



Offshore Crane Inspection and Maintenance Competence Guideline



Revision History

Version	Date	Amendments
0	18/10/2023	Final draft for consultation and approval



Feedback and Enquiries

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Foreword

This guideline document was developed by the Cranes and Lifting Working Group of Safer Together. Following agreement of the relevant sub-team and approval by the Cranes and Lifting Working Group, the Safer Together Safety Leaders Group agreed to the publication of this guideline document by Safer Together.

Where this guideline is adopted by individual companies (by incorporating the Requirements defined in s4 into their Safety Management System and passing them onto their supply chains via contract terms and conditions), it aims to provide common existing company requirements for the purpose of industry-harmonised standardisation.

The OPGGS(S) Regulation 2.9 requires that the operator must describe, in their SMS, the means by which they have ensured each member of the offshore workforce is competent. This Guideline does not detail legal requirements. Where this Guideline offers a higher standard than that required under the law, it is intended that the higher standard shall apply.

1 Purpose

It is recognised that the term 'competent person' or 'competent identity' covers many areas in the field of design, manufacture, operation etc. and that it would be unrealistic for any one person to fulfil the necessary elements of competency for every role in the field of lifting and handling equipment and its operation.

The purpose of this Guideline is to provide guidance to operators and service companies with regards to the minimum competence required for offshore crane inspectors and maintenance technicians. Some of the areas where the competent person will be involved will be tabled below, although it should be noted that this list is by no means exhaustive.

2 Scope

This Guideline is intended for use by the companies involved in the Oil and Gas Exploration and Production Industry in Australia. The scope covers offshore cranes inspection and maintenance activities.



3 Roles and Responsibilities

3.1 Safety Leaders Group

The Safer Together Safety Leaders Group (SLG) is responsible for:

- Approving this Guideline and any subsequent revisions;
- Ensuring that necessary arrangements and resources are in place to:
 - maintain this Guideline (including subject matter expertise and legal advice as necessary);
 - communicate the Guideline to relevant stakeholders;
 - provide user support for:
 - Implementation
 - confirming that processes are in place for monitoring the degree of standardisation achieved by implementing this Guideline across the Industry

3.2 Cranes and Lifting Working Group

The Safer Together Cranes and Lifting Working Group is responsible for:

- Maintaining this Guideline by:
 - monitoring feedback from users and other relevant stakeholders;
 - tracking Industry practice and legislation;
 - obtaining input from subject matter experts and legal advice as necessary;
- Providing user support for implementation;
- Communicating Requirements to relevant stakeholders;
- Monitoring the degree of standardisation achieved by implementing this Guideline across the Industry and evaluating the impact it is having on safety, quality and consistency of crane inspections and maintenance across Australian offshore assets.

3.3 Companies Adopting this Guideline

It is intended that Companies choosing to implement the recommendations of this Guideline will consider:

- Incorporating its requirements into their Competency Management Framework, including processes to ensure integrated planning, risk assessment and change management;
- Passing its Requirements onto their supply chains via contract terms and conditions;



- Communicating and implementing its requirements and sharing (where appropriate) any lessons learned or deviations / waivers which may become necessary to practicably implement the recommendations of this guideline, where it may benefit other parties in terms of knowledge sharing, risk mitigation and in the interests of continued improvement towards safety in the industry.
- Approving any exemptions to this Guideline in accordance with processes defined in their Competency Management Framework;
- Assuring that its requirements are met.

4 Guidelines

4.1 Definitions

Competent Person is defined as the person who has acquired through training, qualification, experience or a combination of these, the knowledge and skill enabling that person to correctly perform the required task.

Crane Inspector is the person that has obtained through training and experience the competence required to carry out inspections on various crane types and models. The inspector must be able to identify potential hazards or defects that may affect the safe operation, compliance to relevant standards/recommended practices and/or regulations and integrity of the equipment.

Crane Maintenance Technician is the person that has obtained through training and experience the competence required to carry out complex maintenance activities on various crane types and models. The crane maintenance technicians must be able to execute activities safely and comply with the relevant standards/recommended practices and/or regulations.

Maintenance Technician is the person responsible for conducting maintenance activities of mechanical and/or electrical equipment onboard the platform, not necessarily a crane specialist.

Operators / Crane Owner is the company that owns or operate the crane and is responsible for selecting Service Providers that comply with this guidance, and periodically review the Service Providers systems to ensure they conform.

