



**NATIONAL
OCCUPATIONAL
SKILL
STANDARDS**

**CRANE
OPERATOR**

Operator's Licence

ACKNOWLEDGEMENT

These National Occupational Skills Standards (NOSS) were developed by the Industrial Technical Panel (ITC) for Crane Operator, as part of the PNG Occupational Skills Standard Project (POSSP).

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The ITC members consist of:

Brett Lewis	Hornibrooks NGI
Robin Hustler	Pogera Joint Venture
Damon Tiromry	TVET
Mark Monuo	Ok Tedi Mining
Billy Noel	Lihir Gold
Shem Garena	PNG Power
Edward Tanou	NATTB
Andrew Tapora	Occupational Health and Safety

The NATTB and POSSP express it's thanks to the members of the ITC and their employers for their work and commitment to improving the skills of the workforce in PNG

THE STANDARDS

Unit HVCO01	Operate vehicle loading crane
Unit HVCO02	Conduct non-slewing crane operations
Unit HVCO03	Operate overhead crane
Unit HVCO04	Conduct slewing crane operations
Unit HVCO05	Carry out lifts using multiple cranes

There are three grades of licence for slewing cranes,

- **C2 (up to 20 tonne)**
- **C6 (up to 60 tonne)**
- **CO (all other slewing cranes)**

A candidate must hold C2 before C6 and must hold C6 before CO.

The candidate must hold C2 for a minimum of 12 months before being assessed for C6.

The candidate must hold C6 for a minimum of 12 months before being assessed for CO

Unit HVCO04 covers the lifting and positioning of loads using a slewing crane.

The Working Load Limit of slewing cranes varies from 20 tonne to 60 tonne to no limit.

Note that the Department of Labour and Industry, Occupational Health and Safety Division, will require individuals to be assessed against the competencies in these NOSS to obtain a Crane Operator's Licence.

Explanation of National Occupational Skills Standards (NOSS)

These NOSS have been developed by the ITC to be used by any person who is currently working as a Crane Operator, or who wishes to be trained as a Crane Operator.

NOSS are developed by industry and are based around the functions of a job. That is, they are developed by people who do the job and they specify the skills, knowledge and attitude that are applied by a person to complete the job. NOSS measure a person's ability to perform tasks to a standard of performance required in the workplace. NOSS are endorsed by the NATTB. They are national standards and can be used by any industry employing Crane Operators, or any training institution who wishes to provide training to Crane Operators.

NOSS can be used for things such as:

- providing benchmarks for training courses and issuing of qualifications
- providing benchmarks for assessment of skills and knowledge
- work organisation and developing job descriptions
- formally recognising existing skills and knowledge held by people in both formal and informal employment
- identifying training needs

Some Definitions

NOSS define the skills, knowledge and attitude required for effective performance in the workplace. Standards are expressed in outcome terms and have a standard format comprising Unit, Elements, Performance Criteria, Range Statement and Evidence Guide.

Each unit of competency identifies a discrete workplace requirement. It is generally regarded as the job function of a single person.

An Element of Competency is the basic building block of the Unit of Competency. Elements are expressed as an outcome, and an individual is assessed against the Element and must demonstrate they have the skills, knowledge and attitude to carry out that task or duty.

Performance Criteria are evaluative statements which specify what is to be assessed and the required level of performance. They specify the activities, skills, knowledge and attitude that provide evidence of competent performance for each element.

The Range Statement is part of a competency standard, which sets out a range of contexts in which performance can take place. The Range Statement helps the assessor to identify the specific industry or enterprise application of the unit of competency. A Range Statement is a part of the format of a competency standard and provides a context for the unit of competency, describing essential operating conditions that may be present with training and assessment, depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. As applicable, the meanings of key terms used in the performance criteria will also be explained in the range statement

The Evidence Guide is part of a unit of competency. Its purpose is to guide assessment of the unit of competency in the workplace and a training environment. The evidence guide specifies the context of assessment, the critical aspects of evidence and the required or underpinning knowledge and skills. The evidence guide relates directly to the performance criteria and range statement defined in the unit of competency

Assessment

To perform to the standard required in industry, an individual will need to demonstrate competency to the level specified in each Unit of Competency, i.e., he/she will need to show they have the level of skills, knowledge and attitude required by industry.

Assessment means the process of collecting evidence and making judgements on whether competency has been achieved, to confirm that an individual can perform to the standard expected in the workplace as expressed in the relevant Unit of Competency.

An assessment judgement involves an assessor evaluating whether the evidence is current, valid, authentic and sufficient to make an assessment decision

The assessment system is a controlled and ordered process designed to ensure that assessment decisions made in relation to many individuals, by many assessors, in many situations, are consistent, fair, valid and reliable.

Levels

NOSS are allotted one of four levels. Below are descriptors of the four levels to be used in the development of NOSS in PNG across all occupations. They take into account international best practice in skill standards as well as the existing level descriptors used in PNG. The table does not represent a national qualifications framework, but is merely a guide to developers of NOSS

In the table below, **Level One** refers to the skills and knowledge used as an assistant to a more skilled worker. It may also describe some of the skills and knowledge used in the informal sector.

Level Two refers to the skills and knowledge used by a person working as part of a team to complete work tasks. Often they will be assisted by someone with level one skills and knowledge.

Level Three would be someone capable of completing a wide range of work tasks by themselves. An example is a tradesperson. Some problem solving is also involved, which implies a higher level of theoretical knowledge.

