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1. Workplace Health and Safety Commitment

We put people’s health and safety first

Commitment

We are committed to providing and maintaining a safe and healthy workplace for all our workers, customers and visitors. Our responsibility extends to ensuring the Hydro Tasmania Group operations do not place communities at risk.

Objectives

To fulfil our commitment we will:

- ensure compliance with all legislative requirements
- provide and maintain a safe place of work and systems of work
- maintain and communicate written procedures and instructions to ensure safe systems of work
- provide measurable objectives and targets, ensuring continuous improvement to our safety performance
- provide appropriate information, training and supervision to all workers and visitors
- support workers to manage their mental and physical health through initiatives offered under our Hydro Tasmania’s range of health initiatives
- ensure timely rehabilitation and return to work plans for work and non-work related injury and illness.

Responsibilities

- The Leadership Team has overall responsibility to provide a safe and healthy workplace.
- Officers and Duty Holders are responsible for the implementation of this commitment. This encompasses:
  - ensuring effective controls are in place to manage hazards and risk
  - procedures and systems are in place to manage hazards and risk
  - procedures and systems are in place to ensure the workplace is maintained in a safe condition
  - health and safety systems are implemented and feedback is sought for continuous improvement
  - resources are made available to workers allowing them to meet this health and safety commitment
- All our workers have a duty of care to:
  - take reasonable care for their own health and safety and the health and safety of others
  - maintain a safe workplace and follow safe systems of work
  - participate in induction, training and information sessions
  - proactively rectify and/or report hazards and near misses
  - promptly report any accidents, incidents or near misses.

Consultation

Hydro Tasmania is committed to consult with its workers to ensure that this commitment and associated systems operate effectively and health and safety matters are reviewed and continuously improved.

Stephen Davy
Chief Executive Officer

Review and authorisation

This document will be reviewed every three years. Approved January, 2013
1.1 Safe work practices handbook

**Purpose**

*For the purposes of this document Hydro Tasmania means the broader Hydro Tasmania Group including Entura, Momentum and all its subsidiary companies.*

The standards outlined in this handbook are the minimum requirements for all workers undertaking work on any Hydro Tasmania or its clients’ sites.

- To provide consistent safe work practices within Hydro Tasmania.
- To provide a summary of all the specific safe work procedures Hydro Tasmania workers are required to follow.

The information contained in this handbook is for use by Hydro Tasmania workers. In the case of unapproved use of this information by external parties, Hydro Tasmania takes no responsibility for any loss or liability of any kind suffered by any party in reliance upon its contents whether arising from any error or inaccuracy in the information or any default, negligence or lack of care in relation to the preparation of the information in the handbook.

**About the handbook**

The structure is based on the type of work or the hazard being controlled.

This handbook is intended to complement rather than to replace specific safety and health procedures, for example confined space safety, isolation etc.

Throughout the handbook, the word ‘shall’ is highlighted to denote this is a mandatory practice.

Should anyone identify an improvement to any Health, Safety and Environment (HSE) documentation or process, a variance request form shall be completed and signed off by your manager who will escalate this request as per the procedure. This process enables continual improvement of the HSE system. Please refer to the Variance Request Form in Appendix B of this document.

A flowchart demonstrating how HSE documents, including the contents of this handbook, can be updated is in the safety communication section.

Under emergency situations where life or a serious threat to the Environment or asset damage is at risk, an authorised and competent person may safely do what is necessary to address the immediate issue, providing they do not place themselves in any danger.
1.2 Hydro Tasmania Health, Safety and Environment (HSE) management system

An HSE management system enables an organisation to control its HSE risks and improve its HSE performance. The HSE management system has been developed in accordance with the international recognised standard OHSAS 18001:2007 and provides a practical system where people, compliance and effective risk management practices deliver our vision of ‘no harm to anyone at any time’.

The HSE system includes 16 key elements and is supported by a number of standards, policies and procedures which are referenced as an Appendix in this document.

These elements are:-

1: Policy and commitment
2: Legal and other requirements
3: Hazard identification and risk management
4: Planning and objectives
5: Accountability and leadership
6: Awareness, training and competency
7: Communication, consultation and involvement
8: Document and record management
9: Assets and operations
10: Project management
11: Management of contractors and suppliers
12: Emergency preparedness
13: Monitoring and measuring
14: Incident management
15: Audit
16: Management review
1.3 Our safety vision

“No harm to anyone at any time”

Hydro Tasmania safety principles, which underpin this vision, are:

- all injuries can be prevented
- employee involvement is essential
- everyone is responsible for safety
- we are all accountable for preventing injuries
- working safely is a condition of employment
- we promote off the job safety for our workers

1.4 Our values

- we put people’s health and safety first
- we build value for our partners and customers through innovation and outstanding service
- we behave with honesty and integrity
- we work together, respect each other and value our diversity
- we are accountable for our actions
- we are committed to creating a sustainable future
1.5 Cardinal rules

The cardinal rules apply to all workers employed by or working for Hydro Tasmania on Hydro Tasmania controlled work sites:

- No person shall attempt to operate an energy isolation, dissipation or restraint device which has been locked or tagged.
- No person shall wilfully sabotage any property or infrastructure belonging to, or under the control of, the corporation.
- No person shall wilfully bypass any safety interlock unless authorised to do so.
- No person shall carry on any fighting or horseplay which could, or does, give rise to serious injury to people or extensive damage to property.

A failure to comply with these rules will result in disciplinary action and, where appropriate, dismissal or termination of contract.

1.6 Basic risk management approach

In addition to compliance with legislative requirements, including duty of care, all work activities conducted under Hydro Tasmania direction shall have risks managed to a level as low as reasonably practical and adhere to the basic risk management process defined by the Work Cover Tasmania ‘SAFE’ concept:

- Spot the hazard
- Assess the risk
- Fix the problem
- Evaluate results

In order to fix the problem, the hierarchy of controls listed below shall be implemented to the highest level that is reasonably practical:

1. Elimination
2. Substitution
3. Isolation
4. Engineering controls
5. Administrative controls
6. Personal protective equipment (PPE)

Consistent with the basic risk management approach whenever practical, eliminate hazards by changing the work process or by substituting a less hazardous component. When it is impractical to eliminate the hazard use the practices outlined in this handbook.

