Australian Government

RIIBHD301X Conduct surface blast hole drilling

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Release: 1

RIIBHD301X Conduct surface blast hole drilling

Modification History

Release	Comments
1	This unit of competency was first released in RII Resources and Infrastructure Industry Training Package Release 13.0.

Application

This unit describes the skills and knowledge required to conduct surface blast hole drilling in the resources and infrastructure industries. It includes marking out drill patterns, setting up, operating and relocating drill rigs, and carry out post-operational procedures.

It applies to those working in driller roles. They generally work under minimal supervision to undertake a broad range of skilled applications in varied work contexts, using some discretion and judgement in selecting equipment, services and contingency measures.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite unit(s)

No pre-requisite units

Competency field(s)

N/A

Unit sector(s)

N/A

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Elements and Performance Criteria

Element	Performance criteria
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Plan and prepare for surface blast hole drilling operations	1.1 Access, review and apply drilling documentation, work instructions and site procedures, and confirm the work activity is compliant 1.2 Inspect and prepare work area according to site requirements 1.3 Identify, assess, manage and report hazards, risks and environmental conditions and implement required control measures 1.4 Confirm emergency procedures and exclusion zones according to site requirements 1.5 Select, inspect and wear personal protective equipment according to site requirements 1.6 Coordinate work activities with relevant personnel and confirm required briefing, and handover information is communicated and understood
2. Verify and establish drill pattern	2.1 Conduct pre-start inspection and start up operational checks in accordance with manufacturer specifications and site requirements 2.2 Identify and verify drill hole locations using approved positioning, survey and marking-out methods 2.3 Place or confirm drill hole indicators according to job and site requirements 2.4 Adjust drill pattern within authorised tolerances according to drilling plan 2.5 Identify differences between the drilling plan, drill pattern and physical work area and report or rectify within scope of own role 2.6 Identify and protect pre-existing drill holes according to site requirements
3. Conduct drilling operations	3.1 Set up drill and confirm drill string and bottom hole assembly components meet drilling plan requirements 3.2 Operate onboard systems and controls to collar and drill hole, adjusting drilling parameters to maintain hole stability, penetration rate and hole clearance

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	3.3 Add and remove drill rods or pipes and monitor hole depth according to manufacturer specifications 3.4 Apply dust suppression and hole-cleaning methods according to drilling conditions and site requirements 3.5 Identify and respond to abnormal drilling conditions and emergencies within scope of own role 3.6 Complete, check, protect and record drill hole according to drilling plan and site requirements 3.7 Assess travel path and relocate drill according to drilling plan, site requirements and manufacturer specifications
4. Carry out post-operational procedures	4.1 Carry out park-up and shutdown drill procedures according to manufacturer specifications and site requirements 4.2 Carry out serviceability checks, cleaning and housekeeping according to scope of own role, environmental requirements and site procedures 4.3 Complete record keeping and reporting requirements

Range of conditions

N/A

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Assessment Requirements for RIIBHD301X Conduct surface blast hole drilling

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements and performance criteria of this unit, including evidence of the ability to:

- conduct surface blast hole drilling to two different approved drill patterns, one of which must require the candidate to make adjustments within authorised limits in response to changing ground or hole conditions:
    - for each pattern, relocate and set up the drill, identifying hazards and confirming controls, and drill a minimum of two blast holes, each completed within authorised tolerances for location, depth, angle and diameter

During the above, the candidate must:

- obtain and apply relevant documentation and procedures and confirm work activity is compliant
- select, inspect and wear personal protective equipment according to work activities
- work effectively with others and use a range of communication techniques and equipment to undertake and complete drilling operations to meet required outcomes
- comply with record keeping and reporting requirements and procedures
- complete housekeeping activities according to site requirements.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements and performance criteria of this unit, including knowledge of:

- key legislation, procedures, documentation and site requirements for conducting surface blast hole drilling operations, including:
    - drilling plans and work instructions
    - drill manufacturer specifications
    - hazards, risks and control measures used for the drilling context, including environmental hazards and controls
    - personal protective equipment appropriate to job activities and site requirements
- principles of surface blast hole drilling methods applicable to the workplace
- purpose of isolation, test for dead, pre-start, start-up, park-up and shutdown procedures, and the consequences of not following site procedures and manufacturer specifications

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- characteristics, technical capabilities, operating limitations and basic functions of drill systems, safety devices and associated equipment
- purpose, functions and limitations of drill guidance and positioning, including verifying onboard system information against drilling plans and physical conditions
- principles and techniques for:
    - inspecting and preparing work areas for blast hole drilling, including:
        - access, exclusion zones and travel paths
        - proximity to hazards, edges and highwalls, and line of fire
    - utilising onboard systems, including:
        - interpreting machine status and operating information
        - monitoring drilling parameters, including penetration rate, drill response, drilling pressures, cuttings and returns, and confirming operating limits and drill settings
        - interpreting warnings, alarms and fault messages
        - recording and communicating drilling information
    - measuring and confirming drill hole depth, including:
        - quality requirements and checking procedures, including authorised tolerances
    - identifying and responding to:
        - non-conformance of drill hole to drill plan, including:
            - causes and indicators of drill hole deviation
            - hazards associated with restricted returns and drilling blockages within scope of own responsibility
            - requirements for recording, marking and protecting completed drill holes
        - emergency situations
    - identifying changing ground and hole conditions, including:
        - operator level fault finding
        - maintaining adequate hole cleaning and flushing
        - applying dust suppression procedures
    - relocating and tramming surface blast hole drills according to site procedures, including hazards
- records and reporting requirements, including drilling, production, equipment and maintenance records and shift-handover requirements
- purpose, selection, compatibility, inspection and condition of drill string components and drill bits applicable to the drilling method, including:

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    - the importance of correctly breaking out components
- routine operator responsibilities and procedures for maintaining the drill rig and housekeeping tasks, including:
    - role limitations
    - escalation procedures

Assessment Conditions

The assessment must:

- include access to:
    - personal protective equipment
    - equipment required to conduct surface blast hole drilling operations
    - workplace documentation, including drill plans, site procedures, manufacturer specifications and safety data sheets
- be conducted in a safe environment
- be assessed in the context of this sector's work environment
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

*Guidance on simulated environments has been stipulated in the RII Companion Volume Implementation Guide.

Industry Experts

An industry expert engaged by an RTO to wholly or partially conduct assessment, independently or together with another assessor, or be involved in an assessment judgement, must also satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Assessors and industry experts delivering training in the drilling industry sector must also have a minimum of three (3) years industry experience, directly relevant to the training and assessment being provided.

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Mandatory Workplace Requirements

Assessment of performance evidence may be in a workplace setting or an environment that accurately represents a real workplace.

Unit Mapping Information

Previous Code and Title	Equivalence	Comments
RIIBHD301E Conduct surface blast hole drilling operations	Equivalent	Application, Elements and Performance Criteria, Performance and Knowledge Evidence

Links

Companion volumes, including implementation guides, are found on the national training register - https://training.gov.au/training/details/RII.

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