



Australian Government

PMASUP347 Undertake corrosion inspection on process plant

Release: 1

PMASUP347 Undertake corrosion inspection on process plant

Modification History

Release 1. Supersedes and is equivalent to PMASUP347A Undertake corrosion inspection in a petrochemical environment

Application

This unit of competency covers the skills and knowledge required to undertake corrosion inspection on process plant.

This unit of competency applies to operators who are required to identify the corrosion inspection techniques and equipment, undertake inspections, document the results, identify problems and take appropriate action.

This unit of competency applies to corrosion inspections on any structural and equipment items which form part of a process plant facility. Examples include:

- valves
- pumps
- prime movers
- compressors
- separators
- piping, tubing or ducting within facility
- transmission and distribution piping, such as sub-sea or overland piping which may fall under the SAA Gas Pipeline Code
- storage tanks or cylinders
- vessels, columns
- structural steelwork
- wellheads.

This unit of competency applies to an individual working alone or as part of a team or group and working in liaison with other shift team members and the control room operator, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Support

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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
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 and equipment suitability
		2.3	Operate corrosion inspection equipment in accordance with operating principles, plant procedures and manufacturer 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 |

Foundation Skills

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

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- | | |
|-----------------------------|---|
| Regulatory framework | <p>The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:</p> <ul style="list-style-type: none">• legislative requirements, including work health and safety (WHS)• industry codes of practice and guidelines• environmental regulations and guidelines• Australian and other standards• licence and certification requirements |
|-----------------------------|---|

All operations to which this unit applies are subject to stringent health, safety and environment (HSE) requirements, which may be imposed through state/territory 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.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, include one or more of the following:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant

Hazards Hazards include one or more of the following:

- industrial (machinery, equipment and product)
- plant services (steam, condensate and cooling water)
- limited head spaces or overhangs
- working at heights, in restricted or confined spaces, or in environments subjected to heat, dusts or vapours
- flammability and explosivity
- extreme weather
- remoteness
- other hazards that might arise

Routine problems Problems at this level includes both routine and non-routine problems.

Routine problems are predictable and have known solutions and include one or more of the following:

- pitting and scaling
- internal and external wall thinning
- crack formation

Non-routine problems Non-routine problems are unexpected problems, or variations of previous problems and must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person

Operational knowledge includes one or more of the following:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMASUP347A Undertake corrosion inspection in a petrochemical environment

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>

Assessment Requirements for PMASUP347 Undertake corrosion inspection on process plant

Modification History

Release 1. Supersedes and is equivalent to PMASUP347A Undertake corrosion inspection in a petrochemical environment

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria, and include the ability to:

- select and use inspection and monitoring techniques and equipment
- take accurate measurements
- determine the nature and origins of corrosion discovered in monitoring
- identify hazards and risks and apply risk control procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- identify problems and take action
- communicate effectively with team, group, supervisors and other personnel
- complete forms and documentation.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- 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 (e.g. temperature, climate/environment and humidity)
- mitigation methods.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operations

- will typically include a supervisor/third-party report focusing on consistent performance and problem recognition and solving. A supervisor/third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
- must include the inspection of industrial type plant, and the use of appropriate tools, equipment and safety gear requiring demonstration of preparation, operation, completion and responding to problems
- may use industry-based simulation for part of the unit particularly where safety, lack of opportunity or significant cost is an issue.
- Assessment should occur in operational workplace situations. Where this is not possible, or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment reflecting realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from one or more of:
 - walk-throughs
 - pilot plant operation
 - demonstration of skills
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition, the assessor or anyone acting in subject matter expert role in assessment must demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they must assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions

- appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on-the-job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=9fc2cf53-e570-4e9f-ad6a-b228ffdb6875>