



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **RIICTT307A Spray linings for existing pipeline systems**

**Release: 1**

## RIICTT307A Spray linings for existing pipeline systems

### Modification History

Not applicable.

### Unit Descriptor

This unit covers the spray linings for existing pipeline systems in civil construction. It includes the planning and preparing for operations, checking equipment, driving the bore and cleaning up when undertaking the spray lining process for the rehabilitation of existing services pipeline system.

### Application of the Unit

The unit includes cement mortar lining and epoxy lining to repair or renovate non-man-entry pits, including water. Spray lining is usually applied with a robotic spraying machine. This process is normally applied to small diameter pipelines.

This unit is appropriate for those working in operational roles, at worksites within:

- Civil Construction

### 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

|                                                                   |                                                                                                                                                                                                                                                                                                                  |
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| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| 1. Plan and prepare             | <p>1.1. Access, interpret and apply <b>compliance documentation</b> relevant to spray linings for existing pipeline systems</p> <p>1.2. Obtain, confirm and apply work instructions, including plans, specifications, quality requirements and operational details to the allotted task</p> <p>1.3. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task</p> <p>1.4. Identify, obtain and implement <b>signage</b> requirements from the project traffic management plan</p> <p>1.5. Ensure plant, <b>tools and equipment</b> selected to carry out tasks are consistent with the requirements of the job, check for serviceability and rectify or report any faults</p> <p>1.6. Identify and confirm <b>environmental protection requirements</b> from the project environmental management plan, and apply to the allotted task</p> |
| 2. Perform site survey          | <p>2.1. Notify property owners and occupiers and approval for entry onto their property obtained</p> <p>2.2. Determine site conditions by visual inspection, plans, discussion with land owners and information from service utilities</p> <p>2.3. Locate underground utilities</p> <p>2.4. Maintain system serviceability during rehabilitation works in accordance with asset owners' policies, allowable duration of service interruption, and project specifications</p> <p>2.5. Survey and record existing site conditions</p>                                                                                                                                                                                                                                                                                                                                                                                          |
| 3. Initiate rehabilitation work | <p>3.1. Prepare entry and exit pits where specified in accordance with site and OHS requirements</p> <p>3.2. Follow confined space entry procedures</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|                           | 3.3. Monitor installation process and finished product to ensure conformity to the design requirements in accordance with manufacturer's specifications and project specifications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 4. Undertake spray lining | <p>4.1. Determine fault with the aid of plans, drawings, CCTV recordings or other mechanisms</p> <p>4.2. Select spray lining method appropriate to the fault</p> <p>4.3. Apply pressure cleaning to the designated location</p> <p>4.4. Spray existing pipeline structure designated for lining using tool selected</p> <p>4.5. Install <b>spray lining</b> material to comply with design requirements and manufacturer's specifications</p> <p>4.6. Conduct curing process to comply with manufacturer's specifications</p> <p>4.7. Correctly secure and seal termination at ends of process in accordance with manufacturer's specifications</p> <p>4.8. Open junctions for inspection and operation</p> <p>4.9. Monitor installation process and finished product to ensure conformity to the design requirements in accordance with manufacturer's specifications and project specifications</p> |
| 5. Clean up               | <p>5.1. Clear work area and dispose of or recycle materials in accordance with project environmental management plan</p> <p>5.2. Clean, check, maintain and store plant, tools and equipment</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 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 spray linings for existing pipeline systems:

- apply legislative, organisation and site requirements and procedures
- apply site and equipment safety requirements
- apply laser control equipment
- apply manual handling
- apply confined space entry
- conduct application of thrust and rotation
- interpret engineering drawings, plans and specifications
- apply equipment types, characteristics, technical capabilities and limitations
- apply operational, maintenance and basic diagnostic procedures
- apply site isolation and traffic control responsibilities
- apply materials safety data sheets and materials handling methods
- apply project quality requirements
- identify pipeline systems
- apply JSA's/safe work method statement

### 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 spray linings for existing pipeline systems:

- site and equipment safety requirements
- laser control equipment
- manual handling
- confined space entry
- application of thrust and rotation
- processes for interpreting engineering drawings
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- materials safety data sheets and materials handling methods
- project quality requirements
- civil construction terminology
- spray linings requirements and procedures

- pipeline systems
- JSA's/safe work method statement

## 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.

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| <b>Overview of assessment</b>                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b> | <p>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:</p> <ul style="list-style-type: none"> <li>• knowledge of the requirements, procedures and instructions for spray linings for existing pipeline systems</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of at least two different spray linings for existing pipeline systems</li> <li>• working with others to undertake and complete the spray linings for existing pipeline systems that meets all of the required outcomes</li> <li>• consistent timely completion of spray linings for existing pipeline systems that safely, effectively and efficiently meets the required outcomes</li> </ul> |
| <b>Context of and specific resources for assessment</b>                                             | <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• Customisation of assessment and delivery environment to sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non</li> </ul>                                                                                                                     |

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|                                            | <p>English speaking background may have second language issues.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities.</li> <li>• Access must be provided to appropriate learning and/or assessment support when required.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Method of assessment</b>                | <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"> <li>• written and/or oral assessment of the candidate's required knowledge</li> <li>• observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes</li> <li>• consistently achieving the required outcomes</li> </ul> </li> <li>• first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• working with others to undertake and complete the spray linings for existing pipeline systems</li> </ul> </li> </ul> |
| <b>Guidance information for assessment</b> | <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.

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <b>Relevant compliance documentation</b><br>may include: | <ul style="list-style-type: none"> <li>• legislative, organisational and site requirements and procedures</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• code of practice</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>                                                                                                                                                           |
| <b>Signage</b> may include:                              | <ul style="list-style-type: none"> <li>• site safety signage</li> <li>• temporary signage for the benefit of motorists and pedestrians</li> <li>• barricades</li> <li>• traffic conditions signage</li> </ul>                                                                                                                                                                                                                                                                                                                                  |
| <b>Tools and equipment</b> may include:                  | <ul style="list-style-type: none"> <li>• pumps</li> <li>• compressors</li> <li>• hoses</li> <li>• tape measures</li> <li>• marking equipment</li> <li>• crow bars</li> <li>• spanners</li> <li>• adjustable</li> <li>• wrenches</li> <li>• shovels</li> <li>• picks</li> <li>• hammers (sledge/hand)</li> <li>• string lines</li> <li>• spirit levels</li> <li>• dumpy levels</li> <li>• theodolites</li> <li>• brooms</li> <li>• hacksaws</li> <li>• hand saws</li> <li>• electronic tracking devices</li> <li>• slings and cranes</li> </ul> |

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| <b>Environmental protection requirements</b> may include: | <ul style="list-style-type: none"><li>• organisational/project environmental management plan</li><li>• waste management</li><li>• water quality protection</li><li>• noise</li><li>• vibration</li><li>• dust</li><li>• clean-up management</li></ul> |
| <b>Monitoring</b> of boring may include:                  | <ul style="list-style-type: none"><li>• sounder</li><li>• beacon</li><li>• hand wired guidance system</li><li>• magnetometry</li></ul>                                                                                                                |
| <b>Spray lining</b> may include:                          | <ul style="list-style-type: none"><li>• cement mortar</li><li>• epoxy resin lining</li></ul>                                                                                                                                                          |

## Unit Sector(s)

Trenchless Technology

## Competency field

Refer to Unit Sector(s).

## Co-requisite units

Not applicable.