



Australian Government

Department of Education, Employment and Workplace Relations

RIINHB313A Conduct cable tool drilling

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the conduct of cable tool drilling in the drilling industry. It includes planning and preparing for cable tool drilling, operating cable tool drills, operating drill fluid systems, maintaining equipment, recovering formation samples, and responding to problems. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:

- Drilling

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for cable tool drilling	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain, confirm and apply work instructions for the allocated task 1.3. Identify, manage and report all potential hazards 1.4. Resolve coordination requirements with others at the site prior to commencing and during work activities 1.5. Raise alarm/report as required according to site procedures
2. Operate cable tool drill	2.1. Identify and use different tool/casing types, thread forms and thread make up parameters 2.2. Select appropriate bits, shoes, clamps, casing, tools and lifting devices for the expected formations 2.3. Use tool handling equipment such as spanners and chain tongs safely 2.4. Assemble tool strings according to organisation or manufacturer's procedures 2.5. Maintain correct tension on the drill line and correct stroke rate during drilling operations 2.6. Bail hole of cuttings as required to maintain satisfactory penetration rates 2.7. Control hazards associated with the use of wire rope for drilling and bailing 2.8. Measure drill string components and calculate depth of hole 2.9. Select drilling tools to maintain hole straightness 2.10. Drive and jack casing as required 2.11. Select appropriate tools to undertake fishing operations
3. Operate drill fluid system	3.1. Identify hole conditions requiring the use of drilling fluids/chemicals 3.2. Select, prepare, apply, test and monitor suitable fluids and additives 3.3. Adjust fluid level in the hole to maintain

	hole stability and optimise penetration rates 3.4. Dispose of drill fluids in an environmentally safe manner
4. Maintain equipment	4.1. Sharpen bits or remetal rope swivels in accordance with personal protective equipment and safety requirements 4.2. Clean and lubricate rope swivels to ensure correct operation 4.3. Check slings, drill lines and bailing lines for wear and replace as necessary using appropriate wire rope and spooling 4.4. Grease derrick sheaves regularly 4.5. Examine critical rig components such as sheaves and shackles regularly for wear or cracks 4.6. Maintain tool string components 4.7. Adjust clutch play, drive belt and jockey pulley tension as required 4.8. Perform routine maintenance to rig engine
5. Recover formation samples	5.1. Select appropriate sampling tools/methods depending on the type of formations being drilled 5.2. Obtain formation water samples as required
6. Respond to problems	6.1. Identify possible problems in equipment or processes 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

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to conduct cable tool drilling:

- apply legislative, organisation and site requirements and procedures for conducting cable tool drilling
- welding
- oxy-acetylene use

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to conduct cable tool drilling:

- welding to dress bits, casing shoes
- remetalling rope sockets

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for conducting cable tool drilling • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of cable tool drilling • working with others to undertake and complete the conduct of cable tool drilling that meets all of the required outcomes • consistent timely completion of cable tool drilling that safely, effectively and efficiently meets the required outcomes
Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate

	cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the conduct of cable tool drilling
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Relevant compliance documentation may include:	• legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Work instructions may come from briefings, handovers, plans and work orders and may be written or verbal, formal or informal and may include:	• nature and scope of tasks • specifications • quality of finished works • achieved targets • operational conditions • obtaining of required permits • site layout • out of bounds areas • worksite inspection requirements • lighting conditions • plant of equipment defects • coordination requirements or issues • contamination control requirements • environmental control requirements • barricade and signage requirements
Hazards may include:	• working in proximity to drilling rig
Coordination requirements may include:	• other equipment operators • maintenance personnel • supervisors • site personnel
Tool/casing types and thread forms may include:	• AWW casing • slimline casing • API tool threads • goldfields tool threads • Southern Cross tool threads

Appropriate bits, shoes, clamps, casing, tools and lifting devices may include:	• spudding bits • undercutting bits • star bits • chisel bits • jars • drive clamps • casing lift/drive caps
Handling equipment may include:	• tool spanners • tool wrenches • slings • chain tongs • casing clamps • casing jacks
Hazards associated with the use of wire rope may include:	• snags in wire rope • incorrect spooling of wire • wireline 'throws a loop'
Tools to maintain hole straightness may include:	• drill stem stabilisers • torpedo bits
Tools to undertake fishing operations may include:	• friction sockets • overshots • lead impression tools • wall hooks • casing spears • rope spears • rope cutter • latch jacks • fishing jars
Drilling fluids and additives may include:	• water • API bentonite • native clays • various polymers • barite (barium sulfate) • dispersants • loss circulation products
Personal protective equipment may include:	• welding mask/goggles • welding gloves • ear protection • eye protection • safety boots • hard hat

	• sunscreen
Tool string components may include:	• swivel socket and mandrel • cable tool joints • cutting edges on bits • drilling jars • bailers
Sampling tools/methods may include:	• sampling by bailer • sand barrel • clay barrel • chop pump • earth socket

Unit Sector(s)

Drilling (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.