



Australian Government

Department of Education, Employment and Workplace Relations

RIISAM209A Carry out operational maintenance

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the carrying out of operational maintenance in drilling and metalliferous mining industries. It includes planning and preparing for carrying out of operational maintenance; performing pre-start checks, maintenance and equipment checks; maintaining tools, components and consumables; carrying out hot work; and perform equipment maintenance and field repairs.

Application of the Unit

The unit is appropriate for those in operator, operator assistant and maintenance roles; performing mechanical, hydraulic and electrical operational maintenance on exploration and drilling equipment including, at worksites within:

- Drilling
- 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 carrying out of operational maintenance	1.1. Access, interpret and apply compliance documentation relevant to carrying out of operational maintenance 1.2. Obtain, confirm and apply work instructions for the allocated task 1.3. Identify, manage and report all potential hazards 1.4. Resolve coordination requirements with others at the site prior to commencing and during work activities 1.5. Select and wear appropriate personal protective equipment
2. Perform pre-start checks and maintenance	2.1. Inspect and carry out pre-start checks on equipment 2.2. Complete site and/or company checklist sheet 2.3. Lubricate all systems according to requirements 2.4. Check and top up fluid levels and bleed where necessary 2.5. Check filters and clean or replace if necessary 2.6. Check security of all circulation systems, as required 2.7. Check safety appliances are fitted and in serviceable condition 2.8. Keep cabin, seat belts and windscreen clean and windscreen washer functioning
3. Perform equipment checks	3.1. Observe policies, procedures, safety rules and site specific instructions 3.2. Carry out timed and regular equipment checks , servicing and lubrication in accordance with procedures, and record details 3.3. Identify faults or potential faults and report immediately 3.4. Observe isolation, tag out and lock out procedures 3.5. Identify, record and/or report requirement for repair or maintenance and critical time

	line for rectification 3.6. Monitor effectiveness of maintenance performed
4. Maintain tools, components and consumables	4.1. Follow procedures for tool and component maintenance, and carry out safely and according to instructions. 4.2. Follow site procedures for maintaining and storing tools and consumables in good condition
5. Carry out hot work	5.1. Clear area around the worksite of flammable material 5.2. Position fire extinguishers at company recommended locations 5.3. Undertake hot work in compliance with district fire controls 5.4. Liaise with spotter during hot work operations 5.5. Inspect the area prior to leaving to ensure that no potential exists for later combustion
6. Perform equipment maintenance	6.1. Minimise equipment breakdown by regular servicing and maintenance and performance of overhauls to specifications 6.2. Use tag out and/or lock out when servicing 6.3. Carry out minor servicing of equipment avoiding disruption to production 6.4. Carry out routine inspection, servicing, lubrication and housekeeping tasks to requirements 6.5. Read and follow instructions on maintenance procedures, lubrication, filter change/service accurately 6.6. Identify and change worn parts, and record relative frequency of replacement 6.7. Identify operational faults in and maintain hydraulic, pneumatic and drive systems 6.8. Report service and repair requirements and take action according to procedures 6.9. Use diagnostic and troubleshooting procedures and techniques and take action
7. Perform field repairs	7.1. Isolate and rectify equipment faults 7.2. Identify extent of repair needed and obtain spare parts 7.3. Identify, select and use tools required for

	maintenance and repairs correctly 7.4. Return re-usable components or accessories in accordance with requirements 7.5. Review equipment and re-set in response to variations in production needs 7.6. Recognise system faults and formulate appropriate responses within agreed time lines 7.7. Maintain records of action taken in accordance with site requirements 7.8. Dismantle, assess, service, repair, reassemble and test a given component in a safe manner
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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 in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to carry out operational maintenance:

- apply legislative, organisation and site requirements and procedures for carrying out of operational maintenance
- apply in service functions and procedures
- apply diagnostic and troubleshooting procedures
- interpret manufacturers' maintenance and operations manuals
- use hand tools
- solve problems
- use PC software

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to carry out operational maintenance:

- manufacturer's handbooks requirements and procedures
- characteristics, technical capabilities and limitations of equipment
- environmental requirements and procedures
- hot work procedures and techniques
- fire prevention and control techniques and equipment
- mechanical/electrical/hydraulic systems and power tools requirements and procedures
- isolation and tag out procedures
- lubricants and their uses
- purpose of equipment electric and hydraulic indicators and gauges
- characteristics of transmission and drive systems
- recording and reporting requirements and procedures

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 carrying out of operational maintenance • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of operational maintenance • working with others to undertake and complete operational maintenance that meets all of the required outcomes • consistent timely completion of operational maintenance that safely, effectively and efficiently meets 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. • 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 to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second

	language issues. • Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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 requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete operational maintenance
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.

Relevant compliance documentation may include:	• legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Work instructions may come from:	• briefings, handovers, plans and work orders and may be written or verbal, formal or informal and may include: • nature and scope of tasks • specifications • quality of finished works • achievement targets • operational conditions • obtaining of permits required • site layout • out of bounds areas • worksite inspection requirements • lighting conditions • plant or equipment defects • hazards and potential hazards • coordination requirements or issues • contamination control requirements • environmental control requirements • barricade and signage requirements
Hazards may include those associated with:	• equipment • stored energy • work methods • human error • the work environment

Coordination requirements may include	• other operators • other maintenance personnel, • supervisors • other worksite personnel
Personal protective equipment includes:	• steel-capped boots and hardhat • gloves • dust mask • eye and hearing protection • general protective and reflective clothing
Equipment may include:	• drilling equipment • camping equipment • navigational aids • mobile laboratory • emergency aids • First Aid pack • communications devices • surveying equipment • sampling devices and storage • 4WD vehicles • mobile computers and associated devices
Equipment checks may include:	• regular visual inspection including pre-start neutral for all control levers • check on correct operation • observation of display instruments and gauges function • observation of recording instruments and gauges • hydraulic system (including filters, strainers, hose, hose fitting and oils) • air systems and filters • vehicles (including wheels, tyres, clutch, brakes and fluid levels) • batteries
Symptoms of faults may include:	• indications on instruments or gauges • noises • vibrations • smells • overheated hydraulic motors or lines • visual indicators (e.g. smoke)
Procedures for keeping tools and consumables in good condition	• effective storage • use of desiccants • store chemicals (cement, bentonite, and so on)

may include:	in safe dry conditions secure from livestock
Hot work is any work or task that has the potential to create fire or explosion, and may include:	• welding • grinding • fuel transfer
Spotters are used to:	• ensure that no fires develop from slag or hot metal generated during hot work
Maintenance may include:	• operating checks • daily checks • programmed maintenance • breakdown maintenance • prescribed lubrication
Reporting requirements may include:	• tool records • service and maintenance • metres drilled • operating hours since last service
Diagnostic and troubleshooting procedures may include:	• diagnostics built into equipment • diagnostics applying externally • troubleshooting procedures recommended by manufacturers • troubleshooting procedures developed by organisation • knowledge of sources of help for more complex problems

Unit Sector(s)

Service and Maintenance

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.