Level Four may be a front line supervisor such as a team leader or crew leader. It may also apply to more complicated work tasks that require a high level of theoretical understanding to complete. There would be a significant amount of problem solving that requires a depth of theoretical knowledge. Often the jobs in this area will be outside the traditional trade areas or be at a level that supervises tradespeople or a person who often works alone

	Knowledge	Workplace Application
Level 1	<ul style="list-style-type: none"> ▪ Recall facts ▪ Recall general knowledge 	<ul style="list-style-type: none"> ▪ Routine jobs under supervision ▪ Established work procedures followed ▪ Repetitive and familiar work ▪ Assisting more skilled workers
Level 2	<ul style="list-style-type: none"> ▪ Recall facts ▪ Recall main ideas in a field 	<ul style="list-style-type: none"> ▪ Work in defined routines and strategies ▪ Select appropriate work methods and tools and equipment ▪ Frequent supervision ▪ Follow instructions
Level 3	<ul style="list-style-type: none"> ▪ Apply knowledge that includes knowledge of processes, techniques, materials, tools and equipment, terminology and sufficient theory to solve problems ▪ Conceptual and technical knowledge 	<ul style="list-style-type: none"> ▪ Routine and non routine work ▪ Problem solving – predictable areas ▪ Applying technical skills to a job ▪ Interpretation of work procedures/processes ▪ Direct the work of others in technical areas ▪ May work alone ▪ Minimal or no supervision ▪ Plan own work
Level 4	<ul style="list-style-type: none"> ▪ Practical and theoretical knowledge used in a wide range of activities ▪ Highly specialised knowledge ▪ Knowledge of work procedures 	<ul style="list-style-type: none"> ▪ Routine and non routine work ▪ Develop and interpret work procedures and processes ▪ Solve problems – predictable and unpredictable ▪ Guide the work of others ▪ Responsible for own work

Unit Title
Unit Code

Operate vehicle loading crane
HVCO01

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for vehicle loading crane operations	1.1 Obtain, and clarify work requirements before proceeding 1.2 Ensure crane safe working load limit will not be exceeded 1.3 Carry out site assessment prior to bringing crane on site 1.4 Access and apply safety information and procedures throughout the work 1.5 Prepare work in accordance with PNG Standards and manufacturers’ site requirements 1.6 Carry out assembly and dismantling of attachments in accordance with PNG Standards, manufacturers’ instructions and site requirements 1.7 Determine and implement no-go zones around operator’s control panel where crane should not be operated or slewed into 1.8 Select and use appropriate lifting equipment
2 Operate vehicle loading crane	2.1 Coordinate activities with others at the site prior to commencement of, and during, the work activity 2.2 Carry out pre-start, start-up, park-up and shut-down procedures in accordance with PNG Standards and manufacturers’ instructions and site procedures

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- 2.3 Position, stabilise and level vehicle prior to commencement of lift operations in accordance with PNG Standards and manufacturers' specifications
- 2.4 Prepare load for lift in accordance with vehicle limitations and rigging requirements
- 2.5 Confirm work area is clear and safe prior to commencing the lift
- 2.6 2.6 Determine crane operating hazards and operate stationary crane from a safe location
- 2.7 Use relevant crane controls and functions within manufacturers' specifications to effectively lift and position loads
- 2.8 Direct crane operations using recommended load moving signals
- 2.9 Carefully monitor crane hook movement and location
- 2.10 Ensure that no work takes place under crane boom
- 2.11 Monitor site vehicle movements during lifting operations
- 2.12 Act on and report monitoring systems and alarms in accordance with site instructions/requirements
- 2.13 Recognise and respond to hazardous and emergency situations in accordance with manufacturers' instructions and site procedures
- 2.14 Complete work in accordance with the agreed plan and outcomes and within the operating capacities of the allocated equipment
- 2.15 Carry out all work in accordance with Occupational Health and Safety

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- | | | | |
|---|----------------------------|-----|---|
| 3 | Carry out equipment checks | 3.1 | Carry out daily/shift vehicle inspections and fault-finding in accordance with manufacturers' instructions and site requirements |
| | | 3.2 | Carry out routine operational servicing, lubrication and housekeeping tasks in accordance with manufacturers' instructions and site authorised procedures and practices |
| | | 3.3 | Report any faults to appropriate personnel |
| | | 3.4 | Process records in accordance with site requirements |
| | | 3.5 | Record the results of daily/shift inspections, and any faults found, in the Log Book |

RANGE STATEMENT

This unit covers the lifting and positioning of loads using a vehicle loading crane. The following range of variables is subject to site specific operations, but is not limited to the following details. Site procedures, regulations and OH&S and other relevant legislation apply to all elements and performance criteria.

Vehicle loading crane is defined as:

- Crane mounted on a vehicle for the principal purpose of loading and unloading such a vehicle

Work requirements may be in the form of:

- shift briefings
- handover details and/or work orders
- stable base
- avoidance of obstacles/hazards
- identification of load
- identification and selection of lifting equipment
- inspection and certification of lifting equipment
- fitting of optional implements/accessories
- management of permits and tags
- preparation of Job Safety Analysis

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Safety information and procedures may be contained in:

- legislation and regulations
- relevant PNG Standards
- safety and health management system
- OH&S policy
- Australian Codes of Practice
- manufacturers' instructions
- safe working or job procedures (or equivalents)

Australian Standard AS2550, cranes and state-based legislation and regulations must be consulted and applied.

