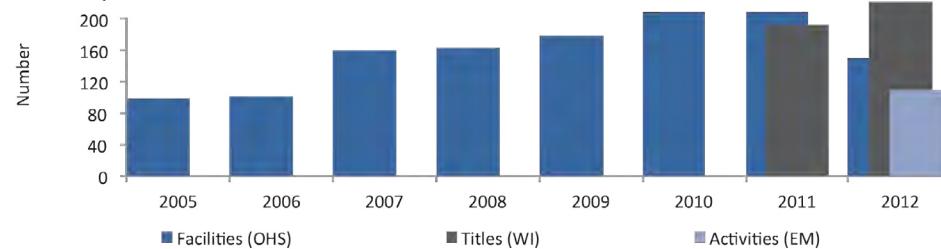


Figure 3.

Facility types

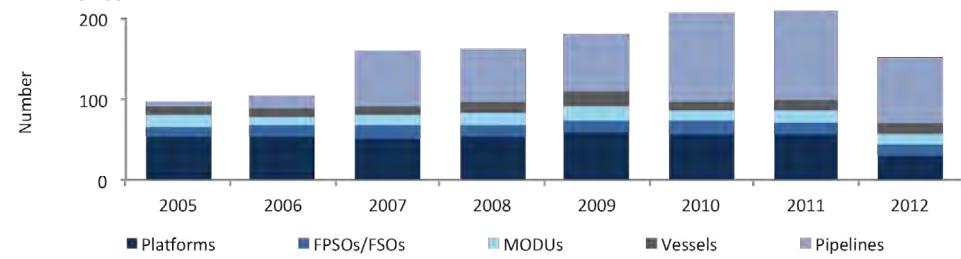
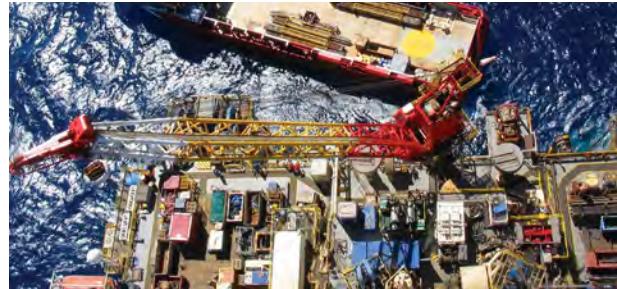


Figure 4.



## Well activity types

Since April 2011, NOPSEMA (formerly NOPSA) has been responsible for approving applications to undertake a well activity and accepting well operations management plans (WOMPs) submitted by titleholders. NOPSEMA categorises these activities according to the Resource Management and Administration Regulations. In 2012, 28% of applications to undertake a well activity were for drilling.

For ease of reference to Figure 5, well 'intervention' is a common name for activities conducted on an existing well, which include:

- wireline operations
- workover operations with a drilling facility
- workover operations with a hydraulic workover unit
- workover operations with a coiled tubing unit.

## Environmental management activity types

By law, petroleum exploration or development activities are required to have an environment plan assessed and accepted by NOPSEMA. In 2012, 34% of the 110 petroleum activities assessed by NOPSEMA were related to drilling, and 25% to seismic surveys.

NOPSEMA categorises these activities according to those listed in the Offshore Petroleum and Greenhouse Gas Storage (Resources Management and Administration) Regulations 2011. For ease of reference to Figure 4, the 'other surveys' category includes geophysical, geotechnical and other surveys required to support the exploration or development of petroleum. 'Other petroleum-related activities' can include 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](http://nopsema.gov.au)

**Well activity types - 2012**

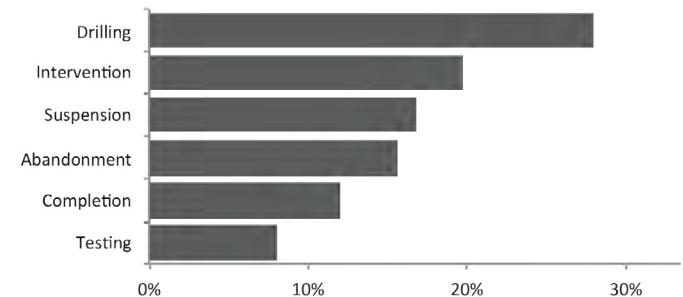


Figure 5.

For more information about NOPSEMA's well integrity regulatory functions, see the 'Well integrity resources' page at [nopsema.gov.au](http://nopsema.gov.au)

**Petroleum activity types - 2012**

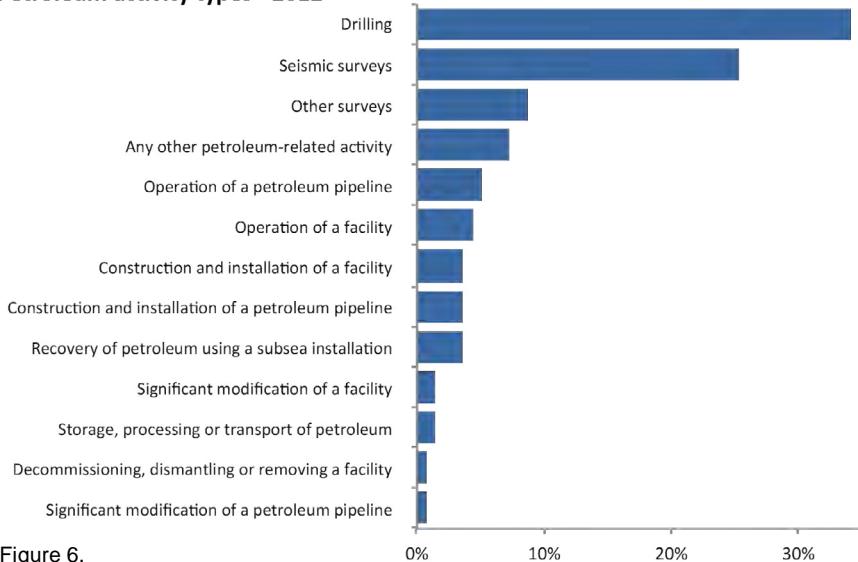
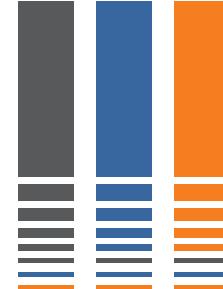


Figure 6.



## 1.2 Hours worked offshore

Based on regulatory reports submitted by industry to NOPSEMA, the number of hours worked offshore has increased over the three years to 2012 to 15.7 million hours. In 2012, 53% of the hours worked took place on mobile facilities and 47% on fixed facilities.

**Annual total hours worked offshore**

|      |            |      |            |
|------|------------|------|------------|
| 2005 | 9 951 660  | 2009 | 15 033 373 |
| 2006 | 10 334 531 | 2010 | 13 589 209 |
| 2007 | 11 586 676 | 2011 | 14 467 978 |
| 2008 | 13 224 089 | 2012 | 15 669 197 |

Table 3.

**Offshore hours worked**

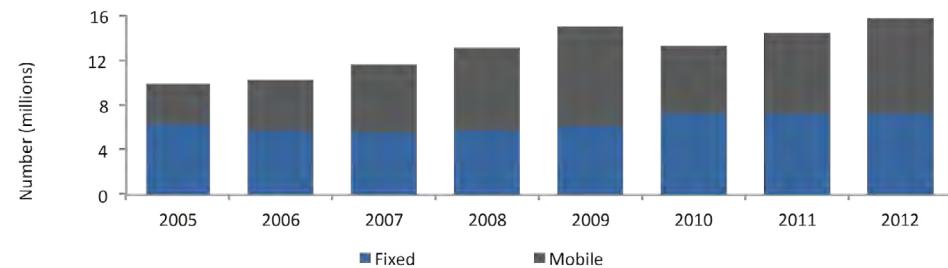


Figure 7.

## 2. Fatalities and injuries



In August 2012, two offshore workers were killed in an accident on the *Stena Clyde* mobile offshore drilling unit facility in the Bass Strait. MODUs consistently account for the highest number of injuries suffered by the offshore workforce across all facility types.

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. In the context of increasing hours worked offshore, organisations *must* heed the lessons and continue to dedicate resources to training, equipment and processes that better protect offshore workers.

NOPSEMA compiles injury data from mandatory monthly reports submitted by operators to the authority. By law, the injury summary reports cover all injury, 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 event. See Chapter 3 for more information about accidents and dangerous occurrences.

NOPSEMA calculates the injury rate by taking the total number of injuries recorded against the total hours worked and then standardising to one million hours. This allows for direct comparison between years. The average number of injuries reported per year since 2005 is 140.

### 2.1 Total recordable cases

Total recordable cases are calculated by adding the number of lost time injuries, alternative duties injuries and medical treatment injuries. See Appendix 3 for more information about the classification of injuries and groups.

In summary: TRC = LTI + ADI + MTI.

The total number of injuries reported for 2012 was 105, of which 42% were alternative duties injuries. The rate of total recordable cases decreased to 6.7 in 2012.

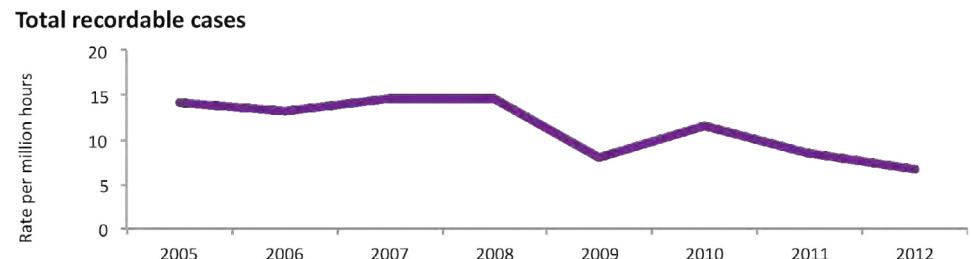
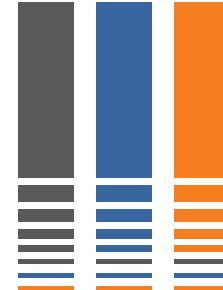


Figure 8.



## 2.2 Fatalities

On 27 August 2012, two offshore workers were killed in an accident on the *Stena Clyde* MODU facility, in the Bass Strait, during drilling operations. Information about NOPSEMA's independent investigation into the accident and preliminary considerations is available at [nopsema.gov.au](http://nopsema.gov.au). See also Chapter 5.

In December 2008, a crew member was killed on the Teekay-operated *Karratha Spirit* FSO during disconnection of the facility in preparation for cyclone conditions. A coronial report into the accident was released in December 2012. The coroner made one recommendation that the operator consider using a form of visual recording of a disconnection from the import hose and CALM buoy as part of its induction, training and familiarisation programmes for workers.<sup>4</sup>

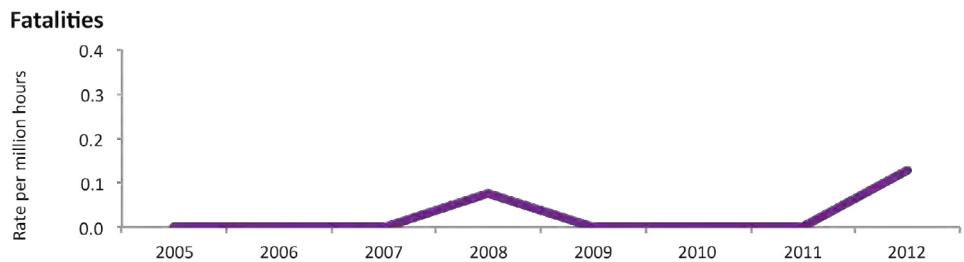


Figure 9.

## 2.3 Major injuries

There were five major injuries in 2012, which accounted for 5% of the total number of injuries. The rate of major injuries has fluctuated between 0.39 and 0.98 per million hours worked. Since 2008, the rate has trended downwards to a low of 0.32 in 2012.

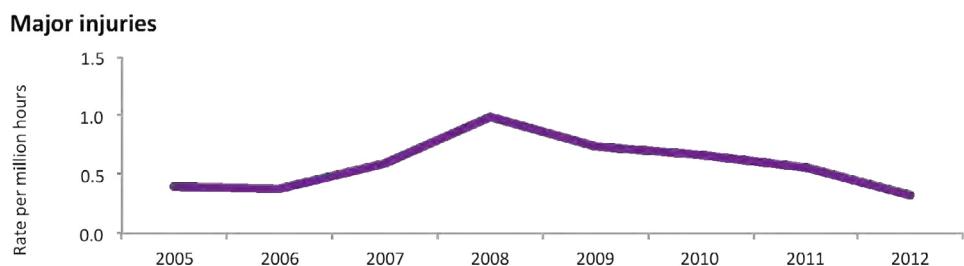
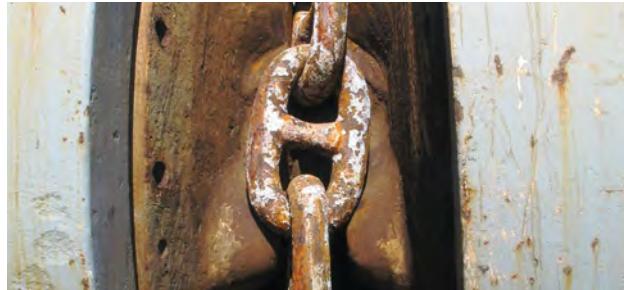


Figure 10.

<sup>4</sup> Inquest report reference 11042/08, 19 December 2012, Coroner's Court of Western Australia.



## 2.4 Lost time injuries

### Lost time injuries $\geq 3$ days

The rate for lost time injuries requiring three or more days away from work has continued to decrease since 2010. In 2012, the rate was the lowest level recorded since 2005 at 1.41 per million hours worked.

In 2012, 22 injuries were reported in this category, accounting for 21% of all reported injuries.

#### Lost time injuries $\geq 3$ days

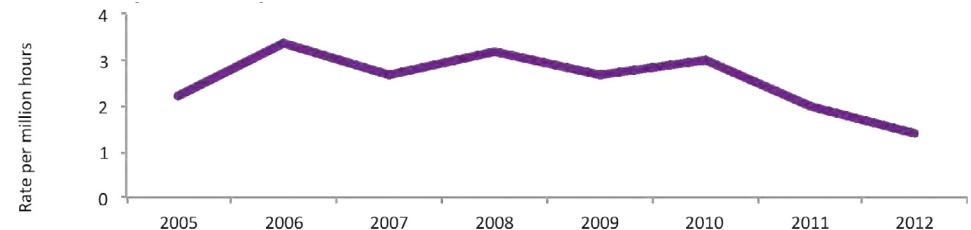


Figure 11.

### Lost time injuries $< 3$ days

The rate of lost time injuries requiring less than three days away from work decreased to 0.13 in 2012.

In 2012, two injuries were reported in this category, accounting for 2% of all reported injuries.

#### Lost time injuries $< 3$ days

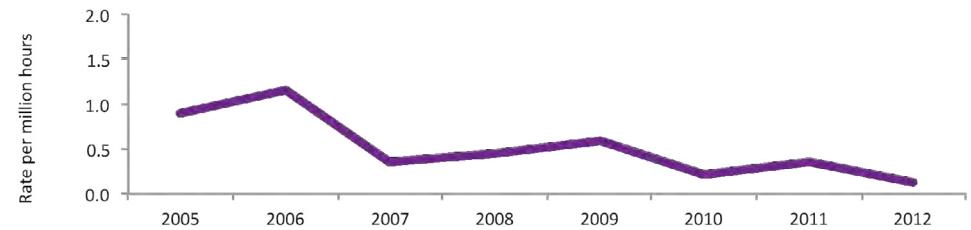
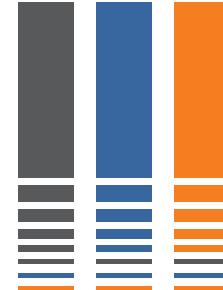


Figure 12.



## 2.5 Alternative duties injuries

The rate of injuries preventing an offshore worker from carrying out to full capacity their normal duties has fluctuated since the lowest level recorded in 2005 of 1.81.

In 2012, 44 injuries in this category were reported, accounting for 42% of all reported injuries.

**Alternative duties injuries**

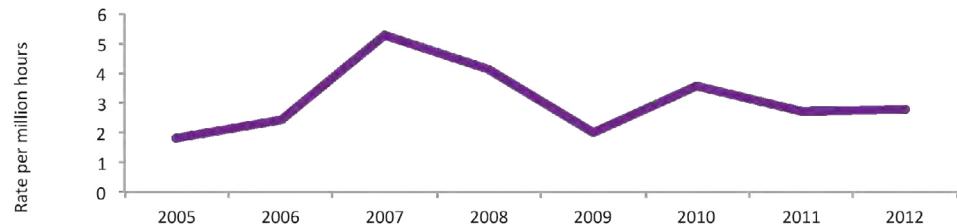


Figure 13.

## 2.6 Medical treatment injuries

The rate of medical treatment injuries has shown an overall decreasing trend to the lowest level recorded of 2.37 in 2012.

In 2012, 37 injuries in this category were reported, accounting for 36% of all reported injuries. Of these 37 injuries:

- 35% were classified as wounds, lacerations, amputations or internal organ damage
- 17% were classified as hand-related injuries
- 14% involved injuries to the trunk area.

**Medical treatment injuries**

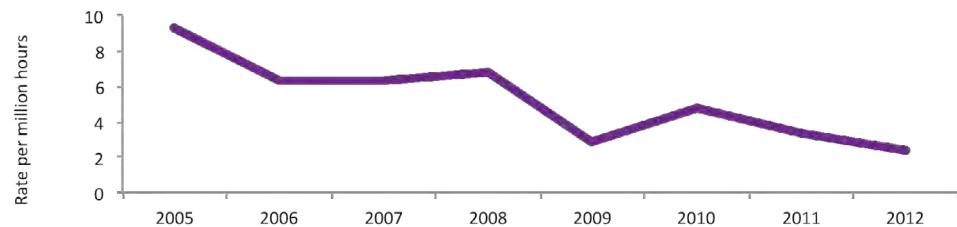


Figure 14.



## 2.7 Injuries by facility type

### Total recordable cases by facility type

Since 2006, injuries on MODUs have consistently accounted for the highest number of injuries (total recordable cases) by facility type. In 2012, the number of injuries reported on MODUs (32) was similar to that reported on platforms (30). The number of injuries reported on FPSO/FSOs remained the same as 2011, at 25.

### Injury rates by facility type

The number of hours reported worked on FPSOs is approximately half that worked on MODUs. Therefore, while the number of injuries reported for both those facility types is relatively comparable, when calculated as a rate injuries on FPSOs occur at approximately double the rate of MODUs.