PPE should be considered and used as the last line of defence against injury.
2. Inductions

2.1 Purpose of inductions

To ensure all workers engaged by, or on behalf of Hydro Tasmania are familiar with the organisation’s:

- safety systems
- vision
- values
- cardinal rules
- expected behaviours and culture
  - by being provided with appropriate information and training to enable them to safely undertake work and respond to emergency situations.

Induction process levels

The Induction process is broken into three levels and is coordinated by your Hydro Tasmania line manager or job manager:

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
</table>
| Corporate (Level 1) | All new Hydro Tasmania staff and contractors who log on to the organisation’s IT system and who may have unescorted access to Hydro Tasmania property. *

*For additional information, refer to MyHydro - Level 1 Induction.* |
| Health, Safety and Environment (Level 2) | This introduces all workers employed by or working for Hydro Tasmania to the organisation’s HSE policies and procedures, outlining obligations and responsibilities. *(HSE L2) inductions are required to be refreshed every two years.* |
| Site specific (Level 3) | This induction introduces all workers employed by or working for Hydro Tasmania to the site where they are working and is to be conducted prior to the commencement of work. It covers the specific hazards, controls, emergency procedures and project/task specific safety requirements. Any worker on site who is not Level 3 inducted shall be appropriately supervised. *(Level 3) inductions are valid for a maximum of two years based on the environment and risk.* |

2.2 Site access

Hazardous and restricted areas are sites that are kept secure at all times for safety and business risk, and include but are not limited to:

- power stations
- switchyards
- intake structures (e.g. intake gate buildings, hill-top valve houses, dam and dam galleries)
- permitted work sites
- offices and amenities
- project and construction sites
Safe work practices

Section A – Safe leadership

Note: These are the minimum requirements for working for or on any Hydro Tasmania, or a Hydro Tasmania client’s site. Exception to these rules where marked as (+Required) must be managed through the variance form in the appendixes of Hydro Tasmania Safe Work Practices with the appropriate approval from the officer or their delegate. Where indicated that an item (‘May be required) the Authorised Person (AP) shall do so through consultation and risk assessment based on the work being performed and the specific area and hazards present.

<table>
<thead>
<tr>
<th>Access Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unaccompanied</td>
<td>The minimum training and induction required for workers and contracted staff accessing Hydro Tasmania controlled sites alone without being accompanied by a Hydro Tasmania authorised person. Note: This may or may not require a permit to work based on the environment and risk.</td>
</tr>
<tr>
<td>Accompanied</td>
<td>The minimum training and induction required for workers and contracted staff to access the site whilst accompanied by a Hydro Tasmania authorised person. Based on the environment and risk, persons may perform work as long as it is under the direct control of an authorised or competent person.</td>
</tr>
<tr>
<td>Visitor</td>
<td>The minimum training and induction required to access the site whilst accompanied by a Hydro Tasmania authorised person. Persons classed as visitors cannot perform physical work.</td>
</tr>
</tbody>
</table>

Table 2. Site access – definition of terms

<table>
<thead>
<tr>
<th>Minimum requirements for access to Hydro Tasmania hazardous and restricted areas. This includes Technical and Operations, including client sites, in state, interstate and overseas fitting this description.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required</td>
</tr>
<tr>
<td>Power generating equipment, Pumping equipment, extra high voltage environments eg switchyards and power lines, pipelines, penstocks, tail bays and intakes within safe access signage.</td>
</tr>
<tr>
<td>✔ Required</td>
</tr>
<tr>
<td>★ May be required</td>
</tr>
</tbody>
</table>

Table 3. Hazardous and restricted areas

<table>
<thead>
<tr>
<th>Access Type</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unaccompanied access</td>
<td>★ ✔ ✔ ✔ ✔ ★ ★ ✔ ★</td>
</tr>
<tr>
<td>Accompanied access</td>
<td>★ ★ ★ ✔ ✔ ★ ★ ✔ ★</td>
</tr>
<tr>
<td>Visitor</td>
<td>✔ ★ ✔ ✔ ✔</td>
</tr>
</tbody>
</table>
Minimum requirements for access to Hydro Tasmania activities on **Civil, Construction, Land and Building Structures** including client sites, in state, interstate and overseas fitting this description.

<table>
<thead>
<tr>
<th>Description:</th>
<th>Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings, dam, canals, roads, lakes, rivers, construction sites</td>
<td>✔️ Required</td>
</tr>
<tr>
<td>★ May be required</td>
<td></td>
</tr>
</tbody>
</table>

**Table 4. Civil, Construction, Lands and Building Structures**

<table>
<thead>
<tr>
<th>Induction or training required</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide notification of intended access</td>
<td>Access to any Hydro Tasmania controlled site requires pre approval by the asset owner or asset owner’s delegate e.g.: AIO or project manager, to ensure safe access, and if required, issue of a permit to work (PTW) and induction requirements.</td>
</tr>
<tr>
<td>Health, Safety and Environment induction</td>
<td>This introduces all workers employed by or working for Hydro Tasmania to the organisation’s HSE policies and procedures, outlining obligations and responsibilities. (HSE L2) inductions are required to be refreshed every two years.</td>
</tr>
<tr>
<td>First aid</td>
<td>Level 1 first aid is the minimum requirement for all workers engaged for trade and construction type work activities including access to hazardous and restricted areas of Hydro Tasmania. Note: All Hydro Tasmania field based personnel shall have Level 2 first aid. Senior first aid will be recognised as Level 2 first aid and all training will be accepted as in date for three years from the date of attainment.</td>
</tr>
</tbody>
</table>

