



Australian Government

Department of Education, Employment and Workplace Relations

RIIHAN310A Conduct crane operations underground

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers conducting crane operations underground in the resources and infrastructure industries. It includes planning and preparing for operations, lifting and shifting loads, carrying out operator maintenance and conducting housekeeping activities. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:

- Coal mining
- Metalliferous mining

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operations	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Receive, interpret and clarify shift changeover details 1.3. Check indicators and perform pre-start checks on equipment and attachments 1.4. Identify, address and report potential risks and hazards 1.5. Carry out start-up procedures 1.6. Communicate with other equipment operators and personnel using approved communication methods 1.7. Identify, address and report environmental issues 1.8. Scale loose material and make site safe 1.9. Use approved dust suppression and extraction methods 1.10. Ensure area is well ventilated before entry into work area
2. Lift and shift load	2.1. Determine rigging and slinging requirements after assessing site and load conditions 2.2. Determine lifting technique according to the nature of the load being moved and the required location 2.3. Operate equipment safely within work environment and equipment limitations whilst observing safe driving conventions 2.4. Monitor and manage equipment performance using appropriate indicators to aid efficient operations 2.5. Assess ground conditions and position equipment to maximise efficiency, ensuring stability of crane and safety of other equipment and personnel 2.6. Complete all required documentation clearly, concisely and on time 2.7. Pass on end of shift information to oncoming shift
3. Carry out operator	3.1. Carry out shutdown procedures

maintenance	3.2. Service and make minor adjustments to equipment 3.3. Visually inspect equipment and report faults and make equipment available for routine operational servicing
4. Conduct housekeeping activities	4.1. Clean equipment 4.2. Clean and store ancillary service equipment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following as required to conduct crane operations underground:

- apply legislative, organisation and site requirements and procedures for conducting crane operations underground
- perform dogging techniques
- perform driving techniques
- operate, maintain and clean equipment
- interpret ground conditions
- perform lifting techniques
- monitor loads
- use hand and power tools
- towing
- refuel vehicle

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following as required to conduct crane operations underground:

- towing methods
- refuelling vehicle

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for conducting crane operations underground • implementation of requirements, procedures and techniques for the safe, effective and efficient conduct of crane operations underground • working with others to undertake and complete crane operations underground that meet all of the required outcomes • consistent timely conduct of crane operations underground that safely, effectively and efficiently meet the required outcomes
Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • 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.

	• Customisation of assessment and delivery environment should sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirements, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the conduct of crane operations underground
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. 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) may also be included.

Compliance documentation may include:	• legislative, organisation and site requirements and procedures dealing with: • mining safety and health • mine inspection • OHS • explosives • emergency procedures • manufacturer's guidelines and specifications • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Indicators may include:	• brake air pressure • brake oil temperature • computer indicators • engine oil pressure • fuel filter • load indicator • parking brake • retarder • service meter • speedometer/odometer • spotter • steering filters • tachometer • torque converter oil temperature • transmission filter • voltmeter • water temperature
Pre-start checks may include:	• air filter restriction indicator • boom type • cab (horn, lights, air conditioner) • cab condition (no rags in air conditioner vent,

	dirt around brake and accelerator pedals, seat condition, all gear secured) • cab mounts • capacity of equipment and/or attachments may include: • computer systems • crane capacity • damage to equipment • danger tags • display instrumentation and gauges (indicators, gauges, laser levels) • duration of operation • efficient and safe operating speed • engine and stop engine lights (orange and red) • engine oil to be checked before starting engine • fire suppression unit (pins in position in triggers) • fluid levels (windscreen washer tank, hydraulic oil, coolant, grease, water, engine oil, fuel) • grease lines • job configuration • light positioning and cleanliness • no combustible material around exhaust • oil leaks (engine, hydraulic hoses, ground) fuel leaks (engine, on ground) • operating limitations • personnel proximity • portable fire extinguisher (bracket, gauge, hose, ease of access) • radiator top up tank • type of activities performed • tyres and rim condition • vehicle number • visual and audio warning devices and lights • water leaks (radiator, hoses) • weight and/or load limitations • wheel nuts and studs • windows (clean, emergency exit tag in place)
Equipment and attachments may include:	• attachment slings • bosun's chair • chain • cranes at various tonnages • dog work

	• eye bolts • gantry • fixed overhead • integrated tool carriers • mechanical handling/lifting equipment • mobile cranes • overhead handling • pendant • pig sty • rigging (chains) • scissors • spreader bars • telescopic • recommended/required PPE
Potential risks and hazards may include:	• crane malfunction • dropping objects • unstable crane
Environmental issues may include:	• dust • fumes • noise • water
Dust suppression and extraction methods may include:	• mobile/fixed sprays • screens (vent doors, vent blinds) • use of water trucks • ventilation bags operational • watering down site
Safe driving conventions may include:	• speed limits • mine lighting • site vehicle identification lights • right of way • parking in stockpiles • parking on incline/decline • refuelling procedures • rules at intersections • driving regulations, rules and conventions • towing methods
Ground conditions may include:	• broken ground • dry • location of water table • noise • slope of working surface

	• stability of ground • stable ground (compaction) amount of scale • ventilation characteristics (fumes, dust) • visibility • wet
Shutdown procedures may include:	• correct location of equipment • safety mechanisms operational (horn, operating lights) • vehicle is left secured
Service may include:	• checking fluid levels • filter changing • greasing • keeping cab clean • tightening loose fittings
Clean may include:	• degreasing • forced air • steam cleaning • vacuum • water

Unit Sector(s)

Load Handling

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.