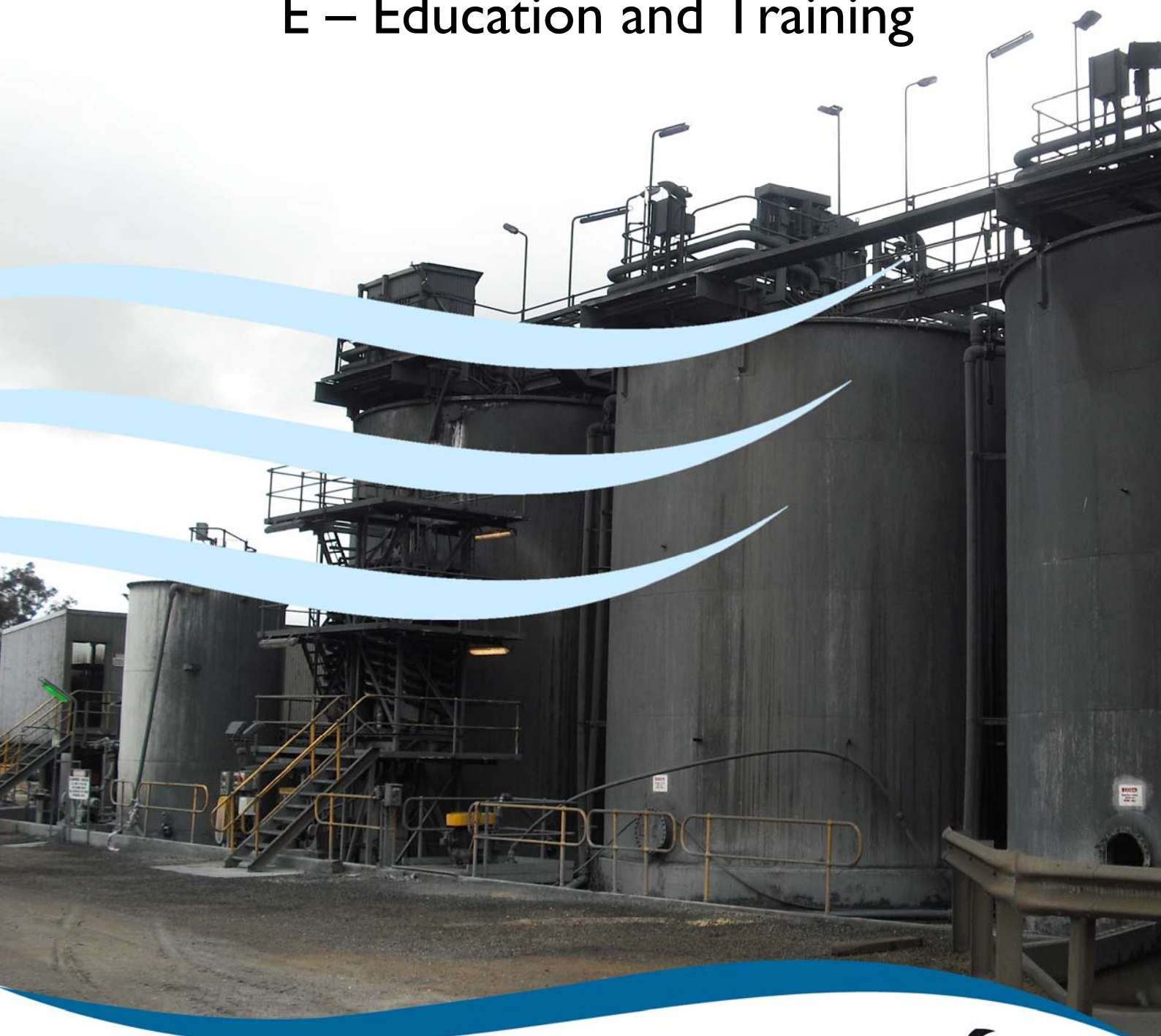


# Guidelines for Major Hazard Facilities E – Education and Training



## **Disclaimer**

This information is for guidance only and is not to be taken as an expression of the law. It should be read in conjunction with the *Dangerous Substances (Safe Handling) Act 2005*, the *Dangerous Substances (Safe Handling) Regulation 2009* and any other relevant legislation. Copies of the legislation can be purchased from Print Applied Technology: call (03) 6233 3289 or free call 1800 030 940. It is also available on the Internet at [www.thelaw.tas.gov.au](http://www.thelaw.tas.gov.au)

## **Acknowledgement**

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## **I Introduction**

The purpose of the *Dangerous Substances (Safe Handling) Act 2005* (the Act) and the *Dangerous Substances (Safe Handling) Regulations 2009* (the Regulations) is to prevent harm to people, property and the environment arising from dangerous substances. The Act and Regulations impose certain safety obligations on occupiers of Major Hazard Facilities (MHFs).