No-go zone information can be obtained from:

- drawings
- photographs

Attachments may include:

- tyre manipulation
- forks
- any other commercially or site produced attachment

Crane operating hazards may include:

- control and safety of slewing speed
- selection and observance of safe working levels and angles
- avoidance of obstacles and hazards
- boarding and disembarking procedures
- observation of wind restrictions
- communications and signalling procedures

Crane controls and functions may include:

- boom up
- boom down
- boom extensions
- hoist up
- hoist down
- manual jib and fly-jib extensions
- slew
- outrigger extension

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Load moving signals are given using methods which may include:

- communications and signalling procedures

Hazardous and emergency situations may include:

- power lines
- trees
- overhead service lines
- bridges
- surrounding buildings
- obstructions
- structures
- facilities
- other equipment
- dangerous material
- earthworks
- underground services
- time of day

Operator (operational) maintenance procedures are those established and authorised for the site.

EVIDENCE GUIDE

Critical Aspects of Evidence

The candidate must hold an authentic and current vehicle driver licence appropriate to the vehicle being used

The evidence required to demonstrate this competency must be relevant to hoisting operations. In addition to satisfying the requirements of all elements, performance criteria, required knowledge and skills, evidence must include demonstration of:

- knowledge of procedures, requirements and instructions to operate vehicle loading cranes appropriate to a mine site, construction site or civil construction site or any other operation requiring cranes
- implementation of appropriate procedures and techniques for the efficient and effective operation of vehicle loading cranes, while complying with site risk control, health, safety, environmental, quality and communication requirements.
- This will include:
 - planning and preparing for vehicle loading crane operations
 - operating vehicle loading crane
 - carrying out equipment checks

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Required Knowledge

Specific knowledge is required to achieve the performance criteria in this unit to the standards of performance required in the workplace, to transfer the skills to other contexts and to deal with unplanned events. Assessment requires evidence of the ability to identify and explain the purpose of:

- interpreting information to determine and implement no-go areas
- not working under crane booms
- observing and monitoring crane hook location and movement
- Australian Standards related to lifting
- site and equipment safety requirements
- vehicle equipment characteristics, technical capabilities and limitations
- vehicle operational procedures
- vehicle maintenance systems and procedures
- basic geological and survey data related to vehicle loading cranes
- basic rigging and slinging requirements
- hand and whistle signals
- site environmental requirements and constraints
- Hazchem relevant to vehicle loading cranes
- Workplace strategies for HIV AIDS prevention
- Workplace strategies for ensuring workers living with HIV AIDS are treated fairly at work
- emergency procedures

Required Skills

Specific skills are required to achieve the performance criteria in this unit. Assessment needs to obtain evidence of the ability to:

- apply operational safety requirements
- access, interpret technical information
- calculate volume weights
- maintain equipment records
- use hand tools
- identify and report problems
- apply environmental constraints and procedures
- correctly dispose of environmentally sensitive fluids and materials

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Assessment and Interdependence of Units

This unit may be assessed with other relevant units forming a cohesive work function, according to specific site requirements.

Resource Implications

Assessment of this competency requires typical resources normally used in a mine site, construction site or civil construction site or other work environment requiring crange. Selection and use of resources for particular sites may differ due to site conditions, equipment availability, equipment/plant types and different contexts.

Consistency in Performance

To ensure consistency of performance, this unit must be assessed over a period of time and a range of work and site conditions, from working under supervision to unsupervised, and may be recorded in a log book. Local site factors will influence the breadth of evidence required to demonstrate the competency.

Context for Assessment

This unit should be assessed in the work environment where possible. Some assessment events may be conducted under simulated conditions where issues of safety and environmental damage are limiting factors. All assessments must be valid, reliable, fair and flexible accumulating sufficient evidence to demonstrate the required competence. The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

Methods of Assessment

Appropriate methods of assessment for this unit will usually include:

- workplace observation of processes and procedures
- oral and/or written questioning on required knowledge
- testimony from supervisors, colleagues, clients and/or other appropriate persons
- simulation and/or scenario analysis

Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.

Questioning should be undertaken in a manner appropriate to the language and literacy levels and culture of the candidate and to the requirements of the unit of competency.

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Unit Title
Unit Code

Conduct non-slewing crane operations
HVCO02

ELEMENT		PERFORMANCE CRITERIA	
1	Plan and prepare for non-slewing crane operations	1.1	Obtain, and clarify/confirm work requirements in the form of shift briefings, handover details or work orders before proceeding
		1.2	Ensure crane safe working load limit will not be exceeded
		1.3	Carry out site assessment prior to bringing crane on site
		1.4	Access and apply safety information and procedures throughout the work
		1.5	Carry out work preparations in accordance with AS2550, legislation and manufacturers' /site requirements
		1.6	Resolve coordination activities with others at the site prior to commencement of, and during, the work activity
		1.7	Select and use appropriate lifting equipment

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- 2 Operate non-slewing crane
 - 2.1 Carry out pre-start, start-up, park-up and shut-down procedures in accordance with PNG Standards, manufacturers' and/or site requirements
 - 2.2 Position crane safely prior to commencement of lift operations in accordance with PNG Standards, manufacturers' specifications and approved man-basket operation procedures
 - 2.3 Use relevant crane controls and functions within manufacturers' specifications to effectively lift and position loads or personnel as required
 - 2.4 Act on and report monitoring systems and alarms in accordance with manufacturers' instructions and site procedures
 - 2.5 Recognise and respond to hazardous and emergency situations in accordance with manufacturers' instructions and site procedures
 - 2.6 Complete work in accordance with the agreed plan and outcomes and within the operating capacities of the allocated equipment
 - 2.7 Interpret signals in accordance with AS2550
 - 2.8 Carry out all work in accordance with Occupational Health and Safety
- 3 Travel crane
 - 3.1 Plan the route to be travelled to ensure that crane traverses firm and level surfaces
 - 3.2 Ensure necessary hazard identification and control measures are in place
 - 3.2 Travel the crane in accordance with Australian Standards, manufacturers' instructions and site requirements

