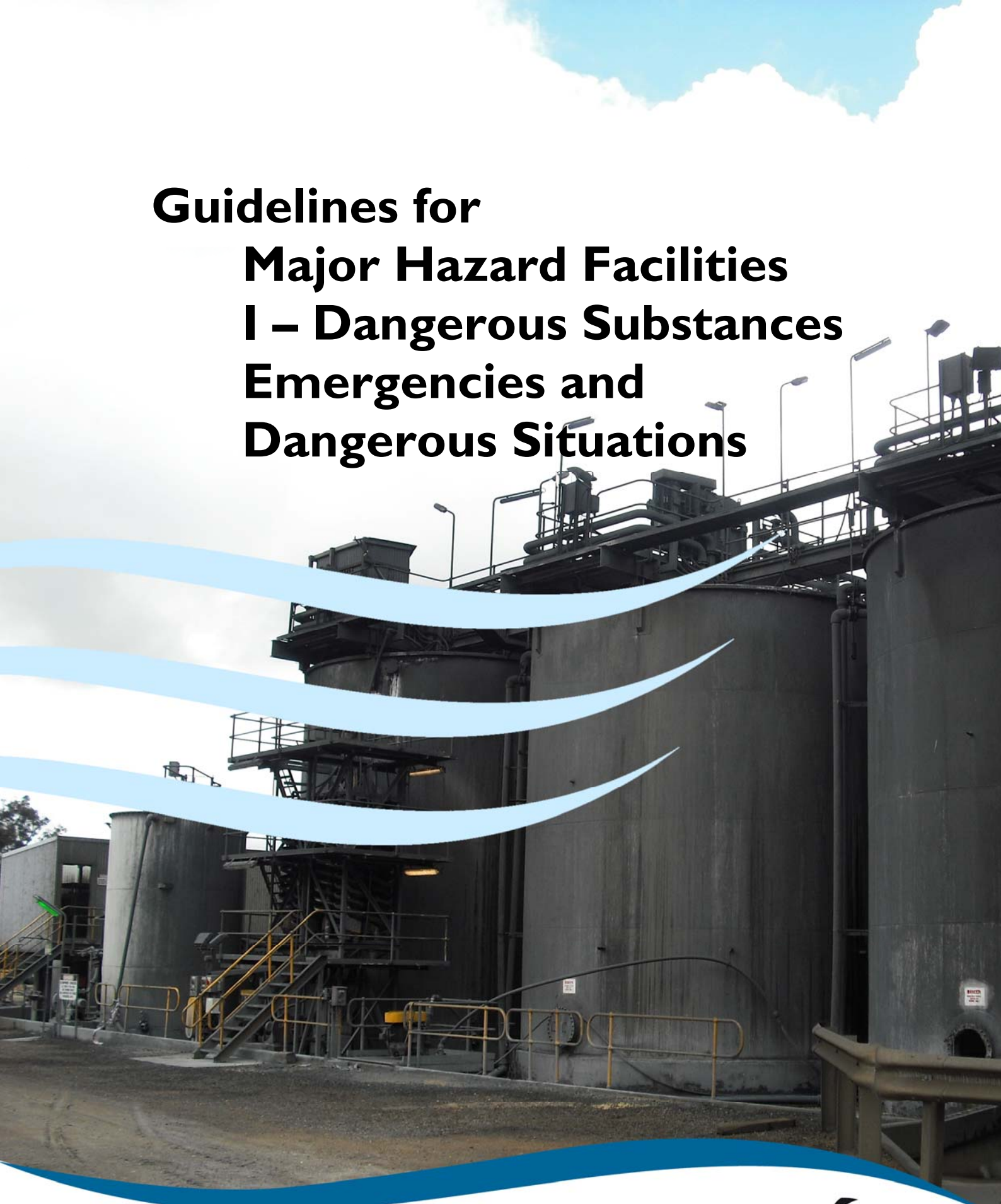


Guidelines for Major Hazard Facilities I – Dangerous Substances Emergencies and Dangerous Situations



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

Acknowledgement

This guide was originally published by Workplace Health and Safety Queensland © The State of Queensland 2009. It has been reproduced with permission by Workplace Standards Tasmania.