These obligations include conducting and documenting a Systematic Risk Assessment (SRA) of the operations, the implementation of appropriate risk control measures, consultation with the community and the submission of a safety report.

Included in the risk control measures are specific requirements for the development, implementation and maintenance of a Safety Management System (SMS), the establishment of emergency plans and procedures and the provision of education and training for employees.

This guideline provides information on the education and training of employees at a MHF. This information is provided for guidance only on the general requirements of the Act with respect to employee education and training. This document is not a substitute for detailed advice on the specific education and training needs for a particular facility.

### **1.1 List of Acronyms**

- AFARP – As far as reasonably practicable = ALARP
- DS – Dangerous Situation
- DSE – Dangerous Substances Emergency
- EP&Ps – Emergency Plans and Procedures
- LDSL – Large Dangerous Substances Location
- MHF – Major Hazard Facility
- NOHSC – National Occupational Health and Safety Council
- PMHF – Possible Major Hazard Facility
- SMS – Safety Management System

- SR – Safety Report
- SRA – Systematic Risk Assessment
- the Act – *Dangerous Substances (Safe Handling) Act 2005*
- the Regulations – *Dangerous Substances (Safe Handling) Regulations 2009*
- the Secretary – The Secretary of the Department of Justice
- WST – Workplace Standards Tasmania

## **2 Key Legislative Issues**

### **2.1 Safety Obligations**

Section 20 and Section 41 of the Act requires an occupier to provide appropriate induction, information, supervision, education and training to all people at the facility so that they may carry out their safety obligations under the legislation as well as their roles and duties for which they are employed at the facility.

The appropriateness of the education and training must be such that the competency of people at the MHF is maintained at an established standard. Key to the education and training obligations under the Act is the establishment of standards of competency expected for all people at the facility and the provision of appropriate education and training programs to attain and maintain those standards of competency.

Specifically, education and training provided must include instruction in the hazards and risks associated with roles and duties of the person, and address:

- the nature of the hazards and properties of dangerous substances handled at the facility;
- the processes used in hazard identification, assessment of risk and risk control associated with the person's roles and duties; and
- the proper use and maintenance of risk reduction measures, including proper use and fitting of Personal Protective Equipment (PPE).

A dated, written record of education and training provided must be retained for at least 5 years.

### **2.2 Timeframe**

Education and training of people at the facility must be undertaken prior to their exposure to potential hazards so that they can carry out their roles and duties safely. The timing of training and education for people at the facility is a critical element in ensuring that risk at the facility is maintained at a level as low as reasonably practicable.

## **2.3 Review**

The training and education programs must be reviewed as often as necessary and refresher training undertaken when necessary to ensure standards of competency are maintained.

The facility's education and training programs must be reviewed and updated if a modification occurs at the facility that significantly alters the risk associated with the facility. Appropriate education and training related to such modifications and the control of the associated risks must be conducted prior to the implementation of the modification.

## 3 General Requirements

### 3.1 Standards of Competency

In accordance to Section 41 of the Act the occupier must ensure that the education and training program

- (a) establishes and maintains the standards of competency of persons at the facility; and
- (b) is regularly reviewed and updated so that standards are maintained; and
- (c) training is conducted as often as is necessary to maintain the standards of competency; and
- (d) is conducted before any modification of the facility that would significantly alter the risk associated with the facility is carried out. (see Guide Note 1)

#### **Guide Note 1 – Standards of Competency**

Every role at the facility should have standards of competency established for it. Each competency standard should describe activities the person performing duties of that role will be able to do.

For example, an employee responsible for the unloading of bulk dangerous substances from road tankers and its transfer to bulk storage tanks may have standards of competency which include the following:

- Operate tanker unloading systems safely in accordance with documented work procedures; and
- Initiate safe shut down and isolation of tanker unloading systems in the event of an emergency, in accordance with documented work procedures.

As well as these specific standards of competency for the role, there should also be more generalised standards of competency that are applicable to all employees at the facility. These may include areas such as emergency plans and procedures, permit to work systems, dangerous substances emergencies or dangerous situation reporting, hazard identification etc.