Crane OEM is the original equipment manufacturer of the crane, Crane OEM's must have adequate processes in place to demonstrate personnel competency through training, qualification, and experience.



OEM Crane Technician / Inspector is employed by the crane OEM and has successfully completed OEM product-specific advanced training and is authorised by the OEM to perform crane inspection and / or maintenance. OEMs must have adequate processes in place to demonstrate personnel competency through training, qualification & experience.

Specialist Technician has competency on specific components or systems on a crane, and is used to provide specific services for that component or system only (e.g., Engine specialist, SLI OEM technician, structural inspector)

Service Provider is a company independent of the Crane Owner / Operator who provides crane maintainers and / or crane inspectors to complete scopes on the Crane Owner's behalf. Service Providers must have adequate processes in place to demonstrate personnel competency through training, qualification & experience. It is possible for a company to be both a Service Provider and Crane OEM.

Offshore Crane is considered all cranes onboard an offshore facility that are used for onboard or offboard lifts.

4.2 Responsibilities & Competencies

The responsibilities listed below will be used as the guidance for the identification of the competence required for each role. It is understood that the companies who implement this guidance document into their Management System might identify different responsibilities and roles, however it is recommended that companies who implement the guideline address any differences through gap analysis and revisions.

4.2.1 Crane Inspector: Responsibilities:

- Provide conclusion to the crane owner/operator whether the crane meets the minimum requirement of an appropriate standard or recommended practice, i.e., whether the crane is compliant with the specific standard or recommended practice it was inspected to.
- Identify anomalies in a thorough manner such that unsafe conditions or damage to offshore cranes are identified and clearly reported to operators and Crane Owner.
- Utilise methods and procedures appropriate for the crane type to determine condition and identify existing or potential deficiencies with the crane.
- Provide severity guidance / rating on deficiencies to assist in prioritising maintenance & repairs to rectify (and ultimately determine if crane is suitable for continued safe operations).



- Discuss with the maintenance technicians and crane owner possible solutions for the anomalies and potential hazards identified.
- Refer to crane OEMs and Crane Owner's procedures when requesting operators to carry out function tests.
- Request crane operators and maintenance technicians to carry out the tests required during inspections.
- Provide recommendations based on the applicable standards, recommended practices, regulations, and crane OEM's maintenance manuals.
- Ensure all defects are documented and reported to the relevant Company Representative.

It is not the responsibility of the crane inspector to define the repair strategy. This is responsibility of the Crane Service Provider in conjunction with the Crane Owner and OEM if necessary.

Crane inspectors must be able to demonstrate independency from maintenance activities related to the cranes they are inspecting.

Competency: Recommended guidance for Crane Inspector minimum competency requirements:

Qualification:

- Trade or inspection qualification appropriate to the role

Training:

- Theoretical and hands-on (internal or external) training for inspection of offshore cranes, to prove knowledge of international crane standard (e.g., API Spec 2C, EN 13852-1) or recommended practice, e.g., API RP 2D, and others.
- Internal training to ensure inspection procedures, requirements, and company processes are known.

Or

- Crane OEM product specific inspection training course (only applicable for crane type to be inspected)

Experience:

Demonstratable sufficient prior working experience on offshore cranes to have competency to meet all below requirements:



- demonstratable knowledge of crane design & operation standards / recommended practices, discard criteria, required inspection types and frequencies.
- demonstratable knowledge on potential dropped objects best practices.
- demonstratable knowledge of crane system design and components, sufficient to quantify risk against identified deficiencies (applicable to the crane type to be inspected).
- knowledge of crane safety critical devices & components, and ability to test and verify condition. Quantify risk when deficiencies are identified.
- ability to define and implement appropriate test methods to assess condition and identify defects in system components.
- understanding of offshore crane lifting operations and associated hazards and risks
- sufficient structural knowledge to identify, record and report defects in steelwork, welds, critical components.
- Successful completion of offshore crane inspections under direct supervision and assessment of competent crane inspector.