<p>| Provide notification of intended access | ✔️ ✔️ ✔️ ✔️ ★ ★ ★ ✔ ★ |
| Health, Safety &amp; Environment induction | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Level 1 first aid or Emergency first aid | ★ ✔ ★ ★ ★ ★ ✔ ★ |
| Construction Industry white card | ★ ✔ ★ ★ ★ ★ ✔ ★ |
| Level 3 site specific induction and record entry to site | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Accompanied by an authorised and competent person | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Hydro Tasmania “Instructed Person” training for hazardous and restricted areas | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Hydro Tasmania Person in Charge (PIC) | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Issued a permit to work | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| Mandatory personal protective equipment | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |
| 12 monthly switchboard rescue and CPR refresher for workers exposed to live electrical equipment | ✔ ★ ★ ★ ★ ✔ ★ ★ ✔ ★ |</p>
<table>
<thead>
<tr>
<th>Induction or training required</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accompanied by an authorised and competent person</td>
<td>Due to a person requiring access to a restricted area and not having the minimum induction, training and competence to attend the site or area safely alone.</td>
</tr>
</tbody>
</table>
| Hydro Tasmania 'Instructed Person (IP)' training for Hazardous and Restricted areas. | Provides participants with knowledge about their roles and responsibilities of being an Instructed Person (IP) in relation to a Person in Charge (PIC) and an Authorised Issuing Officer (AIO) on Hydro Tasmania worksites. It also includes information on:  
  - Hydro Tasmania Safe Work Practices  
    - Purpose  
    - Safety principles  
    - Basic risk management approach  
    - Definitions  
  - Hydro Tasmania Permit to Work  
    - Objectives  
    - Scope  
    - Process  
    - Roles and responsibilities  
  - Isolations & Lock Out Tag Out (LOTO)  
  - Hazards in hazardous and restricted areas  
  - Assessment and accreditation  
  *Note: This training does not provide specific technical/practical information on how to perform the work stated on a work permit.*  
  **IP training is required to be refreshed every two years.** |
| Hydro Tasmania ‘Person in charge’ (PIC) | A person trained as a PIC and authorised to issue special permits for confined space, hot work, etc.; and who will take charge of the conduct of work and the work site defined in a permit to work and is accountable for the safety of people (Instructed Persons, visitors or members of the public) and equipment within the scope of the work. An individual shall only assume the role of PIC where they have both the competence and confidence to fulfill the role.  
  **PIC training is required to be refreshed every two years.** |
| Issued a Permit to Work | The PTW procedure is applicable to all work being undertaken at Hydro Tasmania owned and/or operated plant and assets. It provides the overarching framework for safe work management and follows the fundamental risk management process with some check/hold points at the end of work scope approval, at the end of the hazard identification and control determination and agreement, and prior to the actual commencement of work.  
  The PTW system does not apply to routine operational and maintenance activities where the identified risk is low, and the risk management process has been achieved in routine work management systems. |
## Section A – Safe leadership  Safe work practices

<table>
<thead>
<tr>
<th>Induction or training required</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| Mandatory personal protective equipment | Mandatory PPE requirements for Hydro Tasmania (excluding office environments) are:  
  - Hard hat  
  - Safety glasses  
  - High visibility clothing (long sleeves and trousers)  
    100% cotton (185 gsm) when working in an electrical environment.  
  - Safety toe boots  
  - Hearing protection and gloves (carried and available for use). |
| 12 monthly switchboard rescue and CPR (UETTDRRF06B) training and refresher for workers exposed to live electrical equipment | This training is for workers who are exposed to or work in environments or assist persons who work in environments where there is exposed live electrical equipment or a chance of there being exposed live electrical equipment or electric shock. Areas and tasks will include; switchyards, switchboards with exposed live conductors, fault finding on live equipment, whilst using insulated tools on low voltage and above, thermal imaging or working within safe limits of approach. |
| Construction Industry white card | The National Standard for Construction Work [NOHSC:1016 (2005)] (the National Standard), aims to protect persons from the hazards associated with construction work. This Code of Practice provides guidance to persons working in the general and residential construction sectors on the types of induction training that may be needed to provide construction workers with an awareness and understanding of common hazards on construction sites and how they should be managed. This is mandatory in Tasmania from August 2011 as well as being required to work on construction sites nationwide. |

*Table 5. Explanation of induction & training*
3. Safety communications

3.1 Local safety team

Hydro Tasmania shares knowledge and experience through ‘local safety teams’. The business currently follows a structure which provides resources to proactively engage workers and managers in an HSE effort.

All workers across Hydro Tasmania, including contractors, have the ability to address safety at their level and to escalate any issue through proactive communication using line management.

This can be done through a number of avenues including:

- hazard and incident reporting
- toolbox meetings
- safety representatives
- line managers and job managers
- safety advisers
- team meetings
- group meetings
- defined safety meetings
- executive safety team meetings chaired by the CEO

Get involved

- Talk to your line manager or job manager to find out who your local safety team representative is.
- Make sure you play your part in Hydro Tasmania’s safety effort by finding out about safety programs in your area.
- Be observant in the workplace and bring safety issues to the attention of your local safety team, line manager or job manager.

3.2 Management communications

In addition to formal safety focus teams, line management shall be responsible for communicating key safety messages and learnings from incident reporting.

3.3 Safety documentation

Controlled safety documentation is published on both Hydro Tasmania’s internet (external website) and intranet (internal website). Health, Safety and Environment on the intranet provides key components of the HSE management system, including Hydro Tasmania’s HSE policy, standards and procedures. The HSE site provides, but is not limited to, a listing of Hydro Tasmania’s key safety documentation including notifications, statistics, procedures, checklist, permits and the safe work practices handbook. The handbook includes a revision history sheet which lists a detailed description for each revision/version. The electronic (soft) copy of this handbook is the latest version and enables the user to conduct a word search.
3.4 Procedure change and variance request

Roles/responsibilities

Any revision to this handbook will be as a result of changes to work processes, regulatory changes and continual improvement. The following stakeholders are key to the revision process:

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>• Submit recommended revisions as appropriate.</td>
</tr>
<tr>
<td>Line Managers and Officers</td>
<td>• Approve all changes to any HSE document including the safe work practices handbook.</td>
</tr>
<tr>
<td>Health, Safety and Environment Team</td>
<td>• Collate and facilitate the procedure change/variance requests.</td>
</tr>
<tr>
<td></td>
<td>• Schedule and facilitate review sessions as required.</td>
</tr>
<tr>
<td></td>
<td>• Update the safe work practices handbook in accordance with the HSE management system.</td>
</tr>
</tbody>
</table>

Revision process

Initiating change to safety documents and the safe work practices handbook

To initiate change to controlled HSE documents and the content of this book, complete the steps below.