We welcome your feedback on this guide. Send to: wstinfo@justice.tas.gov.au

Copyright © State of Tasmania – Department of Justice

ISBN 978-0-9806548-7-5 Guidelines for Major Hazard Facilities – I – Dangerous Substances Emergencies and Dangerous Situations – hard copy

ISBN 978-0-9806549-7-4 Guidelines for Major Hazard Facilities – I – Dangerous Substances Emergencies and Dangerous Situations – e book (PDF)

This work is copyright, however material from this publication may be copied and published by State and Federal Agencies without permission of the Department on the condition that the meaning of the material is not altered and the Tasmanian Department of Justice is acknowledged as the source of the material.

Table of Contents

1	Introduction	2
1.1	Acronyms List.....	3
2	Key Legislative Issues	4
2.1	Dangerous Situations.....	4
2.2	Dangerous Substances Emergency	6
3	Processes.....	7
3.1	Notification of Dangerous Substances Emergency	7
3.2	Dangerous Situation Investigation	7
3.3	Dangerous Substances Emergency Report	8
3.4	Dangerous Situations Report.....	9
3.5	Follow-up and Investigation	9
4	Summary of Occupier's Requirements.....	12
5	Additional Information	14

I Introduction

The occurrence of a dangerous substances emergency or a dangerous situation may be evidence that a Major Hazard Facility (MHF) is not operating at an acceptable level of risk. Seldom do dangerous substances emergencies or dangerous situations arise from a single cause. They most often occur due to a combination of procedural, technical and human breakdowns at various levels. A comprehensive Systematic Risk Assessment (SRA) clearly linked to the Safety Management System (SMS) should reduce the likelihood of such dangerous substances emergencies or a dangerous situation. Consequently a dangerous substances emergency or dangerous situation will be an indication of deficiencies in the SRA or, where the hazards have been identified, deficiencies in the SMS.

Section 14 of the *Dangerous Substances (Safe Handling) Act 2005* (the Act) obligates the occupier to operate the MHF at an acceptable level of risk. To achieve this obligation the occupier must make good the deficiencies in the SRA and/or the SMS which gave rise to the dangerous substances emergency or dangerous situation.

Following the dangerous substances emergency or dangerous situation the occupier must:

- investigate the dangerous substances emergency or dangerous situation to establish the cause(s) as soon as practicable;
- establish risk reduction measures which ideally eliminate the possibility of a re-occurrence or as a minimum reduce the risk of a re-occurrence;
- review and update the SRA to incorporate appropriate new or improved risk reduction measures to achieve an acceptable level of risk;
- ensure that the risk reduction measures remain in force while the facility continues to operate. This is achieved through changes to the SMS;
- review the risk reduction measures at an appropriate interval to ensure that they continue to be appropriate, effective and remain in force;
- involve employees at the facility in the investigation and consult and inform them about resultant changes in the SRA and SMS;

- record and retain the dangerous substances emergency or dangerous situation investigation report;
- where required by legislation notify the Secretary of the dangerous substances emergency or dangerous situation as soon as practicable; and
- where required by legislation supply a report about the dangerous substances emergency or dangerous situation to the Secretary.

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

The legislation defines two types of incidents:

- a dangerous substances emergency; and
- a dangerous situation.

The extent of an occupier's response, required by the legislation following a dangerous substances emergency or dangerous situation, reflects the consequences or potential consequences of the dangerous substances emergency or dangerous situation. The more serious the consequences, the more extensive and detailed is the required response.

2.1 Dangerous Substances Emergency

The Act defines a dangerous substances emergency as:-

An incident that exposes persons, property or the environment in the vicinity of the place where the incident occurs to an immediate risk of serious harm from one or more of the following:

- (a) the escape, spillage or leakage of dangerous substances;
- (b) a fire or explosion involving dangerous substances;
- (c) a harmful reaction from dangerous substances;
- (d) the evolution of flammable, corrosive or toxic vapours from dangerous substances.

The Act defines serious harm as:

Harm that contributes in a substantial way, either directly or indirectly, to one or more of the following:

- the death of a person;
- serious personal injury within the meaning of Section 15;
- serious harm to property;
- serious harm to the environment.

