



Australian Government

RIINHB324E Conduct grouting or cementing 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 carry out grouting or cementing operations in drilling. It includes selecting grouting and cementing materials and techniques, performing calculations, grouting and cementing drill holes and equipment maintenance.

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 the grouting or cementing operations	1.1 Obtain, interpret and confirm work requirements 1.2 Access, interpret and apply grouting or cementing 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 activity 1.5 Determine and collect material and equipment required to complete work activity 1.6 Select required grouting or cementing technique to complete the

ELEMENT	PERFORMANCE CRITERIA
	work activity 1.7 Communicate with other personnel at site according to work requirements and confirm briefings and handover details are communicated and received
2. Grout or cement drill hole in line with established requirements	2.1 Start-up and operate ancillary equipment in line with workplace procedures 2.2 Mix grout or cement and additives in line with work requirements 2.3 Grout or cement hole using appropriate equipment and techniques required to complete work activity 2.4 Construct well head and install hole security devices as required 2.5 Identify operational faults in equipment or process and rectify or report within scope of own responsibility and according to workplace procedures 2.6 Shutdown ancillary equipment in line with workplace procedures
3. Conduct equipment maintenance and housekeeping activities	3.1 Clear work area and dispose of any excess grout, cement or additives according to site waste management procedures 3.2 Clean tools and equipment and store according to workplace procedures 3.3 Manage and report hazards and maintain a safe working environment 3.4 Complete and file or distribute documentation in a manner that complies with workplace practices

Foundation Skills

This section describes those language, literacy and numeracy and employment skills that are essential to performance.

SKILL	DESCRIPTION
Numeracy	Identifies and comprehends relevant mathematical information and formulae in relation to conducting cementing and grouting operations
Writing	Produces and completes workplace documents, including maintenance schedules using appropriate vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIINHB324D Carry out grouting or cementing operations.

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 RIINHB324E Conduct grouting or cementing operations

Modification History

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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:

- conduct grouting or cementing operations on at least two occasions, including:
 - determining and collecting required material and equipment by:
 - measuring tank dimensions to calculate tank capacity and required volume of material
 - calculating specific gravity of mixtures and hydrostatic pressures including pressure differences between annulus and inside of casing
 - selecting grouting or cementing techniques
 - mixing of grout or cement and any additives
 - operating mixing and cleaning/filtering equipment
 - applying cement placement methods, including:
 - tremie on at least one of the occasions
 - pressure cementing on at least two of the occasions
 - constructing well heads and installing hole security devices where required
 - ensuring there is no spillage of grout, cement or additives
 - disposing any excess grout or cement
 - cleaning and storing tools and equipment used.

During the above, the candidate must:

- locate and apply relevant documentation, policies and procedures
- select and wear personal protective equipment required for work activities
- record casing lengths and quantities accurately
- confirm consistency and accuracy of placed grout or cement
- identify operational problems in equipment or process and apply problem solving techniques or report within the scope of own responsibility

- use a range of communication techniques and equipment essential to the safe completion of work activity, including hand, audible and other signals
- meet written and verbal reporting requirements and procedures associated with equipment operations.

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:

- key policies, procedures and established requirements to conduct grouting or cementing operations, including those for:
 - Minimum Construction Requirements (MCR)
 - workplace health and safety
 - environmental practice
 - relevant equipment and material manufacturer or supplier specifications
 - accidents and emergencies
 - housekeeping
 - safety data sheets (SDS)
 - disposal of hazardous materials
- key features associated with conducting grouting and cementing techniques, including:
 - properties and effects of grout, cement or cement additives, including:
 - bentonite
 - fibreglass
 - spheres
 - accelerators and retardants
 - loss circulation materials
 - possible effects of grout, cement or cement additives on health
 - team roles and objectives during grouting or cementing operations.

Assessment Conditions

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

- include access to:
 - grout or cement and additives
 - mixing equipment, pumps, hoses and tools
 - drill hole
 - personal protective equipment required for the activities described in the performance evidence
- be conducted in a safe environment
- be assessed in context of the sector's work environment

- be assessed in compliance with relevant legislation and regulations and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed
- 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/AQTF 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 Construction	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 Construction	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 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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