In establishing these competency standards the occupier of the facility should:

- focus on what is expected of people at the facility; and
- include the ability to apply skills and knowledge and to exercise judgement in new or emergency situations.

A variety of factors must be considered when determining standards of competency for specific roles at the facility, including:

- the risks associated with the tasks and activities being undertaken, e.g. identified in the SRA;
- the roles and responsibilities of people, including requirements to perform specific roles safely, e.g. specific procedures to be followed;
- the level of supervision of the employees or contractors while performing required tasks or activities (refer Guide Note 2); and
- site specific issues, including basic requirements for all people working on the site.

The standards of competency required for roles and duties may be determined by conducting an analysis of the specific activities undertaken by people performing these roles. This task/occupational analysis should be targeted at determining competencies required for defined positions and the training curriculum required to achieve and maintain these competencies. In breaking down roles into tasks or steps, critical safety knowledge and skills can be identified as desired competencies so that instructional education and training material addresses these important safety issues.

The result of the analysis is a description of the position that includes the competencies, accountabilities and responsibilities including the skills and critical attributes that are required and associated with the role.

The task analysis should utilise employees experienced in the position being analysed as these employees can describe the duties of the position with greater precision than anyone else.

## **Guide Note 2 - Generic Competencies**

In developing standards of competency required for persons performing specific roles and duties, the occupier of a MHF may refer to the Australian Safety & Compensation Council, National Guidelines for Integrating Occupational Health and Safety Competencies into National Industry Competency Standards [NOHSC:7025(1998)] available at: [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au) This standard provides guidance on the process to identify the competencies required to implement effective OHS management into a workplace, and describes three different units of competence relevant for different levels of responsibility. Elements of competency and performance criteria are described in detail in the standard, specific to the following generic competencies.

- **Generic Competency A**

*(relevant for employees without managerial or supervisory responsibilities)*

Follow defined occupational health and safety policies and procedures related to the work being undertaken in order to ensure own safety and that of others in the workplace.

- **Generic Competency B**

*(relevant for employees with supervisory responsibilities)*

Implement and monitor the organisation's occupational health and safety policies, procedures and programs in the relevant work area to achieve and maintain occupational health and safety standards.

- **Generic Competency C**

*(relevant to employees with managerial responsibilities)*

Establish, maintain and evaluate the organisation's occupational health and safety system in order to ensure that the workplace is, as far as is practicable, safe and without risks to the health of employees.

### 3.2 Education and Training Plans

The safe functioning of a facility is dependent upon having 3 key elements in place:

- the right plant (equipment & facilities);
- the right procedures (instructions and practices); and
- the right people (skills, culture and behaviours).

The purpose of education and training is to ensure that the people at the facility are equipped with the skills and knowledge to perform their roles and duties effectively, i.e. are able to demonstrate the standards of competency defined for their role. Without appropriately skilled and trained people operating the facility, the *right* plant and procedures alone will not produce the desired safety, production and financial outcomes for the operation of the business.

From a MHF safety perspective, the objective of education and training is to ensure that the roles and duties of people at the facility are performed safely to ensure risks to people, property and the environment from the facility's operation are maintained at an acceptable level. While each and every employee is responsible for their own safety, they have to be equipped with appropriate skills and knowledge to perform their duties safely. Management at the facility is accountable for ensuring personnel in all areas of their responsibility are appropriately trained.

Effective education and training is vital in managing safety at a facility through maintaining established standards of competency, and forms a key component within the facility's SMS. The development and implementation of education and training plans, procedures and practices should be documented within the SMS.

For education and training plans and procedures to be effective, they need to be developed in a structured, systematic manner targeted at achieving the desired outcome. This approach should address the following:

- the education and training audience – the people to be provided with education and training;
- education and training requirements – the content of education and training programs;

- the presentation of education and training programs – the method of providing education and training;
- the evaluation of competency – the assessment and verification of competency;
- maintaining competency – keeping competency up to date.  
and
- maintaining records.

### **3.3 Education and Training Audience**

Every person at the facility, to varying degrees, is potentially exposed to risks that can either have a direct impact on themselves, their work colleagues, other people, or property and the environment. Therefore all people - employees, contractors and visitors – require some form of education and training to ensure their roles and duties are performed safely.

Particular emphasis should be placed on areas that have been identified as significant contributors to risk at the facility, established through completion of the SRA. The skills, knowledge and abilities of people working in these areas, and hence the actions taken by them, are critical in managing risk to an acceptable level.

