

MTMPS5608B Manage environmental impacts of meat processing operations

Unit descriptor	This unit covers the skills and knowledge required to assess the potential impacts of enterprise operations on the environment and implement cost effective strategies. Management of environmental impact is a priority across all sectors of the industry and the industry has made a considerable investment in developing best practice systems for the management and minimisation of environmental impact. The scope of the unit includes water quality, usage and waste, air quality, emissions, noise, odour, and the minimisation and disposal of solid wastes.
Employability Skills	The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged, will assist in identifying Employability Skill requirements.
Application of the unit	<p>This unit is suitable for managers with responsibility for environment matters and for plant engineers, production managers, chiller managers, quality managers working in a meat <i>industry context</i>.</p> <p>At this level individuals exercise considerable autonomy, responsibility and accountability within enterprise structures and are required to make primary contributions to the values, goals and operations of the enterprise. They will typically have responsibility for the establishment and review of systems for the site or department. They may work with the assistance of external experts to develop plans and strategies.</p>

ELEMENT

Elements describe the essential outcomes of a Unit of Competency.

PERFORMANCE CRITERIA

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

1 Determine environment management strategy requirements	1.1	Enterprise's ethical, community and legal obligations for environmental management are ascertained.
	1.2	Enterprise operations are examined to identify potential <i>environmental impacts</i> .
	1.3	Competitive and economic advantages and disadvantages of environmental management strategies are analysed.

2	Develop enterprise commitment to environmental management	2.1	Management commitment is obtained and enterprise environmental management policy formulated.
		2.2	Agreed environmental management strategies are built into enterprise planning, operating systems and review processes.
		2.3	Consultative processes are developed to resolve environmental issues and problems.
		2.4	Environmental management roles and responsibilities are incorporated into job functions, position descriptions and standard operating procedures.
		2.5	Communication and training strategies to inform and support <i>stakeholder</i> commitment are developed and implemented.
3	Prepare environmental management strategy	3.1	Enterprise requirements for expert assistance and advice are identified.
		3.2	Environmental risks are identified and evaluated.
		3.3	Requirements of environmental management systems are determined.
		3.4	Alternative <i>environmental management strategies</i> and systems are evaluated for efficiency, effectiveness and sustainability, according to enterprise requirements and regulatory compliance.
		3.5	Opportunities for minimising environmental impact and maximising commercial value of waste or waste treatment by-products are identified.
		3.6	Resource requirements are calculated and included in enterprise planning processes.
		3.7	Performance criteria for environmental management are developed.
4	Implement and monitor environmental management strategies and <i>systems</i>	4.1	Licences, permits, schedules and agreements are negotiated with regulatory requirements.
		4.2	Environment and waste management policies and responsibilities are communicated to stakeholders.
		4.3	Environmental and waste management systems are selected, developed, implemented and integrated into operational systems.
		4.4	Monitoring, reporting and validation procedures are developed.

	4.5	Corrective action strategies and contingency plans are prepared.
	4.6	Verification procedures are established.
	4.7	Causes of non-compliance are investigated and control measures developed.
	4.8	Systems are reviewed to reflect changes in technology, regulations and operational performance.
5	Review environmental management policies, strategies and systems	<p>5.1 Continuous review and improvement processes, including consultation with stakeholders, are established.</p> <p>5.2 Performance information is assessed and analysed against specified criteria and standards to identify areas for improvement.</p> <p>5.3 Conclusions and recommendations are analysed and included in enterprise planning and improvement processes.</p>
6	Manage community relations	<p>6.1 Environmental Impact Statements are prepared to address community, environmental and public health concerns and regulatory requirements.</p> <p>6.2 Interactions with environmental authorities and agencies are conducted openly, positively and ethically.</p> <p>6.3 Opportunities to promote the enterprise as a good corporate citizen in environmental management are identified and utilised.</p> <p>6.4 Enterprise measurement and logging of environmental impacts is maintained, analysed and reported to stakeholders.</p> <p>6.5 Community complaints are dealt with promptly, openly and courteously.</p>

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge required for this unit. Where bold italicised text is used, further information is detailed in the Range Statement.

- Analyse and interpret current ***regulatory requirements*** (including local, state, national and international) for environmental management including environmental tolerance levels, and explain the implication for enterprise operations.
- Apply relevant ***mathematical skills***.
- Assess viability of gaining commercial value from waste, including the determination of commercial quantities, costs, returns and payback periods.

