



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **RIIEGS303A Provide geological field assistance**

**Release: 1**

## RIIEGS303A Provide geological field assistance

### Modification History

Not applicable.

### Unit Descriptor

This unit covers the provision of geological field assistance in the metalliferous mining industry. It includes planning and preparing for geological field assistance, collecting and classifying common rocks, ores and minerals, and using geological maps and sections. 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

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for geological field assistance	1.1. Access, interpret and apply <b>compliance documentation</b> relevant to the work activity 1.2. Plan and prepare work according to compliance documentation and <b>operating conditions</b> 1.3. Receive, interpret and clarify roster changeover details 1.4. Arrange <b>communications</b> method and protocols with field team members 1.5. Select personal protective equipment appropriate for work activities 1.6. Select and obtain relevant <b>geological instruments and field equipment</b> for work activities 1.7. Perform <b>geological instrument and field equipment</b> checks to ensure instruments and equipment are ready for operation 1.8. Identify, address and report <b>potential risks and hazards</b> 1.9. Identify, address and report <b>environmental issues</b> 1.10. Adhere to emergency procedures to ensure safety of personnel and equipment
2. Collect and classify common rocks, ores and minerals	2.1. Take <b>rock, ore and mineral samples</b> according to site procedures and geologists requirements 2.2. <b>Communicate</b> field activities and results to relevant personnel 2.3. Examine specimens or outcrops to identify the properties and <b>classify</b> specimens into geological types 2.4. Compile <b>records</b> of all sampling results

<p>3. Use geological maps and sections</p>	<p>3.1. Interpret correct <i>symbols</i> to read geological maps and sections</p> <p>3.2. Interpret and record geological problems using block diagrams</p> <p>3.3. Interpret and record geographical features from landforms and maps</p> <p>3.4. Identify, in weathered outcrop, simple features as signs of the fresh rock type</p> <p>3.5. Carry out basic geological surveying techniques</p>
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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 provide geological field assistance:

- apply legislative, organisation and site requirements and procedures for the provision of geological field assistance
- drive all-terrain vehicles
- access, interpret and apply technical and safety information
- communicate and coordinate activities with others
- keep plant and equipment records
- apply diagnostic/faultfinding techniques
- comply with environmental requirements
- work in a team environment

### 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 provide geological field assistance:

- methods of sampling and sample identification
- geology of rock, ore and mineral deposits
- classification of rock, ore and minerals
- geometry of geological structures on maps and in the field
- company and site policy and procedures regarding geological field work
- types and functions of geological instruments and field equipment
- safe and correct use of instruments and equipment in the field
- sampling procedures and requirements
- communications methods and protocols
- recording and reporting systems

## Evidence Guide

<p>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.</p>	
<p><b>Overview of assessment</b></p>	
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>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:</p> <ul style="list-style-type: none"> <li>• knowledge of the requirements, procedures and instructions for providing geological field assistance</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of providing geological field assistance</li> <li>• working with others to undertake and complete the provision of geological field assistance that meets all of the required outcomes</li> <li>• consistent timely completion of providing geological field assistance that safely, effectively and efficiently meets the required outcomes</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those</li> </ul>

	<p>required on the job.</p> <ul style="list-style-type: none"> <li>• Customisation of assessment and delivery environment to sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• 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.</li> </ul>
<b>Method of assessment</b>	<p>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:</p> <ul style="list-style-type: none"> <li>• written and/or oral assessment of the candidate's required knowledge</li> <li>• observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes</li> <li>• consistent achievement of required outcomes</li> </ul> </li> <li>• first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• working with others to undertake and complete the provision of geological field assistance</li> </ul> </li> </ul>
<b>Guidance information for assessment</b>	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

## Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. <b>Bold italicised</b> 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.</p>	
<p><b>Relevant compliance documentation</b> may include:</p>	<ul style="list-style-type: none"> <li>• legislative, organisational and site requirements and procedures</li> <li>• operating conditions</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
<p><b>Operating conditions</b> may include:</p>	<ul style="list-style-type: none"> <li>• day and night</li> <li>• laboratory</li> <li>• field environment</li> <li>• dry and wet</li> <li>• stable ground</li> <li>• broken ground</li> <li>• various landscapes</li> <li>• working over old under-ground workings and voids</li> </ul>
<p><b>Communications</b> may include:</p>	<ul style="list-style-type: none"> <li>• verbal (face-to-face or radio)</li> <li>• e-mail</li> <li>• facsimile</li> <li>• memorandum</li> <li>• shift hand over documents</li> </ul>
<p><b>Geological instruments and field equipment</b> may include:</p>	<ul style="list-style-type: none"> <li>• hand lens</li> <li>• compass</li> <li>• two way radios</li> <li>• theodolite</li> <li>• clinometer</li> <li>• tape measure</li> <li>• portable PC</li> <li>• protractor</li> <li>• scale rule</li> <li>• balance</li> <li>• stereo microscope</li> </ul>



<p><b>Potential risks and hazards</b> may include:</p>	<ul style="list-style-type: none"> <li>• abandoned equipment</li> <li>• adjoining pit walls</li> <li>• adverse weather conditions (electrical storms, floods, fires)</li> <li>• chemicals</li> <li>• contaminants</li> <li>• equipment</li> <li>• fences</li> <li>• holes</li> <li>• materials</li> <li>• over-hanging rocks</li> <li>• personnel</li> <li>• pot holes</li> <li>• unsafe ground/unstable faces</li> <li>• vehicles</li> </ul>
<p><b>Environmental issues</b> may include:</p>	<ul style="list-style-type: none"> <li>• culturally-sensitive sites and artefacts</li> <li>• drainage</li> <li>• dust</li> <li>• emissions</li> <li>• flora and fauna</li> <li>• hazardous chemicals</li> <li>• heritage legislation</li> <li>• noise</li> <li>• runoff</li> <li>• spills</li> <li>• water quality</li> <li>• erosion</li> <li>• rehabilitation</li> </ul>
<p><b>Rock, ore and minerals</b> may include:</p>	<ul style="list-style-type: none"> <li>• volcanogenic massive sulphide</li> <li>• ultramafic volcanogenic nickel</li> <li>• differentiated mafic complex nickel</li> <li>• hydrothermal gold vein</li> <li>• volcanogenic pipe diamond</li> <li>• alluvial gold</li> <li>• alluvial heavy mineral sands</li> <li>• pegmatitic tin</li> <li>• tantalum</li> <li>• bauxite</li> <li>• aluminium</li> <li>• slate</li> <li>• phyllite</li> <li>• schist</li> </ul>

	<ul style="list-style-type: none"> <li>• gneiss</li> <li>• quartzite</li> <li>• marble</li> <li>• hornfels</li> <li>• amphibolite</li> </ul>
<b>Classification</b> parameters may include:	<ul style="list-style-type: none"> <li>• felsic category</li> <li>• intermediate category</li> <li>• mafic category</li> <li>• ultramafic category</li> <li>• minerals present</li> <li>• grain size</li> </ul>
<b>Records</b> may include:	<ul style="list-style-type: none"> <li>• field note book entries</li> <li>• filling in forms/templates and logs</li> <li>• memorandums</li> <li>• facsimiles/photographs</li> <li>• sketches</li> <li>• map sections</li> <li>• formal reports</li> <li>• audio recorded messages</li> </ul>
<b>Sample</b> types may include:	<ul style="list-style-type: none"> <li>• rock or mineral hand specimen</li> <li>• drill core/drill chips/drill sludge</li> <li>• oriented sample</li> </ul>
<b>Symbols</b> may include:	<ul style="list-style-type: none"> <li>• contacts</li> <li>• faults</li> <li>• dip and strike</li> <li>• scale bars</li> <li>• north points</li> <li>• legends</li> <li>• geological age</li> </ul>

## Unit Sector(s)

Exploration and Field Work

## Competency field

Refer to Unit Sector(s).

## **Co-requisite units**

Not applicable.