

Australia's offshore energy regulator

CRANE SAFETY WORKSHOP 27 July 2021

nopsema.gov.au







• Welcome

Acknowledgement of Country

Working Together



• Be an explorer not a lawyer

• Offer options

• Look at what's possible





 Review NOPSEMA's proposed expectations to improve crane safety

 Identify refinement and feasibility to establish sector wide requirements

Trends in crane safety

Mark Emmerson



Introduction

Governing legalisation: OPGGS(S) regulations & OPGGS Act

NOPSEMA's functions include:

- to promote the occupational health and safety (OHS) of persons engaged in offshore petroleum operations or offshore greenhouse gas storage operations
- to advise on matters relating to OHS, well integrity and environmental management

Regulatory framework

- Objective-based regime
- Risk remains with the duty holder
- Suppliers and contractors have responsibilities





Pertinent example OPGGS(S) regulations

- Regulation 2.7 Standards
- Regulation 2.5(3)(f) Inspection, testing and maintenance
- Regulation 2.9 Competent workforce

NOPSEMA and safety

NOPSEMA Australia's offshore energy regulator

Prevention of Major Accident Events

- 1. Major hazards are recognised and the worst potential consequences are understood throughout the business.
- 2. Plant and equipment must be 'fit for purpose' to reduce the risks from the major hazards to tolerable levels.
- 3. Systems and procedures are provided which ensure proper operation for plant and equipment and which maintain their integrity.
- 4. Sufficient staff, with appropriate experience and training are provided to implement the systems and procedures.
- 5. Emergency procedures that respond adequately to foreseeable incidents are both in place and practised
- 6. Incident investigation and monitoring & auditing of performance take place in order to learn from experience and promote continuous improvement.



Quantitative data

Source of evidence

- Notifications of dangerous occurrences made by duty holders
- Gaps in compliance discovered by NOPSEMA inspectors in the course of planned inspections.

Quantitative evidence

In May 2021 there were **67** cranes in operation in the regime.

In the period July 2020 to May 2021 NOPSEMA was notified of **29** crane-related dangerous occurrences.

In the majority of these occurrences NOPSEMA carried out investigations, and observed varying degrees of gaps in compliance.





Indicators



NOPSEMA considers these dangerous occurrences as indicators of risks associated with cranes not being appropriately managed. As such it is clearly an issue that industry needs to acknowledge and address.







Crane collapse – March 2020





Crane boom collapse following failure of the luffing winch pawl - Nov 2017

Crane boom collapse – February 2020





Defining the crane safety problem



Increased instances of dangerous occurrences involving pedestal cranes suggests that crane safety is not being appropriately managed across the offshore oil and gas industry.

As a result, there may be an elevated risk of an incident involving the collapse of an offshore crane and/or a load being dropped, resulting in personnel injury or fatality, a major accident event or a major environmental event.





Discussion paper

Trends categorised within three themes:

- Inspection and management of corrective maintenance
- Competency of personnel
- Failure to apply lessons learned

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Improving Offshore Crane Safety

1. Purpose

The purpose of this discussion paper is to draw industry attention to opportunities for improvement of the management of offshore crane safety, thereby reducing the risks to personnel and the environment from dropped objects and crane failures.

DISCUSSION PAPER

NOPSEMA notes that the statements and examples provided in this paper are not sweeping statements about all of industry, but examples of where deficiencies have been observed and improvements are clearly required.

This paper shall be distributed prior to the workshop in July 2021.

2. Scope

The topic may be applied to all types of cranes installed on offshore facilities; however, it should be acknowledged that much of the inputs observed are in relation to offshore pedestal cranes.

3. Introduction

Within Australian Commonwealth waters there are 67 offshore pedestal cranes in operation on 35 permanently installed production facilities. Additionally, there are several other types of cranes and hoists on facilities as well as a fluctuating number of mobile drilling and vessel facilities fitted with large cranes.

Lifting operations carry inherent dangers and rely on safe cranes to ensure the risks are reduced to as low as reasonably practicable (ALARP).

In the period 1 July 2020 to 20 May 2021, NOPSEMA recorded 29 crane-related notifications of dangerous occurrences from duty holders. This was a significant increase in notifications from previous years and many of these incidents were common across duty holders. This number does not include notifications in relation to dropped objects. NOPSEMA deemed that, in the majority of cases, these occurrences were sufficiently serious to be escalated for further investigation.

