



Australian Government

Department of Education, Employment and Workplace Relations

RIIPRO601A Design processing plant

Release: 1

RIIPRO601A Design processing plant

Modification History

Not applicable.

Unit Descriptor

This unit covers the designing of new or extensions to existing processing plant in worksite operations in extractive industries. It includes determining the design parameters, designing the processing plant, issuing the design and providing support in its implementation.

Application of the Unit

This unit is appropriate for those working in a management role or as a technical specialist, managing or advising on the design of processing plant within:

- Extractive industries

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. Determine processing plan design parameters	1.1. Access, interpret and apply compliance documentation relevant to the designing of new or extensions to existing processing plant 1.2. Identify, interpret and clarify relevant site geological, hydrological, and survey data and use it to development and document the processing plant design parameters 1.3. Identify, interpret and clarify relevant site marketing information and use it to development and document the processing plant design parameters.
2. Prepare processing plant design	2.1. Involve internal and external stakeholders in the planning process in a way that uses their contribution effectively and gains their support for the outcomes of each stage of the design process 2.2. Prepare the flowchart/schematic of the plant based on the processing plant design parameters 2.3. Identify and analyse options and select the primary items of plant and equipment to be used in the process based on the processing plant design parameters 2.4. Arrange and supervise the drafting of the general arrangement of the processing plant based on the flowchart/schematic, plant and equipment selected and the processing plant design parameters 2.5. Arrange and supervise the drafting of the preliminary design of the processing plant based on the general arrangement and the processing plant design parameters 2.6. Arrange and supervise the design of the process control system for the processing plant based on the preliminary design and the processing plant design parameters 2.7. Determine and document resource implications of the implementation of the design 2.8. Prepare and present the processing plant business plan/budget, including

	contingency plans, in accordance with the organisation's requirements 2.9. Arrange and supervise the drafting of the detailed design of the processing plant based on the approved <i>preliminary design, process control system and processing plant design parameters</i> 2.10. Identify and document the specifications for all plant and equipment items required by the processing plant design
3. Issue and provide support in the implementation of the design	3.1. Issue and explain the processing plant design to team members and others involved, to facilitate the safe, effective and efficient implementation of the processing plant design 3.2. Provide timely ongoing support and advice to those implementing the processing plant design 3.3. Ensure records and reports are maintained and issued 3.4. Monitor the processing plant design performance against the processing plant design parameters and development and operational budgets 3.5. Resolve anomalies in consultation with relevant stakeholders 3.6. Issue instructions for adjustments to the design and/or its implementation

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 design processing plant:

- apply legislative, organisation and site requirements and procedures
- interpret and apply geological data
- interpret and apply hydrological data
- interpret and apply survey data
- interpret plant design plans
- interpret and apply marketing data
- provide team leadership
- apply procedures for choosing development strategies
- apply procedures for choosing plant and equipment
- interpret and apply operational performance data

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 design processing plant:

- legislative and organisation's risk, statutory compliance, health, safety, environmental, quality and communication requirements and procedures
- geological data
- hydrological data
- survey data
- marketing information
- processing plant design parameters
- processing plant design options and procedures
- consultative and coaching techniques
- team leadership techniques
- operational techniques required for execution of the plan
- plant and equipment capabilities
- work planning techniques
- recording and reporting systems
- work monitoring methods

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 designing of processing plants • implementation of procedures and techniques for the safe, effective and efficient completion of the design of processing plants • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable design options and the selection of options that best meet the required outcomes • working with others to undertake and complete the design of processing plant • consistent and timely completion of the design of processing plant
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 civil works 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 procedures and techniques for the safe, effective and efficient achievement of the required outcomes • identification of the relevant information and scope of the work required • identification of viable options and the selection of the options that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: • working with others to undertake and complete the design of processing plant • consistent and timely gaining of approval of the design of processing plant • provision of clear, timely required support and advice on the implementation of

	processing plant design
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
Geological data may include:	• rock (or other resource) types and characteristics • faults and joints • water tables or other water sources
Hydrological data may include:	• rainfall • surface water • catchment areas • runoff characteristics • groundwater • existing streams, bores and dams
Survey data may include:	• site and neighbouring land form • site and neighbouring boundaries and structures • site and neighbouring roads and other infrastructure • approved limits of development • title details
Processing plant design parameters may include:	• operating capacity • other performance criteria • quality criteria • physical size constraints • raw feed considerations • occupational health, safety and environmental features required • compatibility with existing plant and equipment

	• capital cost limitation • ownership cost • operating cost targets • nominated or approved suppliers • product support requirements • training to be provided by supplier • maximum downtime requirements • market considerations
Marketing information may include:	• product specifications • sales volumes
Internal and external stakeholders may include:	• site and off-site employees • contractors • equipment suppliers • geologists, surveyors and/or draughtspersons • regulatory authorities representatives • community representatives • site neighbours
Stage of the design process at which stakeholder agreement should be gained may include:	• preparation of the flowchart/schematic • selection of the primary plant and equipment • drafting of the general arrangement • drafting of the preliminary design • design of the process control system • preparation of the processing plant business plan/budget • drafting of the detailed design • documentation of plant and equipment specifications
Primary items of plant and equipment may include:	• crushers • screens • feeders • conveyors • pumps • cyclones • classifiers
Resource implications may include:	• development costs • operating costs • labour • materials • services • equipment

Unit Sector(s)

Processing (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.