



**Australian Government**

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

# **RIINHB413A Supervise underground in-seam directional drilling operations**

**Release: 1**

## **RIINHB413A Supervise underground in-seam directional drilling operations**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit covers the supervision of underground in-seam directional drilling operations in underground coal mines. It includes planning and preparing for and initiating; monitoring, adjusting, communicating and reporting on the execution of underground in-seam directional drilling operations.

### **Application of the Unit**

Underground in-seam directional drilling is undertaken for the purpose of gas extraction and water drainage, barrier proving and exploration. This unit is appropriate for those working in a supervisory role or as a technical specialist at worksites within:

- Coal mining
- 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>
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## Elements and Performance Criteria

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

## 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 supervise underground in-seam directional drilling operations:

- apply legislative, organisation and site requirements and procedures
- apply manufacturer's requirements and procedures
- interpret project site geological and hydrological data
- interpret project engineering survey information
- interpret project plans, drawings and specifications
- prepare and conduct of briefings, toolbox and site meeting
- prepare short messages
- prepare and present job reports
- prepare and maintain log books and diaries
- provide leadership
- apply performance monitoring skills
- apply troubleshooting skills
- apply problem solving skills
- calculate quantities for the execution operations, including:
  - volumes
  - grades
  - percentages
  - areas
  - resource consumption figures
- interpreting underground in-seam directional drilling materials properties and test results, including:
  - soil density/moisture relationship
  - plasticity index
  - particle size distribution

### 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 supervise underground in-seam directional drilling operations:

- 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
- plant and equipment capabilities and application
- plant, equipment and tools maintenance requirements and procedures
- operational techniques for the execution operations
- potential operational problems
- task resource requirements and procedures
- activities scheduling requirements and procedures
- 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 coal mining and underground in-seam directional drilling
- team leadership techniques
- works planning techniques
- 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 for the supervision of underground in-seam directional drilling operations</li> <li>• implementation of appropriate procedures and techniques for the safe, effective and efficient supervision of underground in-seam directional drilling operations</li> <li>• working with others to plan, prepare and conduct underground in-seam directional drilling operations</li> <li>• provision of clear and timely instruction and supervision by the individual of those involved in underground in-seam directional drilling operations</li> <li>• evidence of the consistent successful underground in-seam directional drilling operations</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>• 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</li> </ul>

	<p>environment to sensitively accommodate cultural diversity.</p> <ul style="list-style-type: none"> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular work sites may differ due to site circumstances.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities.</li> <li>• 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 procedures and techniques for the safe, effective and efficient achievement of the required outcomes</li> <li>• consistently achieving the 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 plan, prepare and conduct of underground in-seam directional drilling operations</li> <li>• provision of clear and timely instruction and supervision by the individual of those involved in the conduct of underground in-seam directional drilling operations</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. 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.</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>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• code of practice</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
<p><b>Underground in-seam directional drilling methods</b> may include:</p>	<ul style="list-style-type: none"> <li>• underground in-seam directional drilling</li> <li>• reaming</li> <li>• conventional core drilling</li> <li>• wire-line core drilling</li> <li>• rib consolidation</li> <li>• installation of standpipes</li> <li>• calibration of survey tools</li> <li>• drilling of holes</li> </ul>
<p><b>Specific task information and requirements</b> may include:</p>	<ul style="list-style-type: none"> <li>• site geological data</li> <li>• site geotechnical data</li> <li>• site hydrological 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 and drawings</li> <li>• sources of materials</li> <li>• other organisations and contractors involved in the task or related tasks</li> <li>• coordination, timing and budgeting requirements</li> <li>• waste management requirements</li> </ul>
<p><b>Operational plan</b> may include:</p>	<ul style="list-style-type: none"> <li>• human resource requirements</li> <li>• plant and machinery requirements</li> <li>• construction materials requirements</li> <li>• sub-contractor support requirements</li> </ul>

	<ul style="list-style-type: none"><li>• waste disposal requirements</li><li>• coordination requirements</li><li>• activity scheduling</li><li>• materials delivery scheduling</li><li>• risk assessment and management requirements</li><li>• occupational health and safety requirements</li><li>• quality management requirements, including testing scheduling requirements</li><li>• traffic management requirements</li><li>• environmental requirements</li><li>• task monitoring requirements</li><li>• task performance monitoring requirements</li><li>• communication requirements</li><li>• reporting requirements</li></ul>
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<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 task</li> <li>• suppliers representatives</li> <li>• sub-contractors representatives</li> <li>• supervisors or managers of other organisations who are involved in related tasks</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>Underground in-seam directional drilling operations</b> may include:	<ul style="list-style-type: none"> <li>• rib consolidation</li> <li>• installation of standpipes</li> <li>• calibration of survey tools</li> <li>• holes drilling techniques</li> <li>• identification of and responding to operational problems</li> <li>• installation of de-watering conduits and monitoring of water drainage</li> <li>• installation of gas drainage equipment and monitoring of gas drainage</li> <li>• installation and operation of stuffing boxes</li> <li>• equipment maintenance</li> </ul>
<b>Operational problems</b> may include:	<ul style="list-style-type: none"> <li>• changing geological formations, particularly clay, rock or unstable or porous formations</li> <li>• loss of air or water volume or pressure</li> <li>• equipment failure</li> <li>• bogging or parting of rod string</li> </ul>

	<ul style="list-style-type: none"><li>• loss of signal from down-hole survey tool</li><li>• reliability of communications</li></ul>
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**Unit Sector(s)**

Drilling (General)

**Competency field**

Refer to Unit Sector(s).

**Co-requisite units**

Not applicable.