Based on the observed trends in degraded crane safety, NOPSEMA has issued a safety bulletin in relation to the safe operation of cranes with reduced capacity.

NOPSEMA considers these notifications of dangerous occurrences as lead indicators of risks associated with cranes not being appropriately managed. As such it is clearly an issue that industry needs to acknowledge and address.



IOPSEMA

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Creating a better future - Assurance



Crane inspection and operating standards represent the minimum requirements. NOPSEMA expects duty holders to apply these standards and, where appropriate, supplement them with their own procedures.

Inspections and testing, completed by organisations accredited by bodies such as NATA, with endorsed certificates provides risk mitigation and demonstrates that the third-party inspection contractor has processes in place that are periodically audited and provides risk mitigation.

Corrosion-related findings in crane inspection reports should be written so that duty holders are able to gain a clear understanding of the extent and depth of corrosion and how this relates to risk and fitness for service. Furthermore, the location description of the corrosion should identify the criticality of the location to the continued safe operation of the crane.

Duty holders should assess the corrosion using risk-based techniques and, when necessary, repair the anomalies in accordance with agreed standards. Unassessed corrosion findings on cranes cannot be accepted.

Cranes are Safety Critical Equipment, and all reports of deficiencies and anomalies must be assessed by competent personnel, in a timely fashion and actioned appropriately.

Duty holder must assess the wear of the cranes and their critical components to ensure the risks are reduced to ALARP

Crane OEMs hold all the design information for their cranes and are best placed to determine fitness for service and/or repair methodologies.

To ensure risk mitigation, duty holders and their third-party inspection and maintenance contractors must ensure that clear channels of communication are formally established and maintained.



WHAT ELSE CAN BE DONE ?

Panel discussion

Panel members:

David Brough – Sparrows

Kevin McLean – INPEX

Mark Emmerson – NOPSEMA





Review of possible crane safety measures -Assurance





PULSE CHECKING - Proposed Measures (Assurance)



- 1. Crane inspection and operating standards: Crane inspection and operating standards represent the minimum requirements. NOPSEMA expects duty holders to apply these standards and, where appropriate, supplement them with their own procedures. Inspections and testing, completed by -organisations accredited by bodies such as NATA, with endorsed certificates provides risk mitigation and demonstrates that the third-party inspection contractor has processes in place that are periodically audited and provides risk mitigation.
- 2. Crane inspection reports Corrosion: Corrosion-related findings in crane inspection reports should be written so that duty holders are able to gain a clear understanding of the extent and depth of corrosion and how this relates to risk and fitness for service. Furthermore, the location description of the corrosion should identify the criticality of the location to the continued safe operation of the crane. Duty holders should assess the corrosion using risk-based techniques and, when necessary, repair the anomalies in accordance with agreed standards. Unassessed corrosion findings on cranes cannot be accepted.
- **3.** Inspection Corrective works (a): Cranes are Safety Critical Equipment, and all reports of deficiencies and anomalies must be assessed by competent personnel, in a timely fashion and actioned appropriately.
- 4. Inspection Corrective works (b): Duty holders must assess the wear of the cranes and their critical components to ensure the risks are reduced to ALARP.
- 5. Crane Original Equipment Manufacturers: Crane OEMs hold all the design information for their cranes and are best placed to determine fitness for service and/or repair methodologies. To ensure risk mitigation, duty holders and their third-party inspection and maintenance contractors must ensure that clear channels of communication are formally established and maintained.

Feasible?

Feasible If...

Not Feasible

Crane operator competency guidance

Mark Emmerson



Competency – the wider issue

Expectations from duty holders

Crane inspection and maintenance competency requirements must be clearly described in duty holders' processes.

Inspections & testing, completed by organisations accredited by bodies such as NATA, with endorsed certificates provides risk mitigation and demonstrates to NOPSEMA the competence of those undertaking the activity.



Duty holders must ensure that investigations are undertaken diligently and without prejudice. The learnings from investigations must be followed-up and actioned with authority.

Audits of crane operations and maintenance is a fundamental risk mitigation function that must be routinely completed, and outcomes actioned.

The competency of wire rope inspectors must be improved as wire rope deterioration is a single point of failure of cranes.





WHAT ELSE CAN BE DONE ?

