



Australian Government

RIICPL301E Install water mains pipelines

Release: 2

RIICPL301E Install water mains pipelines

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to install water mains pipelines in civil construction. This includes setting out and excavating for installation, installing and testing mains pipe system.

It applies to those working in operational roles. They generally work under minimal supervision to undertake a broad range of tasks in varied work contexts, using some discretion and judgement in selecting equipment, services or contingency measures.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Civil construction

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 to install water mains pipeline	1.1 Obtain, interpret, clarify and confirm work plans and specification requirements 1.2 Access, interpret and apply documentation required to install water mains pipelines and confirm work activity is compliant 1.3 Confirm and identify requirements for complying with environmental protection, safety and traffic management signage requirements 1.4 Select equipment and tools required for work activities and check for faults 1.5 Select and wear personal protective equipment according to site

ELEMENT	PERFORMANCE CRITERIA
	requirements 1.6 Identify and address potential risks, hazards and environmental issues, and implement control measures within scope of role 1.7 Obtain and interpret emergency procedures and identify steps required to respond to emergencies
2. Set out and excavate	2.1 Prepare work area and materials according to job requirements 2.2 Determine and apply dewatering requirements 2.3 Determine location, alignment direction, level and grade of mains pipe system 2.4 Set out works according to job requirements 2.5 Advise plant operator of excavation requirements and monitor levels 2.6 Install mains pipe system support mechanism according to safety and job requirements
3. Install pipeline	3.1 Lower and place pipes in position according to job requirements 3.2 Join pipes according to manufacturer specifications 3.3 Place pipes and fit valves, fittings and flow control devices according to job requirements 3.4 Continuously check alignment level and grade and confirm it meets job requirements 3.5 Position side support and overlay beside the pipes as required 3.6 Check mains pipe system support structure 3.7 Monitor backfill procedure and confirm work is completed to specification 3.8 Construct valve chambers, minor structures and thrust blocks according to job requirements
4. Test mains pipe system	4.1 Perform mains pipe system test procedures establishing pressurisation, functionality and serviceability 4.2 Complete records and report test results according to job requirements
5. Conduct clean-up activities	5.1 Clear work area and dispose of or recycle materials according to site requirements 5.2 Clean, check, perform maintenance on and store plant, tools and equipment according to manufacturer specifications and site requirements

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
Numeracy	Calculates basic measurements including mass and dimensions
Self-management	Monitors and minimises own exposure to worksite risks and hazards during work activities
Writing	Completes documentation using sector specific vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIICPL301D Install water mains pipelines.

Links

Companion Volume Implementation Guides are available from VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIICPL301E Install water mains pipelines

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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:

- install water mains pipelines on at least two occasions, including:
 - installing support mechanisms
 - installing at least 100 metres of water mains pipeline
 - completing pipe joins to specifications
 - performing pressurisation, functionality and serviceability test to specifications.

During the above, the candidate must:

- locate and apply required legislation, documentation, policies and procedures
- implement the requirements, procedures and techniques to install water mains pipelines, including:
 - applying problem solving and troubleshooting techniques
 - applying diagnostic techniques
 - completing written and verbal reporting requirements and procedures
- work with others to undertake and complete the installation of water mains pipelines that meets all required outcomes, including:
 - communicating with others to receive and clarify work instructions
 - using communication techniques and equipment to convey information to others.

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:

- legislation required to install water mains pipelines

- policies, procedures and documentation required to install water mains pipelines, including those relating to:
 - hazard identification, risk assessment and response
 - project quality measures
 - emergency response
 - work health and safety
 - waste management
 - environmental protection
 - communication techniques and equipment
 - operational, maintenance and basic diagnostic procedures
 - job plan and specifications
 - manufacturer specifications for required plant and equipment
 - using tools and equipment
 - maintaining excavation and trench safety
 - construction of water reticulation
 - site isolation and traffic control responsibilities and authorities
 - workplace recording requirements
 - confined space entry
 - site dewatering
- principles and techniques required to install water mains pipelines, including those relating to:
 - using and installing mains pipe systems
 - identifying mains pipe and utility services
 - using concrete and concrete fabrication
 - using sedimentation and erosion controls
 - mains pipe system testing
 - pressurisation
 - reading and interpreting engineering drawings
 - managing site mains water pressure
 - identifying valves and flow control devices
 - calculations for pipeline grades and percentages
- civil construction terminology relevant to installing water mains pipelines
- types, characteristics, technical capabilities and limitations of plant and equipment required to install water mains pipelines
- components of job safety analyses (JSAs), job safety environmental analyses (JSEAs), safe work method statements (SWMS)
- components of safety data sheets (SDS) and materials handling methods.

Assessment Conditions

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

- include access to:
 - personal protective equipment
 - equipment required to install water mains pipelines
- 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 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
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 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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