4.2.2 Crane Maintenance Technician:

Responsibilities:

- Carry out maintenance activities on cranes to ensure their continued safe and reliable operations without supervision.
- Identify and report any deficiencies with the crane or components. Rectify where appropriate.
- Understand and implement work instruction procedures to complete planned or corrective work scopes.
- Understand management of change process and procedures applicable to any modifications, replacement, or repair scope
- Review OEM manuals and technical data to understand system design and safe operational requirements.
- Carry out troubleshooting on crane systems to identify component or system deficiencies. Report and rectify as appropriate.
- Identify and quantify hazards and risks associated with maintenance works. Implement preventative and mitigating hazard controls appropriately.
- Report all work completed and deficiencies identified for inclusion in crane records / operator CMMS.

Competency: Recommended guidance for Crane Maintenance technician minimum competency requirements:

**Qualification:**

- Mechanical / Electrical / Engineering trade qualification appropriate to the crane type and scope

Training:

- Internal or external training to ensure knowledge of crane systems and components.

Experience:

Demonstratable sufficient prior working experience on offshore cranes to have competency to meet below requirements where applicable to scope:

- Demonstrated ability to identify and quantify hazards & risks associated with maintenance works and implement preventative & mitigating hazard controls appropriately.
- understanding of offshore crane lifting operations and associated hazards and risks
- Ability to interrogate and understand Crane OEM technical documents, including schematics, reeving & mechanical diagrams.
- Verified knowledge of and ability to inspect, maintain, troubleshoot, and rectify faults on the following:
 - hydraulic control systems and common components
 - mechanical and drive system components (Engines, gearboxes, brakes, motors, pumps, hooks, bearings, sheaves, wire ropes etc)
 - Electrical / Instrumentation / controls

Typical activities that can be carried out by a Crane Maintenance Technician:

- Planned Maintenance Routines including component condition assessments
- Replacement of simple mechanical components parts (hoses, filters, gauges, fasteners, brakes, valves)
- Replacement of simple electrical components (lights, fuses, relays, solenoids, switches)
- General servicing of crane components (engines, gearboxes, pumps, motors, rope greasing etc)
- Function testing of crane systems to confirm correct operations.

4.2.3 Senior Crane Maintenance Technician**Responsibilities:**



- Perform all responsibilities of a Crane Maintenance Technician
- Supervise other technicians or personnel to complete large crane maintenance scopes or activities.
- Carry out complex or higher risk crane maintenance activities due to specialist knowledge of crane systems and components.
- Provide guidance or recommendation for crane maintenance or repair methodologies. Prepare work procedures when required.
- Able to raise and hold ISSOW / work permits for crane related activities (where applicable).
- Progress tracking and reporting for larger scopes & projects.
- Train and develop non-senior crane technicians.

Competency: Recommended guidance for Senior Crane Maintenance technician minimum competency requirements:

Qualification:

Mechanical / Electrical / Engineering trade qualification appropriate to the scope

Training:

- Supervisor / leadership training
- ISSOW / permit authority training (site specific)
- Risk Assessment / HAZID
- Technical assessor (for internal competency records)

Experience:

Demonstratable sufficient prior working experience on offshore cranes to have competency to meet below requirements where applicable to scope:

Demonstrated ability to identify and quantify hazards & risks associated with maintenance works and implement preventative and mitigating hazard controls appropriately.

- Demonstrated ability to manage large and complex project scopes.
- Capability to prepare and discuss typical project reports and progress tracking.

Typical activities that would be supervised by a Senior / Supervisor Crane Maintenance Technician

- Replacement of significant components involving rigging operations or multiple component removal, such as:



- Wire rope replacements
- Engine replacements or overhaul
- Winch, pump, motor, gearbox replacements
- Boom or boom section replacements
- Boom pivot, luffing cylinder pivot or sheave pin inspections or replacement
- Upgrade of control system components
- Upgrade or replacement of SLI system or components
- Adjustment, replacement, or upgrade of any safety critical device (limits, encoders, A2B, etc)

While demonstrable work experience varies with scope, the requirements for a supervisory / senior crane maintenance technician should include both theoretical and practical (hands on) experience on the specific asset / component type.

4.2.4 OEM Crane Technician

Responsibilities:

- Act as liaison between the OEM and the crane owner to ensure the crane is safe for continued operation in accordance with the OEM provided instructions.
- Conduct and/or supervise maintenance, inspection, testing, commissioning and/or repair activities on specific cranes only to ensure their continued safe and reliable operations without supervision.
- Understand management of change process and procedures applicable to any modifications, replacement, or repair scope

NOTE: An OEM crane technician may incorporate any representative of the OEM who is designated as the OEM representative with access to OEM proprietary knowledge of the equipment.

