



Australian Government

RIINHB328 Conduct rotary air drilling

Release: 1

RIINHB328 Conduct rotary air drilling

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to conduct rotary air drilling in drilling. It prepares individuals to operate rotary air drill, use drilling fluids, maintain equipment and respond to problems.

It applies to those working in operational roles for rotary air drilling including RAB, blade, roller bit, PCD and conventional hammer drilling. This unit does not apply to Reverse Circulation (RC) drilling. They generally perform tasks involving a broad range of skilled applications in a wide variety of contexts, which may involve some discretion and judgement in selecting equipment, services and contingency measures.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and Industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Drilling

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare for rotary air drilling	1.1 Obtain, clarify and apply work instructions 1.2 Access, interpret and apply drilling documentation and confirm work activity is compliant 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 Communicate with other personnel at site according to work requirements and confirm briefings and handover details are

ELEMENT	PERFORMANCE CRITERIA
	communicated and received 1.5 Select and wear required personal protective equipment, tools and equipment to carry out tasks, check for serviceability and rectify or report any faults 1.6 Check restraining devices on all pressure hoses 1.7 Fit and replace restraining devices on pressure hoses as required 1.8 Obtain and interpret emergency procedures identify steps required in case of fires, accidents and other emergencies
2. Operate rotary air drill	2.1 Select required rod type, thread form and drill string components for job 2.2 Measure and select appropriate bit for the job 2.3 Conduct pre-start equipment checks and rectify or report identified faults as required 2.4 Correctly collar hole 2.5 Use rod handling equipment safely and correctly 2.6 Add/break out and remove drill rod and down hole tooling/bottom hole assemblies 2.7 Weight/feed/rotate drill at right rate for optimum penetration 2.8 Adjust air pressure to achieve required hole clearance 2.9 Measure line string and calculate depth of hole
3. Use drilling fluids	3.1 Identify hole conditions, assess requirements of dust control fluids 3.2 Select suitable ingredients/fluids 3.3 Prepare/monitor the preparation of required fluids 3.4 Use dust control fluids to achieve required result
4. Maintain equipment	4.1 Monitor equipment wear 4.2 Check all equipment and hoses 4.3 Disassemble, inspect components, replace unserviceable parts and reassemble bottom hole assembly 4.4 Replace and adjust and report damaged and worn parts as required
5. Respond to problems	5.1 Monitor operation and chips/sample/air return 5.2 Identify possible problems in equipment or process 5.3 Clear blockages safely 5.4 Determine other problems and maintenance tasks needing action 5.5 Determine possible fault causes 5.6 Rectify problem using appropriate solution within area of responsibility 5.7 Follow through items initiated until final resolution has occurred 5.8 Verbally or in writing report problems outside area of responsibility to designated person

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Identifies and interprets information from workplace procedures, documentation, legislation and regulations
Self-management	Monitors and minimises own exposure to worksite hazards during activities

Unit Mapping Information

New unit

Links

Companion Volume implementation guides is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIINHB328 Conduct rotary air drilling

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Performance Evidence

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

- conduct rotary air drilling on at least two occasions, including:
 - using the various rod handling equipment
 - adding and removing rod from the string
 - applying rotation speed and weight on the bit to maintain optimum performance
 - measuring line string components and calculate hole depth
 - collaring holes
 - monitoring hole for returns/cuttings/samples and quality
 - ensuring that all string components are correctly maintained
 - disassembling, describing the function of components, inspecting components, replacing unserviceable parts and reassembling a bottom hole assembly
 - ensuring that drill rod is inspected regularly, and wear rates monitored
 - ensuring that threads are inspected and maintained.

During the above, the candidate must:

- locate and apply required legislation, documentation, policies and procedures
- work with others to conduct rotary air drilling that meets required outcomes, including:
 - using a range of communication techniques and strategies to communicate and coordinate information and activity to others
 - communicating the hazards of cuttings in the return air stream to all crew members.

Knowledge Evidence

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

- key policies, procedures and established requirements for conducting rotary air drilling, including those for:
 - limiting the contamination of samples/cuttings/returns
 - bit selection for different types of drilling and different ground conditions
 - identifying problems related to inaccurate measurement of bits and other related components
 - clearing down hole blockages in air drilled holes
- the hazards associated with clearing blockages
- drill site layout
- the critical need to match like threads with like threads on all tubular components and make up torque requirements
- the parameters relating to wear of drill rod and integrity of threads
- the function of hole collaring
- the importance of monitoring the hole for returns/cutting/sample quantity
- the role that blockages play in affecting sample quality
- the critical need for restraining devices to be fitted to all pressure delivery hoses and sample delivery hoses (if used), the devices available and their methods of attachment
- dangers of chips/sample/air return being returned to the surface at high velocity in air drilling operations and the parameters involved
- the importance of checking gauges and monitoring pressures, flow rates and temperatures.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - equipment required to conduct rotary air drilling
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- 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; and,
- 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.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the RII implementation guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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