- Complete the HSE Procedure Change/Variance Request Form – refer to Appendix B.
- Forward form to line manager and/or officer for approval.
- Line manager to forward change request form to HSE team.

When completing the form be sure to consider the following which may help to identify any implications and minimise the potential for increasing risk:

- analyse potential impact on existing operational procedures, e.g. training, documentation, equipment etc.
- identify potential change to risk and hazards, e.g. consider changes in location, equipment or operating conditions
- ensure relevant documents and links are noted
- identify stakeholders of the change – workers and contractors

Change review process

A review team along with the HSE manager assess each change request, and if deemed applicable to all facets of the organisation, a plan is then developed for implementation and notification.

If changes are declined, the HSE manager and review team will notify the relevant parties of the outcome. The following flowchart provides a graphical representation of the change request process.
Change request process for updating controlled HSE documents

User identifies potential change

Completes change request form

Reviewed by line manager and officer

HSE management team and review team approves or disapproves each request for change.

Approved

Implement agreed changes, update intranet, procedures etc

HSE system updated and significant changes communicated

Disapproved

Informs requestor and individual approving change request why not approved
4. Hazard identification tools

- Hazards and risks to the safety of people, environment, plant and production shall be considered when planning any work.
- Workplace hazard registers shall be used by all workers to identify known site hazards and to ensure they are considered along with hazards and risks associated with the work.

**Process overview**

- Identify the level of risk management documentation required.
  - HSEP0301 Hazard ID & Risk Management
- For each job task or work activity...
  - Assess uncontrolled risk level
- Uncontrolled risk level?
  - LOW
  - Use Take 5 process - see Take 5 books
  - MODERATE OR ABOVE
- Start Job Hazard Analysis (JHA) process - section 4.2
- Environment
  - Is the risk?
- A defined impact activity?
  - NO
  - Environmental Impact Assessment - section 4.3
  - YES
- Health & Safety
  - A defined high risk activity in construction work?
  - NO
  - Apply established process & controls - section 4.5
  - YES
  - Existing procedure, work instruction or other document that details the risk management?
    - Must meet intent of SWMS
    - NO
    - Safe Work Method Statement - section 4.4
- Review and keep a record of the HSE risk management for continuous improvement

See section 6 for definitions of impact activities, construction work and high risk work activities.
The following risk management tools are available and shall be used when planning works to maximise safety and minimise risk.

4.1 Site Hazard Register

These registers assist in identifying workplace hazards, risk levels, control measures and remedial actions for Hydro Tasmania assets and can be found on the HSE web page. These may include and are not limited to:

- occupational health and safety hazards
- environmental aspects and impacts
- production risks
- plant loss/costs
- hygiene hazards – asbestos, noise, lead, PCBs, hazardous substances, etc.

4.2 Take 5

The Take 5 process shall be used to identify and assess basic workplace hazards throughout a job and includes the following steps:

- stop and look
- think through the task
- identify the hazard
- control and communicate
- keep doing the job safely

4.3 Job hazard analysis

Carry out a job hazard analysis (JHA) if any of the following apply:

- a Take 5 identifies the uncontrolled risk level to be greater than low
- a permit to work (PTW) is required
- there is no approved safe work method statement (SWMS) or standard operating procedures (SOP) for any work classed as high risk

4.4 Safe work method statement

A Safe Work Method Statement (SWMS) is a documented health and safety risk management plan used for defined high risk work activities. An SWMS is required for any tasks that involve high risk work activities as per the Work Health and Safety Regulations 2012. For tasks requiring a SWMS refer to HSE Procedure HSEP0303 JHA & SWMS section 4.4.

A SWMS sets out the individual tasks within the high risk work activity – in a logical sequence – identifies the health and safety hazards and describes control measures. It is a detailed description of how a specific task is to be performed.
An SWMS differs from a JHA in that:

- it only covers work activities that meet the definition of high risk work (a JHA covers all work activities and all HSE risks)
- it only applies to workplace health and safety risks (a JHA includes environmental, social and cultural heritage risks)
- it breaks a single work activity into task-based steps (a JHA breaks a job into its component work activities)
- it requires a higher level of detail as to how each specific risk will be managed, either containing the step-by-step instructions to perform the work safely, or referencing other documents that contain this level of detail
- it requires that the risks and controls have been discussed with the workforce, and that these discussions have been documented

### 4.5 Safety Observation

A safety observation is intended to reinforce positive safety behaviour, identify any inappropriate safety behaviour, agree on modified behaviour and prevent injuries and property damage. When engaging in conversation, apply the following observation principles:

- observe
- get the person’s attention
- engage the person in conversation
- start with a genuine positive comment, e.g. what the person was doing safely
- ask the person what do they think is unsafe about the task. If they fail to identify your concerns, tell them what you think and solicit a response. If you cannot get the person to admit to the issue then it is unlikely the behaviour can be modified
- discuss with the person:
  - the possible consequences of the unsafe act
  - safer ways to do the job
  - if there could be a commitment from them to work safely in the future

**Most importantly, thank the person.**
5. Crisis and emergency management

5.1 Emergency response

Crisis and emergency situations are not the same.

An emergency is any unplanned or abnormal event in a specific location which demands immediate attention, usually by team members on the spot with or without the direction of line managers. Most emergencies do not result in a crisis.

A crisis is an event that threatens to harm Hydro Tasmania’s reputation, brand, value creating activities, interests of its key stakeholders or the general public. It may occur suddenly, with a short decision-making time – for example a major operational failure – or it may develop more slowly – for example a drought with low inflows to storages.

A crisis may involve all or a substantial part of Hydro Tasmania and have major actual or potential long-term consequences.