Where a dangerous substances emergency occurs the occupier must:

- immediately advise the Secretary that the dangerous substances emergency has occurred and of any resulting serious harm or material harm to persons, property or the environment; and
- if that advice is given to the Secretary orally, confirm it in writing within 7 days; and
- investigate the dangerous substances emergency as soon as practicable; and
- implement the measures identified to avoid reoccurrence of dangerous substances emergencies in the future; and
- give the Secretary a written report of the investigation and its findings within one month after the dangerous substances emergency occurs or, if the Secretary considers this is not practicable, the longer time allowed by the Secretary.

2.2 Dangerous Situation

The Act defines a dangerous situation at any premises as:-

Although there is not a dangerous substances emergency at the premises –

- (a) it is likely that there will be a dangerous substances emergency at the premises if appropriate action is not taken; and
- (b) it is reasonable to conclude, at the least, that taking the action should not be indefinitely delayed.

. Where a dangerous situation occurs the occupier must, as soon as practicable:

- record the dangerous situation;
- investigate the dangerous situation and record the findings of the investigation;
- consult with relevant employees about ways of avoiding dangerous situations in the future;
- implement the measures of avoiding dangerous situations; and
- keep a record of the above for as long as the MHF continues to operate.

3 Processes

3.1 Notification of Dangerous Substances Emergency

Section 45 of the Act requires the occupier of a MHF where a dangerous substances emergency has occurred at the MHF to immediately advise the Secretary of it and any resulting serious harm or material harm. Where the initial advice is given to the Secretary orally, it must be confirmed in writing within 7 days.

The notification must include available information necessary for an initial evaluation of the dangerous substances emergency, such as:

- the name and location of the major hazard facility where the dangerous substances emergency occurred;
- the contact person and phone number at the MHF from whom ongoing information about the dangerous substances emergency can be obtained;
- the nature of the events that occurred, for example, explosion, fire or release of toxic materials;
- time and date of the dangerous substances emergency and subsequent consequences;
- the materials involved and their approximate quantity;
- an indication of the possible acute effects on people and the environment;
- property damage outside the MHF; and
- initial measures taken to minimise the consequences, including the emergency measures taken on-site or off-site.

3.2 Dangerous Situation Investigation

The level and nature of an investigation must be based on considerations of an incident's potential consequences rather than its actual consequences. This is particularly important for an investigation of a dangerous situation where there is no essential difference between it and a dangerous substances emergency.

The investigation must determine immediate causes and the underlying causes of an incident and in particular management related causes and human factor causes.

The investigation must extend to identifying those sections of the SRA, specific risk reduction measures and elements of the SMS which failed thereby allowing the incident to occur.

3.3 Dangerous Substances Emergency Report

The report must be viewed as a demonstration by the occupier to the Secretary that the occupier must be allowed to continue to operate as an MHF. This includes proving that the plant is fit to operate, and that the occupier is operating the plant in a safe manner.

The report must contain sufficient information that upon reviewing it the Secretary is satisfied that the occupier:

- understands why the dangerous substances emergency occurred;
- has implemented immediate measures to make the plant safe;
- has identified and is implementing measures to ensure that the plant can be operated safely in the future; and
- has demonstrated that the plant is in a fit condition to be allowed to start up (if applicable) or be allowed to continue to operate. This includes integrity of mechanical construction and process design and operability.

As such, the written report to the Secretary shall include at least the following information about the dangerous substances emergency:

- the nature; date; and time of the dangerous substances emergency;
- the dangerous substances involved, and the amounts of each;
- the immediate consequences of the dangerous substances emergency on people, property and the environment and the likely longer term consequences;
- the steps taken to mitigate the effects;
- an analysis of the causes of and contributing factors to the dangerous substances emergency;
- the action already taken and the planned future actions to prevent similar occurrences;

- the extent of involvement of emergency services in the dangerous substances emergency;
- a critique of the implementation and content of the emergency plans and procedures and, where applicable, a copy of the revised plans and procedures;
- changes which have been made to the SRA and EP&Ps;
- changes which have been made to the SMS and the safety report, where appropriate;
- analysis of why the SMS and SRA processes failed in identifying, preventing, and mitigating this dangerous substances emergency ;
- the extent and nature of employee consultation;
- the extent and nature of consultation with the community;
- proof of integrity of mechanical condition of the plant, especially if significant damage was associated with the dangerous substances emergency;
- proof of integrity of process design and operability of the plant, if this was a consideration in the dangerous substances emergency; and
- other matters relevant to the dangerous substances emergency or measures put in place to prevent a similar dangerous substances emergency.

