Australian Government

RIINHB221X Assist rotary air drilling

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Release: 1

RIINHB221X Assist rotary air 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 assist with rotary air drilling in the resources and infrastructure industries. It prepares individuals to support the rotary air drilling process, use restraining devices, mix drilling fluids and carry out basic maintenance of tools and equipment.

It applies to those working in assistant roles for rotary air drilling including blade, roller or tricone bit, polycrystalline diamond (PCD) bit and conventional hammer drilling. This unit does not apply to reverse circulation (RC) or down-the-hole hammer drilling.

They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures and take some responsibility for the quality of work outcomes.

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)

Drilling

Elements and Performance Criteria

Element	**Performance criteria**
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*

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1. Plan and prepare to support the air drilling process	1.1 Access, interpret and confirm work instructions, site procedures and documentation for assisting with drilling, and check the work activity is compliant 1.2 Communicate and coordinate with other personnel at site according to work requirements, and confirm briefings, handover and coordination details are communicated and received 1.3 Identify and minimise environmental issues and potential hazards, and assess and address risks within scope of own role and according to workplace procedures 1.4 Select and wear personal protective equipment required for work activities 1.5 Load, unload and move tools and equipment following required manual handling procedures 1.6 Obtain and interpret emergency procedures and identify steps required in case of fires, accidents and other emergencies 1.7 Assist with preparing the drill site and work area, including access and exclusion zones, and report identified issues
2. Support the rotary air drilling process	2.1 Fit, remove and measure bits and down-hole tools to and from the drill string 2.2 Prepare drill string in readiness for tripping and drilling 2.3 Identify worn drill bits and report as required according to workplace procedures 2.4 Add and remove drill rods to and from the drill string 2.5 Inspect and maintain drill rod, bits, threads and other required down-hole equipment 2.6 Assist with conducting pre-start equipment checks prior to use 2.7 Use rod and casing handling equipment according to workplace procedures 2.8 Assist with casing installation 2.9 Check restraining devices on pressure and delivery hoses and rectify or report identified faults as required 2.10 Isolate and depressurise air supply and clear blockages in hole, sample and delivery systems according to workplace procedures
3. Mix drilling fluids for rotary air drilling	3.1 Check labels and read and apply safety information and hazard codes

DRAFT

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	3.2 Mix the drilling fluid according to work requirements 3.3 Store drilling fluid components and additives according to workplace procedures and safety data sheets
4. Carry out post-operational procedures	4.1 Carry out routine checks and basic maintenance on rod handling and ancillary equipment requirements, including air compressor and injection pump 4.2 Complete housekeeping activities according to workplace procedures 4.3 Process records according to workplace procedures

Range of conditions

N/A

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Assessment Requirements for RIINHB221X Assist rotary air 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:

- assist with rotary air drilling on at least two occasions, where each occasion includes:
    - preparing for the work, including pre-start checks of equipment and the work area
    - supporting the drill crew with tripping, drilling and handling rods, casing, bits and down-hole tools
    - preparing, handling and storing drilling fluid
    - completing post-operational checks, maintenance, housekeeping and records.

During the above, the candidate must:

- locate, interpret and apply relevant documentation, procedures and safety information, including those for emergencies
- work safely within the scope of own role, including:
    - identifying and responding to hazards, risks and environmental issues as they arise
    - using personal protective equipment, tools, equipment and manual handling techniques suited to the task
    - inspecting drilling tools, hoses and restraining devices, and acting on wear, damage and faults
    - responding to at least one blockage or air system fault using safe isolation and depressurisation practices
- work with others to complete the drilling tasks, including:
    - receiving, clarifying and confirming work instructions and coordination requirements before and during the work
    - reporting issues, faults and changes in conditions to the appropriate person.

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 policies, procedures and established requirements for assisting rotary air drilling, including those for:
    - fires, accidents and emergencies

DRAFT

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  - safe work practices, and the identification and reporting of hazards, risks and environmental issues
  - safety data sheets (SDS) and the handling and storage of drilling fluid components and additives
  - manual handling when loading, unloading and moving tools and equipment
  - refuelling of drill rigs and ancillary equipment
  - sample handling and housekeeping
  - written and verbal reporting, records and shift handover
  - communication and coordination with the driller and other site personnel, including receiving and clarifying work instructions
  - limits of own role and authorisation, and escalation of faults and situations outside own scope
  - restraining devices required on high-pressure and delivery hoses
- purpose and basic function of ancillary equipment, including air compressors, injection pumps and rod and casing handling equipment
- basic operation of compressors, and why cleanliness is required when handling compressor components and connections
- hazards associated with the operation of rod handling devices, including stored energy, pinch points and line of fire
- requirements for matching thread types on tubular components and consequences of incorrect make-up
- importance of correctly measuring bits and related components
- inspection criteria for down-hole tools and bottom hole assembly components, including indicators of wear and damage
- types and application of lubricants
- basic awareness of the main rotary air drilling parameters, including feed, rotation, air pressure and airflow, and their effect on penetration rate, hole cleaning, hole quality and equipment wear
- purpose of adequate hole cleaning and flushing and indicators of restricted returns
- indicators from returns, chips and cuttings of changes in hole and ground conditions, and requirements for reporting changes to the driller
- methods for safely clearing blockages, including:
  - isolating and depressurising the air supply before clearing
  - blockages in air or rotary holes
  - blocked sample and delivery hoses.

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Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
    - personal protective equipment
    - equipment required to assist rotary air drilling
    - workplace documentation such as drill plans, site plans and procedures, manufacturer instructions 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 sector must also have a minimum of two (2) years industry experience directly relevant to the training and assessment being provided.

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

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RIINHB221 Assist rotary air drilling	Equivalent	Application Elements and Performance criteria Performance and Knowledge Evidence Assessment Conditions Assessor and industry expert requirements

Links

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

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