



Australian Government

CPPSIS6034 Conduct mining geology operations

Release: 1

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Modification History

Release 1.

Replaces superseded equivalent CPPSIS6034A Conduct mining geology operations.

This version first released with CPP Property Services Training Package Version 3.

Application

This unit of competency specifies the outcomes required to conduct mining geology operations. The unit covers analysing organisational priorities and specifications to identify projects; and planning projects to identify and document factors, such as objectives, deliverables, risks, constraints and equipment requirements, in order to comply with regulations and legislation applicable to the mining industry. The unit also covers analysing mining geology to assess and recognise geological aspects of possible ore deposits, rock types and structures, and levels of rock stability and ground support; using surveying techniques to take measurements and reduce and manipulate spatial data to assist in analysing the geology of the mining operation. The unit requires the ability to implement project management activities relating to scheduling, measuring, recording, monitoring and reporting work progress. It also requires the ability to evaluate project activities and outcomes for compliance with specifications. It requires knowledge of underground mining and mining geology operations.

The unit supports surveyors of mine geology who work in a surveying team in a mining environment.

Licensing, legislative, regulatory or certification requirements apply to this unit in some States where mining surveying must be undertaken under the supervision of a registered surveyor. Relevant state and territory regulatory authorities should be consulted to confirm those requirements.

Pre-requisite Unit

Nil

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions.

1. Identify and plan project.
 - 1.1. Organisational priorities are determined to identify project objectives and specifications.
 - 1.2. Project specifications are presented to ***appropriate persons***.
 - 1.3. Project objectives, deliverables, constraints, ***environmental considerations*** and work activities are planned and documented according to organisational requirements.
 - 1.4. Mining regulations with regard to management and safety are detailed according to legislative and organisational requirements.
 - 1.5. Equipment is selected and checked to ensure correct operation and functionality according to organisational requirements.
2. Analyse mining geology.
 - 2.1. Geological aspects of possible ore deposits are identified by assessing the environment, and information is verified.
 - 2.2. Rock types and structures fundamental to mining operations are identified and analysed according to project specifications.
 - 2.3. Levels of rock stability and ground support requirements are observed according to project specifications.
 - 2.4. Ore and minerals fundamental to mining operations are identified and analysed according to project specifications.
 - 2.5. Methods for obtaining ore and mineral samples are identified and analysed according to project specifications.
 - 2.6. Measurements are conducted and spatial data is reduced and manipulated according to project specifications.
3. Manage project.
 - 3.1. Project management mechanisms are implemented to schedule, record and report progress of activities in relation to agreed timeframes and plans.

- 3.2. Agreed communication processes between client and other appropriate persons are implemented and maintained.
 - 3.3. Pertinent legal and statutory requirements and standards are identified and analysed to ensure compliance.
 - 3.4. Risk management and contingency strategies are devised and followed to ensure project complies with legal and statutory standards and organisational requirements.
 - 3.5. Problems are identified and resolved, and contingencies and constraints are managed according to organisational requirements.
4. Finalise project.
 - 4.1. Mining geology project is evaluated for compliance with project specifications and organisational requirements.
 - 4.2. Appropriate persons are notified of project results according to organisational requirements.
 - 4.3. Documentation is completed and spatial data archived according to project and organisational requirements.

Foundation Skills

This section describes the language, literacy, numeracy and employment skills essential to performance in this unit but not explicit in the performance criteria.

Skill	Performance feature
Planning and organising skills to:	• plan and prioritise work to meet schedules.
Numeracy skills to:	• conduct precise measurements and calculations relating to height, depth, dimension, direction and position in actual operational activity and virtual representation.
Oral communication skills to:	• negotiate to achieve client requirements.

- Reading skills to:
- analyse graphical and technical information in specifications.
- Writing skills to:
- record technical information in organisational documentation.
- Technology skills to:
- calibrate and program specialised surveying instruments.
- Problem-solving skills to:
- identify and resolve areas of potential non-compliance of operations with pertinent legislation, regulations and standards.

Range of Conditions

This section specifies work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included. Bold italicised wording, if used in the performance criteria, is detailed below.

- Appropriate persons*** must include at least two of the following:
- client
 - colleague
 - engineer
 - manager
 - registered or qualified surveyor
 - supplier.

- Environmental considerations*** must include at least one of the following:
- chemical leakage
 - coal fire
 - erosion
 - loss of biodiversity
 - sinkhole formation
 - soil, groundwater and surface water contamination.

Unit Mapping Information

CPPSIS6034A Conduct mining geology operations

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPSIS6034 Conduct mining geology operations

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Performance Evidence

A person demonstrating competency in this unit must satisfy the requirements of the elements, performance criteria, foundation skills and range of conditions of this unit. The person must also conduct mining geology operations for two different projects.

While conducting the above mining geology operations, the person must:

- assess the environment to recognise geological aspects of possible ore deposits
- analyse mining geology to report on:
 - geological aspects of possible ore deposits
 - rock types and structures
 - levels of rock stability and ground support
 - ore and minerals fundamental to mining operations
 - methods for obtaining ore and mineral samples
- communicate clearly with clients and others to clarify and report project information
- comply with organisational policies and procedures, standards, mining regulations and legislation when planning and implementing project activities
- evaluate mining geology projects for compliance with specifications and identify non-conformances
- measure geological survey components using two of the following pieces of equipment:
 - current meter
 - echo sounder
 - global navigation satellite system (GNSS)
 - level
 - remote sensing
 - tape
 - total station
- perform calculations to measure, reduce and validate spatial data captured from surveying tasks
- plan and implement project management mechanisms to ensure the project is completed within required timeframes and complies with specifications and standards
- plan and implement risk and contingency management strategies

- use computers and relevant software applications to manipulate spatial data and develop reports
- work safely, using personal protective equipment (PPE) when performing surveying tasks.

Knowledge Evidence

A person demonstrating competency in this unit must demonstrate knowledge of:

- accuracy and precision requirements for mining geology surveying operations
- basic characteristics of common ore and mineral deposits
- classification of economic mineral deposits and the process involved in presenting a schematic model
- data capture and set-out techniques
- data reduction and manipulation techniques
- methods for assessing the environment to recognise ore deposits
- methods for obtaining ore and mineral samples
- mineral exploration methods, including geophysical, geochemical and geological techniques
- mining methods for metalliferous and coal mines
- organisational policies and procedures, standards, regulations and legislation relating to:
 - client and stakeholder communication
 - mining industry and mine design, including:
 - mine access
 - layout
 - service provision, such as water, air, power, lighting and dewatering
 - mines safety
 - records and reporting
 - risk and contingency management
 - using the equipment specified in the performance evidence
- phases and stages of exploration procedures and possible methods of exploration relevant to each
- physical and chemical characteristics of rock types and structures fundamental to mining operations
- project management techniques for scheduling, measuring and monitoring work progress and planning for risks and contingencies
- techniques for providing rock stability and ground support relating to underground mining.

Assessment Conditions

The following must be present and available to learners during assessment activities:

- equipment:
 - as specified in the performance evidence, including PPE

- specifications:
 - mining and surveying specifications, including relevant plans and drawings
 - organisational policies, procedures and documentation relating to work health and safety
 - relevant legislation and regulations relating to mines safety
- relationships with team members and supervisor:
 - lead role in a team.

Timeframe:

- as specified by project requirements.

Assessor requirements

As a minimum, assessors must satisfy the assessor requirements in the Standards for Registered Training Organisations (RTOs) current at the time of assessment.

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