



**Australian Government**

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

# **RIINHB402A Supervise mineral exploration drilling operations**

**Release: 1**

## RIINHB402A Supervise mineral exploration drilling operations

### Modification History

Not applicable.

### Unit Descriptor

This unit covers the supervision of mineral exploration drilling operations in mining and extractive industries. This includes: planning and preparing for operations; initiating the operations; and monitoring, adjusting, communicating and reporting on the execution of the operations.

### Application of the Unit

This unit is appropriate for those working in a supervisory role or as a technical specialist, within:

- Drilling

### 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> |
|--|---|

## Elements and Performance Criteria

| ELEMENT  | PERFORMANCE CRITERIA   |
|--|--|
| 1. Plan and prepare for mineral exploration drilling operations  | <p>1.1. Access, clarify and ensure the application of the <b>requirements and procedures</b> relevant to undertaking <b>mineral exploration drilling operations</b>.</p> <p>1.2. Access, clarify and ensure the application of the specific <b>task information</b> and <b>required outcomes</b> relevant to undertaking mineral exploration drilling operations.</p> <p>1.3. Prepare an <b>operational plan</b> for the operations which makes best use of the available <b>resources</b> and for the safe effective and efficient conduct of the operations</p>  |
| 2. Initiate mineral exploration drilling operations  | <p>2.1. Acquire and make available the necessary resources for the safe, effective and efficient conduct of the operations</p> <p>2.2. Issue clear and timely <b>instructions to team members</b> and others involved, for the safe, effective and efficient conduct of the operations</p>   |
| 3. Monitor, adjust, communicate and report on the execution of mineral exploration drilling operations | <p>3.1. <b>Monitor</b> the execution of mineral exploration drilling operations</p> <p>3.2. <b>Initiate</b> adjustments to <b>mineral exploration drilling practice</b> or the operations plan to ensure safe, effective and efficient execution of the operations</p> <p>3.3. Provide advice to team members to overcome <b>operational problems</b> encountered during the execution of mineral exploration drilling operations</p> <p>3.4. Ensure plant equipment and tools maintenance requirements are carried out and recorded</p> <p>3.5. Ensure reports are completed and submitted</p> <p>3.6. Recommend changes to improve the safety, efficiency and effectiveness of the execution of mineral exploration drilling operations.</p> |

## 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 their application in the variety of circumstances in which this unit may be applied. This includes the ability to carry out the following:

- interpreting legislative requirements and procedures
- interpreting organisational requirements and procedures
- interpreting client requirements and procedures
- interpreting manufacturer's requirements and procedures
- interpreting mineral exploration drilling operations project site geological data
- interpreting mineral exploration drilling operations project site geotechnical data
- interpreting mineral exploration drilling operations project site hydrological data
- interpreting mineral exploration drilling operations project engineering survey information
- interpreting mineral exploration drilling operations project plans and drawings
- interpreting mineral exploration drilling operations project specifications
- preparing for and conducting of briefings, toolbox and site meeting
- preparing of short messages
- preparing and presenting of job reports
- preparing and maintaining of log books and diaries
- providing leadership
- applying mineral exploration drilling operations performance monitoring skills
- applying mineral exploration drilling operations troubleshooting skills
- applying mineral exploration drilling operations problem solving skills
- performing calculations for the execution of mineral exploration drilling operations
- providing recommendations for the improvement of the safe, effective and efficient execution of mineral exploration drilling operations

### Required knowledge

Specific knowledge is required to achieve the performance criteria of this unit, particularly for their application in the variety of circumstances in which this unit may be applied. Assessment requires evidence of the ability to identify and explain the purpose of:

- risk assessment and management requirement and procedures
- statutory compliance requirements and procedures
- occupational safety and health requirements and procedures
- environmental management requirements and procedures
- quality management requirements and procedures
- work zone traffic management requirements and procedures

- contract management requirements and procedures
- communication requirements and procedures
- administrative requirements and procedures
- mineral exploration drilling operations plant and equipment capabilities and application
- plant, equipment and tools maintenance requirements and procedures
- operational techniques for the execution of mineral exploration drilling operations
- potential operational problems in the execution of mineral exploration drilling operations
- mineral exploration drilling operations resource requirements and procedures
- activities scheduling requirements and procedures
- mineral exploration drilling operations materials delivery requirements and procedures
- job plan drafting of and administration requirements and procedures
- reporting requirements and procedures
- workplace relationship requirements and procedures
- organisational, client and site operational requirements
- relationship between various areas of mining and extractive industry activities and mineral exploration drilling operations
- team leadership techniques
- works planning techniques
- mineral exploration drilling operations monitoring methods
- engineering survey principles

