



Australian Government

PMASUP243 Monitor and maintain pipeline coatings

Release: 1

PMASUP243 Monitor and maintain pipeline coatings

Modification History

Release 1. Supersedes and is equivalent to PMASUP243B Monitor and maintain pipeline coatings

Application

This unit of competency covers the skills and knowledge required to monitor and maintain pipeline coatings.

This unit of competency applies to operators who are required to determine the condition of pipeline coatings, prepare for and apply pipeline coatings, collect and report data from inspections and repairs, and utilise the information to develop appropriate intervention strategies.

In a typical scenario, the operator will be carrying out inspection and testing activities on coated pipelines both in the plant and in the field to procedures and to the parameters established through the principle reference standard *AS 2885.3-2012 Pipelines - Gas and liquid petroleum - Operation and maintenance*. They will also be involved in maintaining the pipeline coating which may have sustained damage for a variety of reasons. Activities will include assessing, through a range of testing and inspection techniques, the integrity of a pipeline's protective coating, and identifying areas requiring repair. Pipelines typically will require preparation to enable the work to be carried out, followed by inspection and testing activities to procedures to ensure the adequacy of the repair work.

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. They would be part of a team during pipeline start-up and shutdown procedures.

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.

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| 1 | Prepare for work | 1.1 | Identify work requirements |
| | | 1.2 | Identify and control hazards |
| | | 1.3 | Coordinate with appropriate personnel |
| 2 | Prepare pipelines for inspection/testing | 2.1 | Plan and prepare for inspection of pipeline coating to procedures |
| | | 2.2 | Identify pipeline location to determine workplace hazards |
| | | 2.3 | Consult appropriate personnel to ensure the work is coordinated effectively with others involved on the work site |
| | | 2.4 | Obtain tools and equipment needed to carry out the work to procedures and check for correct operation and safety |
| 3 | Inspect and test pipeline coatings | 3.1 | Visually inspect pipeline coatings to determine condition and location of irregularities |
| | | 3.2 | Test pipeline as required to ensure system conforms to required operating parameters |
| | | 3.3 | Take action, as required |
| | | 3.4 | Report and record information related to status and any irregularity/deviations to procedures |
| 4 | Prepare pipeline surface and repair coating | 4.1 | Isolate work area to enable repair to proceed to procedures |
| | | 4.2 | Prepare the pipeline surface to receive the coating repair material using appropriate methods |
| | | 4.3 | Recoat the pipeline to procedures and test the repair area |
| 5 | Notify completion of work | 5.1 | Ensure worksite is clean and waste material is disposed of correctly to procedures and legislative requirements |
| | | 5.2 | Inform the control centre of the outcome of repairs and |

		any abnormal situations
	5.3	Return pipeline system to normal service to procedures if safe to do so
	5.4	Notify work completion, incidents and irregularities to procedures
6	Compile and analyse reports	
	6.1	Collect and compile repair and operational data into accepted reporting format
	6.2	Take action, as required
	6.3	Ensure reports provide an accurate and ongoing record of deviations in the performance of the pipeline system
	6.4	Utilise information or reports for short and long-term control planning

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	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: • 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
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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:

- gases and liquids under pressure
- equipment failures
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- remoteness/isolation
- other hazards that might arise

Routine problems Routine problems must be resolved by applying known solutions.

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

- coating failure
- temperature, pressure and flow variations
- damage from geophysical or other circumstances
- communication failures

Known solutions are drawn from one or more of the following:

- procedures
- training
- remembered experience

Non-routine problems must be reported according to according to relevant procedures.

Equipment This unit of competency includes all such items of equipment and unit operations which form part of the pipeline inspection and testing system, including as appropriate to the facility, one or more of the following:

- low voltage and high voltage holiday detectors
- coating thickness gauges and meters
- densitometers
- condensators
- coating defect assessment survey equipment (e.g. direct current voltage gradient (DCVG) method equipment and Pearson technique method equipment)

Action Action taken in response to problems includes one or more of the following:

- determining problems needing action
- determining possible fault causes
- rectifying problem using appropriate solution within area of responsibility
- following through items initiated until final resolution has occurred
- reporting problems outside area of responsibility to designated person

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMASUP243B Monitor and maintain pipeline coatings

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 PMASUP243 Monitor and maintain pipeline coatings

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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:

- undertake inspections and tests
- recognise early warning signs of equipment needing attention or with potential problems
- determine the most likely cause of routine problems and take action to ensure a timely return to full performance
- distinguish between causes of problems/alarm/fault indications, such as:
 - variations in coating thickness
 - instrument failure/wrong reading
 - protective coating system characteristics
 - incorrect interpretation of safety data sheets (SDS) information
 - operational problems
- complete forms and documentation
- prepare and analyse reports related to the equipment/systems
- determine work specifications from procedures and diagrams.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic of the pipeline system and functions of each
- types and applications of surface coating materials and their composition
- routine and non-routine repair techniques
- various coating inspection and test requirements
- regulatory framework
- organisation procedures, including those covering:
 - safety, emergency and hazard control
 - work permit systems
 - communications
 - environmental management
 - standard operating procedures (SOPs)
- hierarchy of control.

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 operation of an operating plant
 - will typically include a supervisor/third-party report or other evidence, 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 monitoring/maintenance of an actual industrial pipeline, the use of appropriate industrial item/s of equipment requiring demonstration of operation, start-up and shutdown procedures and responding to problems
 - may use industry-based simulation for part only of the unit 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
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