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- 4 Carry out equipment checks
 - 4.1 Carry out non slewing crane inspections and fault finding in accordance with manufacturers' instructions and site requirements
 - 4.2 Carry out routine operational servicing, lubrication and housekeeping tasks in accordance with manufacturers' instructions and site authorised procedures and practices
 - 4.3 Report any faults to appropriate personnel
 - 4.4 Provide operator support during preparation for, and conduct of, major maintenance tasks in accordance with site requirements
 - 4.5 Process records in accordance with site requirements

RANGE STATEMENT

This unit covers the lifting and positioning of loads using a non-slewing crane other than Gantry Cranes. The following range of variables is subject to site specific operations, but is not limited to the following details. Site procedures, regulations and OH&S and other relevant legislation apply to all elements and performance criteria.

Shift briefings/handover details/work orders may include:

- crane equipment to be used
- nature and scope of tasks
- details of load chart/factors
- achievement targets
- working conditions
- site lighting arrangements
- defects on equipment
- hazards and potential hazards
- coordination requirements/issues

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Safety information and procedures may include:

- legislation and regulations
- relevant PNG Standards
- management plans
- OH&S policy
- Australian Codes of Practice
- manufacturers' instructions
- safe working or job procedures
- preparation of Job Safety Analysis

Safety requirements may include:

- control and safety of travelling speed
- selection and observance of safe working levels and angles
- boarding and disembarking procedures
- communications and signalling procedures

Work preparation may include:

- selection of stable base/stabilisers
- avoidance of obstacles and hazards
- identification of load
- identification and selection of lifting equipment
- inspection and certification of lifting equipment
- management of permits and tags

Australian Standard, legislation and regulations may include:

- AS2550
- cranes and state based legislation and regulations

Crane controls and functions may include:

- boom up
- boom down
- boom extensions
- hoist up
- hoist down
- manual jib extensions

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Site hazards may include:

- power lines
- trees
- overhead service lines
- bridges
- surrounding buildings
- obstructions
- structures
- facilities
- other equipment
- dangerous materials
- earthworks
- underground services

Planning multiple lifts may include:

- an assessment of the load to be carried by each crane
- determination of the types of cranes suitable for use
- the safety margins and hazard control measures to be used in the lift
- the sequence of operations

Operator level equipment checks are those established and authorised for the site.

EVIDENCE GUIDE

Critical Aspects of Evidence

The candidate must hold an authentic and current vehicle driver licence appropriate to the vehicle being used

The evidence required to demonstrate this competency must be relevant to mine site operations, or any other operation requiring cranaage. In addition to satisfying the requirements of all elements, performance criteria, required knowledge and skills, evidence must include demonstration of:

- knowledge of procedures, requirements and instructions to operate a non slewing crane appropriate to a mine site, construction site or civil construction site or any other operation requiring cranaage, and;
- implementation of appropriate procedures and techniques for the efficient and effective operation of a non slewing crane appropriate to a mine site, construction site, civil construction site or any other site requiring cranaage, while complying with site risk control, health, safety, environmental, quality and communication requirements.

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This will include:

- planning and preparing for non-slewing crane operations
- operating non-slewing crane
- travelling cranes
- carrying out equipment checks

Required Knowledge

Specific knowledge is required to achieve the performance criteria in this unit to the standards of performance required in the workplace, to transfer the skills to other contexts and to deal with unplanned events.

Assessment requires evidence of the ability to identify and explain the purpose of:

- PNG Standards related to cranes/lifting
- site and equipment safety requirements
- crane equipment characteristics, technical capabilities and limitations
- crane operational procedures
- crane maintenance systems and procedures
- basic geological and survey data related to non-slewing cranes
- basic rigging and slinging methods
- communications and signalling procedures
- site environmental requirements and constraints related to non-slewing cranes
- Hazchem relevant to non-slewing cranes
- Workplace strategies for HIV AIDS prevention
- Workplace strategies for ensuring workers living with HIV AIDS are treated fairly at work
- emergency procedures

Required Skills

Specific skills are required to achieve the performance criteria in this unit. Assessment needs to obtain evidence of the ability to:

- calculate volume, and weights
- access, interpret and apply information from load chart
- maintain equipment records
- use hand and power tools
- apply fault finding techniques
- comply with environmental requirements
- dispose of environmentally sensitive fluids and materials

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Assessment and Interdependence of Units

This unit may be assessed with other relevant units forming a cohesive work function according to specific site requirements.

Resource Implications

Assessment of this competency requires typical resources normally used in a mine site, construction site or civil construction site or other work environment requiring crange. Selection and use of resources for particular sites may differ due to site conditions, equipment availability, equipment/plant types and different contexts.

Consistency in Performance

To ensure consistency of performance, this unit must be assessed over a period of time and a range of work and site conditions, from working under supervision to unsupervised, and may be recorded in a log book. Local site factors will influence the breadth of evidence required to demonstrate the competency.

