



Australian Government

Department of Education, Employment and Workplace Relations

PMASUP420A Minimise environmental impact of process

Release: 1

PMASUP420A Minimise environmental impact of process

Modification History

Not applicable.

Unit Descriptor

This competency covers minimising waste and environmental threats from a plant and/or a process. It covers all **resources** used and products made by the plant, and is performed by more experienced operators who might be expected to develop and implement improvements to processes within the plant. This unit may be performed individually or as part of a team. This competency also applies to capital projects, as well as improvements brought about by changes in work practices and procedures. In this competency, an operator would develop practices or procedures for:

- conserving resources
- minimising pollution
- minimising waste.

This requires the operator to have a good understanding of the **resources** used by the plant, the nature and source of pollutants and the waste materials produced by the plant. It also requires the operator to understand the impact of using **resources**, and the effect pollutants and waste can have on the local environment.

When developing a process or practice, the operator would identify which resource, pollutant or waste product that if reduced would give the most benefit. After developing procedures to conserve **resources** or minimise pollution/waste produced by the plant, the operator would then document the procedures to implement the changes.

Prerequisites

This unit **has** the prerequisites of:

PMASUP120A - Follow environmental work practices.

This competency covers minimising waste and environmental threats from a plant and/or a process. It covers all **resources** used and products made by the plant, and is performed by more experienced operators who might be expected to develop and implement improvements to processes within the plant. This unit may be performed individually or as part of a team. This competency also applies to capital projects, as well as improvements brought about by changes in work practices and procedures. In this competency, an operator would develop practices or procedures for:

- conserving resources
- minimising pollution
- minimising waste.

This requires the operator to have a good understanding of the **resources** used by the plant, the nature and source of pollutants and the waste materials produced by the plant. It also requires the operator to understand the impact of using **resources**, and the effect pollutants and waste can have on the local environment.

When developing a process or practice, the operator would identify which resource, pollutant or waste product that if reduced would give the most benefit. After developing procedures to conserve **resources** or minimise pollution/waste produced by the plant, the operator would then document the procedures to implement the changes.

Prerequisites

This unit **has** the prerequisites of:

PMASUP120A - Follow environmental work practices.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Develop resource conservation practices and/or procedures	1.1 Identify the nature of resources used in the plant/process. 1.2 Determine the primary source of these resources. 1.3 Describe the impact of the depletion of these resources on the environment and society. 1.4 Determine which resource(s) will yield a greater benefit from their conservation. 1.5 Develop methods to reduce the consumption of these resources. 1.6 Complete required documentation to implement change.

- | | | |
|---|--|---|
| 2 | Develop pollution minimisation practices and/or procedures | 2.1 Identify the nature of pollutants produced by the plant/process. |
| | | 2.2 Determine the source(s) of these pollutants within the plant/process. |
| | | 2.3 Describe the impact of these pollutants on the environment and society. |
| | | 2.4 Determine which pollutant(s) will yield a greater benefit from their reduction. |
| | | 2.5 Develop methods to reduce the production of this pollutant. |
| | | 2.6 Complete required documentation to implement change. |
| 3 | Develop waste minimisation practices and/or procedures | 3.1 Identify the nature of wastes produced by the plant/process. |
| | | 3.2 Determine the source(s) of these wastes within the plant/process. |
| | | 3.3 Describe the impact of these wastes on the environment and society. |
| | | 3.4 Determine which waste(s) will yield a greater benefit from their reduction. |
| | | 3.5 Develop methods to reduce the production of this waste. |
| | | 3.6 Complete required documentation to implement change. |

Required Skills and Knowledge

Not applicable.

Evidence Guide

Assessment context and methods

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.

Assessment of this unit may be best achieved with a suitable project. This will minimise possible impact on the environment caused by the process or some aspect of the process. Such a project may be regarded as adequate provided it meets all the performance criteria of at least one element. It is not necessary to cover all elements.

This unit of competency requires a significant body of knowledge, which will 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

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:
procedures are developed to reduce the consumption of resources, or to minimise pollution and/or waste products

appropriate documentation is completed to implement changes

the greatest yield is achieved by appropriate selection of type of resource usage, type of pollutant or waste product.

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.

Resource implications

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.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with:

Competency units relevant to the type of process equipment.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

PMAOHS100A Follow - OHS procedures.

Essential knowledge

Competence to include the ability to explain:

nature and severity of potential environmental hazards caused by the plant/process

sensitivity of local environment to these environmental threats

pathways of entry to the environment from the plant

regulatory requirements such as environment protection regulations, OHS, HAZCHEM, duty of care, dangerous goods

external licensing requirements such as EPA, water authorities, local councils

enterprise procedures and practices.

Assessment context and methods

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.

Assessment of this unit may be best achieved with a suitable project. This will minimise possible impact on the environment caused by the process or some aspect of the process. Such a project may be regarded as adequate provided it meets all the performance criteria of at least one element. It is not necessary to cover all elements.

This unit of competency requires a significant body of knowledge, which will 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

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:
procedures are developed to reduce the consumption of resources, or to minimise pollution and/or waste products

appropriate documentation is completed to implement changes

the greatest yield is achieved by appropriate selection of type of resource usage, type of pollutant or waste product.

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.

Resource implications

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.

Other assessment advice

In all plants it may be appropriate to assess this unit concurrently with relevant teamwork and communication units. Consider co-assessment with:

Competency units relevant to the type of process equipment.

In a major hazard facility, it may be appropriate to assess this unit concurrently with:

PMAOHS100A Follow - OHS procedures.

Essential knowledge

Competence to include the ability to explain:

nature and severity of potential environmental hazards caused by the plant/process

sensitivity of local environment to these environmental threats

pathways of entry to the environment from the plant

regulatory requirements such as environment protection regulations, OHS, HAZCHEM, duty of care, dangerous goods

external licensing requirements such as EPA, water authorities, local councils

enterprise procedures and practices.

Range Statement

Context

This competency is performed by more experienced operators and may be performed individually or as part of a team.

It includes the following indicative functions:

- examining plant records
- examining operating procedures and practices
- liaising with a range of internal people
- modifying/updating standard operating procedures to 'lock in' any changes.

Typical objectives will include:

- minimisation of waste
- maximisation of product yield from raw materials
- reduction in volume of pollutants made
- reduction in concentration/intensity of pollutants made
- reduction in emissions.

All operations are performed in accordance with standard procedures and policies.

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.

Context

This competency is performed by more experienced operators and may be performed individually or as part of a team.

It includes the following indicative functions:

- examining plant records
- examining operating procedures and practices
- liaising with a range of internal people
- modifying/updating standard operating procedures to 'lock in' any changes.

Typical objectives will include:

- minimisation of waste
- maximisation of product yield from raw materials
- reduction in volume of pollutants made
- reduction in concentration/intensity of pollutants made
- reduction in emissions.

All operations are performed in accordance with standard procedures and policies.

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)

Not applicable.