3.4 Dangerous Situations Report

The written report of a dangerous situation must cover all the elements listed in Section 3.3 of this guideline that are relevant to the incident. The occupier must retain the report for as long as the MHF continues to operate.

These reports must always be available to employees at the facility. Copies should be supplied to the Secretary on request. In addition, any incident which results in a modification to the MHF that significantly alters the risk of the facility must be reported to the Secretary.

3.5 Follow-up and Investigation

In all likelihood, if there has been a dangerous substances emergency (personal, environmental, or property damage), emergency services and other government agencies will have been in attendance. Once the emergency responders have

departed, it is probable that officers from one or more of the following government agencies may remain on site to further investigate:

- Workplace Standards Tasmania
- Tasmania Police
- Tasmania Fire Services
- Department of Environment, Parks, Heritage and the Arts
- Department of Health and Human Services

The extent of their interest will depend upon matters such as:

- The nature and size of the incident
- Professional judgement regarding the likely causes
- The past performance of the facility
- Their judgement on the capacity of the facility to investigate the incident
- Impact on health, safety, security and environmental risks associated with the facility
- Interest from external parties (media, trade, political)
- Assurance that the situation is now under control

In accordance to Section 56 of the Act an authorised officer has the powers conferred on authorised officers by the Act and has the power to do all things necessary or convenient to be done to exercise those powers. An authorised officer may conduct inspections and investigations after a dangerous substances emergency as opposed to any other action that may result regarding other aspects of the operation.

If the authorised officer wishes to interview a person:

- The person must answer questions regarding to matters the Act;
- This interview may take place on or off site;
- No attempt must be made to influence a respondent to refuse to answer questions asked by an authorised officer; and
- Where these officers are authorised under other legislation, other than the Act, details of their authorisation and powers will be identified under the relevant legislation.

Subsequent to any investigation, depending on the scale of the incident, there may be other forms of formal enquiry or legal action such as:

- A Royal Commission or Judicial Enquiry
- A coroner's court hearing
- Prosecution

4 Summary of Occupier's Requirements

The occupier may use the following as a checklist.

Under the legislation the obligations of an occupier of a MHF are as follows:

- Following a dangerous substances emergency the occupier must:
 - take action to achieve an acceptable level of risk
 - as soon as possible notify the Secretary about the accident;
 - thoroughly investigate the emergency to determine the causes;
 - provide a written report about the emergency to the Secretary within 1 month;
 - review and update the SRA;
 - review and update the SMS; and
 - consult with relevant employees about avoiding future dangerous substances emergency.

- Following a Dangerous Situation the occupier must:
 - investigate the dangerous situation to determine the causes;
 - record the dangerous situation and retain the report while the facility continues to operate;
 - take action to achieve an acceptable level of risk
 - review and update the SRA;
 - review and update the SMS;

– consult with employees about avoiding future near misses; and

– on request, provide a copy of the report and actions taken to the Secretary

5 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 (within Tasmania)
(03) 6233 7657 (outside Tasmania)
Fax: (03) 6233 8338
E-mail: wstinfo@justice.tas.gov.au
Web: 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

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 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

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

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/

The Hazardous Industries and Chemicals Branch of the Department of Employment and Industrial Relations, Queensland, has an excellent reference library to assist 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

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

ISO/PAS 22399 : Societal Security – Guidelines for Incident Preparedness and Operational Continuity Management published by the Business Institute is an excellent resource on how to deal with emergency planning and can be accessed by its website: www.thebci.org.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 accessed on the web.



Tasmania

Explore the possibilities

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
Web: www.wst.tas.gov.au
GB219 June 2009