Crisis situations require a strategic response. In a crisis, normal management procedures are unlikely to be timely or appropriate.

As an example, a mechanical failure spilling 100 litres of oil into a river would be an emergency situation requiring an immediate response. If this occurred upstream of a water supply for a large town or if the downstream area was a habitat for an endangered species, then it would probably escalate to a crisis very quickly.

5.2 Crisis and emergency management plan

This plan describes:

• the purpose, structure and role of the crisis management team and role descriptions for all those involved
• the five level escalation framework and triggers
• communication links and details
• documentation and debrief requirements

The plan includes the principle of ‘prudent over-reaction’ and rapid de-escalation to help ensure potential or actual crises are contained in a timely manner and at the lowest level possible.

The crisis management team provides executive leadership during the crisis; high level communication; liaison with key stakeholders; and the capability to support and allow the operational teams to manage the actual emergency event or situation.

• All Hydro Tasmania sites shall have an emergency response plan and procedure.
• Duty holders shall develop and implement emergency response plans as far as reasonably practicable for all work. These shall be risk assessed and based on the hazards identified.

All workers have a duty of care to be familiar with and follow these emergency response plans.
5.3 Emergency management plan

Immediate response

The following steps should be undertaken in the event of a possible, suspected or actual emergency event at or involving any Hydro Tasmania assets or people:

- ensure personal safety, and that of colleagues
- contact duty officer, or if not available, Gen Control (6230 5000)
- Gen Control will contact Duty Officer or on-call level 2 manager
- Level 2 manager will assess scale of incident in line with HT Escalation Triggers model
- if possible, consult with CT&OO, and invoke Incident Control System (ICS) where necessary

Reporting an emergency – the person who makes the call

- The following information must be supplied:
  1. Date
  2. Time
  3. Name of caller
  4. Exact location of the caller
  5. Exact location of the event
  6. Full description of the event or warning
  7. The caller’s (your) contact phone number and/or alternative means of communication

The Responsible Person will make a judgement and validate the message if necessary, either at the source or with an alternative source, especially if it appears that it may not be authentic; and the severity of the event or warning shall be determined once the event is verified, and the appropriate response action will be taken, as shown on the following pages.

Incident Control System (ICS)

- Control – controls it; only one Emergency Event Manager (EEM) at any time
- Planner – plans for and tracks it
- Logistics – gets it
- Operations – uses it

Steps if incident control system model is invoked

- Appoint EEM – only one EEM at any time
- EEM assumes control and coordinates response
- EEM ensures the safety of all staff and any other people
- Assess/reassess nature and scale of incident
- Identify Emergency Control Centre and/or Emergency Operations Centre
• Appoint staff
• Review or oversee development of incident specific action plan
• Conduct briefings – ICS team/internal and external stakeholders
• Monitor developments, gather and consider information
• Prioritise/reprioritise actions
• Communicate updates as required to team and stakeholders
• Consider need to escalate/de-escalate

5.4 Evacuation

All Hydro Tasmania sites shall have a system of accounting for all people on site, such as a sign-in board or warden system. For power station and major construction sites a form of photo ID is required for attendance boards.

If working in an underground station, two photo IDs shall be required, one for ground level and one for underground.

If an evacuation is required, stay calm.
• Do not run or use lifts.
• Obey all instructions and make your way to the designated evacuation point/emergency assembly area. These areas are highlighted in emergency response documentation and site inductions.
• Re-enter evacuated areas only after conducting a risk assessment and approval has been received from the officer or their delegate.

5.5 Fire prevention and protection

• Keep exits and exit ways unobstructed.
• Do not lock or secure any exit door in the closed position.
• Do not store any flammable or combustible material in an exit way or stairwell.
• Fire doors and dampers shall never be tied, blocked in the open position, or otherwise made inoperative.
• Do not block manual fire alarm (break glass).
• Keep flammable liquids in approved containers, properly labelled, and store in designated cabinets or storage areas away from sources of ignition.
• Keep flammable liquids storage cabinets and rooms closed.
• Know and follow the site’s requirements for the use and handling of oily rags.
• The cleaning of parts with flammable or combustible liquids shall only be undertaken using equipment approved for that purpose.
• Report any damaged or spent portable fire extinguishers to your line manager, job manager or local safety representative.
• If you discover a fire and you are competent and confident that you can safely handle the situation, extinguish the fire by operating appropriate fire equipment.
• Do not put yourself at risk.
• Alert all nearby workers and/or operate nearest manual fire alarm (break glass).
• Follow local evacuation procedures.
• When safe, report the event.

5.6 First aid

Hydro Tasmania recognises the importance of early medical intervention and provides workers, based on risk, with first aid training. This is summarised in Table 6 where ticks show mandatory training.

<table>
<thead>
<tr>
<th>Level of first aid training required</th>
<th>Conducting work in the field</th>
<th>Office based personnel</th>
<th>Major projects e.g.: civil construction, power station upgrades</th>
<th>Working on or near live electrical equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 first aid (HLTFA211A emergency first aid)</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Level 2 first aid (HLTFA301B apply first aid) Employee min.</td>
<td>✔</td>
<td>Hydro first aid officers only</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Low voltage rescue (two year)</td>
<td></td>
<td>Cambridge ‘wet and electronics lab’ staff</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Table 6. Hydro Tasmania first aid requirements

Note: Job managers are to consider the need for any higher level or specialist first aid training or equipment requirements. This information is to be documented in the safety management plan or under the PTW.

Note: Contractors to ensure at least one Level 2 first aider is on site within the work party. This person may be a Hydro Tasmania employee.

Note: Exclusions apply to delivery drivers, sales representatives, visitors or office equipment repair technicians, for whom no first aid training is mandated.

5.7 Self-rescue breathing apparatus

Fires that have emitted dense, toxic smoke and have reduced visibility to almost zero in a matter of minutes have occurred in Hydro Tasmania power stations in the past. Despite the installation of improved detection and fire control systems over the years, it is still possible for these fires to occur.