The rate of injuries reported on FPSOs remains the highest recorded for all other facility types at 11.33 in 2012. There have been no recorded injuries for pipeline facilities since 2005.

The rates of injuries recorded for MODUs and vessels are the lowest recorded since 2005, at 6.39 and 5.07 respectively.

**Total recordable cases by facility type**

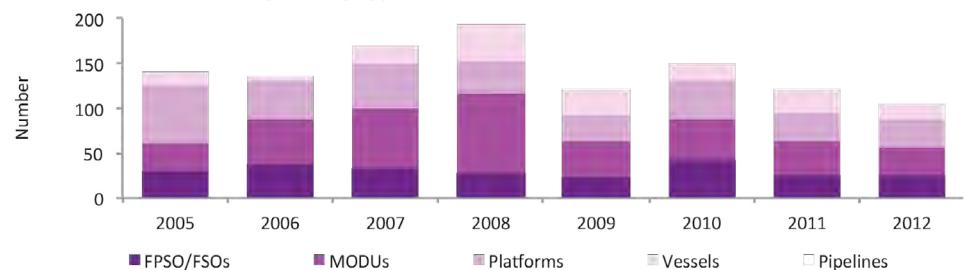


Figure 15.

**Total recordable cases for fixed facilities**

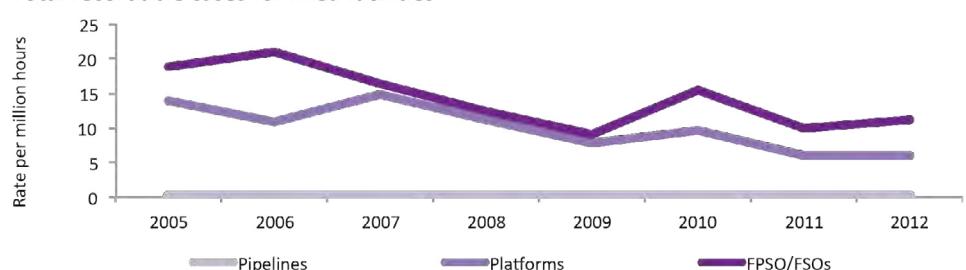


Figure 16.

**Total recordable cases for mobile facilities**

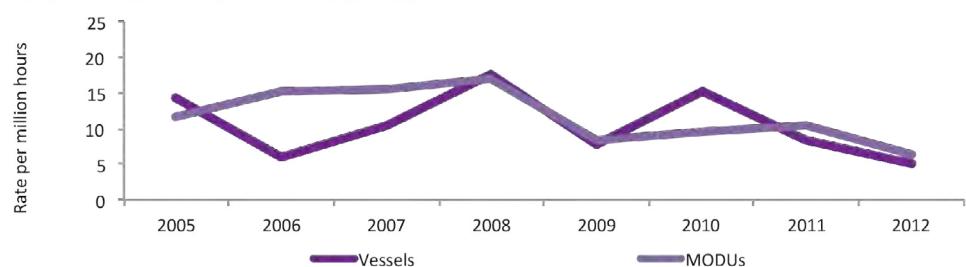
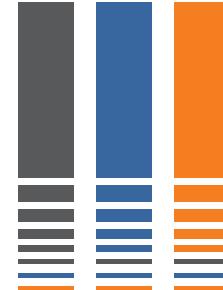


Figure 17.



## 2.8 Injury classification

Reviewing recorded injuries reported to NOPSEMA in 2012 against the *Type of Occurrence Classification System* (TOOCS) used by Safe Work Australia<sup>5</sup> shows:

### Nature of injuries

- 46% of injuries reported in 2012 were ‘traumatic joint, ligament and muscle, or tendon’ injuries
- 30% of reported injuries were ‘wounds, lacerations, amputations, internal organ damage’.

### Location of injuries

- 38% of reported injuries were to ‘upper limbs’
- back injuries caused by actions such as over-extending were also prominent, making up 28% of all ‘traumatic joint/ligament and muscle/tendon’ injuries.

**Since 2006, injuries on MODUs have consistently accounted for the highest number of injuries by facility type.**

### Mechanism of incidents

- 30% of reported injuries were caused by being hit by moving objects
- 21% of reported injuries were due to ‘body-stressing’
- ‘slips, trips and falls’ accounted for 16% of reported injuries.

### Agency of injuries

- non-powered hand-tools, appliances and equipment were involved in 30% of all reported injuries.

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

Total recordable cases mechanism of incident - 2012

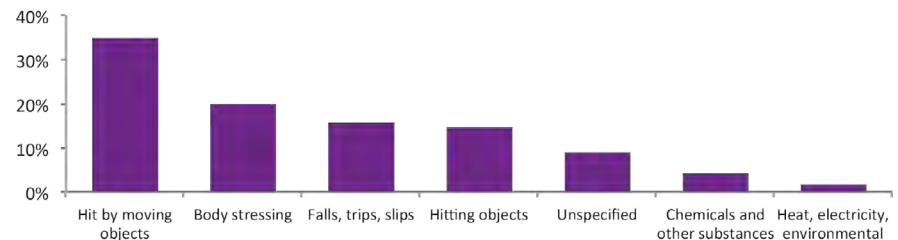


Figure 18.

<sup>5</sup> 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

Incident reporting by the offshore petroleum industry provides valuable information that can be shared to better inform the management of risks to offshore workers and the environment. NOPSEMA also has a responsibility to hold organisations to account for any breaches of their responsibilities, in order to leverage the best possible safety and environmental outcomes.

In 2012, the rate of accidents offshore reached the lowest level recorded since 2005. In 2012, the rate of uncontrolled hydrocarbon releases also decreased to its lowest level since 2005. This is very encouraging, given the risk of ignition posed by hydrocarbons and associated potential threat to lives and the environment. The continuing prevalence, among incident root causes, of inadequate design specifications and workers not following procedures signals an opportunity for organisations to focus on these aspects of their operations for improved performance.



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.<sup>6</sup>

**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.<sup>7</sup>

**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.<sup>8</sup>

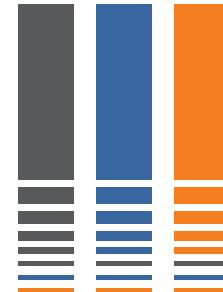
#### 2. Recordable environmental incidents

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.

<sup>6</sup> OPGGS Act, Schedule 3, Part 5, Cl. 82.

<sup>7</sup> Offshore Petroleum and Greenhouse Gas (Safety) Regulations 2009, r.2.41 (2).

<sup>8</sup> Offshore Petroleum and Greenhouse Gas (Environment) Regulations 2009, r.4.



In addition, NOPSEMA documents information arising from complaints to the authority about offshore health and safety and environmental management issues. See Chapter 4 for more information about complaints made in 2012.

NOPSEMA publishes on its website quarterly updates on the following key 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](http://nopsema.gov.au)

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

## Incidents

Organisations (mainly facility operators) reported the following incidents to NOPSEMA in 2012:

- 408 OHS reportable incidents (see 3.1)
- 17 environmental reportable incidents (see 3.3)
- 172 environmental recordable incidents (see 3.3).

### Incidents

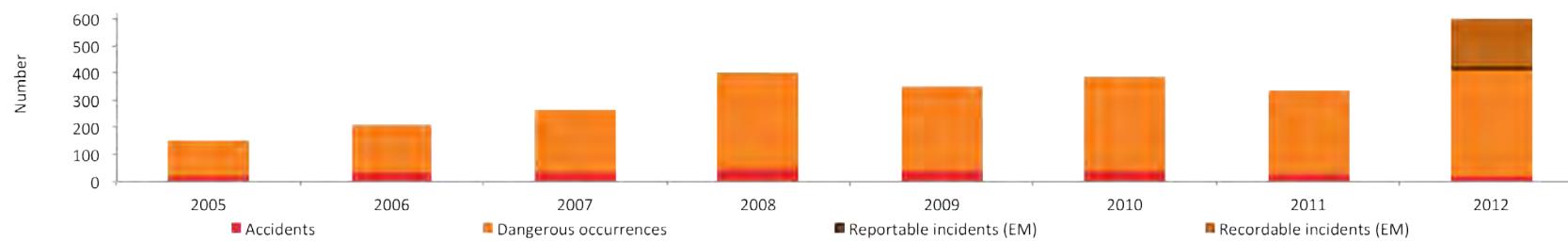


Figure 19.



### 3.1 Occupational health and safety incidents

Of the 408 OHS incidents reported in 2012, 20 were classified as accidents and 388 as dangerous occurrences. The total number represents a 22% increase from 2011. Over the five years to 2012, the number of OHS incidents reported annually has fluctuated between 335 and 408.

The increase in 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.

#### Accidents

The accident rate for 2012 reached the lowest level recorded since 2005 at 1.28. It is important to note that one of those accidents claimed the lives of two offshore workers on the *Stena Clyde* mobile offshore drilling unit facility in August 2012. For more information about the incident investigation, see Chapter 2, Chapter 5 and the 'Incidents' section at [nopsema.gov.au](http://nopsema.gov.au)

The 19 other accidents reported to NOPSEMA in 2012 comprised five serious injuries and 14 lost time injuries requiring three or more days off duty.<sup>9</sup>

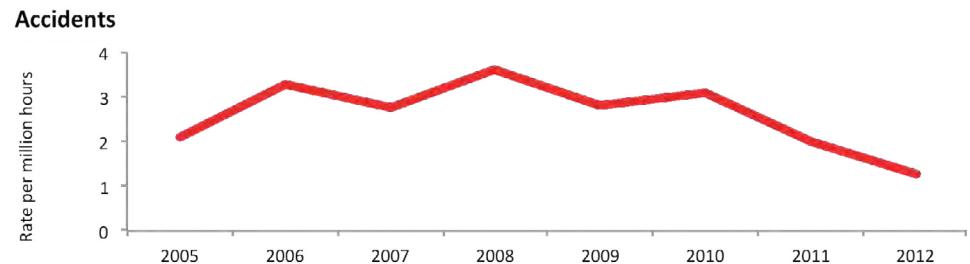
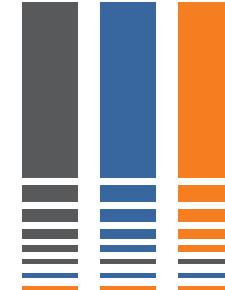


Figure 20.

<sup>9</sup> NOPSEMA includes 'serious injuries' under the description of 'major injuries' in 'N0300-GL0033 – Guideline on monthly reporting – deaths and injuries', available under the 'Safety resources' page at [nopsema.gov.au](http://nopsema.gov.au)



## Dangerous occurrences

NOPSEMA categorises a range of incident types as dangerous occurrences as provided in the OPGGS Act:

### Dangerous occurrences categories

Could have caused death or serious injury

Could have caused incapacity ( Lost time injury  $\geq 3$  days)

Fire or explosion

Collision marine vessel and facility

Well kick  $>50$  barrels

Unplanned event – implement emergency response plan

Damage to safety-critical equipment

Other kind needing immediate investigation

Uncontrolled hydrocarbon gas release  $>1\text{--}300$  kg<sup>10</sup>

Uncontrolled hydrocarbon gas release  $>300$  kg

Uncontrolled petroleum liquid release  $>80\text{--}12\,500$  L

Uncontrolled petroleum liquid release  $>12\,500$  L

Pipelines – substantial risk of accident

Pipelines – kind needing immediate investigation

Pipelines – significant damage

Table 4.

In 2012, the number of dangerous occurrences increased by 82 (27%) to 388. The increase may be related to increased awareness by operators of reporting requirements, in particular relating to 'damage to safety-critical equipment'. See Chapter 9 for more information.

The dangerous occurrences rate has fluctuated between 19.85 and 26.92 over the five years to 2012. The rate was 24.76 by the end of 2012. The general increase shown in the dangerous occurrences rate may reflect growing compliance by facility operators with reporting requirements and the way incidents are classified by operators prior to reporting to NOPSEMA.

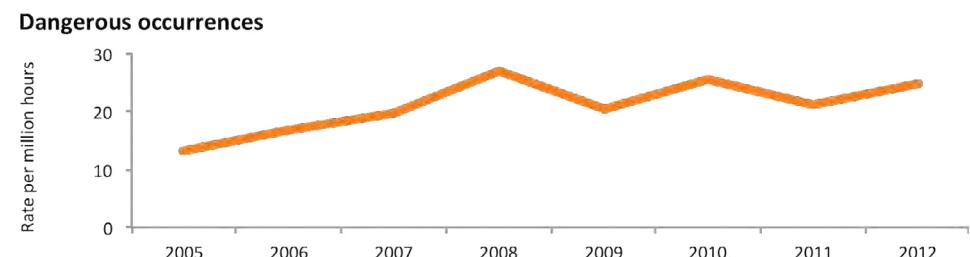


Figure 21.

10 Uncontrolled releases are those that are not part of a planned and approved venting or flaring activity.



In 2012, the rate of dangerous occurrences increased for the following incident categories:

- damage to safety-critical equipment
- unplanned event requiring the activation of the emergency response plan
- other kind needing immediate investigation.

For ease of reference to the graphs in this section, NOPSEMA has combined data for several categories shown in Table 4 (see also Appendix 2).

**'Potential injuries'** comprise 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.

**'Pipeline incidents'** comprise three dangerous occurrences categories:

Pipelines – substantial risk of accident

Pipelines – kind needing immediate investigation

Pipelines – significant damage

**It is very encouraging that the number of uncontrolled hydrocarbon releases reported to NOPSEMA decreased by 41% from 2011 to 2012.**



In 2012, the rate of reported fires or explosions offshore decreased to 0.57. Total uncontrolled hydrocarbon releases (gas and liquid) decreased to 1.08 in 2012, the lowest rate recorded since 2005. The rate of dangerous occurrences classified as 'could have caused death, serious injury or lost time injury' decreased to 3.89 in 2012.

The rates for collisions, well kicks and pipeline incidents remain low and all decreased in 2012 to 0.13, 0.06 and 0.00 respectively. The one pipeline incident reported to NOPSEMA in 2012 involved a dragged anchor contacting a pipeline, leading to the uncontrolled release of approximately 3 500 kg equivalent of hydrocarbon (gas). The operator isolated the source of the hydrocarbon release. See Chapter 5 for more information.

The increased rate of reported damage to safety-critical equipment may, in part, reflect increased operator reporting of safety-critical equipment that requires maintenance in order to meet performance.

The number of reported unplanned event incidents where the facility emergency response plan was initiated remains high compared to other incident types.

The increase in reported incidents classified as 'Other kind needing immediate investigation' during 2012 is partly attributed to the number of alarms associated with equipment defects which required further investigation by operators (e.g. alarms triggered by faulty smoke/fire detector head).

Dangerous occurrences - fires/hydrocarbons/potential injuries

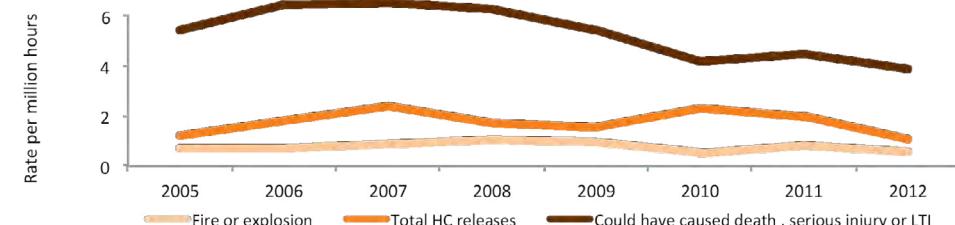


Figure 22.

Dangerous occurrences - well kicks/pipelines/marine collisions

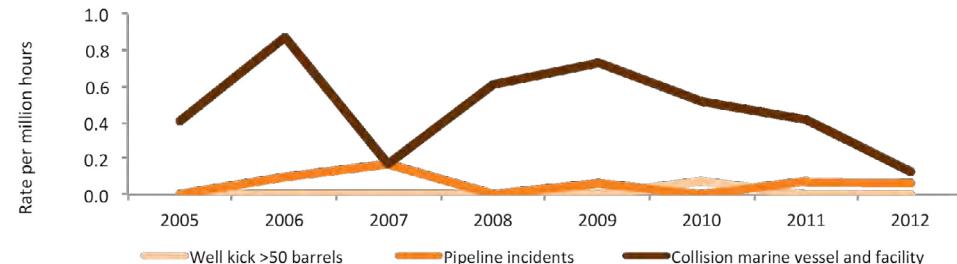


Figure 23.

Dangerous occurrences - ERP implementation/SCE damage/other

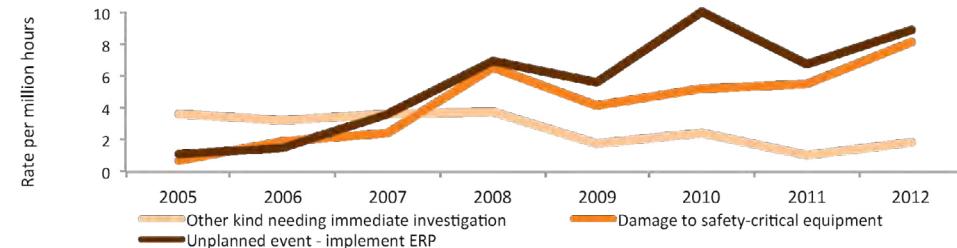


Figure 24.



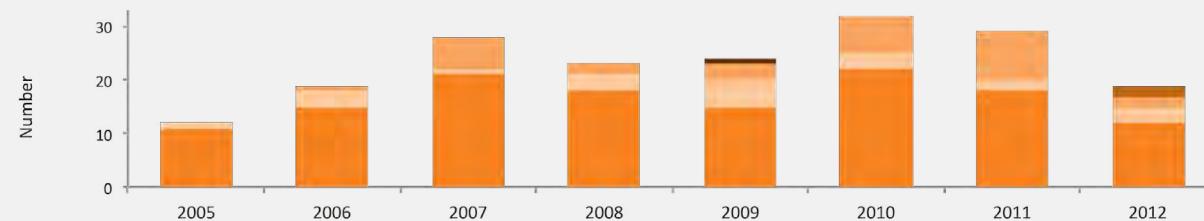
### 3.2 Spotlight on hydrocarbon releases

Reports of 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. It is very encouraging that the number of uncontrolled hydrocarbon releases reported to NOPSEMA decreased by 41% from 2011 to 2012, from 29 to 17.

The release of hydrocarbons can also impact on the environment and some reported incidents constitute both health and safety and environmental incidents. There were two uncontrolled releases reported as environmental hydrocarbon releases in 2012.

