



Australian Government

Department of Education, Employment and Workplace Relations

PMASUP347A Undertake corrosion inspection in a petrochemical environment

Revision Number: 1

PMASUP347A Undertake corrosion inspection in a petrochemical environment

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This competency concerns the identification of corrosion using corrosion inspection equipment and techniques and recommending appropriate actions to mitigate the problem.
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Application of the Unit

Application of the unit	In a typical scenario, operators, in a petrochemical environment are able to: • identify corrosion inspection equipment; • use corrosion inspection equipment; and • use documentation and reporting procedures.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		
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Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

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
1. Identify corrosion inspection equipment.	1.1. Identify corrosion inspection equipment that meets site specific requirements 1.2. locate corrosion inspection equipment according to site specific applications 1.3. Explain the functions of site corrosion inspection equipment
2. Use corrosion inspection equipment.	2.1. Assess conditions to determine the need to use corrosion inspection equipment 2.2. Select corrosion inspection equipment related to site specific conditions in accordance with site requirements 2.3. Operate corrosion inspection equipment in accordance with plant procedures and manufacturer's instructions 2.4. Identify and apply safety procedures relating to corrosion inspection techniques according to site requirements
3. Use documentation and reporting procedures.	3.1. Use documentation and standards for corrosion inspection equipment reporting according to regulatory and site requirements 3.2. Use general equipment documentation and relevant information to site specific requirements 3.3. Complete records and documents according to site procedures
4. Control hazards.	4.1. Identify hazards in the use of the equipment 4.2. Assess the risks arising from those hazards 4.3. Implement measures to control those risks in line with procedures and duty of care.
5. Resolve problems.	5.1. Identify possible problems in equipment or process 5.2. Determine problems needing action 5.3. Determine possible fault causes 5.4. Rectify problem using appropriate solution within area of responsibility 5.5. Follow items initiated through until final resolution has occurred 5.6. Report problems outside area of responsibility to designated person.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Competence includes the ability to isolate the causes of corrosion problems and to recommend appropriate actions to mitigate the problem. The skills to achieve this include:

- inspection and monitoring techniques
- ability to take accurate measurements
- ability to determine the nature and origins of corrosion discovered in monitoring
- safe working methodologies to avoid injury
- ability to undertake complex calculations
- ability to recognise unsafe situations.

Required knowledge

The knowledge referred to in the Evidence Guide for this unit includes:

- causes of corrosion
- nature and types of corrosion
- areas in which corrosion can occur
- inspection and monitoring techniques
- appearance of corrosion on carbon and alloy steels
- corrosion rate estimations
- effects of variables, eg temperature, climate/environment, humidity
- mitigation methods.

Evidence Guide

EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Overview of assessment	Assessment for this unit of competency will be on an operating plant. The unit will be assessed in as holistic a manner as is practical and may be integrated with the assessment of other relevant units of competency. Assessment will occur over a range of situations, which will include disruptions to normal, smooth operation. Simulation may be required to allow for timely assessment of parts of this unit of competency (eg Elements 1 and 3). Simulation should be based on the actual plant and will include walk-throughs of the relevant competency components. Simulations may also include the use of case studies/scenarios, role plays and 3D virtual reality interactive systems. This unit of competency requires an application of the knowledge contained in the operation of the remote facility and its integral equipment, to the level needed to maintain control and recognise and resolve problems. This can be assessed through questioning and the use of what-if scenarios both on the plant (during demonstration of normal operations and walk-throughs of abnormal operations) and off the plant.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Competence must be demonstrated in the ability to recognise and analyse potential situations requiring action and then in implementing appropriate corrective action. The emphasis should be on the ability to stay out of trouble rather than on recovery from a disaster. Consistent performance should be demonstrated. In particular look to see that: • early warning signs of equipment/processes needing attention or with potential problems are recognised • the range of possible causes can be identified and analysed and the most likely cause determined • appropriate action is taken to ensure a timely return to full performance • obvious problems in related plant areas are recognised and an appropriate contribution made to their solution. These aspects may be best assessed using a range of scenarios/case studies/what-ifs as the stimulus with a walk-through forming part of the response. These assessment activities should include a range of problems, including new, unusual and improbable situations which may have been generated from the past incident history of the plant, incidents on similar plants around the world, hazard analysis activities and similar sources.

EVIDENCE GUIDE	
Context of and specific resources for assessment	Assessment will require access to an operating plant over an extended period of time, or a suitable method of gathering evidence of operating ability over a range of situations. A bank of scenarios/case studies/what-ifs will be required as will a bank of questions which will be used to probe the reasoning behind the observable actions.
Method of assessment	Consider co-assessment with other units relevant to the job.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Range Statement

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. Add any 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.

Codes of practice/ standards	Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.
Context	This unit of competency includes such structural and equipment items which form part of the remote facility. For your enterprise this may include (select relevant items): • valves • pumps • prime movers • compressors • separators • piping, tubing or ducting • storage tanks or cylinders • structural steelwork • wellheads Typical problems for your plant may include: • pitting and scaling • internal and external wall thinning • crack formation
Health, safety and environment (HSE)	All operations to which this unit applies are subject to stringent health, safety and environment requirements, which may be imposed through State or Federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between Performance Criteria and HSE requirements, the HSE requirements take precedence.

Unit Sector(s)

Unit sector	Operational/technical
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Competency field

Competency field	
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Co-requisite units

Co-requisite units		
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