Australian Government

Department of Education, Employment and Workplace Relations

RIISAM312A Inspect and maintain shafts and structures

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the inspection and minor maintenance of shafts and structures in the coal and metalliferous mining industries. It includes: preparing for shaft and structures inspection and maintenance; and conducting shaft maintenance and post-maintenance activities.

Application of the Unit

This unit applies in all contexts to the inspection and minor maintenance of shafts and structures, not including winder equipment. It is appropriate for those working in operational and maintenance roles in underground mines, 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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for shaft and structures inspection and maintenance	1.1. Access, interpret and apply ***compliance documentation*** relevant to ***shaft and structures inspection and maintenance*** 1.2. Receive, interpret and clarify inspection and maintenance schedules and hazard reports 1.3. Select personal protective equipment appropriate for work activities 1.4. Perform equipment and work area pre-start checks to ensure equipment is ready for inspection and maintenance 1.5. Check records for outstanding maintenance/ inspections and recorded defects to assess scope of work 1.6. Identify replacement parts and service tools from the servicing schedule and obtain them from the appropriate stores area 1.7. Identify, address and report ***potential hazards and risks*** 1.8. Coordinate and liaise with appropriate persons to arrange details of preparatory activities, timing and location of inspection and maintenance 1.9. Obtain clearance from ***winder*** driver, or establish that start-up procedures have been completed, and the area is clear for operations 1.10. Establish emergency contingency plans with winder driver should an underground emergency arise, and adhere to site emergency procedures 1.11. Manage maintenance ***environmental issues*** 1.12. Ensure area is properly ventilated before entry into work area 1.13. Install overhead protection and guard rails in accordance with site procedures 1.14. Check and prepare appropriate tools, measuring equipment, materials and services

2. Conduct shaft maintenance	2.1. Conduct work safely and efficiently and according to ***site procedures***
	2.2. Perform all necessary isolations and tagging
	2.3. Establish communication system and perform checks
	2.4. Communicate with winder driver and others involved in maintenance of shafts and structures to ensure clear and safe maintenance operations
	2.5. Ensure person in charge of winder has placed winder in inspection/maintenance mode, including "inching"
	2.6. Perform inspection and maintenance work from top of conveyance
	2.7. Carry out maintenance in accordance with site procedures and/or maintenance instructions
	2.8. Complete inspection/maintenance and record any follow-up action in accordance with maintenance system requirements
	2.9. Ensure all safety devices are in place and any tags placed removed before shaft is returned to service
	2.10. Remove overhead protection and guard rails
	2.11. Ensure area is clear of foreign materials, communication equipment and tools, and meets an acceptable standard of cleanliness
3. Conduct post-maintenance activities	3.1. Complete all required documentation
	3.2. Ensure shaft operations and structures are tested and monitored
	3.3. Advise appropriate personnel when maintenance activities are concluded

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 inspect and maintain shafts and structures:

- apply legislative, organisation and site requirements and procedures
- apply standard operating practices and procedures around shafts
- apply safe work practices
- apply procedures for operating and maintaining shafts and structures
- apply procedures of monitoring critical components
- apply communication and reporting requirements and procedures
- use hand and power tools

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 inspect and maintain shafts and structures:

- shaft operations
- shaft construction and infrastructure
- shaft geology
- the key areas of mining acts and regulations pertaining to winding
- shaft installations
- defects which have potential to occur in shafts and infrastructure
- trip and fault procedures and other abnormal conditions
- site emergency procedures
- reporting and recording requirements for winder drivers, and electrical and mechanical maintenance personnel
- environmental procedures associated with shaft maintenance
- equipment processes that are applicable, including technical capability and limitations
- energy isolation methods
- operation of protective devices in shaft and winder operations
- mine ventilation system
- site procedures
- skip and personnel cage operations
- in-shaft communications methods and equipment

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 inspection and maintenance of shafts and structures • implementation of requirements, procedures and techniques for the safe, effective and efficient inspection and maintenance of shafts and structures • working with others to inspect and maintain shafts and structures that meet all of the required outcomes • consistent timely completion of inspection and maintenance of shafts and structures 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 inspect and maintain shafts and structures

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
Shaft and structure inspection and maintenance may include:	• inspection of ground conditions, including ground movement, cracks and seepage • inspection of shaft lining including timber, concrete and steel • inspection of shaft structural steel including: buntons, brattice and guide rails, shaft services (pipes, cables etc) • inspection for unusual conditions including water leaks, air leaks • isolation of services where necessary • minor shaft maintenance such as installing missing/broken bolts and fasteners, and shaft timbers • measuring shaft dimensions
Potential hazards and risks may include:	• communication failure • falling objects • projections into the shaft • movement (convergence of equipment) • plant failure • power failure • spillage • unauthorised personnel • visibility • explosion • asphyxiation and drowning
Winding operations include:	• winder operations in drifts, tunnels, slopes or

	inclines
Environmental issues may include:	• dust • water • heat • oxygen deficiency • vibration • fumes • noise • oil spills • salt build-up • flammable and noxious gases • flammable dust
Site procedures may include:	• clean up • equipment shutdown and isolation procedures • evacuation procedures • First Aid • notifying relevant authorities • permit-to-work systems • safety equipment • use of personal protective equipment • communication procedures (e.g. with winder operator) • portable electric apparatus procedures • fall arrestor and harness procedures • confined spaces

Unit Sector(s)

Service and Maintenance

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.