Three hydrocarbon releases exceeding 300 kg equivalent were reported in 2012: two from wellhead platforms and one from a MODU and a pipeline. Two of these incidents arose from extinguished flares and the third arose from contact by a dragged anchor. See references 10 and 16 in Chapter 5 for more information.

#### Hydrocarbon releases\*



\*Environment-related hydrocarbon releases may also be included as uncontrolled releases

Figure 25.

<sup>11</sup> Data for environment-related hydrocarbon incidents was not reported to NOPSEMA prior to 2012.

The majority of uncontrolled hydrocarbon releases reported in 2012 occurred at fixed platform facilities. Of the 17 releases that occurred in 2012, 53% were at normally attended platforms, 29% were at FPSOs, 12% were at MODUs and 6% were at not normally attended platforms.

The rate of total hydrocarbon releases reported to NOPSEMA as OHS incidents decreased between 2011 and 2012, to 0.96 (gas) and 0.13 (petroleum liquid).<sup>11</sup>

#### Uncontrolled hydrocarbon releases

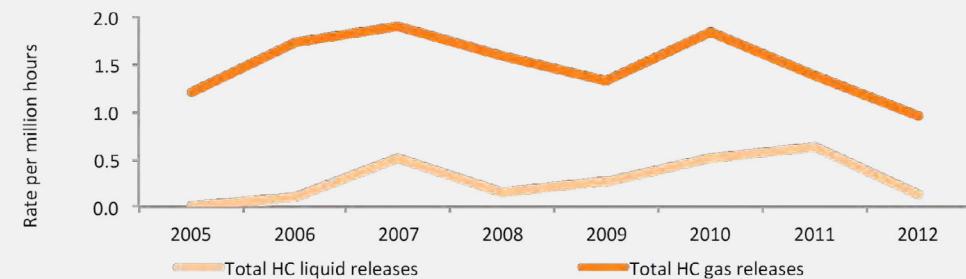
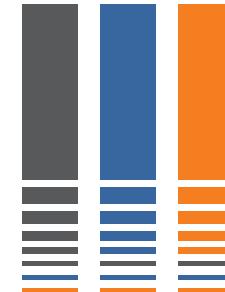


Figure 26.

- Hydrocarbon/ petroleum fluid release
- Uncontrolled PL release >12 500 L
- Uncontrolled PL release >80-12 500 L
- Uncontrolled HC gas release >300 kg
- Uncontrolled HC gas release >1-300 kg



### 3.3 Environmental incidents

In NOPSEMA's first year of collecting information on environmental incidents, inspections show that the level of reporting to NOPSEMA by operators has been variable. This may reflect a relative lack of awareness by organisations about their environmental reporting obligations. NOPSEMA will continue to communicate these obligations as the authority carries out its environmental monitoring, inspection and enforcement regulatory functions.

**Reportable environmental incidents - 2012**

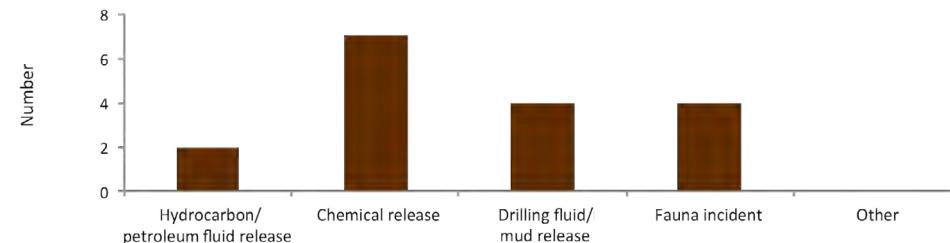


Figure 27.

**Recordable environmental incidents - 2012**

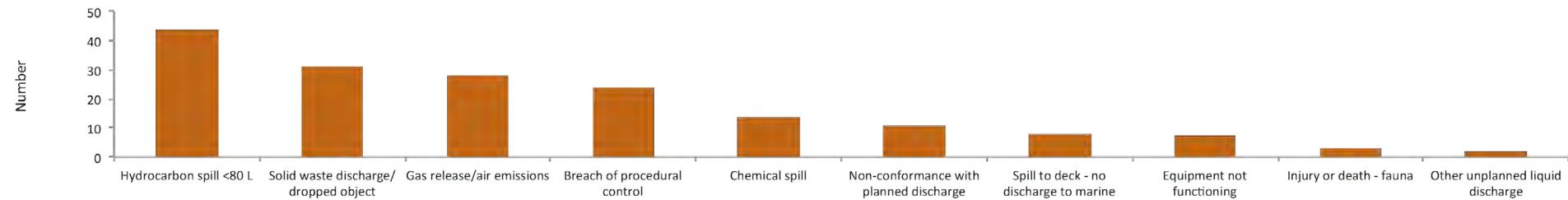


Figure 28.

#### Reportable environmental incidents

Of the 17 reportable environmental incidents in 2012, 7 (41%) were chemical releases. The incidents occurred during a range of petroleum activities, including seismic surveys, construction and installation, drilling and operations. Just over one third of the incidents occurred during drilling activities.

EM incidents classified as 'other' include significant incidents identified in operator environment plans (e.g. other large quantity spills such as hydraulic fluid or waste).

#### Recordable environmental incidents

Of the 172 recordable incidents reported to NOPSEMA, the largest proportion (26%) related to hydrocarbon spills. Nearly two thirds of recordable incidents (64%) occurred on facilities during production activities (including FPSOs, platforms and subsea facilities). Drilling activities accounted for 20% of the recordable incidents. 6% of the incidents occurred during seismic surveys, 4% during construction and installation activities, 3% during other surveys, 2% during construction and installation of a petroleum pipeline and 1% during dismantling, decommissioning or removing a pipeline.



### 3.4 Occupational health and safety incident root causes

As part of the legislative requirement for organisations (primarily operators) to report accidents and dangerous occurrences to NOPSEMA, operators are required to provide a root cause analysis as part of each accident or dangerous occurrence report.<sup>12</sup> This contributes to a better understanding of the factors in any 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.

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 2012, design continued to be the most common basic cause identified in OHS reported incidents.<sup>13</sup>

Within each type of basic cause are *specific* root causes. For example, incidents in 2012 attributed to issues with design (29%), the specific root causes identified were:

- problem not anticipated (19%)
- design specifications – design not to specification (4%)
- design specifications – needs improvement (5%)
- other design root causes (1%).

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

Table 5.

| Basic causes of OHS incidents – 2012 |    |
|--------------------------------------|----|
| Cause type                           | %  |
| Design                               | 29 |
| Procedures                           | 11 |
| Not applicable/not identified        | 10 |
| Human engineering                    | 8  |
| Equipment parts/defects              | 8  |
| Management systems – people          | 8  |
| Preventive maintenance               | 8  |

Table 6.

<sup>12</sup> There is no legislated requirement for operators to attribute root causes for reported environmental incidents.

<sup>13</sup> Operators also were unable to identify the root cause of a large number of incidents reported to NOPSEMA (many of these were medical evacuations or alarm-related incidents).



## Accidents

The basic causes for accidents reported in 2012 were mostly related to human performance, especially relating to management systems, human engineering, procedures and work direction.

| Accident basic causes   |                             |                         |                   |                   |                   |                             |                             |
|-------------------------|-----------------------------|-------------------------|-------------------|-------------------|-------------------|-----------------------------|-----------------------------|
| 2005                    | 2006                        | 2007                    | 2008              | 2009              | 2010              | 2011                        | 2012                        |
| Procedures              | Human engineering           | Procedures              | Procedures        | Procedures        | Work direction    | Procedures                  | Management systems – people |
| Work direction          | Work direction              | Work direction          | Work direction    | Work direction    | Procedures        | Work direction              | Human engineering           |
| Human engineering       | Training                    | Human engineering       | Human engineering | Human engineering | Design            | Human engineering           | Procedures                  |
| Training                | Procedures                  | Training                | Training          | Design            | Training          | Management systems – people | Work direction              |
| Equipment parts/defects | Management systems – people | Equipment parts/defects | Communications    | Other             | Human engineering | Design                      | Design                      |

Table 7.



## Dangerous occurrences

Problems associated with equipment design account for the majority of dangerous occurrences reported to NOPSEMA in 2012 (30% of all root causes identified). Procedural failures have been one of two most common root causes identified since 2005.

| Dangerous occurrences basic causes |                             |                         |                         |                         |                             |                             |                             |
|------------------------------------|-----------------------------|-------------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|-----------------------------|
| 2005                               | 2006                        | 2007                    | 2008                    | 2009                    | 2010                        | 2011                        | 2012                        |
| Procedures                         | Procedures                  | Procedures              | Procedures              | Procedures              | Design                      | Design                      | Design                      |
| Preventive maintenance             | Preventive maintenance      | Design                  | Equipment Parts/Defects | Design                  | Procedures                  | Procedures                  | Procedures                  |
| Work direction                     | Work direction              | Preventive maintenance  | Design                  | Equipment parts/Defects | Preventive maintenance      | Preventive maintenance      | Preventive maintenance      |
| Other                              | Management systems – people | Equipment parts/defects | Preventive maintenance  | Human engineering       | Equipment parts/defects     | Equipment parts/defects     | Equipment parts/defects     |
| Design                             | Design                      | Work direction          | Work direction          | Preventive maintenance  | Management systems – people | Management systems – people | Management systems – people |

Table 8.

## Uncontrolled hydrocarbon releases

The root causes identified for OHS-related uncontrolled hydrocarbon releases in 2012 indicate a need for greater focus by industry on management systems, equipment and preventive maintenance. See Chapter 9 for more information.

### Hydrocarbon releases basic causes - 2012

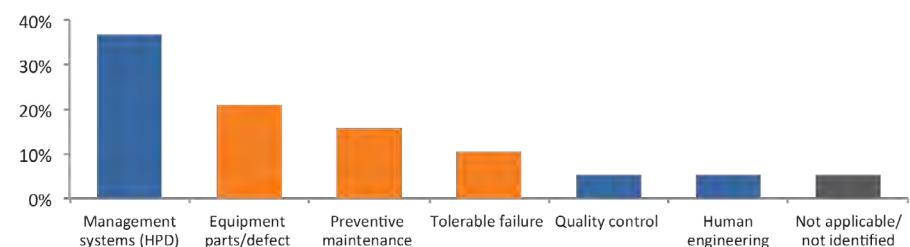


Figure 29.

## 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 or the environment. The rate of complaints made to the authority in 2012 was the lowest recorded since 2005. 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 13 complaints in 2012; six via email, three as anonymous telephone calls, two directly to OHS inspectors and two by letter. Most of the complaints were in relation to health and safety matters. NOPSEMA received one complaint related to environmental management.

Of the complaints received, two related to matters already addressed by NOPSEMA's investigation team, two were outside of NOPSEMA's jurisdiction, two were unsubstantiated, three were closed out to the satisfaction of the complainant and four were closed out following NOPSEMA inspections. All of the complaints have been closed.

Six of the complaints received in 2012 were related to MODUs, three involved platforms, two from an FPSO/FSO and one was regarding a vessel. The environmental matter involved a platform.<sup>14</sup>

| Complaint numbers              |      |      |      |      |      |      |      |      |
|--------------------------------|------|------|------|------|------|------|------|------|
| Complaint type                 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Occupational health and safety | 34   | 38   | 28   | 28   | 16   | 16   | 24   | 12   |
| Environmental management       | -    | -    | -    | -    | -    | -    | -    | 1    |

Table 9.

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. This allows for direct comparison between years. The 2012 complaint rate is the lowest recorded at 0.77.

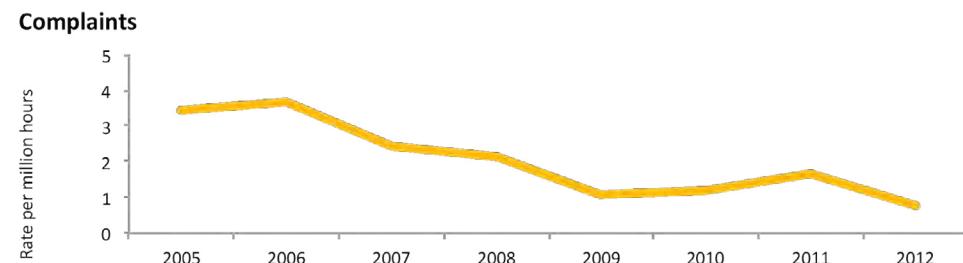


Figure 30.

<sup>14</sup> Details about NOPSEMA investigations arising from complaints have not been published in this report, in the interests of maintaining the anonymity of the complainant(s).

## Complaints



Most complaints made to NOPSEMA involve more than one issue.

| Complaint numbers by topic                           |           |           |           |           |           |           |           |           |  |
|------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Complaint topic                                      | 2005      | 2006      | 2007      | 2008      | 2009      | 2010      | 2011      | 2012      |  |
| Management issues                                    | 6         | 12        | 3         | 8         | 3         | 5         | 8         | 2         |  |
| Culture/general safety issues                        | 6         | 10        | 4         | 3         | 6         | 5         | 9         | 2         |  |
| Work procedures/methods/practices                    | 3         | 4         | 5         | 5         | 5         | 8         | 6         | 2         |  |
| Competency/staffing                                  | 4         | 9         | 4         | 5         | 3         | 2         | 4         | 0         |  |
| Equipment                                            | 5         | 5         | 6         | 5         | 4         | 3         | 1         | 1         |  |
| Safety-critical equipment                            | 4         | 5         | 7         | 2         | 2         | 2         | 5         | 0         |  |
| Work environment – noise, heat, pollution            | 5         | 7         | 4         | 3         | 1         | 2         | 2         | 1         |  |
| Services/galley/accommodation                        | 3         | 2         | 2         | 3         | 2         | 2         | 2         | 2         |  |
| Reporting investigations/incidents, remedial actions | 2         | 1         | 5         | 2         | 0         | 2         | 3         | 2         |  |
| Fatigue/shifts/rosters                               | 2         | 3         | 1         | 5         | 2         | 1         | 1         | 3         |  |
| Bullying/intimidation                                | 1         | 1         | 2         | 2         | 1         | 1         | 5         | 2         |  |
| Cyclone evacuations                                  | 0         | 3         | 1         | 1         | 1         | 2         | 3         | 0         |  |
| HSR matters/safety committees                        | 1         | 1         | 1         | 1         | 0         | 2         | 0         | 0         |  |
| Environmental matters                                |           |           |           |           |           |           |           | 1         |  |
| <b>Total number of topics</b>                        | <b>42</b> | <b>63</b> | <b>45</b> | <b>45</b> | <b>30</b> | <b>37</b> | <b>49</b> | <b>18</b> |  |
| <b>Total number of complaints</b>                    | <b>34</b> | <b>38</b> | <b>28</b> | <b>28</b> | <b>16</b> | <b>16</b> | <b>24</b> | <b>13</b> |  |

Table 10.

## 5. Investigations



NOPSEMA investigates accidents, dangerous occurrences, reportable environmental incidents and relevant 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 of an operator over the Montara well blowout in 2009.

Of the incident notifications made to NOPSEMA in 2012, the authority's investigations team followed up on a range of matters. The summaries in this chapter include root causes<sup>15</sup> (for OHS incidents) and corrective actions (for both OHS and environmental incidents) identified or taken by the operator at the time of notifying NOPSEMA.<sup>16</sup> The legislation does not provide for the authority to publish full inspection (investigation) reports but, where appropriate, the status of NOPSEMA's handling of the incidents or further actions taken is included in the summaries.<sup>17</sup> Investigations into some of the incidents summarised in this report commenced prior to 2012 and are ongoing.

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 to NOPSEMA, go to the 'Safety' and 'Environmental management' pages at [nopsema.gov.au](http://nopsema.gov.au)

### Prosecution – Montara well blowout

In August 2012, Thailand-based petroleum operator PTTEP AA was fined \$510,000 in the Northern Territory Magistrate's Court for three OHS offences and one non-OHS offence in relation to the Montara well blowout in 2009.

The Montara blowout was the Australian petroleum industry's most significant offshore incident in terms of impact on community confidence and expectations for environmental management, which resulted in far-reaching reform to the regulation of the Australian offshore petroleum industry.

The outcome is NOPSEMA's first successful prosecution under the OPPGS Act and followed a lengthy and technically-complex investigation into the incident. For more information, see the 'Media releases' page at [nopsema.gov.au](http://nopsema.gov.au)

<sup>15</sup> For more information about incident root cause classification, see Chapter 3 and Appendix 3.

<sup>16</sup> 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, safety and environmental management matters see Chapter 4.

<sup>17</sup> Distribution of reports from NOPSEMA investigations into health and safety matters is covered in Schedule 3 to the OPPGS Act.



## 5.1 Accidents and dangerous occurrences<sup>18</sup>

OHS incidents are presented in chronological order.

