



Australian Government

Department of Education, Employment and Workplace Relations

RIIBHD303A Conduct long hole drilling

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the conducting of long hole drilling in the metalliferous mining industry. It includes planning and preparing drilling site, moving equipment and materials to site, drilling and monitoring progression, packing-up drill site, carrying out operator maintenance and housekeeping activities.

Application of the Unit

Long hole drill rigs may be diesel, electric, hand-held, hydraulic, pneumatic, rotary, track or wheeled. This unit is appropriate for those working in driller roles, 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

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| <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 |
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| 1. Plan and prepare drilling site | <ul style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the conducting of long hole drilling 1.2. Plan and prepare work according to site procedures and relevant legislation 1.3. Receive interpret and clarify shift change over details and review historical information 1.4. Select appropriate personal protective equipment 1.5. Identify, manage and/or report hazards and potential risks according to the work plan 1.6. Inspect and assess site conditions to determine if scaling is required and take action according to site requirements 1.7. Place visible orientation marks to drill plan according to site procedures 1.8. Ensure auxiliary services are available 1.9. Erect physical barricades and signs and/or safety provisions to prevent unauthorised access 1.10. Identify and clearly mark butts/misfires according to site procedures 1.11. Ensure area is well ventilated before entry into work area using dust suppression and extraction methods 1.12. Conduct equipment pre-start checks to insure equipment is safe and ready to use |
| 2. Move equipment and materials to site | <ul style="list-style-type: none"> 2.1. Conduct work according to procedures and relevant specifications in a safe and efficient manner 2.2. Complete pre-start checks and confirm equipment is prepared for transportation 2.3. Identify and manage hazards and potential risks to ensure safe transportation to drill site 2.4. Transport equipment and attachments safely avoiding damage to equipment, site or injury to personnel according to road conditions |

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| | <p>2.5. Position and stabilise equipment at site according to ground conditions</p> <p>2.6. Connect auxiliary services</p> <p>2.7. Read and interpret and align equipment with orientation marks</p> |
| 3. Drill and monitor progression | <p>3.1. Conduct work according to procedures, requirements and specifications in a safe and efficient manner</p> <p>3.2. Identify, manage and/or report hazards and potential risks according to work plan</p> <p>3.3. Use approved dust suppression and extraction methods</p> <p>3.4. Operate equipment safely within working environment limitations and face/ground conditions</p> <p>3.5. Interpret drill plans then drills holes and realign equipment according to drill design and ground conditions</p> <p>3.6. Monitor ground conditions and adjust drilling techniques and components to maintain drilling operations</p> <p>3.7. Install collar pipes according to site procedures</p> <p>3.8. Remove drill cuttings and sludge to ensure drill hole remains clean</p> <p>3.9. Complete all required documentation clearly, concisely and mark misdirected holes according to site procedures</p> |
| 4. Pack-up drill site | <p>4.1. Carry out shutdown procedures</p> <p>4.2. De-rig equipment</p> <p>4.3. Clear site of debris</p> <p>4.4. Remove auxiliary services to allocated area</p> <p>4.5. Confirm equipment is ready for transport</p> |
| 5. Carry out operator maintenance | <p>5.1. Service and make minor adjustments to equipment</p> <p>5.2. Visually inspect equipment and report faults and make equipment available for routine operational servicing</p> <p>5.3. Provide operator support during preparation for, and conduct of maintenance tasks in accordance with site requirements</p> |
| 6. Conduct housekeeping | <p>6.1. Clean equipment to maintain condition of</p> |

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| activities | equipment and ensure safe and efficient operations 6.2. Clean and store auxiliary service equipment 6.3. Complete all required documentation clearly, concisely and on time 6.4. Pass on end of shift information to oncoming shift |
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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 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 conduct long hole drilling:

- apply legislative, organisation and site requirements and procedures
- operate, maintain and clean auxiliary equipment
- apply drilling techniques
- apply driving techniques
- use hand and power tools
- apply rod recovering techniques

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 conduct long hole drilling:

