



Australian Government

Department of Education, Employment and Workplace Relations

RIIWMG402A Monitor and coordinate waste and process water treatment

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers monitoring and coordinating of waste and process water treatment in the metalliferous mining industry. It includes: monitoring treatment plant performance; controlling chemical use; monitoring and controlling processes; and compiling process records.

Application of the Unit

This unit is appropriate for those working in supervisory or technical specialist roles, 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. Monitor treatment plant performance	1.1. Access, interpret and apply compliance documentation relevant to the monitoring and coordinating of waste and process water treatment 1.2. Carry out routine plant inspections 1.3. Collect samples and conduct and analyse process tests to determine performance against plant operational requirements 1.4. Collect, interpret, record and report process data 1.5. Conduct calculations to determine process performance
2. Control chemical use	2.1. Use, handle and store chemicals in accordance with organisational and statutory requirements 2.2. Determine, prepare and conduct chemical dosing in accordance with plant processes 2.3. Maintain information related to chemical supply and usage
3. Monitor and control processes	3.1. Monitor processes to maintain parameters of operation 3.2. Identify and report process faults and operational condition of plant 3.3. Adjust integrated processes to optimise system performance
4. Compile process records	4.1. Compile records and reports from plant and system data

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 monitor and coordinate waste and process water treatment:

- apply legislative, organisation and site requirements and procedures
- use electronic monitoring and metering systems
- use manual chart recording systems
- use laboratory testing and sampling equipment
- use computerised equipment
- apply techniques for operating on-road and off-road vehicles
- operate communication equipment
- interpret reports
- apply procedures for identifying and managing hazards
- apply hazardous goods handling techniques and management
- apply lifting techniques (manual, cranes and loads)
- apply records maintenance requirements
- apply safe work practices
- use hand and power tools
- apply defects reporting requirements

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 monitor and coordinate waste and process water treatment:

- water system hydraulics
- system layout
- lock out procedures for mechanical and electrical installations
- policies and procedures and legislation
- relevant utilities and service bodies
- communication systems
- materials handling
- environmental, landscape, ground structure of work area
- risk factors and potential hazards
- equipment operation, capacity and limitations
- effect of weather and conditions on operation of site or plant
- mathematical calculations

- pipes and fittings/pumping and valve systems
- mechanical and electrical control systems
- shutdown and recharging requirements
- chemical usage

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 the monitoring and coordinating of waste and process water treatment
- implementation of appropriate procedures and techniques for the safe, effective and efficient monitoring and coordinating of waste and process water treatment
- working with others to plan, prepare and conduct waste and process water treatment
- provision of clear and timely instruction and supervision by the individual of those involved in waste and process water treatment
- evidence of the consistent successful monitoring and coordinating of waste and process water treatment

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 a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the 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 procedures and techniques for the safe, effective and efficient achievement of the required outcomes • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: • working with others to plan, prepare and conduct waste and process water treatment • provision of clear and timely instruction and supervision by the individual of those involved in the conduct of the waste and process water treatment
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
Inspection may include:	• interaction and communication with other employees, authorities, general public • visual observation • implementation of reporting procedures, which may also include procedures for implementation of by-laws, organisational policy, statutory requirements
Process tests may include:	• gravimetric analysis • spectrophotometric analysis • volumetric analysis • digestion techniques • ion selective electrodes • microscopy and routine jar testing • microbiology • settling tests • microscopic observation • single bugger pH • dissolved oxygen • chlorine residuals
Process data may include:	• plant performance data • environmental reports • chemical usage
Process may include:	• pre-treatment (e.g. screens, grit removal, shredding, odour control) • primary treatment (e.g. primary sedimentation) • secondary treatment (e.g. tickling filters,

	- rotating biological contractors, activated sludge and lagoon systems) • solids handling (e.g. aerobic or anaerobic digesters and sludge disposal) • disinfection (e.g. maturation ponds, chlorination, ultraviolet irradiation, ozonation) • tertiary treatment (e.g. chemical nitrogen removal, biological nitrogen removal, biological phosphorus removal)
Process records may include:	• plant performance data • environmental reports • chemical usage

Unit Sector(s)

Water Management

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.