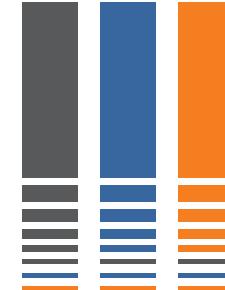
### 1. Accident – diver injury during high-pressure equipment operation

|                          |                                                                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>              | 30 March 2011                                                                                                                                        |
| <b>Operator</b>          | Technip Oceania Pty Ltd                                                                                                                              |
| <b>Facility</b>          | Venturer (pipe lay/accommodation/construction vessel)                                                                                                |
| <b>Incident category</b> | Death or serious injury                                                                                                                              |
| <b>Incident</b>          | A diver was using a high-pressure water blaster at a depth of 30 m when the rear end of the gun came away, causing a cut in the diver's left forearm |
| <b>Immediate cause</b>   | Failure of high-pressure water blaster                                                                                                               |
| <b>Root causes</b>       | A design fault relating to components on the high pressure water blaster                                                                             |
| <b>Further actions</b>   | NOPSEMA's investigation into the incident is ongoing                                                                                                 |

### 2. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 17 January 2012                                                                                                                                                                                                     |
| <b>Operator</b>           | Atwood Oceanics Pacific Ltd                                                                                                                                                                                         |
| <b>Facility</b>           | Atwood Osprey (MODU)                                                                                                                                                                                                |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                           |
| <b>Incident</b>           | During lifting operations, seven nitrogen cylinders, each weighing 70.8 kg, were dropped approximately 7 m                                                                                                          |
| <b>Immediate cause</b>    | A gas transport rack door latch opened due to damage sustained during a lifting operation                                                                                                                           |
| <b>Root causes</b>        | Equipment design – design specifications for rack required improvement; Human/machine interface – monitoring alertness required improvement                                                                         |
| <b>Corrective actions</b> | Reinforce the requirement to use taglines; Replace secondary retention clips with locking karabiners on all transport racks; Introduce ratchet straps as a secondary retention on all gas cylinders in bottle racks |

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



### 3. Dangerous occurrence – power outage caused by dropped object

|                           |                                                                                                                                                                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 3 February 2012                                                                                                                                                                                                                  |
| <b>Operator</b>           | Origin Energy Resources Ltd                                                                                                                                                                                                      |
| <b>Facility</b>           | Yolla (production platform)                                                                                                                                                                                                      |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                                        |
| <b>Incident</b>           | A metal washer dropped from a cubicle above the motor control centre made contact with a live 415 V bus bar, causing a power outage                                                                                              |
| <b>Immediate cause</b>    | Dropped object onto a live bus bar                                                                                                                                                                                               |
| <b>Root causes</b>        | Human engineering – cramped work environment; Human/machine interface – controls required improvement; Training – not provided, risks and steps of task were not analysed in advance                                             |
| <b>Corrective actions</b> | Conduct an electrical risk assessment to include a step requiring workers to consider the necessity of working in vicinity of live equipment; Conduct a risk assessment to capture all decisions made before and during the task |

### 4. Dangerous occurrence – pressure loss during diver transfer

|                           |                                                                                                                                                   |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 22 February 2012                                                                                                                                  |
| <b>Operator</b>           | Subsea 7 Singapore Pte Ltd                                                                                                                        |
| <b>Facility</b>           | Rockwater 2 (pipe lay/accommodation/construction vessel)                                                                                          |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                         |
| <b>Incident</b>           | A pressure loss of approximately 1.56 m <sup>3</sup> of gas occurred when divers were transferring under pressure from the bell to the chamber    |
| <b>Immediate cause</b>    | A leak in a trunk seal resulted in a loss of pressure                                                                                             |
| <b>Root causes</b>        | Equipment design – specifications required improvement; Procedures – incorrect revision used, situation not covered                               |
| <b>Corrective actions</b> | Conduct a revision of interlock system design and modify system accordingly; Form a working group to address document control on board the vessel |

## Investigations

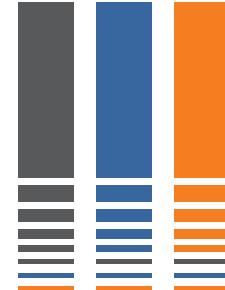


### 5. Dangerous occurrence – failure to follow helicopter operation procedures

|                    |                                                                                                                                                                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 29 February 2012                                                                                                                                                                                                                                                                                               |
| Operator           | Woodside Energy Ltd                                                                                                                                                                                                                                                                                            |
| Facility           | CWLH OKHA (FPSO)                                                                                                                                                                                                                                                                                               |
| Incident category  | Other kind needing immediate investigation                                                                                                                                                                                                                                                                     |
| Incident           | A helicopter landed, conducted crew change operations and departed while the facility boiler was online, in contravention of a ban on helicopter operations during emissions from the funnel exhaust                                                                                                           |
| Immediate cause    | The facility procedures did not adequately address the restrictions on conducting helicopter operations while there are emissions from the funnel exhaust                                                                                                                                                      |
| Root causes        | Management system – standards and administrative controls required improvement, were confusing or incomplete; Communications – there was a lack of timely communication and the communications system required improvement                                                                                     |
| Corrective actions | Confirm the requirement for restrictions regarding boiler use during helicopter operations and document in the operations manual; Modify the helicopter landing procedure to assign the helicopter administration coordinator the responsibility to verify the boiler status to the helicopter landing officer |

### 6. Dangerous occurrence – dropped object

|                    |                                                                                                                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 13 March 2012                                                                                                                                                                                                                |
| Operator           | McDermott Australia Pty Ltd                                                                                                                                                                                                  |
| Facility           | Derrick Barge 30 (pipe lay/accommodation/construction vessel)                                                                                                                                                                |
| Incident category  | Could have caused death or serious injury                                                                                                                                                                                    |
| Incident           | During a lifting operation, a worker lost grip of a 7 kg pinch bar. The crowbar fell through the grating and onto another section of grating 8 m below                                                                       |
| Immediate cause    | The worker did not recognise the potential for the pinch bar to fall through the grating                                                                                                                                     |
| Root causes        | Work direction – preparation, pre-job briefing required improvement, unsecured hand tools were not identified as potential dropped objects; Design specification – the consequence of dropping equipment was not anticipated |
| Corrective actions | Conduct a pre-job meeting to reinforce the requirement for barricading and/or the use of spotters when working at levels above other personnel; Conduct a revision of the dropped objects procedure                          |



## 7. Dangerous occurrence – workers contract salmonellosis

|                           |                                                                                                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 10 April 2012                                                                                                                                                         |
| <b>Operator</b>           | Sea Trucks Australia Pty Ltd                                                                                                                                          |
| <b>Facility</b>           | Jascon 25 (pipe lay/accommodation/construction vessel)                                                                                                                |
| <b>Incident category</b>  | Other kind needing immediate investigation                                                                                                                            |
| <b>Incident</b>           | A number of workers fell ill due to salmonellosis and gastroenteritis on the facility                                                                                 |
| <b>Immediate cause</b>    | The use of contaminated raw eggs in the production of sauces                                                                                                          |
| <b>Root causes</b>        | Human performance difficulties – procedures not used/followed, incorrect revision used; Training – hygiene awareness required improvement                             |
| <b>Corrective actions</b> | Conduct a review of the facility catering manual and introduce a new manual; Provide training in food hygiene and introduce strict guidelines on food storage and use |
| <b>Further actions</b>    | One improvement notice, eight recommendations                                                                                                                         |

## 8. Dangerous occurrence – failure of safety critical equipment

|                           |                                                                                                                                                                                                                                                                  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 27 April 2012                                                                                                                                                                                                                                                    |
| <b>Operator</b>           | Woodside Energy Ltd                                                                                                                                                                                                                                              |
| <b>Facility</b>           | Vincent (FPSO)                                                                                                                                                                                                                                                   |
| <b>Incident category</b>  | Damage to safety critical equipment                                                                                                                                                                                                                              |
| <b>Incident</b>           | During a visit to the facility, inspectors from a classification society identified that the oil mist detector unit in the pump room had failed                                                                                                                  |
| <b>Immediate cause</b>    | A failure of an oil mist detector in pump room                                                                                                                                                                                                                   |
| <b>Root causes</b>        | Equipment design did not meet specifications, detectors were incorrectly wired                                                                                                                                                                                   |
| <b>Corrective actions</b> | Conduct a review of fire and gas logic; Introduce restrictions on pump usage, monitoring frequencies, maintenance, worker exposure and alternate detection systems; Communicate requirements to all crew and conduct a review of manual activation of the system |

## Investigations

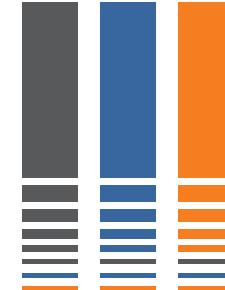


### 9. Dangerous occurrence – excess pressure in down line test system

|                    |                                                                                                                                                                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 23 May 2012                                                                                                                                                                                                                                                                            |
| Operator           | Subsea 7 Singapore Pte Ltd                                                                                                                                                                                                                                                             |
| Facility           | Rockwater 2 (pipe lay/accommodation/construction vessel)                                                                                                                                                                                                                               |
| Incident category  | Damage to safety-critical equipment                                                                                                                                                                                                                                                    |
| Incident           | During a pressure test, the closure of the gas lift and production valves created a ‘closed loop’ system and caused excess pressurisation                                                                                                                                              |
| Immediate cause    | The down line test system over-pressurised                                                                                                                                                                                                                                             |
| Root causes        | Human performance difficulties – procedures not used/followed, were difficult to use and incorrect; Management systems – standards, policies, administrative controls not used; Communications – communication of standards, policies and administrative controls required improvement |
| Corrective actions | Ensure that all personnel have undergone the latest version of Subsea 7 management of change (MoC) procedural training; Carry out a desktop audit of the completed MoC processes to identify any trends and shortfalls; Continuous monitoring of compliance with MoC processes         |

### 10. Dangerous occurrence – pipe damage during anchor handling operations

|                    |                                                                                                                                                                                                                                                                                       |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 27 May 2012                                                                                                                                                                                                                                                                           |
| Operator           | Maersk Drilling Australia Pty Ltd                                                                                                                                                                                                                                                     |
| Facility           | Nan Hai VI (MODU)                                                                                                                                                                                                                                                                     |
| Incident category  | Other kind needing immediate investigation                                                                                                                                                                                                                                            |
| Incident           | During rig kedging operations to access a safe anchor handling position, an anchor chain snagged the Stickle-5H2 subsea production ‘Christmas tree’, dislodging the gas lift jumper and damaging the pipe leading to uncontrolled release of 3 500 kg of hydrocarbon (gas) equivalent |
| Immediate cause    | Damage caused by excessive force applied to the ST1-5H2 gas lift jumper, the wellhead and flow-base by the anchor chain                                                                                                                                                               |
| Root causes        | Human performance difficulties; Human engineering – complex system, knowledge-based decision required, training not provided; Work direction – preparation, work package permit required improvement, no supervision during work                                                      |
| Corrective actions | Develop specific rig move hazard assessment guidelines; Conduct a rigorous review of the drilling contractor’s rig move procedures; Implement an appropriate rig move audit schedule; Develop a ‘rig move campaign’ induction pack                                                    |
| Further actions    | Three recommendations                                                                                                                                                                                                                                                                 |



## 11. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                                                                                            |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 4 June 2012                                                                                                                                                                                                                                                |
| <b>Operator</b>           | EnSCO Australia Pty Ltd                                                                                                                                                                                                                                    |
| <b>Facility</b>           | ENSCO 109 (MODU)                                                                                                                                                                                                                                           |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                                                                  |
| <b>Incident</b>           | During lifting operations, there was a sudden movement of a supply vessel and a container dislodged a section of grating from the flare boom. The 11.6 kg grating fell approximately 37 m, landing in an open-top skip on the main deck of the supply boat |
| <b>Immediate cause</b>    | Contact between crane and flare boom                                                                                                                                                                                                                       |
| <b>Root causes</b>        | Equipment difficulty – equipment defective; Human engineering – complex system, monitoring too many items at once; Other – weather and ocean conditions                                                                                                    |
| <b>Corrective actions</b> | Hold a discussion with barge engineers and crane operators to adopt procedures for operating in gusty conditions, particularly when operating windows are reduced; Discuss evasive action options with crane operators                                     |

## 12. Operator request – NOPSEMA inspection of provisional improvement notice issued by HSR

|                          |                                                                                                                                                                                                                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>              | 5 June 2012                                                                                                                                                                                                                                                                                                                 |
| <b>Operator</b>          | Sea Trucks Australia Pty Ltd                                                                                                                                                                                                                                                                                                |
| <b>Facility</b>          | Jascon 25 (pipe lay/accommodation/construction vessel)                                                                                                                                                                                                                                                                      |
| <b>Incident category</b> | Other kind needing immediate investigation                                                                                                                                                                                                                                                                                  |
| <b>Incident</b>          | The operator of the facility requested an inspection covering the topic of a provisional improvement notice (PIN) issued by health and safety representatives <sup>19</sup> of the facility crew. The PIN cited a perceived failure by the operator to order the facility to leave the field due to poor weather conditions |
| <b>Further actions</b>   | Following NOPSEMA inspection the PIN was cancelled – one recommendation                                                                                                                                                                                                                                                     |

<sup>19</sup> For more information about the role and responsibilities of health and safety representatives, see the *HSR Handbook* at [nopsema.gov.au](http://nopsema.gov.au)

## Investigations

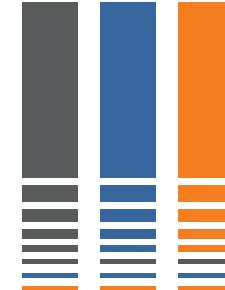


### 13. Dangerous occurrence – dropped object

|                    |                                                                                                                                                                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 6 June 2012                                                                                                                                                                                                                                                                                                             |
| Operator           | Atwood Oceanics Pacific Ltd                                                                                                                                                                                                                                                                                             |
| Facility           | <i>Atwood Osprey</i> (MODU)                                                                                                                                                                                                                                                                                             |
| Incident category  | Could have caused death or serious injury                                                                                                                                                                                                                                                                               |
| Incident           | While picking up a 230 kg, 4 inch drill pipe, the pipe slipped out of the elevators and dropped 6 m onto the drill floor                                                                                                                                                                                                |
| Immediate cause    | The elevator inserts were the incorrect size, allowing the drill pipe to drop out                                                                                                                                                                                                                                       |
| Root causes        | Human performance difficulties – procedures followed incorrectly; Management system – standards, policies, administration control required improvement, were confusing or incomplete; Communications – turnover process required improvement                                                                            |
| Corrective actions | Conduct a review of risk assessments that refer to the handling of pipes, and include requirements to verify elevator insert size, develop a procedure to check and verify inserts, verify the elevator insert size against the tubular size with callipers and record all this data in the driller's log/handover book |

### 14. Dangerous occurrence – dropped object

|                    |                                                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 12 June 2012                                                                                                                                                                                                                                               |
| Operator           | Woodside Energy Ltd                                                                                                                                                                                                                                        |
| Facility           | <i>North Rankin</i> complex (large production platform)                                                                                                                                                                                                    |
| Incident category  | Could have caused incapacitation ≥3 days LTI                                                                                                                                                                                                               |
| Incident           | During lifting operations, a 900 mm scaffold tube fell 6.8 m and landed on the grid mesh access platform below                                                                                                                                             |
| Immediate cause    | Rigging chains released the loosening scaffold tubes on horns                                                                                                                                                                                              |
| Root causes        | Procedure incorrect – situation not covered; Management systems – standards, policies, or administrative controls required improvement/not strict enough; Training – ongoing/refresher training required improvement                                       |
| Corrective actions | Review and clarify wording in lifting procedure; Conduct an analysis of lay-down area requirements; Conduct a review of the escape route for the lay-down area; Update engineering standards for lay-down areas to mandate the requirement for mesh infill |



### 15. Accident – worker struck by pipe during lifting operation

|                           |                                                                                                                                                                                                                                                                                                 |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 11 July 2012                                                                                                                                                                                                                                                                                    |
| <b>Operator</b>           | Allseas Construction Contractors SA                                                                                                                                                                                                                                                             |
| <b>Facility</b>           | <i>Lorelay</i> (pipe lay/accommodation/construction vessel)                                                                                                                                                                                                                                     |
| <b>Incident category</b>  | Accident – incapacitation ≥3days LTI                                                                                                                                                                                                                                                            |
| <b>Incident</b>           | During lifting operations, sections of steel pipe were being unloaded from a supply vessel to the pipe lay facility. The pipe bundle swung out of control and made contact with a bumper frame, resulting in the pipes falling onto the deck, one of which struck a worker with a glancing blow |
| <b>Immediate cause</b>    | Dual lifting of pipes with interconnecting bridle hooks; One section of pipe stopped while the other section of pipe kept moving, resulting in disconnection from the lifting hook                                                                                                              |
| <b>Root causes</b>        | Human performance difficulties – work direction; Preparation – work package/permit required improvement; Communications – turnover process required improvement; Procedures – were incorrect, facts were incorrect; Equipment design – design specifications required improvement               |
| <b>Corrective actions</b> | Remove the single tagline bridle and revert to the use of individual taglines; Emphasise workers' responsibility to 'stop the job' when safety is compromised; Conduct a safety review of the pipe loading procedure                                                                            |
| <b>Further actions</b>    | Four recommendations                                                                                                                                                                                                                                                                            |

### 16. Dangerous occurrence – malfunction of flare ignition system

|                          |                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>              | 25 July 2012                                                                                                                                               |
| <b>Operator</b>          | Vermilion Oil and Gas Australia Pty Ltd                                                                                                                    |
| <b>Facility</b>          | <i>Wandoor B</i> (production platform)                                                                                                                     |
| <b>Incident category</b> | Uncontrolled hydrocarbon release >300 kg                                                                                                                   |
| <b>Incident</b>          | A flare had extinguished and pilot burners failed to function. Cold venting occurred for approximately 16 hours with a mix of nitrogen and hydrocarbon gas |
| <b>Immediate cause</b>   | Failure of the ignition system                                                                                                                             |



#### 16. Dangerous occurrence – malfunction of flare ignition system (cont'd)

|                           |                                                                                                                                                                                                                                                               |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Root causes</b>        | Human performance difficulties: management system – standards, policies and administrative controls required improvement, were confusing or incomplete; Oversight – quality control and inspection techniques not implemented                                 |
| <b>Corrective actions</b> | Conduct a review of the sampling method to obtain an accurate composition analysis of the flare gas; Calibrate or replace the flare gas flow meter; Revise the maintenance procedure to incorporate the vendor's recommendations and calibration requirements |
| <b>Further actions</b>    | 17 recommendations                                                                                                                                                                                                                                            |

#### 17. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                                                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 28 July 2012                                                                                                                                                                                                                                                                                          |
| <b>Operator</b>           | Sedco Forex International Inc                                                                                                                                                                                                                                                                         |
| <b>Facility</b>           | Deepwater Frontier (MODU)                                                                                                                                                                                                                                                                             |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                                                                                                             |
| <b>Incident</b>           | While laying down the bottom hole assembly, a tucker line became tangled on the rotary hose safety clamp. This caused the bolts holding the clamp together to separate, and one half of the clamp, weighing 2 kg, dropped approximately 7 m to the rig floor                                          |
| <b>Immediate cause</b>    | The tucker line became tangled on rotary hose safety clamp                                                                                                                                                                                                                                            |
| <b>Root causes</b>        | Human performance difficulties – human engineering, complex system, knowledge-based decision required; Management system – standards, policies and administrative controls required improvement and were not strict enough; Equipment difficulty – design specifications, problem was not anticipated |
| <b>Corrective actions</b> | Conduct a review of the applicability of, and compliance with, company policies and procedures; Review the effectiveness of safety-critical controls; Identify human factors <sup>20</sup> that may have contributed to the incident; Review competency and training levels                           |

**By law, operators are required to notify NOPSEMA of offshore incidents and can do so via the authority's telephone line (08) 6461 7090.**