- auxiliary services procedures
- cleaning procedures
- potential down hole problems
- drilling equipment processes, technical capability and limitations
- equipment safety requirements
- geological and technical data
- handling and transport of hazardous substances
- isolation procedures
- manufacturer's specifications
- mining legislation
- operational procedures and checks
- recovery procedures
- site safety requirements
- start-up and shutdown procedures
- storage procedures
- towing procedures

Evidence Guide

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| <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>Overview of assessment</p> | |
| <p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</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"> • knowledge of the requirements, procedures and instructions for conducting long hole drilling • implementation of requirements, procedures and techniques for the safe, effective and efficient conducting of long hole drilling • working with others to undertake and complete the long hole drilling that meets all of the required outcomes • consistent timely completion of long hole drilling that safely, effectively and efficiently meets the required outcomes |
| <p>Context of and specific resources for assessment</p> | <ul style="list-style-type: none"> • 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. • 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. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. |

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| | <ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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. |
| Method of assessment | <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"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and complete long hole drilling |
| Guidance information for assessment | Consult the SkillsDMC User Guide for further information on assessment including access and equity issues. |

Range Statement

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| <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>Relevant compliance documentation may include:</p> | <ul style="list-style-type: none"> • legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation |
| <p>Hazards and potential risks may include:</p> | <ul style="list-style-type: none"> • ground control failure • lack of ventilation • loose material on working surface • misfires • gases • entry by unauthorised personnel • uncovered open holes • unstable ground conditions • airborne dust and fibres • unstable footing • poor housekeeping • noise • rotating machinery (drill steels) • electrical hazards • airborne rock fragments • premature explosions |
| <p>Drill plan may include:</p> | <ul style="list-style-type: none"> • access to inclines and decline depending on the complexity of the process • drill plan/equipment and resource allocations/requirements • geological details • verbal or written instructions • services • stope |
| <p>Auxiliary services may include:</p> | <ul style="list-style-type: none"> • compressed air |

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| | <ul style="list-style-type: none"> • de-watering pumps • electricity • ventilation/water |
| Dust suppression and extraction methods may include: | <ul style="list-style-type: none"> • mobile/fixed sprays • screens (vent doors, vent blinds) • use of water trucks • ventilation bags operational • watering down site |
| Equipment pre-start checks may include: | <ul style="list-style-type: none"> • air filter restriction indicator • cab (horn, lights, air conditioner) • computer systems • display instrumentation and gauges (indicators, gauges, laser levels) • engine and stop engine lights (orange and red) • fire and suppression systems • fire extinguishers • fluid levels (windscreen washer tank, hydraulic oil, coolant, grease, water, engine oil, fuel) • visual and audio warning devices and lights • drilling equipment (drill rig booms, drifters, hydraulic hoses, drill steels, bits and couplings) • drill rig platform, steps and hand rails |
| Equipment may include: | <ul style="list-style-type: none"> • collar piping • covering devices (plugs, cones, hessian bags) • drill rig (electric/hydraulic, pneumatic) • drilling components (drill rods, bits, augers, down hole hammer, down hole tools) • extra lighting (flood lights) • hoses • inclinometer • lifting and handling equipment • long hole extension drills • measuring tape • oils • paint (spray cans) • plates • recovery equipment • scaling bars • signs • support vehicles • tapes • witches' hats |

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| | <ul style="list-style-type: none"> recommended/required PPE |
| Personnel may include: | <ul style="list-style-type: none"> blasters contractors drillers drivers holders of appropriate tickets licensed operators maintenance staff personnel authorised by mine management service personnel supervisors surveyors tradespersons |
| Ground conditions may include: | <ul style="list-style-type: none"> broken ground dry location of water table noise slope of working surface stability of ground stable ground (compaction) amount of scale ventilation characteristics (fumes, dust) visibility wet |
| Drilling techniques may include: | <ul style="list-style-type: none"> adjustment to feed compacting hammer removing debris rotation speed and pull force adjustments adjustments to drill steel angle recovering procedures |
| Equipment cleaned may include: | <ul style="list-style-type: none"> platform steps and hand rails (removal of oil, grease, debris) |

Unit Sector(s)

Blasting Hole Drilling

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.