



Australian Government

RIINHB304E Conduct reverse circulation drilling operations

Release: 1

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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 reverse circulation drilling in the resources and infrastructure industry. It prepares individuals to inspect and maintain reverse circulation drilling equipment, drill using reverse circulation drilling methods, select and use drilling additives, take samples, respond to problems and complete equipment maintenance and housekeeping procedures.

It applies to those working in operational roles. 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.

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

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 reverse circulation drilling	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply conduct 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 personal protective equipment required for work activities

ELEMENT	PERFORMANCE CRITERIA
	1.5 Communicate with other personnel at site according to work requirements and confirm briefings and handover details are communicated and received 1.6 Obtain and interpret emergency procedures identify steps required in case of fires, accidents and other emergencies
2. Inspect and maintain reverse circulation drilling equipment	2.1 Carry out prestart and start-up procedures according to manufacturer specifications and workplace procedures 2.2 Confirm restraining devices are not damaged or worn and are correctly fitted according to safety requirements 2.3 Inspect and maintain the cyclone in safe and serviceable condition according to manufacturer specifications 2.4 Confirm mounting and security of cyclone is adequate for safe operation, particularly when down hole water may result in release of energy 2.5 Maintain dust suppression systems to ensure minimal emission of airborne dust and integrity of sample quality 2.6 Inspect pressure relief valves and confirm in required operating condition
3. Drill using reverse circulation drilling methods	3.1 Identify, select and apply rig operational controls according to work requirements and manufacturer specifications 3.2 Select and use required drill rod and drill string components given hole specification and anticipated ground conditions according to manufacturer specifications 3.3 Operate make-up and break-out equipment according to work requirements and manufacturer specifications 3.4 Select and use required type and size of in-hole tools given hole specification and anticipated ground conditions according to manufacturer specifications 3.5 Drill and open-up hole collar as required to suit given ground conditions and hole specification according to manufacturer specifications 3.6 Install drill hole collar casing and seal at the hole collar according to manufacturer specifications 3.7 Install outside hole return collar device, if required, given hole specification of open or reverse circulation drill hole according to manufacturer specifications 3.8 Operate drill rod handling equipment according to work requirements and manufacturer specifications 3.9 Add and remove drill rods or casing and other in-hole equipment according to manufacturer specifications 3.10 Monitor and adjust air pressure and other drilling

ELEMENT	PERFORMANCE CRITERIA
	parameters 3.11 Monitor and control down hole water conditions and confirm integrity of hole, drill cuttings and sample quality 3.12 Monitor and control discharge from outside hole return collar device 3.13 Calculate depth of hole
4. Select and use drilling additives	4.1 Identify ground conditions requiring the use of drilling additives 4.2 Select required drilling additives to suit ground conditions 4.3 Prepare required drilling additives according to work requirements 4.4 Use drilling additives to achieve required results
5. Take samples	5.1 Select and check sample devices to confirm client sample quantity and quality specifications are met 5.2 Clean or supervise the cleaning of sample devices according to workplace procedures 5.3 Monitor splitting, bagging, presentation, and marking of samples and confirm client specifications are met 5.4 Identify and promptly rectify sample blockages affecting or having the potential to affect sample quality 5.5 Clear sample delivery hose blockages safely 5.6 Clear outside return hole blockages of collared holes as required 5.7 Supervise drill crew and confirm all sampling tasks are carried out correctly and safely
6. Respond to problems	6.1 Monitor drill cuttings or sample quality, quantity and air return 6.2 Identify possible problems in equipment or process 6.3 Determine possible cause(s) of problems 6.4 Rectify problem(s) using appropriate solution within area of responsibility 6.5 Follow through items initiated until final resolution has occurred 6.6 Report problems outside area of responsibility to designated person
7. Complete equipment maintenance and housekeeping	7.1 Supervise the use of specified personal protective equipment when using grinders or bit sharpening equipment 7.2 Supervise the selection and correct fitting grinding disks, wheels and stones

ELEMENT	PERFORMANCE CRITERIA
	7.3 Monitor wear of in-hole tools 7.4 Check, perform maintenance on and/or replace compressed air hoses and hose fittings or clamps 7.5 Supervise the maintenance of in-hole tools 7.6 Inspect, dismantle, replace worn or damaged components and reassemble in-hole equipment according to manufacturer specifications 7.7 Carry out shutdown and secure equipment according to manufacturer specifications and workplace procedures 7.8 Confirm housekeeping activities are completed according to workplace procedures 7.9 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
Self-management	Monitors and minimises own exposure to worksite hazards during activities

Unit Mapping Information

Supersedes and is equivalent to RIINHB304D Conduct air drilling.

Links

Companion Volume implementation guides is found on VETNet -

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