<sup>20</sup> For more information about human factors, see Chapter 10



### 18. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 9 August 2012                                                                                                                                                                            |
| <b>Operator</b>           | Sedco Forex International Inc                                                                                                                                                            |
| <b>Facility</b>           | Jack Bates (MODU)                                                                                                                                                                        |
| <b>Incident category</b>  | Could have caused incapacitation ≥3 days LTI                                                                                                                                             |
| <b>Incident</b>           | While ‘reducing pressure’ and lowering a marine riser tensioner (MRT), the moving wire sheared a valve, causing the valve to fall approximately 7 m from the riser tensioner to the deck |
| <b>Immediate cause</b>    | MRT wire made contact with the fill/drain valve and sheared the valve off the MRT                                                                                                        |
| <b>Root causes</b>        | Equipment difficulty – design specifications required improvement; Human performance difficulty – procedures not used/followed/no procedures                                             |
| <b>Corrective actions</b> | Develop and implement a risk assessment and a procedure for raising/lowering the MRT piston; Place secondary retention on fill/drain valves                                              |

### 19. Dangerous occurrence – worker contacted by equipment during lifting operation

|                           |                                                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 15 August 2012                                                                                                                                                                                     |
| <b>Operator</b>           | EnSCO Australia Pty Ltd                                                                                                                                                                            |
| <b>Facility</b>           | ENSCO 104 (MODU)                                                                                                                                                                                   |
| <b>Incident category</b>  | Could have caused incapacitation ≥3 days LTI                                                                                                                                                       |
| <b>Incident</b>           | During a lifting operation, a piece of completions string rotated and brushed the arm of a crew member (service hand) who was not part of the lifting operation, but was standing nearby           |
| <b>Immediate cause</b>    | Loss of control of load during the lifting operation                                                                                                                                               |
| <b>Root causes</b>        | Human performance difficulties – work direction; Preparation – pre-job briefing required improvement; Communications – lack of timely communication and communications system required improvement |
| <b>Corrective actions</b> | Conduct a review of incident with supervisors involved in the operation, focusing on preparation and supervisory shortcomings and emphasising correct procedures                                   |

## Investigations

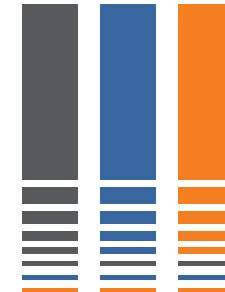
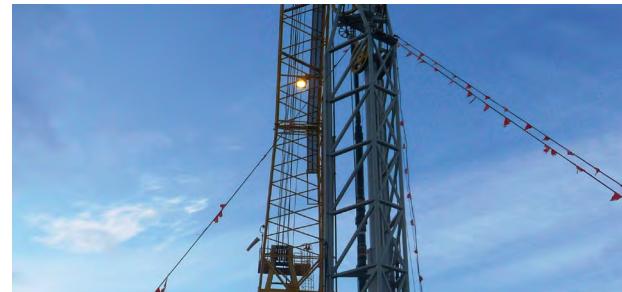


### 20. Dangerous occurrence – incorrect hose fitting

|                    |                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 25 August 2012                                                                                                                                                                                           |
| Operator           | Woodside Energy Ltd                                                                                                                                                                                      |
| Facility           | Goodwyn Alpha (large production platform)                                                                                                                                                                |
| Incident category  | Could have caused death or serious injury                                                                                                                                                                |
| Incident           | During the isolation of a condensate analyser, a worker identified that an incorrect fitting had been used on a utility hose. If the fitting had failed under pressure, a worker could have been injured |
| Immediate cause    | Non-standard fittings were being used for assembling hoses                                                                                                                                               |
| Root causes        | Equipment defect – quality control; Human performance difficulties – no inspection, no hold point                                                                                                        |
| Corrective actions | Remove all hoses with incorrect fittings from service                                                                                                                                                    |

### 21. Accident – two workers fatally injured during drilling operations

|                    |                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 27 August 2012                                                                                                                                     |
| Operator           | Stena Drilling (Australia) Pty Ltd                                                                                                                 |
| Facility           | Stena Clyde (MODU)                                                                                                                                 |
| Incident category  | Death or serious injury                                                                                                                            |
| Incident           | Two workers were fatally injured during drilling operations                                                                                        |
| Immediate cause    | Workers were struck by a manual tong                                                                                                               |
| Root causes        | NOPSEMA's investigation into the accident is continuing                                                                                            |
| Corrective actions | NOPSEMA's investigation into the accident is continuing                                                                                            |
| Further actions    | NOPSEMA has published preliminary considerations on the 'Incidents' section of the home page at <a href="http://nopsema.gov.au">nopsema.gov.au</a> |



## 22. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                                                                                                                                                 |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 1 September 2012                                                                                                                                                                                                                                                                                                |
| <b>Operator</b>           | EnSCO Australia Pty Ltd                                                                                                                                                                                                                                                                                         |
| <b>Facility</b>           | <i>EnSCO 104 (MODU)</i>                                                                                                                                                                                                                                                                                         |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                                                                                                                       |
| <b>Incident</b>           | A casing scraper weighing 500 kg was placed over a 'mouse hole' and a stand of drill pipe was lowered into the scraper to commence make up. The scraper blade segments retracted, allowing the scraper to fall through the 'mouse hole' opening and land on the platform upper deck level, more than 20 m below |
| <b>Immediate cause</b>    | The weight of the drill pipe caused the scraper blades to retract, allowing it to fall through the open 'mouse hole'                                                                                                                                                                                            |
| <b>Root causes</b>        | Human performance difficulties – work direction, no supervision during work; Preparation – work package/permit required improvement; Procedures – incorrect, situation not covered; Training – no training provided, task not analysed                                                                          |
| <b>Corrective actions</b> | Train all drill crew in safe work systems; Review and update all work instructions referencing the use of a 'mouse hole'; Update the rig skidding work instructions to include the removal and reinstatement of the 'mouse hole' scabbard                                                                       |
| <b>Further actions</b>    | Five recommendations                                                                                                                                                                                                                                                                                            |

## 23. Dangerous occurrence – dropped object

|                           |                                                                                                                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 5 September 2012                                                                                                                                                                                                                                                          |
| <b>Operator</b>           | Atwood Oceanics Pacific Ltd                                                                                                                                                                                                                                               |
| <b>Facility</b>           | <i>Atwood Eagle (MODU)</i>                                                                                                                                                                                                                                                |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                                                                                                                                 |
| <b>Incident</b>           | While laying out drill pipe, the gantry crane was moving to the port side pipe deck from the skate area and came into contact with the port drawbridge limit switch bracket weighing 2.3 kg, causing it to break off and fall 7 m to the pipe deck below                  |
| <b>Immediate cause</b>    | When the rig heaved excessively due to weather conditions, the movement of the port side drawbridge pneumatic actuator caused the drawbridge proximity switch target bracket to come into contact with the moving gantry crane leg                                        |
| <b>Root causes</b>        | Equipment defect – preventive maintenance required improvement, no preventive maintenance was conducted on the equipment                                                                                                                                                  |
| <b>Corrective actions</b> | Submit an electronic management of change procedure to amend scheduled maintenance of the catwalk; Update and review the risk assessment for gantry crane use, including the requirement for a positive visual clearance check as the gantry crane moves through the area |

## Investigations

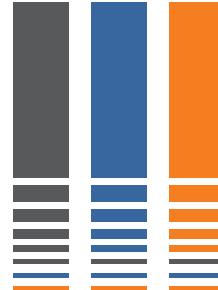


### 24. Dangerous occurrence – worker struck by drill pipe

|                    |                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 26 September 2012                                                                                                                                                                                        |
| Operator           | Sedco Forex International Inc                                                                                                                                                                            |
| Facility           | <i>Jack Bates</i> (MODU)                                                                                                                                                                                 |
| Incident category  | Could have caused death or serious injury                                                                                                                                                                |
| Incident           | While running drill pipe from the derrick into the well using a pipe handling system, a crew member was struck by a ‘stand’ of drill pipe and knocked to the floor                                       |
| Immediate cause    | The stand of drill pipe had pulled out of the stump, striking the crew member who was in its path                                                                                                        |
| Root causes        | Human performance difficulty – procedures not used/followed; Work direction – no supervision during work, crew teamwork required improvement                                                             |
| Corrective actions | Implement a more detailed procedure, outlining each step required for the task, the responsibilities of crew members involved and specifying conditions allowing any crew member to enter the ‘red zone’ |

### 25. Dangerous occurrence – dropped object

|                    |                                                                                                                                                                                                                             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 3 October 2012                                                                                                                                                                                                              |
| Operator           | Woodside Energy Ltd                                                                                                                                                                                                         |
| Facility           | <i>North Rankin</i> complex (large production platform)                                                                                                                                                                     |
| Incident category  | Other kind needing immediate investigation                                                                                                                                                                                  |
| Incident           | During lifting operations, a valve actuator weighing 200 kg made contact with a fixed structure and fell 20 m to the deck below, before falling into the ocean                                                              |
| Immediate cause    | A heavy load struck a fixed structure which led to slippage in the rigging                                                                                                                                                  |
| Root causes        | Human performance difficulties – work direction; Supervision during work – no supervision; Preparation – work package/permit required improvement; Procedures – not followed correctly                                      |
| Corrective actions | Review the operator’s procedure and work instructions for lifting operations in relation to the practice of using taglines and soft slings; Carry out an audit of the competency of the crew involved in lifting operations |
| Further actions    | Three recommendations                                                                                                                                                                                                       |



## 26. Dangerous occurrence – dropped object

|                           |                                                                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 20 October 2012                                                                                                                                              |
| <b>Operator</b>           | BHP Billiton Petroleum Pty Ltd                                                                                                                               |
| <b>Facility</b>           | Pyrenees (FPSO)                                                                                                                                              |
| <b>Incident category</b>  | Could have caused death or serious injury                                                                                                                    |
| <b>Incident</b>           | During lifting operations, a scaffold tube fell 12.3 m into the engine room                                                                                  |
| <b>Immediate cause</b>    | During lifting of the scaffold tube over the hatch combing, the rope securing the tube loosened and released it                                              |
| <b>Root causes</b>        | Human performance difficulty – work direction; Preparation – work package/permit required improvement, no preparation, pre-job briefing required improvement |
| <b>Corrective actions</b> | Source a proper lifting frame or lifting cage for the transfer of scaffold tubes around the facility for future use                                          |

## 27. Accident – worker fall from ladder

|                           |                                                                                                                                                                                                             |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 11 December 2012                                                                                                                                                                                            |
| <b>Operator</b>           | Esso Australia Pty Ltd                                                                                                                                                                                      |
| <b>Facility</b>           | Marlin B (production platform)                                                                                                                                                                              |
| <b>Incident category</b>  | Death or serious injury                                                                                                                                                                                     |
| <b>Incident</b>           | A worker on the <i>Marlin B</i> platform fell approximately 2 m from a ladder and was discovered by a crew member injured on the bridge between the platform and the <i>Edda Fides</i> accommodation vessel |
| <b>Immediate cause</b>    | The operator was unable to identify what caused the incident                                                                                                                                                |
| <b>Root causes</b>        | The operator did not identify root causes                                                                                                                                                                   |
| <b>Corrective actions</b> | The operator did not identify corrective actions                                                                                                                                                            |
| <b>Further actions</b>    | One recommendation                                                                                                                                                                                          |



## 5.2 Reportable environmental incidents

Environmental incidents are presented in chronological order.

### 1. Oil leak from import hose

|                           |                                                                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 18 February 2012                                                                                                                 |
| <b>Activity Operator</b>  | Apache Energy Ltd                                                                                                                |
| <b>Activity</b>           | Production platform operations                                                                                                   |
| <b>Incident category</b>  | Hydrocarbon release                                                                                                              |
| <b>Incident</b>           | Hydrocarbon release from import hose to <i>Dampier Spirit</i> (FSO) due to equipment damage/defect                               |
| <b>Immediate cause</b>    | Damage to integrity of offloading hose                                                                                           |
| <b>Corrective actions</b> | Flush the hose and replace damaged section with new hose section; Change out poor quality hose sections with higher quality hose |

### 2. Unplanned release of hydraulic control fluid

|                           |                                                                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 2 April 2012                                                                                                                                        |
| <b>Activity Operator</b>  | Roc Oil Pty Ltd                                                                                                                                     |
| <b>Activity</b>           | Deconstruction and well intervention                                                                                                                |
| <b>Incident category</b>  | Chemical release                                                                                                                                    |
| <b>Incident</b>           | 4 094 L of hydraulic control fluid released to the marine environment during well intervention activities at the <i>Basker-Manta-Gumby</i> facility |
| <b>Immediate cause</b>    | Valve operations, check and directional control valve failure, actuator leak                                                                        |
| <b>Corrective actions</b> | Deploy remotely operated vehicle to conduct valve repairs; Bypass directional control valve; Conduct troubleshooting and repairs                    |

### 3. Unplanned release of synthetic-based mud

|                           |                                                                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 14 April 2012                                                                                                                              |
| <b>Activity Operator</b>  | Chevron Australia Pty Ltd                                                                                                                  |
| <b>Activity</b>           | Drilling operations                                                                                                                        |
| <b>Incident category</b>  | Drilling fluid/mud release                                                                                                                 |
| <b>Incident</b>           | 2 544 L (16 barrels) of synthetic-based mud was accidentally released from a faulty slip joint packer on the <i>Atwood Osprey</i> facility |
| <b>Immediate cause</b>    | A failure of the hydraulic regulator supplying hydraulic fluid to the upper packer                                                         |
| <b>Corrective actions</b> | Replace the telescopic joint and regulator with a unit with a lower pressure span                                                          |



#### 4. Unplanned release of hydraulic fluid from crane

|                           |                                                                                                                                                                                                                      |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 1 July 2012                                                                                                                                                                                                          |
| <b>Activity Operator</b>  | Woodside Energy Ltd                                                                                                                                                                                                  |
| <b>Activity</b>           | FPSO operations                                                                                                                                                                                                      |
| <b>Incident category</b>  | Chemical release                                                                                                                                                                                                     |
| <b>Incident</b>           | 144 L of hydraulic fluid was accidentally released from crane hydraulic pump seal on the <i>Nganhurra</i> FPSO                                                                                                       |
| <b>Immediate cause</b>    | Hydraulic oil pump seal failure                                                                                                                                                                                      |
| <b>Corrective actions</b> | Revise the crane maintenance plan to include a specialist hydraulic vendor to carry out an inspection and adjustment of all crane hydraulic circuitry; Replace all hydraulically-driven cooling fan motors and hoses |

#### 5. Unplanned release of de-emulsifying agent

|                           |                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 16 August 2012                                                                                                                                                                                                                                                                                                                         |
| <b>Activity Operator</b>  | Esso Australia Pty Ltd                                                                                                                                                                                                                                                                                                                 |
| <b>Activity</b>           | Production platform operations                                                                                                                                                                                                                                                                                                         |
| <b>Incident category</b>  | Chemical release                                                                                                                                                                                                                                                                                                                       |
| <b>Incident</b>           | A ‘bleed-off’ drain valve on the <i>Fortescue</i> Platform had been unintentionally left open on a storage tank, resulting in 2 880 L of demulsifying agent flowing to an open drain and then to the open piles of the platform. Total volume was not recoverable, resulting in 144 L lost from the platform to the marine environment |
| <b>Immediate cause</b>    | Drain valve left open                                                                                                                                                                                                                                                                                                                  |
| <b>Corrective actions</b> | Install spring-loaded valve to ensure fail-closed outcome; Label all valves clearly; Evaluate options for tag system for valve isolations; Issue an environment alert                                                                                                                                                                  |

## Investigations



### 6. Fauna fatality – Australian fur seal

|                    |                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------|
| Date               | 29 August 2012                                                                                   |
| Activity Operator  | Esso Australia Pty Ltd                                                                           |
| Activity           | Production platform operations                                                                   |
| Incident category  | Fauna fatality                                                                                   |
| Incident           | A seal was fatally injured when it was accidentally drawn into the thrusters of a support vessel |
| Immediate cause    | The seal was in close proximity of the vessel thrusters                                          |
| Corrective actions | The operator did not identify corrective actions                                                 |

### 7. Unplanned release of cement

|                    |                                                                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date               | 12 September 2012                                                                                                                                                                                       |
| Activity Operator  | Apache Energy Ltd                                                                                                                                                                                       |
| Activity           | Drilling operations                                                                                                                                                                                     |
| Incident category  | Chemical release                                                                                                                                                                                        |
| Incident           | During well cleaning activities on the <i>Atwood Falcon</i> drilling rig, cement was returned to the rig unexpectedly and filled the shakers. Seven barrels of 'green' cement were discharged overboard |
| Immediate cause    | Procedures did not identify the possibility of having to handle large volumes of near-solid material at surface that could contaminate the entire circulating system                                    |
| Corrective actions | Include considerations of the risks associated with channelling, and appropriate measures to minimise the risk, in well planning                                                                        |

For more information about reporting an accident, dangerous occurrence or environmental incident to NOPSEMA, go to the 'Safety' and 'Environmental management' pages at [nopsema.gov.au](http://nopsema.gov.au)



## 8. Unplanned release of synthetic-based mud

|                           |                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 17 September 2012                                                                                                                                                        |
| <b>Activity Operator</b>  | Eni Australia Ltd                                                                                                                                                        |
| <b>Activity</b>           | Drilling operations                                                                                                                                                      |
| <b>Incident category</b>  | Drilling fluid/mud release                                                                                                                                               |
| <b>Incident</b>           | Failure to open gate valve in flow line on <i>ENSCO 109</i> facility, resulting in a spill of drill fluid/synthetic-based mud (five barrels) into the marine environment |
| <b>Immediate cause</b>    | Improper work execution                                                                                                                                                  |
| <b>Corrective actions</b> | Provide counselling to workers on processes and procedures; Fabricate and install signage; Provide instructions for use                                                  |
| <b>Further action</b>     | Warning letter issued see Chapter 9 on Enforcements                                                                                                                      |

## 9. Unplanned release of hydraulic oil from well control valve actuator

|                           |                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date</b>               | 3 November 2012                                                                                                                                                                              |
| <b>Activity Operator</b>  | Woodside Energy Ltd                                                                                                                                                                          |
| <b>Activity</b>           | Production facility operations                                                                                                                                                               |
| <b>Incident category</b>  | Chemical release                                                                                                                                                                             |
| <b>Incident</b>           | Spill of 120 L of hydraulic mineral oil into the marine environment from <i>Goodwyn Alpha</i> facility                                                                                       |
| <b>Immediate cause</b>    | Failure of seal on valve actuator                                                                                                                                                            |
| <b>Corrective actions</b> | Replace leaking hydraulic head assembly onto actuator; Dismantle faulty hydraulic head assembly to determine potential root cause; Conduct pressure testing and reporting; Review procedures |
| <b>Further action</b>     | Warning letter issued – see Chapter 9 on Enforcements                                                                                                                                        |

## 6. Assessments and submissions



In 2012, NOPSEMA's assessment of organisations' risk reduction systems expanded to cover environmental management, in addition to health and safety and well integrity. NOPSEMA assesses regulatory documents covering offshore petroleum activities to test whether operators and titleholders have thoroughly identified hazards, risks and environmental impacts. NOPSEMA's regulatory specialists challenge organisations to detail how they will manage risks and demonstrate comprehensive and effective control systems so that the level of risk is reduced to as low as reasonably practicable and the level of environmental impact is acceptable.