Self-rescue units are provided at power stations and administrative centres based on risk for deployment on Hydro Tasmania sites. The intent is that self-rescue units should be taken to site and either carried during walk around inspections or stored on shelves or hooks within 10 – 15 metres of the work area. All people shall have completed training as part of their site specific induction on the use of self-rescue equipment prior to entering areas where this may be required.

One self-rescue unit shall be provided for each person entering an area where self-rescue units are deemed necessary. A self-rescue unit is required where the distance to a safe atmosphere is greater than 40 metres.
5.8 Security/intruder response

Response to intruder alarms
Hydro sites are monitored 24 hours a day, seven days a week. When an intruder alarm occurs local response procedures apply.

Where Hydro personnel respond to field operational sites, a minimum of two people shall respond to all intruder alarms.

Response to suspicious activity

Suspicious activities
Activities could include the following:

- unusual video or photography of our assets or other critical infrastructure
- abandoned or suspicious vehicles near our assets or busy public places
- anything that appears unusual or out of place

As a guide, if something worries you or seems to need further security attention, please report it.

If you see a suspicious and/or unattended vehicle, package or bag

- Ask if anyone owns it.
- If no one does, do not touch it and immediately vacate the area to a safe location.
- Alert others to keep away.
- Report the incident, including a description of the vehicle, package or bag.

Basic steps if you see something suspicious

- If uncertain about your safety do not approach.
- Before you approach any suspicious situation, communicate with the duty officer or your line manager.
- Record and relay the following information to others before contact:
  - vehicle and/or people description, number plate and location
  - why you think it is suspicious
- Advise duty officer or your line manager to expect a follow-up call within 10 minutes or they should escalate the incident immediately.
- If necessary, escalate suspicious activity as soon as possible to the police.

General guidelines:

- place life above plant and property
- provide support as required to the police and the Australian Energy Market Operator (AEMO)
- when making contact with a suspicious person, ask:
  - ‘Who are you?’
  - ‘Why are you here?’
6. Incident management

6.1 Incident reporting

Hydro Tasmania places great emphasis on reporting incidents and learning from them. Everyone has a responsibility to report any safety or environmental incident immediately.

Incident management follows this basic six step approach:

1. TRIGGER
2. INITIAL RESPONSE & RECORD
3. VALIDATE
4. RECORD INCIDENT DETAILS
5. INVESTIGATE & GATHER EVIDENCE
6. ANALYSE & REPORT
7. DEVELOP ACTIONS
8. CLOSE-OUT

Key points to remember about incident management:

- All Health, Safety and Environment accidents, incidents, hazards and/or near misses shall be reported to your manager or Hydro Tasmania representative as soon as possible.
- If you are competent and it is safe to do so, attempt to control the source and contain the impact of the incident.
- Follow emergency response plans applicable to your location.
- Keep in mind that significant incidents (Level 2 or 3 incidents – see next page) may require notification to external regulators. Therefore the HSE team shall be notified within 24 hours of any significant incident occurrence.
- Where safe to do so, ensure the site is undisturbed to preserve and enable proper investigation.
- All incidents shall be reported using an incident notification report. This information is entered into the Hydro Tasmania incident management system by the manager responsible.
<table>
<thead>
<tr>
<th>Severity</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>• Incident requiring basic first aid, i.e. Band-Aid or injury with no</td>
<td>• Paper cut to finger.</td>
</tr>
<tr>
<td>(low)</td>
<td>treatment required.</td>
<td>• Up to 20 litres of oil or chemical spill onto land. Requires clean up by</td>
</tr>
</tbody>
</table>
|                | • Up to 20 litres of oil or chemical spill onto land.                       | removing soil, sampling, testing and reporting of incident to line manager.
|                | • Paper cut to finger.                                                     |                                                                          |
|                | • Muscle strain or foreign body in eye.                                     |                                                                          |
| **Level 2**    | • Incident requiring more than basic first aid, i.e. medical treatment      | • Oil spill onto land of between 20 and 50 litres or that requires clean up by |
| (moderate)     | required.                                                                 | sampling, testing and removing soil to landfill or treating in place.  |
|                | • Material environmental harm or an environmental nuisance.                | • Oil spill to a waterway.                                               |
| **Level 3**    | • Incident requiring a hospital visit, possible lost time injury, partial or | • Broken leg, serious back strain, serious cut requiring hospitalisation  |
| (high and      | permanent incapacitation, possible workers compensation claim.             | and medical treatment.                                                  |
| significant)   | • Incident with the potential to cause serious injury. Any incident         | • Iron fell from roof landing within one metre of individual – potential |
|                | requiring workplace standards to be notified.                              | fatality.                                                                |
|                | • Incident causing serious environmental harm.                             | • Oil spill onto land of 4000 litres or more.                            |
|                | • Oil spill onto waterway or within 50 metres of a waterway of 300 litres  | • Oil spill onto waterway or within 50 metres of a waterway of 300 litres|
|                | or more.                                                                   | or more.                                                                 |
|                | • Large scale loss of sediment or soil to waterway with resultant           | • Release of toxic chemical requiring external assistance, e.g. chlorine  |
|                | environmental harm.                                                        | gas.                                                                     |
|                | • Release of toxic chemical requiring external assistance, e.g. chlorine    | • Electrical shock.                                                     |
|                | gas.                                                                        |                                                                          |

Table 7. Incident reporting severity listing
Section B – Safe systems

7. Safe work permits

7.1 Permit to work

The objectives of the permit to work (PTW) system are to:

- ensure safety of people
- prevent harm to the environment, equipment or other property
- preserve our capability to deliver to our customers

The PTW system is applicable to all work being carried out on Hydro Tasmania owned and/or operated plant and assets. It follows fundamental hazard identification, communication and risk management processes with some check/hold points:

- at the end of work scope approval
- after identifying hazards and determining and agreeing controls
- before the actual start of work

A PTW may not be required for routine operational and maintenance activities where:

- the controlled risk is low
- the intent of the risk management process has been achieved in routine or contractor work management systems

For these activities the Take 5 or JHA process will identify appropriate controls which will be included in the routine work job ticket. The controls may include utilising parts or all of the PTW system control measures, such as the isolation procedure or the confined space permit.