Safety education and training for personnel at a facility must be an integral part of operating safely, and should be considered a normal component of all operational or vocational skills training.

People new to a facility or employees commencing new tasks at the facility must be provided with appropriate induction training.

### **3.4 Education and Training Requirements**

The determination of training requirements must be based on the established standards of competency for people at the facility. The duration, frequency and complexity of the education and training provided must be such that desired standards of competency are achieved and are maintained.

The types of education and training required should include the following:

- induction training for new starters – employees and contractors;

- general training covering broad topics applicable across the facility;
- specific training addressing particular tasks, duties or roles; and
- information and instructions for visitors to the facility.

Induction training programs must provide the initial training for employees and contractors prior to the commencement of their roles and duties at the facility. This training may be broad in nature to cover people new to the facility (see Guide Note 3) or more specific for employees commencing at a different area or in a new role at the facility.

### **Guide Note 3 - Typical Induction Training Requirements**

Induction training programs for new employees to the facility may include:

- general site rules and general SMS outline;
- minimum PPE standards in particular work areas;
- hazard identification, hazard awareness and risk controls for specific areas;
- facility tour, access to site, first aid provisions and workplace amenities;
- procedures to follow in the event of an emergency;
- dangerous substances emergency and dangerous situation reporting procedures;
- restricted areas of the facility; and
- organisational structure, administration and HR issues.

The induction training must ensure that people attain the minimum standard of competency required for their presence (employee, contractor, visitors) at the facility.

Induction training in safety critical areas should be delivered immediately a new starter commences. The induction to other less critical areas may be staged gradually over a period of time. However, the decision on delivery timing must be such that the person's safety and that of others at the facility is not compromised.

It may be useful to outline education and training needs for the competencies required for roles or workgroups at the facility using a training matrix (see Guide Note 4).

### **Guide Note 4 - Training Matrix**

Outline of competency training required for workgroups/roles using a matrix:

COMPETENCY	WORK GROUP / ROLES				
	Administration	Production	Maintenance	Warehouse	.....
SMS - General	✓	✓	✓	✓	
Permits to Work		✓	✓	✓	
Isolations		✓	✓		
Emergency Plans	✓	✓	✓	✓	
Dangerous Substances Emergency & Dangerous Situation Reporting	✓	✓	✓	✓	
.....					

Education and training programs must be developed to achieve established standards of competency for all people at the facility. This includes information and instruction on general areas of competency for all facility employees as well as addressing specific competencies for particular roles and duties (see Guide Note 5).

The Act requires a number of key areas of employee involvement, such as the SRA and emergency plans and procedures. Employees should be trained in preparation for their specific involvement as required.

Education and training provisions must also ensure that specific legislative requirements for particular roles are also being addressed, e.g. appropriate forklift truck training and licensing as required under the *Workplace Health and Safety Act 1995*.

### **Guide Note 5 - Training and Education Addressing General Standards of Competency**

To address general standards of competency, education and training may include the provision of information and instruction to enable people to participate in the following to a level appropriate to their role and responsibility at the facility:

- Hazard awareness, including:
  - the nature of the hazards and properties of dangerous substances;
  - dangerous substances incompatibilities; and
  - understanding dangerous substance labeling and Material Safety Data Sheets (MSDS) etc.
- Hazard identification, risk assessment and risk control processes associated with the person's roles and duties, e.g. the SRA process.
- Details of risk reduction measures in place, their use and maintenance, including:
  - the proper use and fitting of personal protective equipment;
  - general procedures for safe handling of materials;
  - spill and leak containment and clean up;
  - use of fire fighting equipment; and
- Details of the safety management system in place at the facility, including:
  - permit to work system arrangements;
  - management of change and modification procedures;
  - emergency preparedness and response - actions to be taken in an emergency;
  - dangerous substances emergency & dangerous situation reporting and investigation processes; and
  - communication and consultation arrangements.

Appropriate information and instruction must be provided to visitors to the facility to ensure that their personal safety and that of the facility is not compromised.

### **3.5 Presentation of Education and Training Programs**

The occupier must ensure that all education and training is provided in a manner that is easily understood. This may require the provision of information, education and training material in appropriate languages.

To attain the desired standards of competency, the delivery method should be appropriate to the audience and the subject matter, and be best suited to achieve the desired outcome.

