



Australian Government

RIINHB219E Assist with reverse circulation drilling

Release: 1

RIINHB219E Assist with reverse circulation 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 assist with reverse circulation drilling. It prepares individuals to support the reverse circulation drilling process, handle samples, use restraining devices, mix drilling fluids and carry out basic maintenance of tools and equipment.

It applies to those working in assistant driller roles. They generally work under supervision to undertake a prescribed range of functions involving known routines and procedures.

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 to assist with reverse circulation drilling	1.1 Obtain, read and confirm work requirements 1.2 Access, interpret and apply assist with reverse circulation 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 Select and wear appropriate personal protective required for work activities 1.5 Communicate with other personnel on site as required and confirm briefings and handover details are communicated and

ELEMENT	PERFORMANCE CRITERIA
	received 1.6 Load, unload and move tools and equipment 1.7 Obtain and interpret emergency procedures and identify steps in case of fire, accident and other emergencies
2. Support the reverse circulation drilling process	2.1 Fit, remove and measure bits and down-hole tools to and from drill string as required 2.2 Prepare drill string in readiness for tripping and drilling 2.3 Sharpen drill bits 2.4 Add and remove drill rod to and from the drill string as required 2.5 Inspect and maintain drill rod, bits, threads and other required down-hole equipment 2.6 Use rod and casing handling equipment 2.7 Install and seal casing 2.8 Use, install and maintain stuffing boxes and collar T pieces
3. Handle samples	3.1 Obtain and lay out samples as required 3.2 Split, bag, label and store samples for transport 3.3 Clean and service sampling equipment 3.4 Obtain uncontaminated samples using required sampling methods 3.5 Identify safety precautions for handling potentially hazardous samples 3.6 Clear blockages in sample and delivery system 3.7 Note and report possible changes to sample quality due to blockages
4. Use restraining devices	4.1 Fit restraining devices 4.2 Identify dangers of high velocity samples in reverse circulation drilling and take required measures to minimise hazard
5. Mix drilling fluids for reverse circulation /foam drilling	5.1 Check labels and read and interpret safety information and hazard codes as required 5.2 Mix drilling fluids according to job requirements 5.3 Store drilling fluid components and additives
6. Carry out basic maintenance of tools and equipment	6.1 Perform inspections and routine checks on ancillary equipment including reverse circulation compressor and injection pump 6.2 Perform inspections and basic maintenance of rod handling equipment 6.3 Select and maintain bit sharpening equipment 6.4 Complete housekeeping activities to workplace requirements 6.5 Process records according to workplace procedures

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
Oral Communication	Listens to short, explicit instructions for work procedures and asks questions to clarify and confirm
Self-management	Monitors and minimises own exposure to worksite hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIINHB219D Assist with air drilling.

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 RIINHB219E Assist with reverse circulation 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:

- assist with reverse circulation drilling on at least two occasions, including:
 - fitting, removing and measuring bits and down-hole tools to and from drill string
 - preparing drill string in readiness for tripping and drilling
 - sharpening drill bits
 - adding and removing drill rod to and from the drill string
 - inspecting and maintaining drill rod, bits, threads and other required down-hole equipment
 - using rod and casing handling equipment
 - installing and sealing casing
 - using, installing and maintaining stuffing boxes and collar T pieces
 - obtaining uncontaminated samples using required sampling methods
 - mix drilling fluids
 - fitting restraining devices to pressure and delivery hoses.

During the above, the candidate must:

- locate and apply documentation required for assisting with reverse circulation drilling
- implement the requirements, procedures and techniques for assisting with reverse circulation drilling, including those for:
 - operating ancillary equipment
 - applying basic maintenance and servicing of auxiliary equipment
 - identifying and measuring bits, shrouds and related components
 - identifying thread types in use
 - applying refuelling procedures for vehicles, drill rigs and ancillary equipment
 - identifying and applying required lubricants
 - applying required handling of samples

- carrying out housekeeping
- disassembling, inspecting and reassembling DTH hammers
- installing restraining devices to pressure and delivery hoses
- inspecting and replacing inner tubes and sealing devices in RC rod
- driving vehicles
- complying with basic vehicle cleaning procedures
- work with others to assist with reverse circulation drilling tasks that meets required outcomes, including:
 - complying with reporting requirements and procedures
 - communicating with others to receive and clarify work instructions
 - communicating with others to meet coordination requirements prior to commencing and during work activities.

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 assisting grouting and cementing operations, including those for:
 - applying safe work practices and identifying and reporting all potential hazards, risks and environmental issues
 - emergencies
 - identifying required care of samples including storage and transport
 - identifying the potential hazards relating to the operation of rod handling devices
 - clearing blocked sample and delivery hoses
 - restraining devices on all high pressure and delivery hoses
 - basic operation of compressors
 - cleanliness when carrying out compressor maintenance
 - complying with safety data sheets (SDS)
 - monitoring sample quality to restrict contamination
 - refuelling vehicles, drill rigs and ancillary equipment
 - housekeeping
- the critical need to match threads with threads on tubular components
- preparing for drilling operational requirements and procedures
- complying with the theory behind sharpening bits
- the importance of correct measurement of bits and other related components
- drilling team roles and objectives.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - reverse circulation drilling equipment
- 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 (RTOs) 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 Companion Volume 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.

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