- **Communicate** effectively with internal and external personnel with diverse roles, communication skills and cultures.
- Comply with regulatory requirements for managing enterprise environmental impact. This includes negotiation of agreements, plans, permits and licences with relevant environmental management authorities, confinement of environmental impacts within permissible limits and preparation of the enterprise for external audit where specified.
- Consult with internal/external stakeholders and external agencies to prepare contingency plans and emergency response procedures for environmental incidents.
- Develop individual and team capacity to achieve enterprise management policies and goals. This requires the clear communication of individual and team responsibilities for minimising environmental impact, development of consultative processes and strategies to identify and resolve environmental issues, and identification and provision of appropriate training programs.
- Develop procedures for responding to community complaints and concerns.
- Evaluate and recommend environmental management systems to meet enterprise needs. This requires the identification and audit of enterprise creation of waste and environmental impacts and evaluation of control and treatment systems suitable for enterprise operations, comparative costs, savings and minimisation of environmental impacts. This may involve **waste water disposal, measures to minimise nutrients and other contaminants in water**, eg strategies to control **air pollution, odour treatment processes** and managing **solid waste**.
- Explain potential costs of prevention, assessment and control of environmental impact.
- Identify and apply relevant **OH&S**, regulatory and **workplace requirements**.
- Identify customer and consumer (including importing country) requirements for effective environmental management and explain the implications for enterprise operations.
- Identify enterprise requirements for **expert advice**, assistance and support.
- Identify the major air, water and **solid waste** environmental impacts generated by the meat industry.
- Implement enterprise environmental management systems to minimise environmental impact. This requires the establishment of monitoring and testing regimes and record-keeping systems; development of procedures for identifying, reporting and analysing the causes of environment non-conformances and incidents; development of control measures to prevent recurrence of environmental incidents, hazardous events and non-conformances.
- Monitor performance of the enterprise environmental management system. This requires the identification of performance standards based on industry best practice; collection and analysis of qualitative and quantitative performance data; **benchmarking**; assessment of performance against standards and recommendations for improvement.
- Prepare and update enterprise environmental impact statements and environment management plans.
- Prepare information about the enterprise's environmental management strategy and progress for release to the public, consistent with enterprise ethical standards and regulatory requirements.
- Prepare **reports** and recommendations for senior management, using analysis of complex information and language, and presentation styles appropriate for the purpose.
- Present reports according to legal and enterprise requirements.

- Specify relevant environmental authorities, their jurisdictions, powers and the implications for enterprise operations.
- Take action to improve own work practice as a result of feedback from others, self-evaluation, or in response to changed work practices and requirements or technologies.
- Utilise effective communication, negotiation and problem-solving skills in interactions with all stakeholders, including environmental authorities and agencies and community representatives.
- Utilise information and communications technology for research, data collection and analysis and reporting, including the use of statistical and modelling software where available.

RANGE STATEMENT

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments within the meat industry and situations that may affect performance. This includes any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts. Bold italics wording in the Elements and Performance Criteria, and Required Skills and Knowledge, is detailed below.

<i>Industry context</i> includes:	<ul style="list-style-type: none"> • cost centres or departments operating semi-autonomously within guidelines of the parent enterprise or company, eg retail meat departments, boning rooms, food service and meat retail • domestic and export establishments • medium and large enterprises.
<i>Environmental impacts</i> may include:	<ul style="list-style-type: none"> • air pollution, eg odour, noise, ozone depletion, contamination • soil degradation, eg solid and liquid waste • water pollution, eg effluent and liquid waste, solid waste.
<i>Stakeholders</i> and external agencies may include:	<ul style="list-style-type: none"> • community groups including neighbours, residents, environment and conservation groups • company owners, directors, shareholders, financiers • customers, consumers • emergency services • employees • enterprise departments, divisions, sections • environment protection authorities and agencies • governments and government agencies – federal, state and local • industry groups and associations, including employee, employer, professional and technical groups • regulatory authorities.
<i>Environmental management</i>	<ul style="list-style-type: none"> • alternative energy sources and configurations

strategies may include:

- further processing of waste for commercial purposes
 - minimisation strategies, eg plant, technology and equipment design and replacement, systems review, process and work flow redesign
 - recycling, reuse and recovery of liquid and solid waste.
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Environmental management *systems* may include:

