



Australian Government

RIIOGF302E Operate drilling fluids and mud pits

Release: 1

RIIOGF302E Operate drilling fluids and mud pits

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 operate drilling fluids and mud pits in drilling. It prepares individuals to operate mud pits, use, maintain and repair mud conditioning equipment and monitor mud.

This unit 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 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>

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare for operations	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply documentation required to operate drilling fluids and mud pits 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 1.5 Communicate with other personnel at site according to work requirements and confirm briefings and handover details are communicated and received 1.6 Confirm availability and status of necessary permits to work 1.7 Confirm availability of necessary third party utilities
2. Operate mud pits	2.1 Align valves in pits to confirm required pit usage 2.2 Confirm plugs are fit for operation 2.3 Seal or secure tanks according to manufacturer specifications 2.4 Set high and low alarms according to site requirements 2.5 Operate mud pit room ventilation system according to site requirements 2.6 Operate hoppers according to manufacturer specifications 2.7 Operate dust extraction system during mixing according to manufacturer specifications 2.8 Supervise forklift operations 2.9 Store chemicals in required storage area
3. Operate, maintain and repair mud conditioning equipment	3.1 Engage and adjust required equipment according to job requirements and as directed by supervisors or mud engineer 3.2 Clean all equipment and visually inspect for leaks and correct operation 3.3 Identify faults and potential faults, record and report to relevant personnel as required 3.4 Perform periodic or scheduled preventative maintenance on all mud treatment units according to workplace procedures

ELEMENT	PERFORMANCE CRITERIA
4. Monitor mud	4.1 Monitor and record mud properties and parameters according to workplace procedures 4.2 Set alarms to monitor mud according to site requirements 4.3 Check viscosity and weight of mud conform to specifications as directed by mud engineer 4.4 Maintain required volumes and types of drilling fluids as required by well program or company 4.5 Use required mixing procedures to obtain desired properties 4.6 Recognise warning signs of a kick, record and report immediately

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
Reading	Identifies and interprets information from workplace procedures, documentation and regulations
Self-management	Monitors and minimises own exposure to worksite hazards during activities
Oral communication	Uses verbal communication techniques to communicate with others

Unit Mapping Information

Supersedes and is equivalent to RIIOGF302D Operate drilling fluids and mud pits.

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 RIIOGF302E Operate drilling fluids and mud pits

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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:

- operate drilling fluids and mud pits on at least two occasions, including:
 - recognising and reporting equipment malfunction or failure
 - aligning valves in pits for operability and safety
 - operating and servicing mud treatment equipment
 - performing periodic or scheduled preventative maintenance on mud condition equipment
 - operating and servicing transfer valve
 - weighing mud and performing viscosity checks
 - maintaining volumes and types of drilling fluids as required
 - regularly monitoring pit levels, mud properties and cuttings size
 - performing numerical calculations, including:
 - mud viscosity
 - mud weight
 - volume
 - uphole velocity
 - quantities
 - pressure
 - water loss.

During the above, the candidate must:

- locate and apply documentation, policies and procedures required to operate drilling fluids and mud pits
- implement the requirements, procedures and techniques for the operation of drilling fluids and mud pits, including:
 - identifying, addressing and reporting potential hazards and risks

- carrying out emergency response
- identifying, addressing and reporting environmental issues
- preparing written records and reports
- rectifying any identified faults and malfunctions within scope of own role and escalating where required
- work with others to undertake the operation of drilling fluids and mud pits that meet required outcomes, including:
 - complying with written and verbal reporting requirements and procedures
 - communicating with others to receive and clarify work instructions
 - communicating with others to resolve 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:

- warning signs of kicks
- functions of mud pits
- mud properties
- types of drilling fluids
- troubleshooting techniques relevant to operating drilling fluids and mud pits
- key legislation required for operating drilling fluids and mud pits
- key policies, procedures and established requirements for operating drilling fluids and mud pits, including those for:
 - mixing to ensure required properties in drilling fluid
 - mixing and handling chemicals according to manufacturer data sheet
 - storing chemicals
 - operating a forklift
 - safe operating procedures when operating equipment
 - identifying faults with, performing maintenance on and cleaning mud conditioning equipment
 - identifying and managing environmental issues.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - equipment required to operate drilling fluids and mud pits
- 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

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
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.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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