Context for Assessment

This unit should be assessed in the work environment where possible. Some assessment events may be conducted under simulated conditions where issues of safety and environmental damage are limiting factors. All assessments must be valid, reliable, fair and flexible accumulating sufficient evidence to demonstrate the required competence. The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

Methods of Assessment

Appropriate methods of assessment for this unit will usually include:

- workplace observation of processes and procedures
- oral and/or written questioning on required knowledge
- testimony from supervisors, colleagues, clients and/or other appropriate persons
- simulation and/or scenario analysis

Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.

Questioning should be undertaken in a manner appropriate to the language and literacy levels and culture of the candidate and to the requirements of the unit of competency.

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Unit Title
Unit Code

Operate overhead crane
HVCO03

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for operations	1.1 Obtain and clarify/confirm work requirements in the form of shift briefings, handover details or work orders before proceeding 1.2 Access and apply safety information and procedures throughout the work 1.3 Ensure crane safe working load limit will not be exceeded 1.4 Carry out site assessment prior to bringing crane on site 1.5 Prepare work in accordance with AS2550, AS 1418 legislation and manufacturers’/site requirements 1.6 Coordinate activities with others at the site prior to commencement of, and during, the work activity 1.7 Select and use appropriate lifting equipment
2 Operate overhead crane	2.1 Prepare load for lift in accordance with crane limitations and rigging requirements 2.2 Carry out pre-start, start-up, park-up and shut-down procedures in accordance with PNG Standards, manufacturers’ and/or site requirements 2.3 Confirm the work area is clear and safe prior to commencing the lift 2.4 2.4Interpret signals in accordance with AS2550

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- 2.5 Operate controls to lift, transfer and lower loads in accordance with manufacturers' instructions and site procedures
- 2.6 Monitor lift operations to ensure compliance with equipment limitations
- 2.7 Carry out all work in accordance with Occupational Health and safety
- 3 Carry out equipment checks
 - 3.1 Carry out overhead crane inspections and fault finding in accordance with manufacturers' instructions and site requirements
 - 3.2 Report any faults to appropriate personnel
 - 3.3 Process records in accordance with site requirements

RANGE STATEMENT

This unit covers the lifting and positioning of loads using an overhead crane. Controls for OHC may include

- Pendant
- Remote control
- Fixed cab

The following range of variables is subject to site specific operations, but is not limited to the following details. Site procedures, regulations and OH&S and other relevant legislation apply to all elements and performance criteria.

Shift briefings/handover details/work orders may include:

- crane equipment to be used
- nature and scope of tasks
- details of load chart/factors
- achievement targets
- working conditions
- site lighting arrangements
- defects on equipment
- hazards and potential hazards
- coordination requirements/issues
- Job safety analysis

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Safety information and procedures may include:

- legislation and regulations
- relevant PNG Standards
- management plans
- OH&S policy
- Australian Codes of Practice
- manufacturers' instructions
- safe working procedures (or equivalent)
- Safety requirements including:
 - control and safety of travelling speed
 - selection and observance of safe working levels
 - boarding and disembarking procedures
 - communications and signalling procedures

Work preparation may include:

- avoidance of hazards
- identification of load
- identification and selection of lifting equipment
- inspection and certification of lifting equipment
- management of permits and tags

Australian Standards, legislation and regulations which may be consulted and applied:

- AS2550, AS1418
- cranes and state based legislation and regulations

Site hazards may include:

- facilities
- environment
- people
- other equipment
- dangerous materials

Signals for load moving may include:

- communications and signalling procedures

Operator level maintenance procedures are those established and authorised for the site.

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EVIDENCE GUIDE

Critical Aspects of Evidence

The evidence required to demonstrate this competency must be relevant to mine site operations, construction sites, civil construction sites, warehousing or any other operation requiring the use of an overhead crane. In addition to satisfying the requirements of all elements, performance criteria, required knowledge and skills, evidence must include demonstration of:

- knowledge of procedures, requirements and instructions to operating an overhead crane appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring the use of an overhead crane, and;
- implementation of appropriate procedures and techniques for the efficient and effective operation of an overhead crane appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring the use of an overhead crane, while complying with site risk control, health, safety, environmental, quality and communication requirements. This will include:
 - planning and preparing for operations
 - operating overhead cranes
 - carrying out operator maintenance

Required Knowledge

Specific knowledge is required to achieve the performance criteria in this unit to the standards of performance required in the workplace, to transfer the skills to other contexts and to deal with unplanned events. Assessment requires evidence of the ability to identify and explain the purpose of:

- PNG Standards related to cranes/lifting
- site and equipment safety requirements
- crane equipment characteristics, technical capabilities and limitations
- crane operational procedures
- crane maintenance systems and procedures
- basic rigging and slinging requirements
- communications and signalling procedures
- site environmental requirements and constraints related to overhead cranes
- Hazchem relevant to overhead cranes
- Workplace strategies for HIV AIDS prevention
- Workplace strategies for ensuring workers living with HIV AIDS are treated fairly at work
- emergency procedures

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Required Skills

Specific skills are required to achieve the performance criteria in this unit. Assessment needs to obtain evidence of the ability to:

- calculate volume, weights
- access interpret and apply load charts
- maintain equipment records
- use hand tools
- report faults
- comply with environmental requirements
- dispose of environmentally sensitive fluids and materials

Assessment and Interdependence of Units

This unit may be assessed with other relevant units forming a cohesive work function according to specific site requirements.