- consultation requirements
 - qualitative assessment techniques
 - sampling and measurement schedules, methods and requirements
 - sustainability targets.
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Regulatory requirements may include:

- animal welfare
 - AS 3595-1990 Energy management – Guidelines for financial evaluation of a project
 - AS/NZ ISO 14001:2004 Environmental management systems – Requirements with guidance for use
 - AS/NZ ISO 14040:1998 Environmental management systems – Life cycle assessment – Principles and framework
 - AS/NZ ISO 19011:2003 Guidelines for quality and/or environmental management systems auditing
 - Australian covenants and codes of practice on packaging disposal
 - commercial law including fair trading, trade practices
 - consumer law
 - corporate law, including registration, licensing, financial reporting
 - environmental and waste management
 - environmental protection, conservation and sustainability requirements
 - equal opportunity, anti-discrimination and sexual harassment
 - Export Control Act
 - industrial awards, agreements
 - licensing requirements and conditions, eg export meat order requirements for potable water, food safety
 - planning permission – including solid and liquid waste disposal, odours, plant noise, impact of road transport/traffic (noise)
 - pollution control licences
 - public health requirements
 - relevant regulations such as state regulations regarding
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meat processing

- taxation
 - UNESCO and WHO covenants and agreements.
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Mathematical skills may relate to complex actual and hypothetical technical and financial modelling, calculations, interpretation and analysis. Mathematical information may be complex and relate to product and product quality, financial operations, personnel, operations, sales and turnover, exports, etc.

- Communication skills** may:
- be with culturally, ethnically and socially diverse individuals and groups
 - involve preparation of reports which may be complex, contain information from a range of technical sources and include mathematical and graphic information and data
 - involve reading and interpreting workplace-related documentation
 - occur in a variety of sensitive, conflictive, collaborative and supportive environments
 - be formal or informal and involve face-to-face and technological/electronic methods
 - require analysis and presentation of complex concepts, technical information, mathematical information and other data in simple or complex formats
 - require persuasion, negotiation and assertiveness skills.
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Waste water disposal options may include:

- biological treatments
 - disposal to surface waters
 - land disposal
 - primary and secondary treatment process
 - screening, flotation, evaporation
 - sewer disposal
 - waste water recycling.
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Measures to minimise nutrients and other contaminants in water may include:

- dry cleaning before wash down
 - improved manual plug change over for blood pit plug
 - improved screening/filters in treatment plans, floor drains screens
 - pondage, purification and filtering
 - primary screening.
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Air pollution may include:

- noise (on site operations, transport etc)
 - odours related to production and transport on lairage of large animals
 - vapours, gases (including greenhouse gases), solids fallout.
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- Odour treatment processes*** may be physical, chemical or biological and include:
- activated carbon
 - biofilters, bioscrubbers
 - chemical oxidation (wet chemical scrubbing or ozonisation)
 - dispersion, eg extraction hoods and dispersion stacks
 - thermal oxidation (incineration).
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- Solid waste*** may include:
- animal waste including non-commercial value hides, manure
 - meat and meat products eg fat, bone, flesh
 - packaging materials including cardboard cartons, paper/plastic liners, vacuum packs, binding tapes
 - refuse from non processing operations, eg canteen, offices, amenities
 - smallgoods manufacturing, processing, rendering and further processing wastes including fat, meat and meat product trimmings, rejects and returns, paunch manure, waste from fly ash boilers, oil and grease trap waste, sludge
 - solids suspended in effluent.
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- OH&S requirements*** may include:
- enterprise OH&S policies, procedures and programs
 - hygiene and sanitation requirements
 - OH&S legal requirements
 - Personal Protective Equipment (PPE) which may include:
 - coat and apron
 - ear plugs or muffs
 - eye and facial protection
 - head-wear
 - lifting assistance
 - protective boot covers
 - protective hand and arm covering
 - protective head and hair covering
 - uniforms
 - waterproof clothing
 - work, safety or waterproof footwear
 - requirements set out in standards, codes of practice etc.
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- Workplace requirements*** may include:
- enterprise-specific requirements
 - OH&S requirements
 - Quality Assurance requirements
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- Standard Operating Procedures
 - the ability to perform the task to production requirements
 - work instructions.
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Expert advice and assistance may be sought from environmental engineers, environmental agencies and government departments etc.

