



Australian Government

RIINHB307D Conduct conventional core drilling

Release: 2

RIINHB307D Conduct conventional core drilling

Modification History

Release	Comment
1	This unit replaces RIINHB307B Conduct conventional core drilling
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to conduct conventional core drilling in the Resources and Infrastructure Industry.

This unit is appropriate for those working in operational roles.

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

Elements and Performance Criteria

1. Plan and prepare for conventional core drilling	1.1 Access, interpret and apply conduct conventional core drilling, documentation and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify and address potential risks, hazards and environmental issues and implement control measures 1.4 Select and wear personal protective equipment appropriate for work activities 1.5 Communicate and coordinate activities with others throughout the work activity 1.6 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Operate core drill	2.1 Carry out pre-start and start up procedures 2.2 Identify, select and apply rig operational controls 2.3 Identify and use different drill rod or casing types, thread forms and thread make up parameters

	2.4 Select appropriate drill bits and reamer shells 2.5 Adjust inner tube length to ensure appropriate fluid flow around the core 2.6 Use rod and casing handling equipment 2.7 Add and break out and remove drill rods and pipes and down hole equipment 2.8 Apply appropriate rotation speed, weight on the bit, drilling fluid flow rate and penetration rate applicable to the ground conditions 2.9 Measure drill string components and calculate depth of hole 2.10 Collar holes 2.11 Install casing and seal at the collar
3. Operate drill fluid system	3.1 Identify hole conditions requiring the use of drilling fluid additives 3.2 Select, prepare, apply, test and monitor suitable fluids and additives 3.3 Monitor fluid return and solids content and implement control measures 3.4 Monitor fluid and cuttings specific gravity and up hole velocity to ensure efficient hole clearing 3.5 Monitor causes of pressure in fluid systems 3.6 Select the appropriate fluid pumping rate for the hole size
4. Use survey and core orientation equipment	4.1 Assemble, maintain and use survey and core orientation devices 4.2 Read and record survey data
5. Take core samples	5.1 Implement control measures for minimising core loss 5.2 Identify core blockages affecting sample quality
6. Respond to problems	6.1 Identify possible problems in equipment or process 6.2 Determine problems needing action 6.3 Determine possible fault causes 6.4 Rectify problem 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 Carry out shutdown and secure equipment 7.2 Use the required personal protective equipment and follow safe working procedures 7.3 Strip impregnated bits according to required procedures 7.4 Dismantle and service head assembly 7.5 Maintain drill string 7.6 Maintain bit management, record required information and store bits correctly 7.7 Ensure housekeeping activities are completed 7.8 Process records

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIINHB307B Conduct conventional core drilling

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for RIINHB307D Conduct conventional core drilling

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Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant documentation, policies and procedures
- implements the requirements, procedures and techniques for the safe, effective and efficient completion of conventional core drilling tasks including:
 - complying with routine checks and basic maintenance procedures for mud and water delivery pumps
 - identifying, mixing and applying of collar sealants
 - attaching required equipment to collar casings
 - applying basic drilling fluid tests such as viscosity and specific gravity
 - ensuring that core is handled correctly and placed in core trays as required
 - measuring bits and other related components
- works effectively with others to undertake and complete the conventional core drilling tasks that meets all of the required outcomes including:
 - complying with written and verbal reporting requirements and procedures
 - communicating clearly and concisely with others to receive and clarify work instructions
 - communicating clearly and concisely with others to resolve coordination requirements prior to commencing and during work activities
- demonstrates completion of conventional core drilling that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - identifying and using different drill rod or casing types, thread forms and thread make up parameters

- selecting appropriate drill bits and reamer shells
- adjusting inner tube length to ensure appropriate fluid flow around the core
- applying appropriate rotation speed, weight on the bit, drilling fluid flow rate and penetration rate applicable to the ground conditions
- measuring drill string components and calculating depth of hole
- installing casing and seal at the collar
- identifying hole conditions requiring the use of drilling fluid additives
- monitoring fluid and cuttings specific gravity and up hole velocity to ensure efficient hole clearing
- selecting the appropriate fluid pumping rate for the hole size
- assembling, maintaining and using survey and core orientation devices

Knowledge Evidence

The candidate must demonstrate knowledge in conducting conventional core drilling through:

- accessing, interpreting and applying the organisation and site requirements and procedures for:
 - work, health and safety
 - environmental issues
 - operating drill rig
 - housekeeping
- understanding the configuration of various thread forms and make up torque requirements
- understanding the function of hole collaring, use of casing and collar sealing techniques
- complying with the methods required to produce uncontaminated samples
- complying with the impregnated bit stripping procedures
- understanding the bit selection for different types of drilling and different ground conditions
- understanding the relationships between penetration rate and bit life
- understanding the role that core blockages play in affecting sample quality
- understanding the functions of drilling fluids and control procedures
- understanding the relationship between hole diameter, rod diameter, pump output and the specific gravity of formation cutting
- understanding the different types of mud and water delivery pumps and their applications
- understanding the purpose of drill hole surveys and the functions of azimuth and dip readings
- understanding the purpose and principles of core orientation
- being prepared for fire/accident/emergency

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,
- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 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.	

*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 frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

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