Resource Implications

Assessment of this competency requires typical resources normally used in a mine site work environment, construction sites, civil construction sites, warehousing or any other operation requiring the use of an overhead crane. Selection and use of resources for particular sites may differ due to site conditions, equipment availability, equipment/plant types and different contexts.

Consistency in Performance

To ensure consistency of performance, this unit must be assessed over a period of time and a range of work and site conditions, from working under supervision to unsupervised, and may be recorded in a log book. Local site factors will influence the breadth of evidence required to demonstrate the competency.

Context for Assessment

This unit should be assessed in the work environment where possible. Some assessment events may be conducted under simulated conditions where issues of safety and environmental damage are limiting factors.

All assessments must be valid, reliable, fair and flexible accumulating sufficient evidence to demonstrate the required competence.

The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

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Methods of Assessment

Appropriate methods of assessment for this unit will usually include:

- workplace observation of processes and procedures
- oral and/or written questioning on required knowledge
- testimony from supervisors, colleagues, clients and/or other appropriate persons
- simulation and/or scenario analysis

Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.

Questioning should be undertaken in a manner appropriate to the language and literacy levels and culture of the candidate and to the requirements of the unit of competency.

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Unit Title
Unit Code

Conduct slewing crane operations
HVCO04

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare for slewing crane operations	1.1 Obtain and clarify/confirm work requirements in the form of shift briefings, handover details or work orders before proceeding 1.2 Ensure crane safe working load limit will not be exceeded 1.3 Carry out site assessment prior to bringing crane on site 1.4 Access and apply safety information and procedures throughout the work 1.5 Conduct work preparation in accordance with AS2550, legislation and manufacturers/site requirements 1.6 Carry out assembly and dismantling of boom/jib in accordance with Australian Standards, manufacturers' instructions and site requirements 1.7 Resolve coordination activities with others at the site prior to commencement of, and during, the work activity 1.8 Select and use appropriate lifting equipment

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- 2 Operate slewing crane
- 2.1 Carry out pre-start, start-up, park-up and shut-down procedures in accordance with PNG Standards, manufacturers' and/or site requirements
 - 2.2 Position, stabilise and level crane prior to commencement of lift operations in accordance with PNG Standards, manufacturers' specifications and approved man-basket permit and use procedures
 - 2.3 Monitor site vehicle movements during lifting operations
 - 2.4 Prepare load for lift in accordance with crane limitations and rigging requirements
 - 2.5 Confirm the work area is clear and safe prior to commencing the lift
 - 2.6 Use relevant crane controls and functions within manufacturers specifications to effectively lift and position loads or personnel as required
 - 2.7 Act on and report monitoring systems and alarms in accordance with site instructions/requirements
 - 2.8 Recognise and respond to hazardous and emergency situations in accordance with manufacturers' instructions and site procedures
 - 2.9 Complete work in accordance with the agreed plan and outcomes and within the operating capacities of the allocated equipment
 - 2.10 Interpret signals in accordance with AS2550
 - 2.11 Carry out all work in accordance with Occupational Health and Safety

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- 3 Travel slewing crane
 - 3.1 Plan the route to be travelled to ensure that crane traverses firm and level surfaces
 - 3.2 Ensure necessary hazard identification en route and control measures are in place
 - 3.3 Travel the crane in accordance with PNG Standards, manufacturers’ instructions and site requirements
 - 3.4 Carry out all work in accordance with Occupational Health and Safety

- 4 Carry out multiple crane lift
 - 4.1 Plan multiple lift and obtain approval for lifting plan by an qualified person
Clarify and confirm multiple lift activities and responsibilities with the other crane operators
 - 4.2 Carry out the previously approved plan of operations under the supervision of a qualified person in accordance with the appropriate PNG Standards
 - 4.3 Carry out all work in accordance with Occupational Health and Safety

- 5 Carry out equipment checks
 - 5.1 Carry out slewing crane inspections and fault finding in accordance with manufacturers’ instructions and site requirements
 - 5.2 Carry out routine operational servicing, lubrication and housekeeping tasks in accordance with manufacturers’ instructions and site authorised procedures and practices
 - 5.3 Report any faults to appropriate personnel
 - 5.4 Provide operator support during preparation for, and conduct of, major maintenance tasks in accordance with site requirements
 - 5.5 Process records in accordance with site requirements

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RANGE STATEMENT

Certification Requirements

There are three grades of licence for slewing cranes, C2 (up to 20 tonne): C6 (up to 60 tonne): CO (all other slewing cranes)

A candidate is required to obtain C2 before C6 before CO.

The candidate must hold C2 for a minimum of 12 months before being assessed for C6.

The candidate must hold C6 for a minimum of 12 months before being assessed for CO

This unit covers the lifting and positioning of loads using a slewing crane.

The Working Load Limit of slewing cranes varies from 20 tonne to 60 tonne to no limit.

The following range of variables is subject to site specific operations, but is not limited to the following details. Site procedures, regulations and OH&S and other relevant legislation apply to all elements and performance criteria.