- Methods of managing *solid waste* may include:
- composting
 - filtration, effluent treatment/settling ponds
 - identification of alternative products, eg biodegradable packaging
 - incineration.
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- Benchmarking* may include working with:
- companies from other industries
 - internal departments
 - international or national industry standards
 - other companies or sites within the industry.
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- Reports* may:
- include analysis and response to complaints
 - include evaluation of alternative environmental management strategies and controls
 - include financial reports, eg cost/benefit analyses and budget reports
 - include performance information, audit reports and environment management reports to meet licensing requirements
 - be complex
 - contain information from a range of technical sources and include mathematical and graphic information and data
 - need to be presented according to legal and enterprise requirements.
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EVIDENCE GUIDE

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

Overview of assessment

The meat industry has specific and clear requirements for evidence. A minimum of three forms of evidence is required to demonstrate competency in the meat industry. This is specifically designed to provide evidence that covers the demonstration in the workplace of all aspects of competency over time.

These requirements are in addition to the requirements for

	<p>valid, current, authentic and sufficient evidence.</p> <p>Three forms of evidence means three different kinds of evidence – not three pieces of the same kind. In practice it will mean that most of the unit is covered twice. This increases the legitimacy of the evidence.</p> <p>All assessment must be conducted against Australian meat industry standards and regulations.</p>
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Competency must be demonstrated through sustained performance over time, at an appropriate level of responsibility and authority under typical operating and production conditions for the enterprise.
Context of and specific resources for assessment	<p>Resources may include:</p> <ul style="list-style-type: none"> • a workplace environment with typical operating and production conditions • enterprise system information, including company Environmental Protection Authority (EPA) licences, environmental performance reports and data.
Method of assessment	<p>Recommended methods of assessment are:</p> <ul style="list-style-type: none"> • a third party referee report of sustained performance at appropriate level of authority and responsibility • assignment focusing on understanding and application of principles and theory to workplace operations • workplace projects with focus on company environment and conditions. <p>Assessment practices should take into account any relevant language or cultural issues related to Aboriginality, gender, or language backgrounds other than English. Language and literacy demands of the assessment task should not be higher than those of the work role.</p>
Guidance information for assessment	<p>Resource materials available from MINTRAC, telephone 1800 817 462.</p> <p>AS/NZS ISO 14001:2004 Environmental management systems – Requirements with guidance for use (www.saiglobal.com).</p> <p>CB 023-2001 A CAPITAL IDEA – Realizing value from environmental and social performance (www.saiglobal.com).</p> <p>Commerce QLD 2004, Eco-Efficiency for Queensland Business: A guide for reducing costs and impacts (www.commerceqld.com.au).</p> <p>HB 145:1999 Case studies – Environmental performance evaluation (www.saiglobal.com).</p> <p>HB 203:2006 Environmental risk management – Principles and process (www.saiglobal.com).</p>

Meat and Livestock Australia (www.mla.com.au):

- *A Nitrogen Management Strategy for Meat Processing Plants – Final Report* (2003) PPI 266
 - *Alternative Refrigeration Control System (video and brochure) – Technology transfer resource package (DIY Kit #19 – PPI 216)*
 - *An Assessment of Dry Paunch Dumping in Red Meat Processing Plants* (2001) PPI 048
 - *Benchmarking of Environmental Performance* (1999) Project RPDA 308A PPI 221
 - *Benchmarking of Environmental Performance* (2004)
 - *Best Practice WasteWater Treatment* (1999) Project RPDA 308B PPI 021
 - *Biofilter Performance Evaluation – Summary Report* (2003) PPI 269
 - *Effluent Irrigation Manual* (1995) PPI 030
 - *Energy Management Brochures* (1998)
 - *Envirofacts – quarterly newsletter* PPI 043
 - *Environmental Management Systems Manual* (Mar 1999) PPI 033
 - *Greenhouse and the red meat processing industry* (Sep 1995) PPI 164
 - *Greenhouse and the red meat processing industry* (2001) Meat and Livestock Australia PPI 164
 - *Nutrient removal from abattoir wastewater* (1997) PPI 036
 - *Recycling Proteins from Wastewater Using Clay* (1998) PPI 049
 - *Review of Endocrine Disruption Chemicals (EDCs) – Final Report* (2003) PPI 271
 - *The Australian Meat Processors Environmental Legislation Review 2001 – CD*
 - *Water and Waste Minimisation Manual* (1995) PPI 042
 - *Waste Water Treatment – Literature Review* (1979-1993) Project M.737 PPI 028.
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