### 6.1 Submission types

By law, before organisations can commence any petroleum activity in NOPSEMA's jurisdiction they must demonstrate to the authority how they will manage risks associated with those activities.

The regulatory documents submitted by operators and title holders include, but are not limited to:

- safety cases (SC)
- diving safety management systems (DSMS)
- pipeline safety management plans (PSMP)
- well operations management plans (WOMP)
- applications to undertake well activities (AAUWA)
- petroleum safety zone applications (PSZ)
- environment plans (EP), and
- oil spill contingency plans (OSCP).

For more information about assessments and regulatory documents, see the 'Safety', 'Well integrity' and 'Environmental management' pages at [nopsema.gov.au](http://nopsema.gov.au)

#### Number of submissions

NOPSEMA received 543 submissions by operators, titleholders and activity operators in 2012. The majority were safety cases, well activity approval applications and environment plans. While the number of OHS submissions decreased in 2012, the increase in the total number of submissions to NOPSEMA reflects the addition of well integrity (in April 2011) and environmental management (January 2012) to the authority's remit. NOPSEMA received 94 new environment plans and 10 revised environment plans for existing petroleum activities.

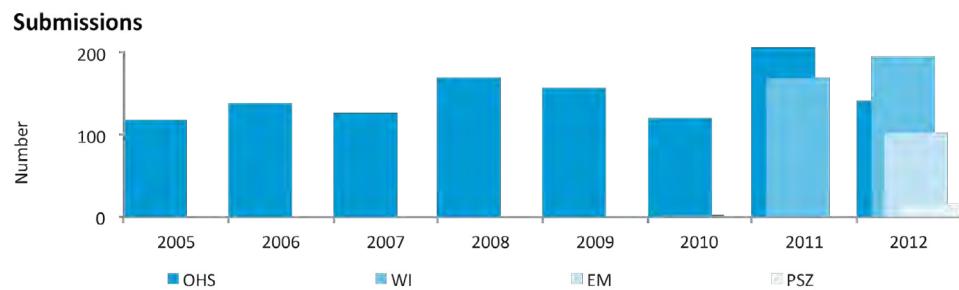
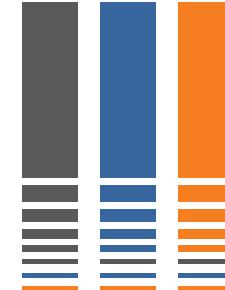


Figure 31.



In addition to assessing new petroleum activity submissions, NOPSEMA took over regulatory responsibility for 123 environment plans for offshore petroleum activities that began prior to 1 January 2012 and were transferred from the previous designated authorities.<sup>21</sup> NOPSEMA did not carry out a full assessment of these ‘transitioned’ plans in 2012, but identified which of the plans covered activities that had concluded. Of the remaining plans, NOPSEMA also identified a number of aspects which did not comply with the Environment Regulations. This process informed NOPSEMA’s subsequent requests for revision of some environment plans. For more information about the ‘transitioned’ environment plan process, see the ‘Environmental management’ pages at [nopsema.gov.au](http://nopsema.gov.au)

| <b>Number of assessments and submissions</b> |                        |             |             |             |             |             |             |             |             |
|----------------------------------------------|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Submission types<sup>22</sup></b>         |                        | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
| <b>Occupational health and safety</b>        | Safety case new        | 20          | 11          | 22          | 29          | 18          | 26          | 26          | 27          |
|                                              | Safety case revised    | 68          | 106         | 93          | 111         | 112         | 85          | 157         | 107         |
|                                              | Diving project plan    | 14          | 9           | 1           | 0           | 2           | 0           | 0           | 0           |
|                                              | Diving SMS new         | 0           | 0           | 2           | 2           | 6           | 5           | 6           | 5           |
|                                              | Diving SMS revised     | 10          | 0           | 1           | 4           | 2           | 1           | 3           | 4           |
|                                              | Diving start-up notice | 19          | 25          | 23          | 14          | 14          | 24          | 20          | 23          |
|                                              | Pipeline SMP new       | 6           | 11          | 3           | 7           | 7           | 2           | 2           | 0           |
|                                              | Pipeline SMP revised   | 1           | 2           | 4           | 17          | 11          | 3           | 12          | 0           |
|                                              | Scope of validation    | 1           | 2           | 21          | 78          | 47          | 54          | 63          | 55          |
|                                              | Request for exemption  | 0           | 0           | 2           | 2           | 1           | 0           | 0           | 0           |
| <b>Well integrity</b>                        | Well activity approval | -           | -           | -           | -           | -           | -           | 142         | 164         |
|                                              | WOMP new               | -           | -           | -           | -           | -           | -           | 28          | 29          |
|                                              | WOMP variation         | -           | -           | -           | -           | -           | -           | 1           | 4           |

Table 11.

<sup>21</sup> Designated Authorities were the state/Northern Territory agencies responsible for regulation of offshore petroleum activities prior to the establishment of NOPSEMA in January 2012. Some have retained responsibility for offshore activities in relevant designated coastal waters under their respective legislation.

<sup>22</sup> More information about the range of assessments NOPSEMA conducts is available at [nopsema.gov.au](http://nopsema.gov.au)



Number of assessments and submissions (cont'd)

| Submission types <sup>22</sup>  |                                     | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       | 2011       | 2012       |
|---------------------------------|-------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Environmental management</b> | Environment plan new                | -          | -          | -          | -          | -          | -          | -          | 94         |
|                                 | Environment plan revised            | -          | -          | -          | -          | -          | -          | -          | 10         |
| <b>Petroleum safety zones</b>   | PSZ application new                 | -          | -          | -          | -          | -          | -          | -          | 7          |
|                                 | PSZ application renewal             | -          | -          | -          | -          | -          | -          | -          | 3          |
|                                 | PSZ access application              | -          | -          | -          | -          | -          | -          | -          | 0          |
|                                 | ATBA access application             | -          | -          | -          | -          | -          | -          | -          | 5          |
| <b>Other</b>                    | Regulatory advice to other agencies | 7          | 14         | 16         | 19         | 8          | 3          | 10         | 6          |
| <b>Total</b>                    |                                     | <b>146</b> | <b>180</b> | <b>188</b> | <b>283</b> | <b>228</b> | <b>203</b> | <b>470</b> | <b>543</b> |

Table 11. (cont'd)

## 6.2 Assessment notification time

The time taken for completing an assessment varies according to the type of submission. Some submission types have legislated timeframes for notification of NOPSEMA's decisions. NOPSEMA has continually improved its adherence to these notification timeframes; for 2012, 99% of all submissions were notified within the required timeframe.

Assessments notified within time regulations

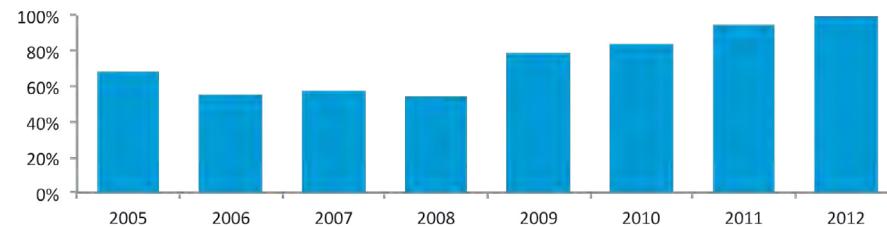
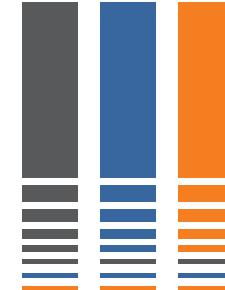


Figure 32.

**By law, before organisations can commence any petroleum activity in NOPSEMA's jurisdiction they must demonstrate to the authority how they will manage risks associated with those activities.**



## 6.3 Assessment outcomes

The proportion of submissions received by NOPSEMA that are ultimately 'accepted' by the authority is generally considered a reflection of the overall quality of the documents. Increases in rejection numbers (including 'refusals to accept' in the case of environment plans) reflect a rise in the proportion of submissions that NOPSEMA has assessed to be deficient in meeting the requirements of the Regulations.

In 2012, 9% of all assessments were rejected or refused. This is a decrease from the overall rejection rate in 2011 of 17%, which mostly involved safety case submissions.

### Safety cases

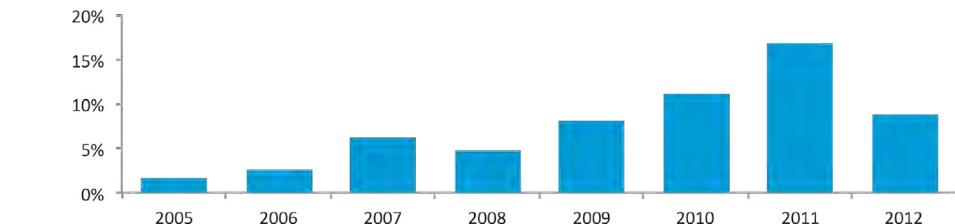
NOPSEMA rejected 19% of the safety cases submitted in 2012; seven of these were five-year revisions. The proportion of safety cases rejected by the authority has been increasing overall. In response to this trend, NOPSEMA raised the quality of submissions with facility operators during operator liaison meetings and is developing further guidance to help address shortcomings.

| Safety case assessments – 2012 |            |            |
|--------------------------------|------------|------------|
| Outcome                        | Number     | %          |
| In progress                    | 2          | 1          |
| Accepted                       | 99         | 75         |
| Recalled <sup>23</sup>         | 7          | 5          |
| Rejected                       | 25         | 19         |
| <b>Total</b>                   | <b>133</b> | <b>100</b> |

Table 12.

23 Submissions that are planned, but not ultimately lodged, by an organisation.

Assessments rejected\*



\*Includes 'refused to accept', 'not agreed', 'not acceptable'

Figure 33.

Safety cases rejected

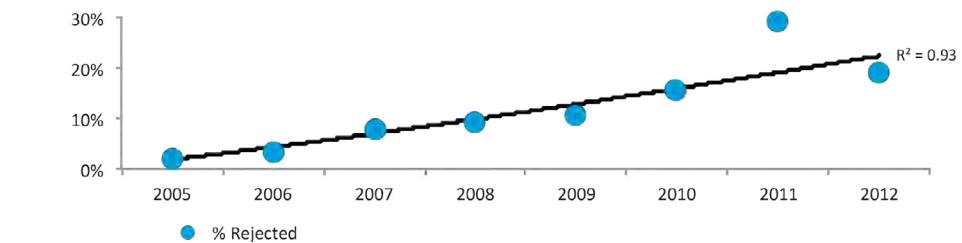


Figure 34.



### Well operations management plans

NOPSEMA did not reject any WOMP submissions in 2012. A small proportion was ‘returned’ by the authority for the titleholder to address a procedural oversight or error prior to formal assessment commencing. In addition, NOPSEMA rejected three applications to undertake well activities in 2012.

| <b>WOMP assessments – 2012</b> |               |            |
|--------------------------------|---------------|------------|
| <b>Outcome</b>                 | <b>Number</b> | <b>%</b>   |
| Accepted                       | 30            | 91         |
| Returned                       | 3             | 9          |
| <b>Total</b>                   | <b>33</b>     | <b>100</b> |

Table 13.

### Environment plans

NOPSEMA refused to accept 7% of environment plans and accepted 70% submitted for assessment. In response, NOPSEMA conducted environmental management workshops with industry and operator liaison meetings to address shortcomings in submissions and clarify NOPSEMA’s assessment approach. Two environment plans were accepted with limitations on the scope of the plan, due to specific circumstances presented by the operator which enabled the requirements of the Environment Regulations to be met.

| <b>Environment plan assessments – 2012</b> |               |            |
|--------------------------------------------|---------------|------------|
| <b>Outcome</b>                             | <b>Number</b> | <b>%</b>   |
| In progress                                | 18            | 17         |
| Accepted                                   | 75            | 72         |
| Recalled                                   | 4             | 4          |
| Refused to accept                          | 7             | 7          |
| <b>Total</b>                               | <b>104</b>    | <b>100</b> |

Table 14.

**NOPSEMA received 543 submissions by operators, titleholders and activity operators in 2012. The majority were safety cases, well activity approval applications and environment plans.**

## 7. Inspections



NOPSEMA conducts inspections to ensure that operators are in compliance with their duties as required by the legislation and 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 improvements.

NOPSEMA inspections focus on risk management at fixed, normally attended facilities, as these facilities often present the greatest level of risk to the health and safety of offshore workers. The number of inspections conducted at facilities each year has increased in response to the Montara well blowout in the Timor Sea (2009) 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.<sup>24</sup>

For more information about NOPSEMA inspections, see the 'Inspections' and 'Compliance inspections' pages at [nopsema.gov.au](http://nopsema.gov.au)

### 7.1 Number of inspections

In 2012, 99 inspections were conducted (covering a total of 156 facilities, titles, wells and petroleum activities).

### 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 a single inspection. As required, NOPSEMA issues recommendations (and sometimes, enforcement actions) to operators based on findings against inspection scope items. 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
- ageing facilities and asset integrity
- emergency management.

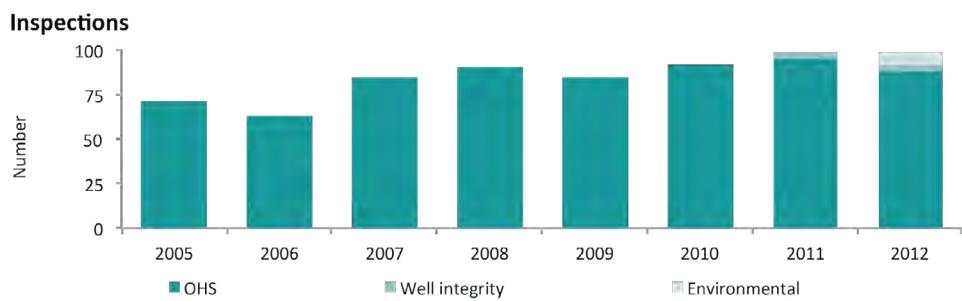


Figure 35.

<sup>24</sup> For more information about the *Final Government response to the Report of the Montara Commission of Inquiry* (2011) and establishment of NOPSEMA, go to the 'History of NOPSEMA' webpage at [nopsema.gov.au](http://nopsema.gov.au)



## 7.3 Occupational health and safety inspections

In 2012, the greatest number of recommendations from OHS inspections related to loss of containment (i.e. the unplanned release of gas and liquid hydrocarbons). This reflects the emphasis NOPSEMA places on the need for organisations to reduce uncontrolled hydrocarbon releases, given the potential for ignition and the associated threat posed to health and safety.

### OHS inspection recommendation examples

#### Loss of containment – 2012

Display a set of 'Hazardous area classification' plans at a prominent location on the facility

Install an effective riser guard around oil and gas lines

Reinstate oil mist detectors in the pump room and provide NOPSEMA with evidence of full loop function test

Record status of oil separator on update checklists and integrity critical drawings, to reflect that separator and associated main oil line pumps have been blinded off

Ensure all defective emergency shut down and blow down valves comply with performance standards and function on demand

Table 15.

**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 a single inspection.**

## 7.4 Environmental management inspections

NOPSEMA conducted inspections covering a range of drilling, seismic and construction activities by petroleum activity operators in 2012. Each inspection identified cases of non-compliance with the accepted environment plan and further opportunities for improvement.

### Environmental management inspection examples

#### Opportunities for improvement – 2012

Develop processes to identify and manage non-conformance with commitments in environment plan

Implement chemical selection procedures consistently and record decisions for all chemicals

Implement commitments about control measures consistent with environment plan

Plan and conduct maintenance and testing (e.g. refuelling hose maintenance)

Verify synthetic-based mud systems and procedures comply with commitments in environment plan

Incorporate considered environmental risks in management of change procedures and records

Conduct monitoring and audits in accordance with committed schedule and commitments in environment plan

Test and verify spill response arrangements

Table 16.

## 8. Topic-based inspections



In 2012, NOPSEMA concluded a series of health and safety topic-based inspections covering ageing facilities, contractor management, maintenance management and operator audits. In choosing 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 and environmental management inspections. This chapter shares NOPSEMA's general observations for the benefit of the broader industry and offshore workers.

### 8.1 Ageing facilities

A large proportion of offshore petroleum facilities in Australian waters has been in operation for 10 or more years and, therefore, could be considered 'ageing'.<sup>25</sup> This represents an OHS concern if organisations do not commit sufficient resources to systematic maintenance and repair in order to avoid conflicting safety and production objectives.

#### Types of recommendations

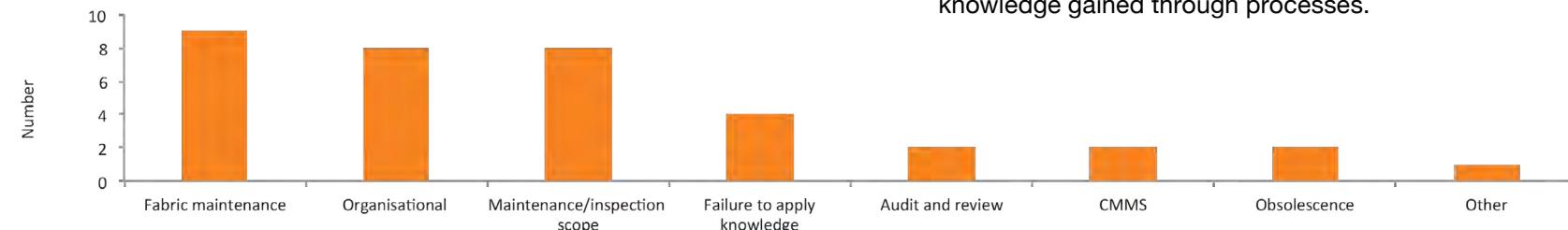


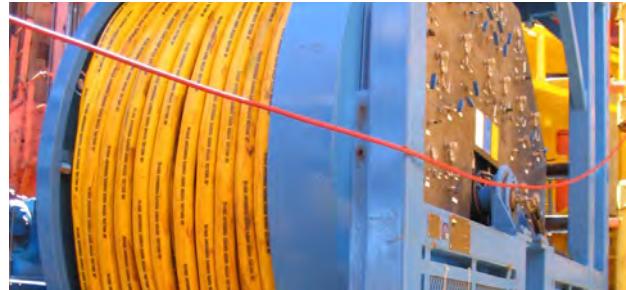
Figure 36.

