



Australian Government

Assessment Requirements for PMAOPS301 Operate a distillation unit

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to PMAOPS301B Produce product by distillation

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 the ability to:

- start up, and stabilise the components of the distillation system to meet specifications
- apply process knowledge to monitor and predict the need for adjustments to system components
- predict impact of a change in one unit/area on other plant units/areas and take appropriate action
- identify hazards and risks and apply risk control procedures
- communicate effectively with team, group, supervisors and other personnel
- identify early warning signs of equipment/processes needing attention or with potential problems
- isolate the causes of problems and distinguish between causes of problems/alarm/fault indications, including:
 - process feed variations
 - instrument failure/wrong reading
 - electrical failure
 - mechanical failure
 - operational problem
- resolve non-routine problems
- take appropriate action to ensure a timely return to full performance.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- all items on a schematic of the distillation unit and the function of each
- principles of operation of plant/equipment, including column, tray/packing, condenser and reboiler operations, and distillation principles, including stripping and rectification
- interactions between plant items/processes
- systems' operating parameters and limits, such as temperature, pressure, flow and system integrity limits
- methods of changing production rate, product specifications and process variables
- impact of external factors (e.g. variations in weather)
- problems that may arise, the range of possible causes and processes to develop solutions

- process-specific science (physics, chemistry and biochemistry) to the level of being able to interpret the science and extract factors controlling the process and product and by-product production rate and quality (e.g. for chemistry interpret the equation for factors controlling rate and yield and also interfering reactions such as salts and hydrates)
- 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.
- Where competency has not already been achieved in
 - PMAOPS201 Operate fluid flow equipment
 - PMAOPS205 Operate heat exchangersthey may be co-delivered and co-assessed.
- 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 operation of an industrial style distillation unit
 - may use industry-based simulation for all or 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>