Refer to the following flowchart to determine the need for a PTW.

All workers engaged in active work under the scope of the permit shall be signed on to the permit.

- Visitors shall only be given access to visit work sites controlled by a permit to work after they have been given approval by the person in charge and received a work site introduction. They are to wear appropriate PPE as directed by the PIC.
- Visitors shall remain under the direct and continuous supervision of the person in charge, or their delegate, both of whom are currently signed on to the PTW (and locked on where required).
- The person in charge shall ensure that the visit does not compromise the permit to work conditions.

Under emergency situations where life, environment or serious asset damage is at risk, an authorised and competent person may safely do what is necessary to address the immediate issue without the need for a PTW. Any such emergency situation shall be reported immediately after the situation is made safe to the officer and shall be entered and administered as an incident in Hydro Tasmania’s incident management database as soon as practicable.

If the work you are about to perform is subject to a PTW, only proceed if:

- All hazards have been identified, risks assessed and controlled effectively.
- The scope of work and proposed timing for the permit is clearly defined and understood.
The permit has been approved by the asset owner or delegate and issued by an authorised issuing officer for the site, facility or work.

All required and approved supporting documents have been identified and obtained for work which may include:

- isolation procedure, schedule of plant operations (SOPO) to control risk of potentially harmful energy sources
- concealed services permit/checklist which includes digging and excavation work;
- hot work permit/checklist
- confined space permit/checklist
- diving permit/checklist
- any other related documents required, such as the working at heights checklist, asbestos checklist, JHAs, etc.

The conditions of the permit have been communicated with everyone involved in or affected by the work.

Your red personal isolation locks are attached to the isolation points or the group isolation board before you commence the work where isolation has been identified as a control measure.

When circumstances on the job change that materially affect safety, work shall be stopped and the area made safe. Risks shall be re-assessed and approved by an authorised issuing officer or asset owner’s delegate for that area/location before re-commencing work.

Where there are controlled changes in condition/isolation or equipment is being tested as part of the work scope, a change of condition/test sheet shall be completed and signed off by the whole work party prior to and at the completion of each change of condition/test phase.

Master and subsidiary permits to work

Master and subsidiary permits to work may be required as part of a major scope of work where there are a number of work groups undertaking different tasks with different risk control measures, and where it is unreasonable to expect a single PIC to maintain effective control of the worksite and the identified risk management controls. The use of master and subsidiary permits to work shall be approved and enacted by completion of a master PTW where the asset owner approves the agreed risk control plan and measures for the major scope of work, and formally delegates their authority to approve work and risk controls for subsidiary permits to work within the approved scope of the master PTW.

Special permits

Special permits include the following:

- concealed services permit
- confined space entry permit
- diving permit
- hot work permit
PTW and risk controls numbering system

- (Station or location)/date/time (24 hour format) SSDDMMYY HHMM

Liapootah 15th May 2010 10:13am would create — LY150510 1013
Gordon 24th November 2010 3:31pm would create — GO241110 1531

Note. The station/location ID is the facilities maintenance management system station/location abbreviation. Date and time are for when the PTW is created.

All attached special permits/checklists will use the above created PTW number followed by a forward slash and a sequential capital alphabetic character.

Example of numbering for Permit to work and its risk controls

Permit to Work GO241110 1531
SOPO for isolation GO241110 1531 / A
Confined space permit GO241110 1531 / B
Hot work permit GO241110 1531 / C

Note: numbering of risk controls follows the following sequence:
A, B, C, Z, AA, AB, .... AZ, BA, BB, BC, .... BZ, CA, CB, .... CZ, ....... ZA, ZB, ZC, .... ZZ

Example of numbering for master permit to work and its subsidiary PTWs and risk controls

Master Permit TA221210 1025
- Project Environmental Management Plan TA221210 1025/A
- Project Safety Management Plan TA221210 1025/B
- Project Cultural Heritage Management Plan TA221210 1025/C
- 1st subsidiary permit TA221210 1025 A
  - SOPO for isolation TA221210 1025 A/A
- 2nd subsidiary permit TA221210 1025 B
  - SOPO for isolation TA221210 1025 B/A
  - Confined space permit ( day 1 ) TA221210 1025 B/B
  - Confined space permit ( day 2 ) TA221210 1025 B/C
  - Hot work permit ( day 2 ) TA221210 1025 B/D
- 3rd subsidiary permit TA221210 1025 C
  - SOPO for isolation TA221210 1025 C/A

Note: when the PTW is automatically generated in a Word or Excel document the hours and minutes component of the PTW number may retain the colon component of the time. This is absolutely OK as it still serves the intent of generating a unique PTW number. For example, the above permit would be TA221210 10:25

Person in charge transfer/PTW suspension and reactivation

It is important that the PIC is competent and confident to lead the work described in the PTW scope. On the appointment of the initial PIC, the authorised issuing officer shall judge whether the proposed PIC is suitable to lead the work. For any subsequent change in PIC, the asset owner or their delegate shall be consulted and approve any proposed new PIC for the work covered by the PTW.
There are five potential scenarios of transferring accountability for a PTW to another PIC:

1. **Immediate transfer** to new person in charge
   - Where the current person in charge is able to transfer PIC responsibilities to another PIC immediately

2. **Delayed transfer** to new person in charge
   - Where the current person in charge is not able to transfer PIC responsibilities to another PIC immediately

3. **Unplanned delayed transfer** to new person in charge
   - Where the current person in charge is unexpectedly not able to transfer PIC responsibilities to another PIC

4. **Suspension of PTW** – transfer to asset owner or delegate as PIC until PTW reactivated:
   - A PTW may need to be suspended for a number of safety or operational reasons determined by the asset owner or delegate.
   - When this happens the PIC will be required to transfer his role as PIC back to the asset owner or delegate until the asset owner or delegate determines that the PTW can be reactivated. The PTW and Group Isolation Board (if used) should be removed from the worksite after all personal isolation locks have been removed and everyone signed off the PTW. All ‘working earths’ must be removed prior to the suspension of the PTW.