Revision to the crane operator competency guidance



Purpose of guidance and the revision

Amendments made on the basis of

- Queries from individuals/public
- Trends observed in safety case assessments, inspections and investigations
- Reflect changes in standards available

Crane Operator Competence	GUIDANCE NOTE Search this site Q About Offshore industry Community Document hub News and resources Contact us
	Home > Document Hub > Guidance notes
Document No: N-09000-GN0955 A208207 Menu Date: 24/06/2021 About	7 Guidance notes Menu About Offshore industry Offshore industry
1. Purpose Safety Community Document hub Document hub The purpose of this guidance note is to describe competency assurance for offshore crane operators Ite Type Size Date	Safety Community Offshore facility Document hub cribe competency assurance for offshore crane operators Title Type Size Date
Working in the Australian offshore petroleum industry in Commonwealth and victorian designated coastal waters. General guidance on competency assurance for facility operators is described in NOPSEMA's previously published information paper (N-06300-IP1038). <u>Crane driver competency in the Australian offshore petroleum</u> <u>PDF</u> <u>214.25</u> <u>24/06/201</u> <u>KB</u> <u>Guidelines</u> <u>Facility definition includes an associated offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Guidelines</u> <u>Crane driver competency in the Australian offshore petroleum</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>07/05/2020</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u> <u>215.79</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>Crane driver competency in the Australian offshore place guideline</u> <u>PDF</u>	Crane driver competency in the Australian offshore petroleum PDF 214.25 24/06/2021 Guidelines Crane driver competency in the Australian offshore petroleum PDF 214.25 24/06/2021 Guidelines Crane driver competency in the Australian offshore petroleum PDF 214.25 24/06/2021 Guidelines Crane driver competency in the Australian offshore petroleum PDF 215.79 07/05/2020 Guidelines

Revision to the crane operator competency guidance

Setting standard

Duty holder SMS requirements should detail the:

- experience and training prerequisites
- training needs at the facility
- competency assessment processes including verification of competency on a specific crane. This includes assessment of competence to conduct pre-use examinations of the crane
- re-training and competency re-assessment requirements
- retention and maintenance of training & assessment records
- ongoing monitoring and regular review and improvement of the offshore crane operator competency system
- the competency of assessors responsible for the training and assessing of offshore crane operator's skills.



Panel discussion

Panel members:

David Brough – Sparrows

Kevin McLean – INPEX

Mark Emmerson – NOPSEMA





Review of possible crane safety measures – Competency



Creating a better future - Competency



Crane inspection and maintenance competency requirements must be clearly described in duty holders' processes.

Inspections & testing, completed by organisations -accredited by bodies such as NATA, with endorsed certificates provides risk mitigation and demonstrates to NOPSEMA the competence of those undertaking the activity

Duty holders must ensure that investigations are undertaken diligently and without prejudice. The learnings from investigations must be followed-up and actioned with authority.

Audits of crane operations and maintenance is a fundamental risk mitigation function that must be routinely completed, and outcomes actioned.

Duty holders must ensure that those personnel with management responsibilities for the safe operation of cranes on their facility have the required competency and authority to assess the crane fitness for service and/or ensuring the risks to personnel at the facility are reduced to ALARP

The competency of wire rope inspectors must be improved as wire rope deterioration is a single point of failure of cranes.



WHAT ELSE CAN BE DONE ?





Feasible?

Feasible If...

Not Feasible

6. Competency - Crane inspection and maintenance competency requirements must be clearly described in duty holders' processes. Inspections & testing, completed by organisations -accredited by bodies such as NATA, with endorsed certificates provides risk mitigation and demonstrates to NOPSEMA the competence of those undertaking the activity.

7. Duty holder Lifting management responsibility- Duty holders must ensure that those personnel with management responsibilities for the safe operation of cranes on their facility have the required competency and authority to assess the crane fitness for service and/or ensuring the risks to personnel at the facility are reduced to ALARP.

8. Lessons Learnt - Duty holders must ensure that investigations are undertaken diligently and without prejudice. The learnings from investigations must be followed-up and actioned with authority. Audits of crane operations and maintenance is a fundamental risk mitigation function that must be routinely completed, and outcomes actioned.

9. Wire Rope Inspector - The competency of wire rope inspectors must be improved as wire rope deterioration is a single point of failure of cranes.

NEXT STEPS

Forward actions

Near-term action

- NOPSEMA shall provide a summary of the minutes to all participants (based on a review of the workshop recording)

Long-term action

 Together with the participation of all stakeholders, through industry representative groups APPEA and SAFER TOGETHER, an Information / Guidance document shall be issued





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