Shift briefings/handover details/work orders may include:

- crane equipment to be used
- nature and scope of tasks
- details of load chart/factors
- achievement targets
- working conditions
- site lighting arrangements
- defects on equipment
- hazards and potential hazards

Safety information and procedures may include:

- legislation and regulations
- relevant PNG Standards
- management plans
- OH&S policy
- Australian Codes of Practice
- manufacturers' instructions
- safe working or job procedures

Safety requirements may include:

- control and safety of slewing speed
- selection and observance of safe working levels and angles
- avoidance of obstacles and hazards
- boarding and disembarking procedures
- observation of wind restrictions
- communications and signalling procedures

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Work preparation may include:

- selection of stable base
- avoidance of obstacles and hazards
- identification of load
- identification and selection of lifting equipment
- inspection and certification of lifting equipment
- fitting of optional implements/accessories
- management of permits and tags

Australian Standard, legislation and regulations may include:

- AS2550
- cranes and state-based legislation and regulations

Crane controls and functions may include:

- boom up
- boom down
- boom extensions
- hoist up
- hoist down
- manual jib and fly-jib extensions
- slew

Hazards may include:

- power lines
- road conditions
- trees
- overhead service lines
- bridges
- surrounding buildings
- obstructions
- structures
- facilities
- other equipment
- dangerous materials
- earthworks
- underground services
- time of day

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Planning multiple lifts may include:

- an assessment of the load to be carried by each crane
- determination of the types of cranes suitable for use
- the safety margins and hazard control measures to be used in the lift
- the sequence of operations

Operator level maintenance procedures are those established and authorised for the site.

EVIDENCE GUIDE

Critical Aspects of Evidence

The candidate must hold an authentic and current vehicle driver licence appropriate to the vehicle being used

The evidence required to demonstrate this competency must be relevant to mine site operations, construction sites, civil construction sites, warehousing or any other operation requiring craneage. In addition to satisfying the requirements of all elements, performance criteria, required knowledge and skills, evidence must include demonstration of:

- knowledge of procedures, requirements and instructions to operate a slewing crane appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring craneage, and;
- implementation of appropriate procedures and techniques for the efficient and effective operation of a slewing crane appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring craneage, while complying with site risk control, health, safety, environmental, quality and communication requirements. This will include:
 - planning and preparing for slewing crane operations
 - operating slewing crane
 - travelling slewing crane
 - carrying out multiple crane lift
 - carrying out equipment checks

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Required Knowledge

Specific knowledge is required to achieve the performance criteria in this unit to the standards of performance required in the workplace, to transfer the skills to other contexts and to deal with unplanned events. Assessment requires evidence of the ability to identify and explain the purpose of:

- PNG Standards related to cranes/lifting
- site and equipment safety requirements
- crane equipment characteristics, technical capabilities and limitations
- crane operational procedures
- crane maintenance systems and procedures
- basic geological and survey data related to non-slew cranes
- basic rigging and slinging requirements
- communications and signalling procedures
- site environmental requirements and constraints related to non-slew cranes
- Hazchem relevant to non-slewing cranes
- Workplace strategies for HIV AIDS prevention
- Workplace strategies for ensuring workers living with HIV AIDS are treated fairly at work
- emergency procedures

Required Skills

Specific skills are required to achieve the performance criteria in this unit. Assessment needs to obtain evidence of the ability to:

- apply operational safety requirements
- access interpret and apply technical information
- calculate volume, weights
- maintain equipment records
- use hand tools
- report faults
- comply with environmental requirements
- dispose of environmentally sensitive fluids and materials

Assessment and Interdependence of Units

This unit may be assessed with other relevant units forming a cohesive work function according to specific site requirements.

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Resource Implications

Assessment of this competency requires typical resources normally used in a mine site work environment, construction sites, civil construction sites, warehousing or any other operation requiring cranes. Selection and use of resources for particular sites may differ due to site conditions, equipment availability, equipment/plant types and different contexts.

Consistency in Performance

To ensure consistency of performance, this unit must be assessed over a period of time and a range of work and site conditions, from working under supervision to unsupervised, and may be recorded in a log book. Local site factors will influence the breadth of evidence required to demonstrate the competency.

Context for Assessment

This unit should be assessed in the work environment where possible. Some assessment events may be conducted under simulated conditions where issues of safety and environmental damage are limiting factors.

All assessments must be valid, reliable, fair and flexible, accumulating sufficient evidence to demonstrate the required competence.

The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.

Methods of Assessment

Appropriate methods of assessment for this unit will usually include:

- workplace observation of processes and procedures
- oral and/or written questioning on required knowledge
- testimony from supervisors, colleagues, clients and/or other appropriate persons
- simulation and/or scenario analysis

Where performance is not directly observed and/or is required to be demonstrated over a period of time and/or in a number of locations, any evidence should be authenticated by colleagues, supervisors, clients or other appropriate persons.

Questioning should be undertaken in a manner appropriate to the language and literacy levels and culture of the candidate and to the requirements of the unit of competency

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Unit Title
Unit Code

Carry out lifts using multiple cranes
HVCO05

ELEMENT		PERFORMANCE CRITERIA	
1	Plan and prepare for multiple lift	1.1	Obtain, interpret and clarify/confirm work requirements in the form of shift briefings, handover details or work orders before proceeding
		1.2	Ensure crane safe working load limit will not be exceeded
		1.3	Carry out site assessment prior to bringing crane on site
		1.4	Access and apply safety information and procedures throughout the work
		1.5	Conduct work preparation in accordance with AS2550, legislation and manufacturers/site requirements
		1.6	Carry out assembly and dismantling of boom/jib in accordance with PNG Standards and legislation
		1.7	Resolve coordination activities with others at the site prior to commencement of, and during, the work activity
		1.8	Carry out crane pre-start, start-up, park-up and shut-down procedures in accordance with PNG Standards, manufacturers' and/or site requirements
		1.9	Position, stabilise and level cranes prior to commencement of multiple lift in accordance with PNG Standards, manufacturers' specifications and approved man-basket permit and use procedures
		1.10	Select and use appropriate lifting equipment

