



Australian Government

PMAOPS335 Conduct pipeline pigging

Release: 1

PMAOPS335 Conduct pipeline pigging

Modification History

Release 1. Supersedes and is equivalent to PMAOPS335A Conduct pipeline pigging

Application

This unit of competency covers the skills and knowledge required to conduct pipeline pigging. It applies to any type of pig (pipeline inspection gauge) in or on a large plant/platform, including batching, cleaning, gauging, intelligent and foam pigs.

This unit of competency applies to operations technicians who are required to demonstrate a significant understanding of pipeline operations in order to prepare for, launch and receive pig, identify and rectify operational problems, and interpret pigging data.

This unit of competency applies to an individual operating independently in a plant with local control or in liaison with the control room operator in a plant with a centralised control panel, such as distributed control system (DCS) type controls. In the case of large complex plant, the operations technician would be part of a team during start-up and shutdown procedures.

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 may also be communicating with customers.

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

Pre-requisite Unit

Nil

Competency Field

Operations

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 |

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|---|--|-----|--|
| 2 | Prepare the pipeline system for pigging (launching/receiving) | 2.1 | Liaise with the relevant people to ensure correct flow conditions are in the pipeline system prior to launching |
| | | 2.2 | Verify that all required permits have been issued |
| | | 2.3 | Prepare specified pig in accordance with requirements |
| | | 2.4 | Prepare pipeline for pigging operation in accordance procedures |
| | | | |
| 3 | Launch, monitor progress and/or receive pig | 3.1 | Prepare launching and/or receiving scraper barrels and intermediate site for launching/receiving operations |
| | | 3.2 | Load and launch/receive pig in accordance with procedures |
| | | 3.3 | Calculate pig travel speed during the pig's progress |
| | | 3.4 | Monitor and track progress of the pig in the pipeline system |
| | | 3.5 | Identify potential pigging problems |
| | | 3.6 | Take actions specified in procedures in response to results from monitoring |
| | | | |
| 4 | Interpret pigging data | 4.1 | Inspect the pig to determine wear and/or other information |
| | | 4.2 | Interpret pigging data from inspection, measurement and/or sample of the waste material gathered during pigging operations in accordance with procedures |
| | | 4.3 | Take action specified in procedures |
| | | 4.4 | Dispose of waste materials to procedures |
| | | 4.5 | Record data accurately to assist with assessment of pipeline condition |

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

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.

Hazards Hazards include one or more of the following:

- gases and liquids under pressure
- velocity of pig
- structural hazards
- structural collapse
- equipment failures
- industrial (machinery, equipment and product)
- equipment or product mass
- plant services (steam, condensate and cooling water)
- working at heights, in restricted or confined spaces, or in environments subjected to heat, noise, dusts or vapours
- flammability and explosivity
- hazardous products and materials
- unauthorised personnel

- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- extreme weather
- other hazards that might arise

Routine problems

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

- closure seal failure resulting in hydrocarbon release and possible explosion
- closure fastening mechanism fails and results in door striking technician
- stuck pig
- delayed pig
- scraper enclosure leaks
- leaking valves
- damaged pig

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

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
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Product Product includes anything produced by a process step and so includes:

- intermediate products, such as the product from one process step, which then becomes the feed for another

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMAOPS335A Conduct pipeline pigging

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 PMAOPS335 Conduct pipeline pigging

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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:

- operate and monitor system and maximise performance
- undertake preparations to ensure safety and other requirements are met
- identify early warning signs of equipment/processes needing attention or with potential problems
- identify hazards and risks and apply risk control procedures.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic of the pigging system and functions of each
- systems' operating parameters and integrity limits
- reasons for pipeline pigging and the type of pig used for each application
- prevention/mitigation measures for closure risks
- the nature/condition of materials/flows entering and leaving the scraper barrels during the launching and receiving operations
- correct valve sequences
- expected system pressures for launching/receiving operations
- principles of pigging
- hierarchy of control
- hazards that may arise in the job/work environment, and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

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 use of industrial type pigs and systems, appropriate tools, equipment and safety gear requiring preparation, operation,
- 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.

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