NOPSEMA's inspections, covering facilities aged 10 or more years, have indicated that the offshore petroleum industry, in general, would benefit from recognising how issues associated with ageing facilities (or asset integrity) represent an OHS concern. Good health and safety outcomes depend on the application of comprehensive and robust safety management systems.

NOPSEMA has made 36 recommendations from themed inspections relating to ageing facilities conducted since 2010. The recommendations mainly relate to organisational issues, fabric maintenance, maintenance scope, the computerised maintenance management system (CMMS) and failure to apply knowledge gained through processes.

<sup>25</sup> The specific number of 'ageing facilities' varies at any time, due to the movement of some facilities in and out of NOPSEMA's jurisdiction.

## Topic-based inspections



### Ageing facilities – key observations

| Area for improvement                                        | Inspection observation/finding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Organisational roles, responsibilities and processes</b> | Lack of, or inadequate, asset integrity management programs<br>Lack of defined areas of responsibility for asset integrity management<br>Lack of integration of asset integrity management processes<br>Lack of status reports for systems, such as structural, piping and pipelines<br>Inconsistencies in management of coating maintenance for different equipment<br>Lack of internal checks and reviews relating to asset integrity management<br>Failure of management of change process to identify impact on facility operation and integrity |
| <b>Fabric maintenance and maintenance inspection scope</b>  | Backlog of corrective work resulting from delays<br>Some work incorrectly signed off as complete, preventing ability for operator to identify and monitor associated potential risks<br>Inadequate management of materials new to the offshore petroleum industry or facility                                                                                                                                                                                                                                                                        |
| <b>Failure to apply knowledge</b>                           | Failure to have a ‘corrosion under insulation’ inspection program<br>Use of stainless steel in direct contact with carbon steel<br>Failure to incorporate analysis report findings in updated inspection regimes<br>Failure to inspect for risk arising from breakdown of operator-identified ‘passive fire protection’ and no assessment of continued fitness-for-purpose                                                                                                                                                                           |

Table 17.

NOPSEMA publishes information about asset integrity and managing ageing facilities in the *Regulator* newsletter, presentations by the CEO, reports on the Facility Integrity National Program, and more at [nopsema.gov.au](http://nopsema.gov.au)

**NOPSEMA has made 36 recommendations from themed inspections relating to ageing facilities conducted since 2010.**



## 8.2 Contractor management

The operation of complex offshore petroleum activities involves the contracting of services on both attended and not normally attended facilities. Effective operation of offshore facilities depends, in part, on effective management of these contracted services (contractors). For this topic, NOPSEMA's inspection scope covered facilities with a notable contractor presence on board, including not normally attended facilities where contractors are employed to conduct planned maintenance activities.

NOPSEMA observed that, overall, operators adopted well documented and robust contractor selection processes to assess contractor OHS arrangements, commercial capability and worker selection. Demonstration of competence, however, for the actual contract employees working offshore was not as well documented. Where training matrices existed, NOPSEMA identified some gaps in initial and refresher training.

NOPSEMA observed during inspections between 2010 and 2012 that contractors had limited knowledge of the facility safety case, the major accident events identified for the facility, or their legislated duties relating to occupational health and safety. There was, however, a positive attitude among contract workers for reporting health and safety issues and participating in operator safety awareness activities. Where contract workers were utilised as part of a facility's core crew, they were generally supervised by operator staff. A contractor's management supervised its own workers in cases involving dedicated project contracts.

NOPSEMA publishes information related to contractor management, including competency assurance in *the Regulator* newsletter, presentations, information papers, and more at [nopsema.gov.au](http://nopsema.gov.au)

| Contractor management – key observations    |                                                                                                                                                            |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Area for improvement                        | Inspection observation/finding                                                                                                                             |
| <b>Contractor training</b>                  | Lack of training in functional emergency responsibilities for contract workers who regularly belong to a facility's workforce                              |
|                                             | Contractor training records not current, not available or not accessible on the facility                                                                   |
|                                             | Operator induction courses warrant more focus on site or facility-specific areas                                                                           |
| <b>Safety management system familiarity</b> | Lack of contractor familiarity with operator safety management system                                                                                      |
|                                             | Lack of evidence of documents 'bridging' contractor and operator safety management systems                                                                 |
|                                             | Insufficient quality control over contractor-supplied tools and equipment prior to arrival on the facility                                                 |
|                                             | Lack of coordination of contract worker performance audits (by operator and contractor) to better identify shortcomings and promote continuous improvement |

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 objectives. Successful maintenance management includes maintaining the condition and functionality of machinery, 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 extended this inspection series in 2012, in response to the number and significance of the authority’s earlier findings, and to help maintain industry focus on this area of risk management.

NOPSEMA identified a variation across facilities in the quality and application of maintenance management systems, in particular for safety-critical elements/equipment (SCE). Not all SCE was being maintained by operators adequately or in a timely way, resulting in backlogs.

NOPSEMA publishes information about maintenance management systems in *the Regulator* newsletter, safety resources guidance, the Freedom of information public disclosure log, and more at [nopsema.gov.au](http://nopsema.gov.au)

| Maintenance management – key observations |                                                                                                                                                                                                                                                                                   |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Area for improvement                      | Inspection observation/finding                                                                                                                                                                                                                                                    |
| <b>Maintenance planning</b>               | Backlogs in maintenance due to inflexible frequency plans, deficiencies in categorisation of equipment as ‘safety critical’, slow and infrequent computerised system upgrades, inadequate auditing and review processes, and, incomplete customisation (population) of the system |
|                                           | Failure to assess the risks of not performing routine maintenance (deferral) on safety critical equipment; Failure to process deferrals through change request procedure, risk assessment or defined contingency measures                                                         |
|                                           | Inadequate risk assessment or approvals for some temporary repairs and a general lack of understanding about which repairs should/could be defined as ‘critical’                                                                                                                  |
|                                           | Failure to identify problems and take corrective action to continually improve the maintenance management system                                                                                                                                                                  |

Table 19.

**Good health and safety outcomes depend on the application of comprehensive and robust safety management systems.**



#### Maintenance management – key observations (cont'd)

| Area for improvement         | Inspection observation/finding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Competency assurance</b>  | Failure to include third party service providers' competencies in vendor pre-qualification process; Assessment conducted only on arrival at facility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | Lack of technical expertise among some workers to fully understand and assess risks associated with temporary repairs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                              | Failure to introduce improvements to contractor maintenance management systems with a project plan or end date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                              | Tendency for maintenance supervisor's position to be administrative rather than to supervise maintenance workforce, provide technical support and inspect worksite                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                              | Lack of operator maintenance-related policy document                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                              | Unclear policies for risk-based inspection compared to time-based inspection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Maintenance processes</b> | Differentiation between documented maintenance management system and maintenance in practice, including: <ul style="list-style-type: none"> <li>inconsistent prioritising of preventive maintenance and work orders</li> <li>unclear roles and responsibilities within system</li> <li>inconsistent scheduling of work orders</li> <li>lack of clarity in work order job descriptions</li> <li>incomplete historical data entries</li> <li>incomplete population of SCE in CMMS or provision of related work orders</li> <li>management of SCE, such as pressure safety valves, lifting equipment, and structural inspections, through separate registers outside CMMS</li> <li>higher rate of corrective compared to preventive maintenance, indicating inadequate planning and resourcing</li> </ul> |

Table 19. (cont'd)



## 8.4 Operator auditing

Auditing by operators helps both maintain facility processes and management systems and demonstrate to NOPSEMA that these systems and processes are effective in reducing risk to the health and safety of offshore workers, as well as meeting broader legal responsibilities. An auditor should be independent of the function being audited and assessed as competent to conduct an audit.

Operators may undervalue audits by viewing them primarily as a means of verifying that existing systems are ‘fit for purpose’. During these topic-based inspections between 2010 and 2012, the authority’s inspectors observed a limited understanding that the purpose of operator audits was both to assess the functionality of management systems and promote compliance.

Specifically, operator audits can be a valuable tool for:

- identifying areas of non-compliance
- investigating reasons for non-compliance
- determining corrective actions
- driving continuous improvement.

| Operator auditing – key observations |                                                                                                                                                                                                                            |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Area for improvement                 | Inspection observation/finding                                                                                                                                                                                             |
| <b>Audit implementation</b>          | All inspected operators had a <i>documented</i> auditing system, however, the degree of implementation varied among operators                                                                                              |
|                                      | Audits often postponed or cancelled due to resource constraints                                                                                                                                                            |
|                                      | Tendency to depend on audit checklists, limiting capacity to identify areas of non-compliance                                                                                                                              |
| <b>Audit effectiveness</b>           | Failure to use independent, competent party to verify the audit’s effectiveness in achieving system objectives                                                                                                             |
|                                      | Tendency for audits to be conducted by operations workers who lacked training in auditing techniques, were not fully independent of the facility or the systems being audited and were junior to the workers being audited |
|                                      | Corrective actions arising from audits related to the immediate, rather than root, causes of non-conformance with safety management systems                                                                                |

Table 20.

## 9. Enforcements



NOPSEMA takes compliance and enforcement action when it identifies the need for potential improvements in an organisation's risk management systems, or identifies non-compliance with an organisation's responsibilities under the law to manage risk to a level that is as low as reasonably practicable.

NOPSEMA's enforcement policy is designed to ensure consistency by applying an enforcement management model that promotes both transparency and consistency in NOPSEMA's enforcement decision-making process. It allows the offshore industry and others to understand the principles behind any enforcement actions.

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:

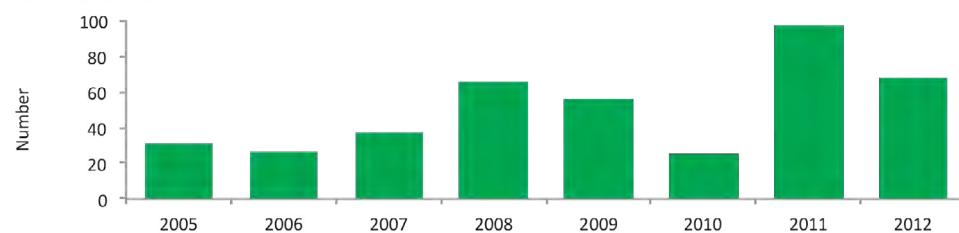
- the authority's assessments
- the authority's planned inspections
- the authority's investigations of accidents, dangerous occurrences and reportable environmental incidents
- the authority's investigation of complaints
- operator compliance history and previous enforcement actions
- Australian and international incidents
- national programmes
- industry trends.

For more information about NOPSEMA's enforcement policy, enforcement actions and the enforcement management model, go to the 'Compliance and enforcement' webpage under 'Safety' at [nopsema.gov.au](http://nopsema.gov.au)

### 9.1 Enforcement action types

NOPSEMA issued 69 enforcement actions<sup>26</sup> in 2012 against 18 operators or activity operators. Of these, 22 were improvement notices issued to a single operator in relation to several facilities operating beyond their design life without re-qualification. Sixty of the enforcement actions (87%) were OHS-related and nine (13%) related to environmental management (EM).

Enforcements \*



\*Excluding verbal warnings/advice, directions and investigation notices

Figure 37.

<sup>26</sup> 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).

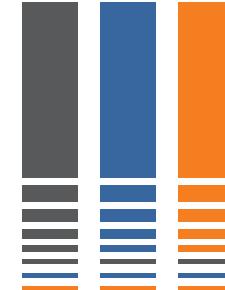
## Enforcements



## 9.2 Enforcement actions

| Enforcements – 2012                                  |                                                                                                      |      |     |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------|------|-----|
| Enforcement action and topic area                    | Area of non-compliance                                                                               | Type | No. |
| <b>Prohibition notice</b>                            |                                                                                                      |      |     |
| Electrical                                           | Use of damaged and unsafe electrical equipment                                                       | OHS  | 1   |
| <b>Total prohibition notices</b>                     |                                                                                                      |      |     |
| <b>Request for a revised safety case</b>             |                                                                                                      |      |     |
| Safety case inadequate                               | Controls described in safety case not in place                                                       | OHS  | 1   |
| <b>Total requests for revised safety case</b>        |                                                                                                      |      |     |
| <b>Request for a revision to an environment plan</b> |                                                                                                      |      |     |
| Environment plan inadequate                          | Impacts and risks associated with leaving wellhead on the seabed not addressed in EP                 | EM   | 1   |
|                                                      | EP did not meet requirements of the Environment Regulations                                          | EM   | 3   |
| <b>Total requests to revise EP</b>                   |                                                                                                      |      |     |
| <b>Improvement notices</b>                           |                                                                                                      |      |     |
| Design                                               | Passive fire protection installation works did not meet requirements of fire design basis            | OHS  | 1   |
| Emergency management                                 | Facility did not have appropriate support vessel or fast rescue craft coverage for activity location | OHS  | 1   |
| Lifeboats                                            | Operator had not conducted full testing of lifeboats to ensure fitness for function                  | OHS  | 2   |
|                                                      | Lifeboats lacked appropriate load capacity for average weight of total workers on board              | OHS  | 2   |
| Performance standards and auditing                   | Operator failed to gain functional assurance of critical valves                                      | OHS  | 1   |
|                                                      | ESD valve failed to meet performance standard and remained impaired                                  | OHS  | 1   |

Table 21.



### Enforcements – 2012 (cont'd)

| Enforcement action and topic area                      | Area of non-compliance                                                                                                 | Type | No.       |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------|-----------|
| <b>Improvement notices (cont'd)</b>                    |                                                                                                                        |      |           |
| Risk assessment and procedural controls                | Inadequate management and control of hazardous substances and lack of appropriate risk assessment                      | OHS  | 1         |
|                                                        | Deficiencies in MODU gas detection system                                                                              | OHS  | 1         |
| Safety equipment or measures                           | Inoperable remotely actuated safety-critical valves                                                                    | OHS  | 1         |
|                                                        | FPSO ship-side valves inoperable and locked open                                                                       | OHS  | 1         |
|                                                        | Inappropriate meteorological measuring equipment to ensure safe helideck operations                                    | OHS  | 1         |
| Systems, policies, administrative controls             | Operator failed to monitor worker health and safety or keep records of monitoring                                      | OHS  | 1         |
|                                                        | Failure to implement current catering manual for food handling and hygiene                                             | OHS  | 1         |
|                                                        | Pipeline operating beyond design life with no re-qualification process                                                 | OHS  | 22        |
| Training and competency                                | Inadequate management and control of substances hazardous to health                                                    | OHS  | 1         |
| Hazardous area and hazardous area classification (HAC) | Recommendations relating to management of electrical equipment in hazardous areas not adequately addressed by operator | OHS  | 1         |
|                                                        | Inadequate maintenance management of electrical equipment used in hazardous areas                                      | OHS  | 3         |
|                                                        | Use of inappropriate electrical equipment in hazardous area                                                            | OHS  | 1         |
|                                                        | Flammable gas storage not considered in HAC                                                                            | OHS  | 1         |
|                                                        | Flammable gas and battery storage not considered in HAC                                                                | OHS  | 1         |
|                                                        | Failure to appropriately classify hazardous areas                                                                      | OHS  | 1         |
|                                                        | Poor condition of HAC lighting                                                                                         | OHS  | 1         |
|                                                        | Use of non-compliant contractor equipment in hazardous area                                                            | OHS  | 1         |
|                                                        | Lack of risk assessments associated with use of non-hazardous area-rated electrical equipment in hazardous area        | OHS  | 1         |
| <b>Total improvement notices</b>                       |                                                                                                                        |      | <b>49</b> |

Table 21. (cont'd)

**Enforcements****Enforcements – 2012 (cont'd)**

| <b>Enforcement action and topic area</b>   | <b>Area of non-compliance</b>                                                                                                                                                                 | <b>Type</b> | <b>No.</b> |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------|
| <b>Written advice/warning</b>              |                                                                                                                                                                                               |             |            |
| Close-out of previous issues               | Recommendations to perform a 'failure mode and effects' analysis on cranes and winches used for man-riding operations, and implementation of inspection and maintenance program not addressed | OHS         | 1          |
|                                            | Failure to complete remedial actions, associated with use of deficient electrical equipment in hazardous areas in accordance with time frame in improvement notice                            | OHS         | 1          |
| Performance standards and auditing         | No evidence that audits conducted in accordance with facility audit plan                                                                                                                      | OHS         | 1          |
| Reporting                                  | Operator failed to notify or report an incident in accordance with the Regulations                                                                                                            | EM          | 2          |
|                                            | Operator failed to notify or report an incident in accordance with the Regulations                                                                                                            | OHS         | 4          |
| Risk assessment and procedural controls    | Risk assessment process inadequate for meeting requirements relating to implementing and maintaining safe work systems for control of hazardous substances                                    | OHS         | 1          |
| Systems, policies, administrative controls | Failure to address deviations from technical drawings deviations noted during inspection                                                                                                      | OHS         | 1          |
| Environment plan inadequate                | Operator conducting a petroleum activity without an accepted EP                                                                                                                               | EM          | 3          |
| <b>Total written advice/warning</b>        |                                                                                                                                                                                               |             | <b>14</b>  |
| <b>Total enforcements</b>                  |                                                                                                                                                                                               |             | <b>69</b>  |

Table 21. (cont'd)

**NOPSEMA issued 69 enforcement actions in 2012 against 18 operators or activity operators.**

## 10. Safety culture



The concept of ‘safety culture’ is receiving more attention within the offshore oil and gas industry, with behavioural and organisational issues frequently identified as contributing factors in the cause of major incidents. As part of its promotion and advice functions, NOPSEMA gathered information about the ways in which the concept of safety culture is applied across the industry. The research seeks to establish how organisations understand and manage safety culture, and how this has influenced safety outcomes. NOPSEMA shares its research findings with the aim of promoting continuous improvement and innovation in offshore operations.

In late 2012, NOPSEMA commenced the ‘Safety culture national program’. Australian facility operators participated in a survey to identify the prevalence of safety improvement initiatives, such as:

- safety leadership development
- personal and process safety training
- use of perception surveys to measure safety climate
- implementation of safety culture improvement initiatives.

