



Australian Government

**Assessment Requirements for RIINHB325D
Construct and complete single aquifer
production bores**

Release: 2

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Modification History

Release	Comment
1	This unit replaces RIINHB325A Construct and complete single aquifer production bores.
2	Performance Criteria numbering corrected. 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.

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 single aquifer production bore construction including:
 - interpreting geological and survey data
 - applying aquifer sand sieve analysis tests
 - calculating the specific capacity of a bore
 - calculating the grout component quantities for small grouting jobs (e.g. plugs)
 - calculating the hole and annular volumes
- works effectively with others to undertake and complete the construction of single aquifer production bores 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 constructing and completing single aquifer production bore that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - designing the bore to ensure the exclusion of unsuitable waters
 - selecting a bore site that will prevent contamination and minimise interference with other bores and adhere to occupational health and safety requirements
 - selecting likely water entry mechanism from the formation to the bore such as open hole, slotted casing screens, gravel packs
 - assembling and inserting casing and screens
 - completing grouting operations to seal intermediate and/or production casing strings or to seal selected zones
 - maintaining plumbness and alignment of the hole within the required limitations
 - continuing development until a continuous, clean supply of water is obtained, in accordance with site, contractual or regulatory requirements
 - performing pump and development tests to estimate the sand content and sustainable yield of the bore

Knowledge Evidence

The candidate must demonstrate knowledge in constructing and completing single aquifer production bores through:

- accessing, interpreting and applying the organization and site requirements and procedures for:
 - work, health and safety
 - environmental issues
 - operating drill rig
 - housekeeping
- equipment characteristics, technical capabilities and limitations
- basic geological formations, i.e. basic knowledge of both soil and rock classifications and various formations which permit groundwater movement and factors affecting groundwater quality for aquifer systems, including drillability and stability
- potential safety hazards and sources of contamination when siting a bore
- the necessity of having a signed agreement/contract with the client
- testing for alignment and plumbness of bores
- the appropriate casing materials for various applications
- the applications for wire-wound screens
- the casing requirements, slotting techniques, slot location and orientation
- the sieve analysis results
- the applications for natural pack, stabilising fill and artificial pack completion techniques
- the objectives of bore development
- the test pumping procedures

- complying with the appropriate disinfecting chemicals and procedures
- understanding the characteristics of ‘good samples’ required for water well construction
- the ways in which sampling errors can occur
- types of drilling fluids, their selection, use, testing and conditioning
- problem solving techniques
- the grout placement methods and procedures
- using numerical knowledge to calculate:
 - volume (e.g. mud pits, drums, tanks or bore holes of given dimensions, annulus)
 - up hole velocity
 - cement/water/additives quantities
 - screen design parameters
 - flow rates (e.g. L/sec, GPM)
 - conversion from imperial to metric and vice versa
 - conducting a sieve analysis
 - the appropriate fishing operations for the type(s) of drilling being undertaken
 - 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

Links

Companion Volume implementation guides are found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>