



Australian Government

Department of Education, Employment and Workplace Relations

RIIPRE304A Monitor casting quality

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the monitoring of casting quality in the metalliferous mining industry. It includes preparing for operations, maintaining efficient operation of casting area, and controlling quality of castings. 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:

- 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. Prepare for operations	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Establish and maintain communications with other personnel 1.3. Select personal protective equipment appropriate for work activities 1.4. Identify, address and report potential risks and hazards 1.5. Identify, address and report environmental issues 1.6. Follow emergency procedures 1.7. Use approved dust suppression and extraction methods 1.8. Ventilate work area 1.9. Check tools and required equipment availability and checks for operational readiness 1.10. Set up equipment according to company standard work procedures
2. Maintain efficient operation of casting area	2.1. Carry out plant and equipment start-up checks and procedures according to plant/equipment configurations and system requirements 2.2. Control systems supplying air and water to the casting and quality inspection area 2.3. Clean and condition ladles and launders for safe, efficient casting to operating standard 2.4. Prepare ladle and launder for maintenance and/or repair as required 2.5. Maintain work area in a clean, safe condition
3. Control quality of castings	3.1. Carry out and record pre-start quality control equipment checks 3.2. Visually inspect castings in their mould for compliance with specification 3.3. Operate equipment to remove reject castings 3.4. Dress cooled castings to allow efficient refining

	3.5. Batch and identify castings according to organisational requirements 3.6. Complete <i>production documentation</i> 3.7. Pass on shift change-over details to oncoming shift
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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 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 monitor casting quality:

- apply legislative, organisation and site requirements and procedures for monitoring casting quality
- fault find
- work with/handling high temperature materials
- operate, maintain and clean equipment
- identify hazards
- interpret reports,
- apply lifting techniques (manual, cranes and loads)
- monitor system/plant
- report defects
- control quality
- employ safe work practices
- use hand and power tools

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 monitor casting quality:

- casting plant construction components and operation
- characteristics of molten metal
- the ability to distinguish between:
 - chemical (including combustion)
 - instrument
 - equipment (electrical/mechanical)
- ability to isolate problem to item of equipment
- hazards associated with hot molten metal
- safe working procedures with molten metal
- protective equipment for working with hot materials
- potential dangers inherent in specific plant and equipment
- safe working procedures and systems
- identification of reject castings
- storage and scheduling requirements for production
- service requirements and specifications
- fault finding, rectification and reporting

- standard operating procedures
- tolerances allowable in the quality system and when action should be taken
- relevant quality assurance and inspection procedures and systems

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 monitoring casting quality • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of casting quality monitoring • working with others to undertake and complete the casting quality monitoring that meets all of the required outcomes • consistent timely completion of casting quality monitoring 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. • 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 to 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 requirement, 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 casting quality monitoring
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, organisational and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Legislation may include Acts and regulations dealing with:	• mining safety and health • mine inspection • OHS • explosives
Communications may include:	• PA system • warning sirens and lights • alarms • clear calls • phones
Personal protective equipment may include:	• helmet • safety footwear • hearing protection • gloves • eye/face protection • respiratory protection • heat resistant clothing
Hazards may include:	• rail and road movement • cranes • molten metal • hot materials • noise • air pollution • sharp objects • moving machinery • heights • falling objects

	• gases • automatic equipment start-up
Environmental issues may include:	• drainage • dust • emissions • flora and fauna • hazardous chemicals • noise • run-off • spills • waste management and disposal • water quality
Pre-start checks may include:	• identification and reporting of defective auxiliary equipment • work area hazards • chipping gun operation • sledgehammer • hoists • casting cooling tank plant and equipment
Air and water supplies to casting area may include:	• plant compressed air • instrument air • fresh (potable) water • process water • chilled water • fire supply water
Ladles and launders may be cleaned by:	• digging out • jack hammer • chipping gun
Preparation of ladles and launders includes:	• cleaning • patching • coating
Maintenance may include:	• lubrication • minor adjustments to operational plant • cleaning plant, equipment and work area • installation/removal of devices • patching
Production documentation may include:	• tonnages • quality • analysis/testing • identity • tracking

Burners may be:	• diesel • natural gas
Equipment and plant cleaning methods may include:	• degreasing • forced air • hosing with water • suction
Fault and variances may occur in:	• product • plant • equipment

Unit Sector(s)

Refining

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.