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- 2 Carry out multiple lift
 - 2.1 Plan multiple lift and obtain approval for lifting plan by a qualified person
 - 2.2 Clarify and confirm multiple lift activities and responsibilities with the other crane operators
 - 2.3 Prepare load for lift in accordance with crane limitations and rigging requirements
 - 2.4 Confirm the work area is clear and safe prior to commencing multiple lift
 - 2.5 Carry out the multiple lift under the supervision of a qualified person in accordance with AS2550, and site safety requirements
 - 2.6 Interpret signals in accordance with AS2550
 - 2.7 Use relevant crane controls and functions within manufacturers specifications to effectively lift and position loads
 - 2.8 Act on and report monitoring systems and alarms in accordance with site instructions/requirements
 - 2.9 Recognise and respond to hazardous and emergency situations in accordance with manufacturers' instructions and site procedures
- OH&S

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RANGE STATEMENT

This unit covers the lifting and positioning of loads using multiple cranes.

The following range of variables is subject to site specific operations, but is not limited to the following details. Site procedures, regulations and OH&S and other relevant legislation apply to all elements and performance criteria.

Shift briefings/handover details/work orders may include:

- crane equipment to be used
- nature and scope of tasks
- details of load chart/factors
- achievement targets
- working conditions
- site lighting arrangements
- defects on equipment
- hazards and potential hazards
- coordination requirements/issues
- Job Safety Analysis/Lift study

Safety information and procedures may include:

- legislation and regulations
- relevant PNG Standards
- management plans
- OH&S policy and safe working procedures
- Australian Codes of Practice
- manufacturers' instructions

Site safety requirements may include:

- control and safety of slewing speed
- selection and observance of safe working levels and angles
- avoidance of obstacles and hazards
- boarding and disembarking procedures
- observation of wind restrictions
- communications and signalling procedures

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Work preparation may include:

- selection of stable base
- clarification of multiple lift procedure
- avoidance of obstacles and hazards
- identification of loads
- identification and selection of lifting equipment
- inspection and certification of lifting equipment
- fitting of optional implements/accessories
- management of permits and tags

Australian Standards and legislation may include:

- AS2550
- cranes and state-based legislation and regulations

Crane controls and functions may include:

- boom up
- boom down
- boom extensions
- hoist up
- hoist down
- manual jib and fly-jib extensions
- slew

Hazards may include:

- power lines
- trees
- overhead service lines
- bridges
- road conditions, time of day
- surrounding buildings
- obstructions
- structures
- facilities
- other equipment
- dangerous materials
- earthworks, underground services
- adverse weather conditions

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Planning multiple lifts may include:

- an assessment of the load to be carried by each crane
- determination of the types of cranes suitable for use
- the safety margins and hazard control measures to be used in the lift
- the sequence of operations

EVIDENCE GUIDE

Critical Aspects of Evidence

The candidate must hold an authentic and current vehicle driver licence appropriate to the vehicle being used

The evidence required to demonstrate this competency must be relevant to mine site operations, construction sites, civil construction sites, warehousing or any other operation requiring craneage. In addition to satisfying the requirements of all elements, performance criteria, required knowledge and skills, evidence must include demonstration of:

- knowledge of procedures, requirements and instructions to carry out multiple crane lifts appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring craneage, and;
- implementation of appropriate procedures and techniques for the efficient and effective conduct of multiple crane lifts appropriate to a mine site, construction sites, civil construction sites, warehousing or any other operation requiring craneage, while complying with site risk control, health, safety, environmental, quality and communication requirements. This will include:
 - planning and preparing for multiple lifts
 - carrying out multiple lifts

Required Knowledge

Specific knowledge is required to achieve the performance criteria in this unit to the standards of performance required in the workplace, to transfer the skills to other contexts and to deal with unplanned events.

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Assessment requires evidence of the ability to identify and explain the purpose of:

- PNG Standards related to cranes/lifting
- site and equipment safety requirements
- crane equipment characteristics, technical capabilities and limitations
- multiple lift plans and planning
- multiple lifting operational procedures
- basic rigging and slinging requirements
- communications and signalling procedures
- site environmental requirements and constraints related to crane operations
- hazardous chemicals
- Workplace strategies for HIV AIDS prevention
- Workplace strategies for ensuring workers living with HIV AIDS are treated fairly at work
- emergency procedures

Required Skills

Specific skills are required to achieve the performance criteria in this unit. Assessment needs to obtain evidence of the ability to:

- apply operational safety requirements
- access interpret and apply technical information
- calculate volume, weights
- maintain equipment records
- Report faults
- comply with environmental requirements
- dispose of environmentally sensitive fluids and materials

Assessment and Interdependence of Units

This unit may be assessed with other relevant units forming a cohesive work function, according to specific site requirements.

Resource Implications

Assessment of this competency requires typical resources normally used in a mine site work environment, construction sites, civil construction sites, warehousing or any other operation requiring crantage. Selection and use of resources for particular sites may differ due to site conditions, equipment availability, equipment/plant types and different contexts.

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Consistency in Performance

To ensure consistency of performance, this unit must be assessed over a period of time and a range of work and site conditions, from working under supervision to unsupervised, and may be recorded in a log book. Local site factors will influence the breadth of evidence required to demonstrate the competency.

Context for Assessment

This unit should be assessed in the work environment where possible. Some assessment events may be conducted under simulated conditions where issues of safety and environmental damage are limiting factors.

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