



Australian Government

RIINHB211A Assist mud rotary drilling

Release 2

RIINHB211A Assist mud rotary drilling

Modification History

Not applicable.

Unit Descriptor

This unit covers assisting with mud rotary drilling in resources and infrastructure industries. It includes planning, preparing for and assisting with the drilling process, handling samples, mixing drilling fluids, carrying out basic maintenance of tools and equipment.

Application of the Unit

Rotary mud drilling is used for environmental, geotechnical, mineral exploration and waterwell drilling. This unit is appropriate for those working in driller's assistant roles, at worksites within:

- Civil construction
- Coal mining
- Drilling
- Extractive industries
- Metalliferous mining

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 assisting with mud rotary drilling	1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the work activity 1.2. Obtain, confirm and apply <i>work instructions</i> for the allocated task 1.3. Identify, manage and report all potential <i>hazards</i> 1.4. Resolve <i>coordination requirements</i> with others at the site prior to commencing and during work activities 1.5. Load, unload, move, handle, use and store rotary drilling equipment and all associated tools, sampling devices and connecting equipment 1.6. Set up and stabilise pipe racks 1.7. Wear all necessary <i>personal protective equipment</i> and protective clothing when assisting with rotary mud drilling
2. Support the rotary mud drilling process	2.1. Fit and remove bits, reamers and stabilizers to and from the drill string 2.2. Prepare drill string in readiness for tripping and drilling 2.3. Add and remove drill pipe and collars from the drill string 2.4. Inspect drill pipe, collars, bits, threads and associated equipment for damage 2.5. Observe housekeeping and site safety measures while supporting rotary mud drilling operations 2.6. Use <i>pipe and casing handling equipment</i> according to required procedures
3. Handle samples	3.1. Take necessary safety precautions when handling potentially hazardous <i>samples</i> 3.2. Obtain and/or lay out disturbed samples in accordance with workplace, drilling sector or site procedures 3.3. Bag, properly <i>label</i> and store samples for transport according to requirements 3.4. Clean and service sampling tools 3.5. Store undisturbed samples for transport in accordance with standard procedures

4. Mix drilling fluids	<ul style="list-style-type: none">4.1.Wear appropriate protective clothing4.2.Check labels and read and interpret safety information, hazard codes and materials safety data sheets (MSDS)4.3.Apply correct mixing procedure for the <i>drilling fluid</i>4.4.Carry out storage of drilling mud components and additives safely and according recommendations4.5.Perform <i>basic tests</i> on the fluid and <i>record</i> and report the results
5. Carry out basic maintenance of tools and equipment	<ul style="list-style-type: none">5.1.Perform inspections and routine checks on ancillary equipment such as mud pumps, water delivery pumps and mud hoppers5.2.Perform inspections and basic maintenance pipe handling equipment5.3.Observe occupational health and safety procedures in carrying out equipment maintenance

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 in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to assist with mud rotary drilling:

- apply legislative, organisation and site requirements and procedures
- apply procedures for operation of ancillary equipment such as mud pumps, water supply pumps mud hoppers and solids control equipment
- apply basic maintenance procedures for mud and/or water delivery pumps

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to assist with mud rotary drilling:

- reasons for identification and care of samples including storage and transport
- occupational health, safety and environment issues
- use of safety data sheets (SDS)
- types of mud pumps and their applications

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 assisting with mud rotary drilling
- implementation of requirements, procedures and techniques for the safe, effective and efficient assisting with mud rotary drilling
- working with others to undertake and complete the mud rotary drilling tasks that meets all of the required outcomes
- consistent timely completion of assisting with mud rotary 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.
- 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

	<p>language issues.</p> <ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and complete the mud rotary drilling tasks
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

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.

<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • 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
<p>Work instructions may come from:</p>	<ul style="list-style-type: none"> • briefings, handovers, plans and work orders and may be written or verbal, formal or informal and may include: <ul style="list-style-type: none"> • nature and scope of tasks • specifications • quality of finished works • achievement targets • operational conditions • obtaining of permits required • site layout • out of bounds areas • worksite inspection requirements • lighting conditions • plant or equipment defects • hazards and potential hazards • coordination requirements or issues • contamination control requirements • environmental control requirements • barricade and signage requirements
<p>Hazard may include:</p>	<ul style="list-style-type: none"> • release of gases from formation or samples obtained • spread of contaminants as a result of drilling or cleaning processes • change in the chemistry of contaminants as a result of drilling and recovery of the core

	<ul style="list-style-type: none"> • samples • working in proximity to drilling rig • entanglement in rotating pipes • string makeup and breakout hazards • hazards with the use of grout mixers, pumps
Coordination requirements may include:	<ul style="list-style-type: none"> • drill team members • other equipment operators • maintenance personnel • supervisors • worksite personnel
Personal protective equipment includes:	<ul style="list-style-type: none"> • steel-capped boots and hardhat • gloves • dust mask • eye and hearing protection • general protective and reflective clothing
Pipe and casing handling equipment may include:	<ul style="list-style-type: none"> • foot clamps (hydraulic or manual) • stilsons • break-out wrench • lifting plugs • C Spanner • clam shell
Samples may include:	<ul style="list-style-type: none"> • disturbed/undisturbed samples • sludge samples
Label information may include:	<ul style="list-style-type: none"> • Project number • Bore number • Depth interval • Sample description • Sampling method
Drilling fluids and additives may include:	<ul style="list-style-type: none"> • polymers • bentonite • water/oil • soluble oil • lost circulation material • aerated mud
Basic tests on drilling fluid may include:	<ul style="list-style-type: none"> • viscosity • mud weight • sand content • pH • salinity • filter press

Record keeping documents may include:	<ul style="list-style-type: none">• note book• plastic bags (write on)• undisturbed tubes• bore logs
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Unit Sector(s)

Drilling (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.