### **3.6 Review and Evaluation of Competency**

Following all induction, education and training there must be a review and evaluation of its effectiveness. This evaluation should be outcome based – has the person achieved the desired standard of competency? This evaluation may be based on the following:

- test of acquired knowledge – written, oral or practical demonstration; or
- an observation of behaviours and actions in the workplace.

Provision must also be made for the verification of skills and qualifications of contractors engaged to do work at the facility.

### **3.7 Maintaining Competency**

The occupier must ensure that all education and training at the facility is followed up and refresher and supplementary training is provided at appropriate intervals. This refresher training is required to ensure competency standards are maintained.

In determining the frequency of education and training, the occupier should consider:

- the frequency at which skills or knowledge are applied;
- the turn-over of employees;
- the size and rate of change of the facility; and
- other indicators such as frequency of dangerous substances emergencies or dangerous situations.

Competencies for all employees must be reviewed periodically to ensure that they cover the range of normal and emergency duties expected to be undertaken.

## 4 Requirements of the Act

### 4.1 Links from the Systematic Risk Assessment

Section 38 of the Act requires all MHFs to conduct a comprehensive SRA. The SRA provides the opportunity to identify those roles and duties, which if not performed competently have the potential to adversely affect the facility's risk. As well as identifying these critical roles and duties, it should be apparent from the SRA what general, or minimum competencies are applicable for all people at the facility, e.g. awareness of procedures to be followed in the event of a dangerous substances emergency at the facility.

Of particular emphasis must be the required competencies for people to effectively perform activities associated with critical risk reduction measures. A risk reduction measure, which if removed would result in a significant increase in the risk of a dangerous substances emergency, could be considered to be a *critical* risk reduction measure.

In relation to managing the identified risk, the activities performed may be:

- **preventative** – e.g. connection of earthing straps prior to the transfer of flammable liquids; or
- **controlling/mitigating** – e.g. actions to be taken in emergency situations such as closure of fire doors etc.

The established standards of competency related to these critical activities will need to be discussed in the occupier's submitted Safety Report. Included in this discussion must be the links to relevant hazards identified in the SRA, and the processes in place to continually maintain these standards of competency.

### 4.2 Education and Training Provision

The occupier must establish appropriate education and training programs that ensure people at the facility are competent to perform their roles and duties safely. These education and training programs should be based on bridging the gap between the current or existing competencies of people at the facility and the expected

standards of competency, as well as reinforcing skills and knowledge to maintain established standards of competency.

In accordance with Section 41 of the Act the occupier must be able to provide written records of education and training that have been established and maintained to the standards of competency required by persons at the facility and to demonstrate that appropriate programs are commensurate with the level of risk associated with the facility.

### **4.3 Establishment and Maintenance of Standards of Competency**

The Act requires that occupiers of MHFs must establish standards of competency for all people at the facility. The occupier must be able to demonstrate that appropriate standards of competency have been established, clearly communicated and appropriately documented. People performing particular roles and duties at the facility must be aware of what is expected of them, i.e. they need to be aware of the standards of competency established for the roles and duties they are performing.

The documentation of standards of competency must be such that they are readily accessible and clearly defined. The method of documentation should be appropriate to the particular MHF's established systems and should be clearly linked to the position descriptions for the roles and duties performed at the facility.

Section 41 of the Act states the standards of competency must extend to all people at the facility, which includes contractors and visitors, i.e. the minimum requirements of non-facility employees, while at the facility, must also be defined.

### **4.4 Effectiveness of Education and Training**

As part of the education and training processes established at the MHF, the occupier must establish appropriate methods of verifying that people at the facility have achieved the desired standard of competency at the completion of allocated training.

The method of assessing competency should be defined within the education and training material. This assessment method should be appropriate in establishing that

competency has been achieved. A record of participant's successful completion (or otherwise) of training must be retained.

As with all components of the SMS, the overall effectiveness of the education and training plans and systems in place needs to be evaluated, reviewed and improved where appropriate. Section 41 of the Act states that the education and training provided be regularly reviewed and updated so that standards of competency are maintained, hence processes must be established to measure the performance of the education and training systems relative to established performance criteria. This comparison provides the basis for performance evaluation of the education and training system and identifies areas where improvement is required.

#### **4.5 Records**

Records must be kept of all education and training undertaken to achieve relevant competency standards and be readily accessible to employees and other interested parties as appropriate.

Section 41 of the Act requires the occupier of a MHF maintain a written record of all training, standards of competency and reviews of these competency standards.

## 5 Summary of Occupier's Requirements

The occupier may use the following as a checklist.

