

Draft 0.1

This is a draft update to CPPSIS6021 Conduct open pit mine surveys:

<https://training.gov.au/Training/Details/CPPSIS6021>.

Code changed to CPPSUR6021.

Changed PCs to active voice.

Range of Conditions added to Knowledge Evidence.

Changed 'person' to 'candidate' in PE for consistency.

I've added mapping info.

TAG will need to reassess this as unit is redeveloped.

Unit of Competency

CPPSUR6021 Conduct open pit mine surveys

Modification history

Release	Comments
1	Replaces superseded equivalent CPPSIS6021A Conduct open mine pit surveying. This version first released with CPP Property Services Training Package Version 3.
	Replaces superseded equivalent CPPSIS6021 Conduct open pit mine surveys

Application

This unit specifies the skills and knowledge required to conduct open pit mine surveying operations to meet client specifications. The unit covers project management activities relating to scheduling, measuring, recording, monitoring and reporting work progress, organising resources and equipment, and planning for risks and contingencies. The unit also covers presenting schematic models of areas that may have mineral deposits to identify projects, and organising resources and planning to support an open pit mine surveying operation. The unit requires the ability to implement open pit mine surveying operations using specialist equipment to measure identified components of an open pit mine; capture and reduce data; create mine drawings; and comply with standards, legislation and regulations applicable to the mining industry. It requires knowledge of surface mining operations.

The unit supports those who work in a technical management role in an open pit mine 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.

Prerequisite Unit

None

Unit Sector

Surveying and spatial information services

Elements and Performance Criteria

1. Prepare for open pit mine survey.	<ul style="list-style-type: none">1.1 Identify open pit mine surveying objectives and specifications in consultation with appropriate persons.1.2 Plan processes and procedures involved in exploring mineral deposits according to organisational requirements.1.3 Detail required mining methods according to project specifications and organisational requirements.
2. Plan open pit mine survey.	<ul style="list-style-type: none">2.1 Identify and document surveying objectives, deliverables, constraints, work activities and surveying resource and equipment needs according to spatial data specifications and organisational requirements.2.2 Implement project management mechanisms to schedule, measure, record and report progress of activities in relation to agreed schedule and plans.2.3 Implement and maintain agreed communication processes between client and other appropriate persons.

	2.4 Follow risk management and contingency strategies to ensure project complies with legal and statutory standards and organisational requirements.
3. Carry out open pit mine surveying tasks.	3.1 Measure or set out accurately identified spatial components of open pit mine according to project specifications. 3.2 Reduce measured spatial data to project reference system for comparison with design. 3.3 Create mine drawings to meet project specifications. 3.4 Use captured data to calculate mine volumes according to project specifications. 3.5 Validate and record measurements according to organisational requirements. 3.6 Identify and resolve problems and manage contingencies according to organisational requirements.
4. Finalise and report open pit mine survey outcomes.	4.1 Finalise and check project for compliance with project specifications and organisational requirements. 4.2 Notify appropriate persons of project results according to organisational requirements. 4.3 Complete documentation and archive spatial data according to project and organisational requirements.

Foundation Skills

Candidates require:

- planning and organising skills to:
 - plan and prioritise work to meet contract and resource constraints
- numeracy skills to:
 - conduct precise measurements and calculations relating to height, depth, dimension, direction, position and volumes in actual operational activity and virtual representation
- oral communication skills to:
 - negotiate to clarify client requirements
 - inform clients and other stakeholders of project progress
- reading skills to:
 - interpret graphical and technical information in mining and engineering plans
- writing skills to:
 - record accurate technical information in organisational documentation
- technology skills to:
 - connect equipment to coordinate systems
 - set up and calibrate specialised surveying equipment
- problem-solving skills to:
 - identify and resolve areas of potential non-compliance with legislation, regulations and standards.

Unit Mapping Information

Supersedes and is equivalent to CPPSIS6061 Conduct open pit mine surveys

Links

Companion Volume Implementation Guide:

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

Assessment Requirements for CPPSUR

Modification history

Release	Comments
1	Replaces superseded equivalent CPPSIS6021A Conduct open mine pit surveying. This version first released with CPP Property Services Training Package Version 3.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by:

- conducting open pit mine surveys for two different projects.

While conducting the above open pit mine surveys, the candidate must:

- interpret relevant plans and documents to plan surveying project processes and activities
- communicate clearly with clients and stakeholders to clarify and report project information
- comply with organisational policies and procedures, standards, regulations and legislation relating to surface mining when planning for:
 - blasting
 - drainage and dewatering
 - dumps and stockpiles
 - equipment use
 - records and reporting
 - standards and quality
 - surveying tasks
 - work health and safety
- create mine drawings and capture and reduce data to calculate mine volumes
- perform calculations to measure, reduce and validate spatial data captured from open pit mine surveying
- measure survey components using two of the following pieces of surveying equipment:
 - global navigation satellite system (GNSS)
 - level
 - remote sensing
 - tape
 - total station
- plan and implement project management mechanisms to ensure open pit mine surveying operations are completed within required timeframes and comply with project specifications
- prepare and document project plans that detail:
 - required surveying equipment
 - surveying objectives and deliverables
 - strategies for risk and contingency management
 - work processes and timeframes
- work safely, using personal protective equipment (PPE) when performing surveying tasks.

Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- accuracy and precision requirements for surveying data
- basic characteristics of common ore deposits
- data capture and set-out techniques
- data reduction and manipulation techniques
- explosives, blasting and blasting practices applicable to mining operations
- mineral exploration methods, including geophysical, geochemical and geological techniques
- mining methods, including:
 - developing roads and ramps
 - drilling
 - removing interburden
 - pre-stripping
 - stockpiles, dumps and safety berms
 - tailings dams
- organisational policies and procedures relating to:
 - client and stakeholder communication
 - records and reporting
 - using the surveying equipment specified in the performance evidence
 - work health and safety
- project management techniques for scheduling, measuring and monitoring work progress
- specialised surveying equipment requirements and accessibility in relation to open pit mining
- techniques for wall monitoring to derive a suitable pit wall slope, including:
 - batter stakes
 - measuring and recording ground cracks
 - required prism locations
 - toe and batter checks
- terminology and nomenclature applicable to surface mining
- appropriate persons:
 - client
 - colleague
 - engineer
 - manager
 - site personnel
 - registered or qualified surveyor
 - supplier
- required mining methods:
 - developing roads and ramps
 - drilling
 - removing interburden
 - pre-stripping
 - stockpiles, dumps and safety berms
 - tailings dams.

Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment must be conducted in the workplace or a simulated workplace using realistic conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

Candidates must have access to:

- equipment:
 - as specified in the performance evidence, including PPE
- specifications:
 - organisational policies, procedures and documentation relating to work health and safety
 - relevant mines safety legislation and regulations for the jurisdiction
 - surveying specifications, including relevant plans and drawings
- relationships with team members and supervisor:
 - working in a team.

Links

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