## 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 that are to apply in undertaking mineral exploration drilling operations</li> <li>• implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes of mineral exploration drilling operations</li> <li>• working with others to plan, prepare and execute mineral exploration drilling operations</li> <li>• operational plans which reflect the requirements of these mineral exploration drilling operations and are capable of achieving all of their required outcomes</li> <li>• resource plans which have made available adequate resources for the safe, effective and efficient execution of mineral exploration drilling operations</li> <li>• provision of clear and timely instruction, advice and supervision by the individual of those involved in the undertaking of these mineral exploration drilling operations</li> <li>• evidence of the consistent successful completion of mineral exploration drilling operations under their supervision</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</li> </ul>   |

|                                    |  |
|------------------------------------|--|
|                                    | <p>skills.</p> <ul style="list-style-type: none"> <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 required on the job.</li> <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>  |
| <p><b>Method of assessment</b></p> | <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 procedures and techniques for the safe, effective and efficient achievement of the required outcomes of mineral exploration drilling operations</li> <li>• operational plans which reflect the requirements of mineral exploration drilling operations and are capable of achieving all of their required outcomes</li> <li>• resource plans which have made available adequate resources for the safe, effective and efficient execution of mineral exploration drilling operations</li> </ul> </li> </ul> |

|  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>• consistent successful completion of mineral exploration drilling operations under their supervision</li><li>• first hand testimonial evidence of the candidate's:<ul style="list-style-type: none"><li>• working with others to plan, prepare and execute mineral exploration drilling operations</li><li>• supervising and providing clear and timely instruction and advice to those involved in the undertaking mineral exploration drilling operations</li></ul></li></ul> |
| <b>Guidance information for assessment</b> | 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.

**Requirements and procedures** may include:

- legislative
- organisational
- client
- site
- manufacturer's

*and may include:*

- risk assessment and management requirements and procedures
- statutory compliance requirements and procedures
- occupational safety and health requirements and procedures
- environmental management requirements and procedures
- cultural and heritage requirements and procedures
- traffic management requirements and procedures
- quality requirements and procedures
- communication requirements and procedures
- procurement requirements and procedures
- workplace relations requirements and procedures
- contract management requirements and procedures
- administration requirements and procedures, including records and reporting
- maintenance, servicing, and housekeeping requirements and procedures
- Employment and workplace relations legislation
- Equal Employment Opportunity and Disability Discrimination legislation

**Mineral exploration drilling** methods may include:

- air drilling
- flight auger drilling

|                                       |  |
|---------------------------------------|--|
|                                       | <ul style="list-style-type: none"> <li>• large diameter auger drilling</li> <li>• conventional core drilling</li> <li>• wire-line core drilling</li> <li>• mud rotary drilling</li> <li>• cable tool drilling</li> <li>• down-hole hammer drilling</li> <li>• top-hole hammer drilling</li> </ul>  |
| <b>Task information</b> may include:  | <ul style="list-style-type: none"> <li>• site geological data</li> <li>• site geotechnical data</li> <li>• site hydrological data</li> <li>• site meteorological data</li> <li>• site engineering survey data</li> <li>• known and potential site hazards, constraints and conditions</li> <li>• site cultural and heritage information</li> <li>• task specifications</li> <li>• task drawings</li> <li>• sources of materials</li> <li>• other organisations and contractors involved in the operations or related tasks</li> <li>• coordination, timing and budgeting requirements</li> </ul> |
| <b>Required outcomes</b> may include: | <ul style="list-style-type: none"> <li>• task specifications requirements</li> <li>• task drawings requirements</li> <li>• coordination requirements</li> <li>• activity scheduling requirements</li> <li>• unit cost requirements</li> <li>• overall operations cost requirements</li> <li>• waste management requirements</li> </ul>   |
| <b>Resources</b> may include:         | <ul style="list-style-type: none"> <li>• labour</li> <li>• plant, equipment and tools</li> <li>• highway haulage vehicles</li> <li>• construction materials</li> <li>• sub-contractor services</li> </ul>  |
| <b>Instructions</b> may include:      | <ul style="list-style-type: none"> <li>• briefings</li> <li>• handovers</li> <li>• work orders</li> <li>• toolbox meetings</li> <li>• site meetings</li> </ul>   |
| <b>Teams members</b> may include:     | <ul style="list-style-type: none"> <li>• other members of the organisations management team</li> <li>• members of the team directly involved in the</li> </ul>   |

|   |  |
|---|--|
|   | <p>operations</p> <ul style="list-style-type: none"> <li>• suppliers representatives</li> <li>• sub-contractors representatives</li> <li>• supervisors or managers of other organisations who are involved in related operations</li> </ul>  |
| <b>Monitor</b> may include:                                 | <ul style="list-style-type: none"> <li>• ongoing risk assessment</li> <li>• engineering survey</li> <li>• sampling and testing</li> <li>• observation and recording</li> <li>• general supervision</li> </ul>  |
| <b>Initiate</b> may include:                                | <ul style="list-style-type: none"> <li>• written communication</li> <li>• oral communications</li> </ul>   |
| <b>Mineral exploration drilling operations</b> may include: | <ul style="list-style-type: none"> <li>• identification of and responding to operational problems</li> <li>• equipment maintenance</li> </ul>  |
| <b>Operational problems</b> may include:                    | <ul style="list-style-type: none"> <li>• equipment failure</li> <li>• drill string bogging</li> <li>• drill rods breaking</li> <li>• controlling drill hole direction</li> <li>• sample loss</li> <li>• drilling in difficult ground (caving, porous, fractured, reactive, cavities, running sands)</li> </ul> |

## Unit Sector(s)

Drilling (General)

## Competency field

Refer to Unit Sector(s).

## Co-requisite units

Not applicable.