The occupier should be able to demonstrate the following:

Tick  
box

- Standards of competency have been established for all roles at the facility, based on an analysis of the duties performed.
  
- Standards of competency have their basis in minimising risks, with appropriate links to the findings of the SRA.
  
- Appropriate education and training programs are in place to ensure established standards of competency are achieved and maintained.
  
- Evaluation processes are in place to validate the competency of people following all education and training.
  
- Processes are established to monitor and review the effectiveness of the education and training programs.
  
- All records associated with education and training are retained.

## 6 Additional Information

The guidelines, additional information or clarification of any of the issues raised in the guidelines can be obtained by contacting Workplace Standards Tasmania, Department of Justice, at any of the following addresses:

Postal: PO Box 56, ROSNY PARK, TAS 7018  
Tel: 1300 366 322 (inside Tasmania)  
(03) 6233 7657 (outside Tasmania)  
Fax: (03) 6233 8338  
E-mail: [wstinfo@justice.tas.gov.au](mailto:wstinfo@justice.tas.gov.au)  
Web: [www.wst.tas.gov.au](http://www.wst.tas.gov.au)

Copies of the *Dangerous Substances (Safe Handling) Act 2005* and *Dangerous Substances (Safe Handling) Regulations 2009* can be obtained from Print Applied Technology P/L at any of the following addresses:

Postal: PO Box 307, HOBART, TAS 7001  
Street: 33 Innovation Drive, Technopark  
DOWSING POINT, TAS 7010  
Tel: (03) 6233 3360  
Fax: (03) 6233 5346  
Web: [www.thelaw.tas.gov.au](http://www.thelaw.tas.gov.au)

Copies of the National Standard for the Control of Major Hazard Facilities [NOHSC:1014(2002)], National Code of Practice for the Control of Major Hazard Facilities [NOHSC:2016(1996)], National Standard for the Storage and Handling of Workplace Dangerous Goods [NOHSC:1015(2001)] and National Code of Practice for the Storage and Handling of Workplace Dangerous Goods [NOHSC:2017(2001)] can be obtained from Safe Work Australia, at any of the following addresses:

Postal: GPO Box 9880, CANBERRA, ACT 2601  
Tel: (02) 6121 5317

Fax: (02) 6121 9284  
Web: [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

Copies of Australian Standards AS 3745 : Emergency Control Organisations and Procedures for Buildings, Structures and Workplaces, AS/NZS 3931 : Risk Analysis of Technological Systems – Application Guide, AS/NZS 4360 : Risk Management, AS/NZS 4581 : Management System Integration – Guidance to Business, Government and Community Organisations, AS/NZS 4801 : Occupational Health and Safety Management Systems – Specification with Guidance for Use, HB76 : Dangerous Goods – Initial Emergency Response Guide and HB221 : Building Continuity Management can be obtained from SAI GLOBAL at any of the following addresses:

Tel: 131 242  
Fax: 1300 654 949  
Web: [www.saiglobal.com/shop](http://www.saiglobal.com/shop)

The Health and Safety Executive (United Kingdom) has an excellent reference library to assist with Emergency Planning for Major Accidents and Preparing Safety Reports for its Control of Major Accident Hazard Regulations 1999 (COMAH) and can be accessed by its website: [www.hse.gov.uk/comah/](http://www.hse.gov.uk/comah/)

The Hazardous Industries and Chemicals Branch of the Department of Employment and Industrial Relations, Queensland, has an excellent reference library to assist with Major Hazard Facilities in respect to safety risk assessment, safety management systems, emergency plans and procedures etc and can be accessed by its website: [www.deir.qld.gov.au](http://www.deir.qld.gov.au)

Likewise WorkSafe Victoria has an excellent reference library to assist with Major Hazard Facilities matters and can be accessed by its website: [www.workcover.vic.gov.au](http://www.workcover.vic.gov.au)

“Loss Prevention In The Process Industries” by Frank P. Lees, “What Went Wrong? Case Histories of Process Plant Disasters” and “Learning from Accidents in History” by Trevor Kletz are excellent resource material and can be located on the web.



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Workplace Standards Tasmania  
PO Box 56 Rosny Park TAS 7018  
Phone: 1300 366 322 (inside Tasmania)  
(03) 6233 7657 (outside Tasmania)  
Email: [wstinfo@justice.tas.gov.au](mailto:wstinfo@justice.tas.gov.au)  
Web: [www.wst.tas.gov.au](http://www.wst.tas.gov.au)  
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