Competency: As defined and verified by the OEM in accordance with their home-country jurisdiction and in-house procedures and processes

Qualification:

Mechanical / Electrical / Engineering trade qualification appropriate to the scope

Training:

- OEM product specific training

Experience:



Demonstrable sufficient prior working experience on offshore cranes to have competency to meet the requirements applicable to scope.

Typical activities of an OEM crane technician varies from simple maintenance tasks listed in the sections 4.2.2 and 4.2.3 of this document to more complex activities like major repairs, overhauls, replacement or upgrades of critical components and control systems.

4.3 Competence Verification Process

Operators, Service Providers and OEMs have the responsibility to ensure their employees conducting high risk work, around cranes and lifting equipment, are competent for the specific tasks they are assigned.

The competence verification process and the outcome should be made available to enable verification of competency to perform planned scope (maintenance or inspection).

The competence verification process should be able to provide demonstrable evidence of competency. This can be through a combination of:

- Qualification (including qualification equivalence records or assessments)
- training (internal or external)
- Licenses / HRWL held
- VOC assessments
- Prior experience assessments (for specific competencies)
- Records of successful supervised work completion & assessment

The process should define revalidation frequencies (and method) and it should be overseen by a competency assessor / auditor / technical authority.

A verification of competency (VOC) assessment is a physical demonstration of this duty and determines whether:

- A technician/inspector is competent for a specific task; or
- A technician/inspector requires further competency development for a specific task.

There is no single best practice for a VOC assessment process for crane inspectors or maintainers though the following should be considered:

- Where a technician/inspector is found to be competent a Statement of Attainment, describing the specific task should be issued. Employers may include in the Statement of Attainment, the level of competency or conditions of work (i.e., "the inspector's IRATA Level 1 expires in 6-months and



must be revalidated prior to that" or "the technician was verified as a Level 3 crane mechanic")

- A VOC assessment may be made up of incremental assessments. For example, one very large assessment for an offshore crane inspector may better implemented by a number of discrete units of specialist competencies such as wire rope examination or slew bearing wear measurement.
- The VOC assessment should include a verification of training records & qualifications as well as a practical verification of competency of the technician/inspector. Whilst facility operators may not wish to have their offshore cranes used for this purpose it is the facility operators that benefit most from technicians and inspectors who are verified as competent.
- Where a VOC assessment has found someone to require further competency development this requirement should be specific, measurable, achievable, relevant, and time-based.
- Applicable standards or recommended practices that are specific to crane and/or operator requirements.

The documentation of completed courses and tests should be filled together with the competence evaluation form into the Service Company or OEM's competence management system and made available for external audits, when required.

5 Equivalency of training

It is understood that Crane OEMs and service companies may need to bring specialists from overseas to work in Australia and in such cases equivalent licences may be considered by the Crane Owners. In such cases, the service companies / specialist technician must provide:

- Verification of competency procedure
- CV of the Company's competence checker and of the nominated specialist technician
- Last competency evaluation report of the employee to be engaged in the project.

6 Acronyms / Abbreviations

SLI – Safe Load Indicator

VOC – Verification of Competence

CVP – Competence Verification Process

CMS – Competence Management System

CV – Curriculum Vitae



HRWL – High risk work licence
ISSOW – Integrated Safe System of Work
HAZID – Hazard Identification

7 Relevant Industry Publications

- <https://www.dmp.wa.gov.au/Safety/What-licensing-requirements-9692.aspx>
- <https://maritimesafetyinnovationlab.org/wp-content/uploads/2014/05/imca-safe-lifting-operations.pdf>
- Offshore Mechanical Handling Equipment Committee (OMHEC) Guidance – 1 Competence and skills requirements for an enterprise of competence (EOC) of offshore cranes, issued on the 14th of August 2019.
- <https://www.safeworkaustralia.gov.au/safety-topic/managing-health-and-safety/licences/high-risk-work-licence-classes>
- NATA Inspection (ISO / IEC 17020) Accreditation for Lifting Equipment – Link Annex Lifting Equipment Assessment NATA
- NOPSEMA Competency Assurance – Information Paper - Link <https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A392392.pdf>
- API Recommended Practice 2D
- AS 2549 -
- ISO 23814 – Crane Inspectors Qualification
- ISO 9927-1:2013 – Crane Inspections – Part 1: General