Operators responsible for 139 of a possible 178 facilities provided responses to the survey (representing 78% of facilities with a registered operator in Australia at the time). The results of the survey show that 100% of respondents identified the use of key performance indicators (KPIs) to measure safety performance and 88% set KPI targets for injury and incident frequency rates.

Respondents identified a range of strategies to encourage achievement of safety targets, including injury frequency rates.

Safety target reinforcement strategies

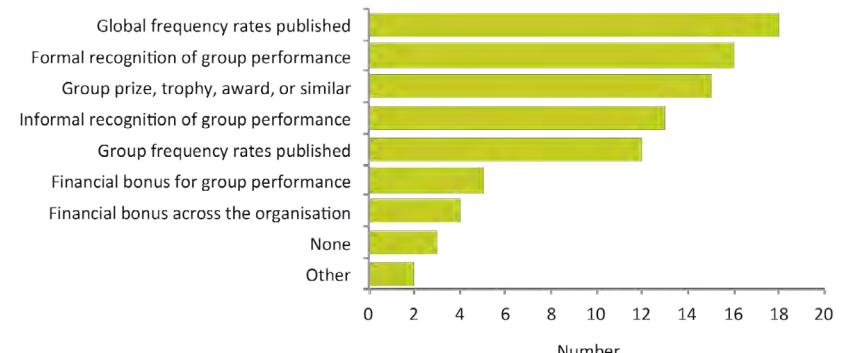


Figure 38.

**NOPSEMA shares its research findings with the aim of promoting continuous improvement and innovation in offshore operations.**



Of the total number of respondents, 78% conducted safety culture perception surveys, with a range of approaches used to communicate survey findings to the workforce, including:

- making report summaries or the full report available to the workforce
- supervisors communicating findings to teams
- delivering presentations on summarised or detailed findings
- issuing emails, memos or similar on summarised findings.

The majority of respondents reported they were actively working to improve organisational safety culture, or that there were plans in place to do so in the near future. A variety of actions was reported as being implemented following the completion of a safety culture perception survey, including:

- integrated improvement plans
- further investigation into specific areas of concern
- conducting comparisons across groups, leading and lagging indicators
- further actions developed and implemented by the organisation's safety department.

Of the respondents (organisations), 96% reported providing training to the workforce in 'personal safety'. A slightly lower proportion (82%) reported providing training to the workforce in 'process safety'. A wide range of workforce positions was identified as receiving personal and process safety training, with a similar distribution across position types for both training topics (see Figure 39). 89% of respondents reported providing training in safety leadership, with most trainees also receiving safety leadership coaching (see Figure 40).

For more information about safety culture and the 'Safety culture national program', go to the 'Human factors' page under 'Resources' at [nopsema.gov.au](http://nopsema.gov.au)

#### Personal safety training recipients

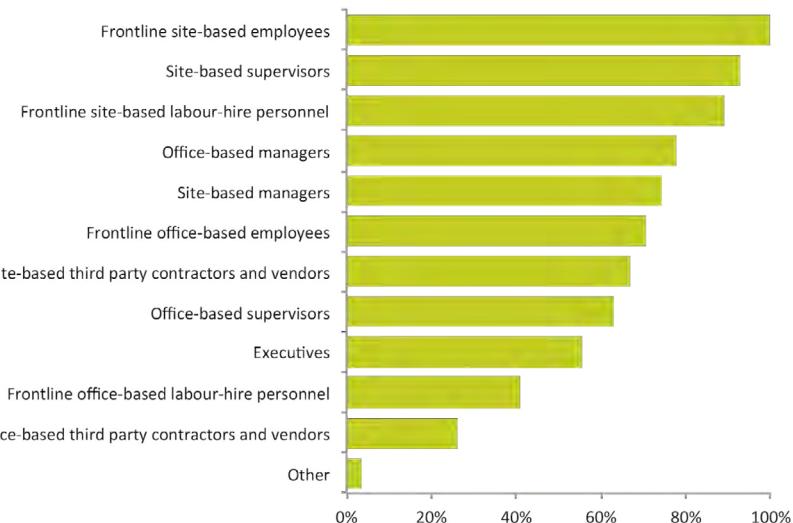


Figure 39.

#### Safety leadership training recipients

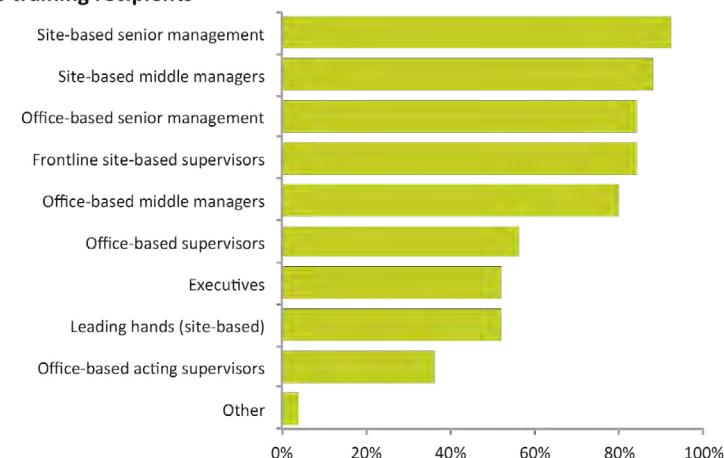


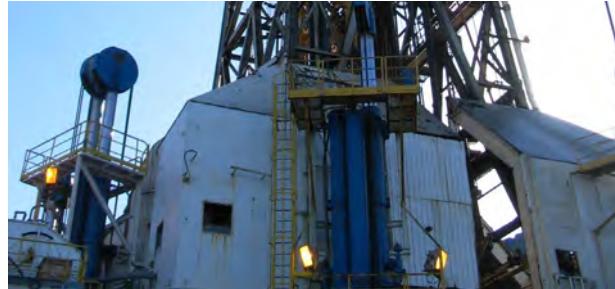
Figure 40.

# Appendix 1.



## Classification of fatalities and injuries

| Code | Category            | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FT   | <b>Fatality</b>     | <p>Any work-related death that occurs within one year of the incident;</p> <ul style="list-style-type: none"><li>• includes missing persons</li><li>• does not include fatalities that are due to natural causes</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| MI   | <b>Major injury</b> | <p>Any work related injury that results in:</p> <ul style="list-style-type: none"><li>• amputation: includes whole or partial amputation of parts of the body (does not include loss of fleshy tip of finger, nail, or tooth)</li><li>• skeletal injuries: includes bone fractures (including chipped or cracked bone or hairline fractures) and dislocation of shoulder, hip, knee or spine (does not include simple hairline fractures or fractures to fingers, thumbs, toes or broken nose)</li><li>• burns: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation</li><li>• injuries to internal organs: only if the injured person becomes unconscious, is admitted to hospital, or requires resuscitation</li><li>• eye injuries resulting in loss of sight (permanent or temporary)</li><li>• eye injuries resulting in a penetrating eye injury or a chemical or hot metal burn to the eye</li><li>• any acute illness caused by exposure to harmful chemicals or biological agents and physiological effects e.g. decompression illness, loss of hearing, and radiation sickness</li><li>• hypothermia or heat-induced illness (unconsciousness)</li><li>• any injury resulting in unconsciousness, resuscitation, or admittance to hospital</li></ul> |



## Classification of fatalities and injuries (cont'd)

| Code   | Category                           | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LTI ≥3 | <b>Lost time injury ≥3 days</b>    | <p>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;</p> <p>Any day includes rest days, weekend days, leave days, public holidays, or days after ceasing employment</p>                                                                                                                                                                       |
| LTI <3 | <b>Lost time injury &lt;3 days</b> | <p>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;</p> <p>Any day includes rest days, weekend days, leave days, public holidays, or days after ceasing employment</p>                                                                                                                                                |
| ADI    | <b>Alternative duties injury</b>   | <p>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;</p> <p>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;</p> <p>Where no meaningful work is being performed, the incident should be recorded as a lost workday case</p> |
| MTI    | <b>Medical treatment injury</b>    | Cases that are not severe enough to result in lost work day cases or alternative duty cases but are more severe than requiring simple first aid treatment                                                                                                                                                                                                                                                                                                                                          |

Note: For more information about these codes and categories, see NOPSEMA’s guidelines – ‘N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries’ under the ‘Safety resources’ page at [nopsema.gov.au](http://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 guidelines – 'N0300 – GL0033 – Guideline on monthly reporting – deaths and injuries' under the 'Safety resources' page at [nopsema.gov.au](http://nopsema.gov.au)

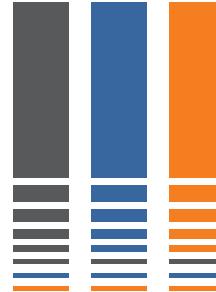
# Appendix 3.



## Incident notification classification scheme

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

# Glossary



## Acronyms and common terms

| Term                                  | Definition                                                                                                                                                                                          |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AAUWA</b>                          | Applications for approval to undertake well activity                                                                                                                                                |
| <b>Activity or petroleum activity</b> | As defined in the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009                                                                                                      |
| <b>Actuator</b>                       | A servomechanism that supplies and transmits a measured amount of energy for the operation of another mechanism or system                                                                           |
| <b>ALARP</b>                          | As low as reasonably practicable. A principle that provides a means for assessing the tolerability of risk                                                                                          |
| <b>AOP</b>                            | Annual operating plan                                                                                                                                                                               |
| <b>ATBA</b>                           | Area to be avoided                                                                                                                                                                                  |
| <b>BDV valves</b>                     | Blow down valves                                                                                                                                                                                    |
| <b>Blowout</b>                        | An uncontrolled release of hydrocarbons from a well                                                                                                                                                 |
| <b>CMMS</b>                           | Computerised maintenance management system                                                                                                                                                          |
| <b>Coupler</b>                        | A connection between two moving parts to relay the motion                                                                                                                                           |
| <b>Condensate</b>                     | Hydrocarbons which are gaseous in a reservoir, but which condense to form a liquid as they rise to the surface where the pressure is much less                                                      |
| <b>CTU</b>                            | Coiled tubing unit                                                                                                                                                                                  |
| <b>DSMS</b>                           | A system for managing the OHS of personnel involved in diving activities (Diving safety management system)                                                                                          |
| <b>Dutyholders</b>                    | Parties with legislative responsibilities under the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>                                                                                   |
| <b>ED</b>                             | Equipment difficulties                                                                                                                                                                              |
| <b>EM</b>                             | Environmental management                                                                                                                                                                            |
| <b>EP</b>                             | Environment plan                                                                                                                                                                                    |
| <b>ERP</b>                            | Emergency response plan                                                                                                                                                                             |
| <b>ESD</b>                            | Emergency shut down                                                                                                                                                                                 |
| <b>ESD valves</b>                     | Emergency shut down valves                                                                                                                                                                          |
| <b>Facility</b>                       | A vessel, structure or pipeline at which offshore petroleum operations are being performed – defined in Clause 4 of Schedule 3 to the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> |



## Acronyms and common terms (cont'd)

| Term                                                                                                                    | Definition                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The following categories of facilities are recognised within the legislation:                                           |                                                                                                                                                                        |
| <b>Accommodation, construction and pipe lay vessel</b>                                                                  | A maritime vessel used in the construction of subsea infrastructure                                                                                                    |
| <b>Floating production, storage and offloading vessel (FPSO)</b>                                                        | Similar in appearance to an oil tanker and carries production and processing facilities, with the addition of storage tanks for the crude oil recovered from the wells |
| <b>Floating storage and offloading vessel (FSO)</b>                                                                     | Similar to an FPSO with reduced production and processing facilities                                                                                                   |
| <b>Large production platform</b>                                                                                        | A large scale production facility, which can be a floating or fixed marine vessel ( <a href="#">conducting specific activities at a location</a> )                     |
| <b>Mobile offshore drilling unit (MODU)</b>                                                                             | An offshore facility (capable of independent navigation) used for drilling or servicing a well for petroleum                                                           |
| <b>Pipeline</b>                                                                                                         | A pipe or system of pipes in an offshore area used for conveying petroleum (whether or not the petroleum is recovered from an offshore area)                           |
| <b>Production platform (with drilling or no drilling, can be attended (manned) or not normally attended (unmanned))</b> | A platform from which development wells are drilled that also houses processing plant and other equipment                                                              |
| <b>Gantry crane</b>                                                                                                     | A crane with a bridge supported on two or more legs running parallel on fixed rails                                                                                    |
| <b>HAC</b>                                                                                                              | Hazardous area classification                                                                                                                                          |
| <b>HC</b>                                                                                                               | Hydrocarbon(s) – organic compounds of carbon and hydrogen                                                                                                              |
| <b>HPD</b>                                                                                                              | Human performance difficulties                                                                                                                                         |
| <b>HSR</b>                                                                                                              | Health and safety representative                                                                                                                                       |
| <b>HWU</b>                                                                                                              | Hydraulic workover units                                                                                                                                               |
| <b>Improvement notice</b>                                                                                               | A notice issued to the operator of a facility requiring action to prevent any further contravention or likely contravention of listed OHS law                          |
| <b>KPIs</b>                                                                                                             | Key performance indicators                                                                                                                                             |
| <b>Lay-down area</b>                                                                                                    | Refers to the area where equipment is stored on a facility                                                                                                             |
| <b>LTI</b>                                                                                                              | Lost time injury                                                                                                                                                       |
| <b>MAE</b>                                                                                                              | Major accident event                                                                                                                                                   |



## Acronyms and common terms (cont'd)

| Term                      | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MoC</b>                | Management of change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>MODU</b>               | See "Facility"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Mousehole</b>          | The storage area on a drilling rig where the next joint of drilling pipe is held until needed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>MRT</b>                | Marine riser tensioner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>N/A</b>                | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>NOPSA</b>              | National Offshore Petroleum Safety Authority (NOPSEMA superseded NOPSA on 1 January 2012)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>NOPSEMA</b>            | National Offshore Petroleum Safety and Environmental Management Authority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>NOPTA</b>              | National Offshore Petroleum Titles Administrator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>OHS</b>                | Occupational health and safety                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Operator</b>           | In relation to a facility or proposed facility, the person who, under the Regulations, is registered by NOPSEMA as the operator of that facility or proposed facility (as defined in Clause 5 of Schedule 3 of the OPGGS Act)                                                                                                                                                                                                                                                                                                                                                                         |
| <b>OPGGS Act</b>          | Abbreviation of the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>OSCP</b>               | Oil spill contingency plan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Personal safety</b>    | A category of risk management focusing on injuries such as slips, trips, falls, 'struck-by' incidents and strains; Personal safety programs place an emphasis on personal behaviour and the wearing of personal protective equipment                                                                                                                                                                                                                                                                                                                                                                  |
| <b>PIN</b>                | Provisional improvement notice                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Pipeline</b>           | See "Facility"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>PL</b>                 | Petroleum liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Process safety</b>     | A category of risk management focusing on the prevention of uncontrolled releases of hydrocarbons, chemicals, energy, or other potentially dangerous materials (including steam) during the course of facility processes and which can cause major accident events; Process safety involves, for example, the prevention of leaks, spills, equipment malfunction, over-pressure, over-temperatures, corrosion, metal fatigue and other similar conditions; Process safety programs focus on design of facilities, maintenance of equipment, alarms, effective control points, procedures and training |
| <b>Prohibition notice</b> | A notice issued to the operator of a facility in order to remove an immediate threat to the health or safety of any person                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>PSMP</b>               | Pipeline safety management plan; A plan for managing OHS risks to personnel at or near pipeline facilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>PSZ</b>                | Petroleum safety zone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



## Acronyms and common terms (cont'd)

| Term                     | Definition                                                                                                                                                                                                                                                                                                                |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SC</b>                | Safety case; A document prepared and submitted by an operator of a facility to NOPSEMA that identifies the hazards and risks at the facility, describes how the risks are controlled and the health and safety management systems which are in place to ensure that the controls are effectively and consistently applied |
| <b>Scabbard</b>          | 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                                                                                                                                                                  |
| <b>SCAP</b>              | Safety case administration procedure                                                                                                                                                                                                                                                                                      |
| <b>SCE</b>               | Safety-critical equipment, or safety-critical elements                                                                                                                                                                                                                                                                    |
| <b>SDV</b>               | Shutdown valve                                                                                                                                                                                                                                                                                                            |
| <b>Slip joint packer</b> | 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                                                                                                                                                             |
| <b>SMP</b>               | Safety management plan                                                                                                                                                                                                                                                                                                    |
| <b>SMS</b>               | Safety management system                                                                                                                                                                                                                                                                                                  |
| <b>SPAE</b>              | Significant pipeline accident events                                                                                                                                                                                                                                                                                      |
| <b>Tag lines</b>         | Pieces of flexible line (usually rope) attached to a load that is to be lifted by a crane                                                                                                                                                                                                                                 |
| <b>TapRoot®</b>          | A system for root cause analysis                                                                                                                                                                                                                                                                                          |
| <b>Titleholder</b>       | The permittee of a petroleum exploration permit, the lessee of a petroleum retention lease, or the licensee of a petroleum production licence (as defined in subsection 51 and 572(1) of the OPGGS Act)                                                                                                                   |
| <b>TOOCS</b>             | Type of occurrence classification system                                                                                                                                                                                                                                                                                  |
| <b>TRCs</b>              | Total recordable cases                                                                                                                                                                                                                                                                                                    |
| <b>Tugger wire</b>       | A wire used in winching operations                                                                                                                                                                                                                                                                                        |
| <b>Wellhead</b>          | A general term used to describe the component at the surface of an oil or gas well that provides the structural and pressure-containing interface for the drilling and production equipment                                                                                                                               |
| <b>WI</b>                | Well integrity                                                                                                                                                                                                                                                                                                            |
| <b>WOMP</b>              | Well operations management plan; A document that the titleholder must submit which should specify acceptable methods of conducting well operations in accordance with sound engineering principles and good oilfield practice                                                                                             |
| <b>WHS Act</b>           | The Work Health and Safety Act 2011                                                                                                                                                                                                                                                                                       |

# References

Borthwick, David AO PSM 2010, *Report of the Montara Commission of Inquiry*, Commonwealth of Australia, Canberra

Department of Resources, Energy and Tourism 2011, *Final Government Response to the Montara Commission of Inquiry*, Commonwealth of Australia, Canberra

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

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

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

Standards Australia 1990, Workplace Injury and disease recording standard, Australian Standard AS1885-1. 1-1990



## Legislation

Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth.) (No 14) 2006 as amended. Schedule 3 – Occupational Health and Safety

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

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

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

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



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