5. **Reactivation of PTW** – transfer to a PIC from asset owner or delegate after a suspension;
   - When the asset owner or delegate determines that the PTW can be reactivated, the PTW is transferred to a PIC as appointed by the asset owner or delegate – following a similar process to the ‘unplanned delayed transfer’ procedure. The PTW and Group Isolation Board are returned to the worksite. All isolations and risk controls shall be verified by the new PIC.

*Note: The asset owner or delegate shall utilise the PTW – PIC tracking and acknowledgement sheet to log the suspended or reactivated status of a PTW by writing this on the line after the last PIC transfer. The asset owner or Delegate shall also ensure that the status of the PTW is updated on the Operational Log of the site as required.*

*Note: The intent of the above transfer processes is to ensure that it is clear who the PIC of the PTW is at all times until it is finally handed back.*

**Methods for transferring defect/restriction lock key to next PIC**

The transfer of the defect/restriction lock key to the next PIC may be made by:

1. Direct and personal transfer of the key to the new PIC; or
2. Placing key in a secure box locked by combination lock that the next PIC is given the combination for; or
3. Placing key in care of the asset, site or outage manager to be held securely until the next PIC is available; or
4. A suitable means of transfer jointly agreed between the asset owner and PIC.
Permit to work flowchart

1. **Completed JHA / SWI for work?**
   - **Yes**
     - Controlled risk score
       - **Low risk**
         - More than one special permit required?
           - **Yes**
             - Can work affect energy production?
               - **Yes**
                 - Is a group isolation required?
                   - **Yes**
                     - Work being done by contractor?
                       - **Yes**
                         - Contractor approved to carry out work under contract?
                           - **No**
                             - Contract conditions and safe work methods meet intent of PTW?
                               - **No**
                                 - Permit to work required
                                   - **Yes**
                                     - Permit to work required
                                       - **No permit to work required**
                                         - **No**
                                           - Work being done by contractor?
                                             - **Yes**
                                               - Contractor approved to carry out work under contract?
                                                 - **No**
                                                   - Contract conditions and safe work methods meet intent of PTW?
                                                     - **Yes**
                                                       - Permit to work required
                                                         - **No**
PTW process & documentation overview

Scope of Work defined & approved, Hazards & Risks Identified

Is a PTW Required? 
Yes → Asset Owners Accountabilities Delegated Via Master Permit

Discuss the need for a Master Permit with the Asset Owner

Is a Master PTW Required? 
Yes → Project Level Risk Controls

No → Group Isolation?

Yes → Confined Space?

Yes → Direct OR Personal Isolation

No → PTW Process & Document Overview - Version 7, November 2011

HSE

Risk Controls

Tracking Sheets

Agreed Risk Controls

Hazard & Risk Controls Changed


Hydro Tasmania

Revision 2.0

35
7.2 Isolation procedure

The isolation procedure is designed to protect people from unexpected energisation, start-up or release of energy while they are working on plant. All persons shall be instructed in the use of the isolation procedure before being issued with personal isolation locks. The isolation procedure covers the following three categories of isolations:

1. Directly controlled isolations – where locking and tagging is not necessary:

Where isolation, dissipation or restraint of energy sources is carried out by physical removal or separation of plant components, each worker can keep the means of isolation, dissipation and restraint under continuous observation and control, and there is no potential to interrupt production.

2. Personal isolations – where it is practicable for the person to personally isolate, tag and lock out the plant, and the person is competent and authorised to do so.

Each person shall lock every device used for isolating, dissipating or restraining energy on the plant, if the device is capable of being locked. The locking shall be done with red personal isolation locks. Each person shall tag every device or other means used for isolating, dissipating or restraining energy on the plant with a personal danger tag. The person shall write on the tag in the spaces provided:

- their name – printed
- reason for isolation/tagging
- their signature
- date of tagging

Each person shall then verify the isolation is effective before commencing work on the plant.

3. Group isolations – where the asset owner (or their delegate) will select and designate an authorised issuing officer to plan and carry out the isolation and restoration of the plant once work is completed.

Identifying sources of energy

Based upon the scope of the work, the authorised issuing officer shall personally identify:

- all potentially harmful sources of energy coming into the plant
- all potentially harmful sources of energy contained within the plant
- any plant or contents likely to move

The authorised issuing officer or operator will then prepare a schedule of plant operations which will document all operations, isolations, earthing, dissipating, draining and restraining steps required to ensure the safety of all workers. The authorised issuing officer or operator will take into account and plan for any testing, commissioning and progressive restoration of the plant when preparing the schedule of plant operations. The schedule of plant operations shall be verified by another authorised operator competent in the operation and isolation of the plant affected before commencing the isolation.

Isolating, dissipating and restraining energy sources

The authorised issuing officer shall personally bring the plant to a safe work state as detailed on the schedule of plant operations. The completion of each step on the schedule of plant operations shall be marked as complete immediately after it is done.
The plant shall be brought to a safe state by, as appropriate:

- stopping the plant in a controlled manner
- isolating any sources of energy feeding the plant
- dissipating any sources of energy contained within the plant and preventing energy building up again during the course of the work, including earthing and draining
- restraining the plant, materials, and any other sources of energy that cannot be dissipated

*Note: If the plant has not been shut down by Generation Operations, the authorised issuing officer shall liaise with Generation Operations to ensure it can be shut down without creating an unacceptable level of risk or unintended impact on production.*

**Locking and tagging the plant**

The authorised issuing officer shall lock every device used for isolating the plant with a yellow isolation lock. If the isolation point is not fitted with a built-in provision for locking, an alternative lock or other means of immobilising a point of isolation shall be used. The authorised issuing officer shall also tag every device or other means used for isolating, dissipating or restraining energy on the plant with a ‘DANGER – DO NOT OPERATE’ tag.

The authorised issuing officer shall ensure the ‘DANGER – DO NOT OPERATE’ tag has the following legible information:

- schedule of plant operations number
- description and state of the equipment (which the tag is applied to)
- name and signature of the authorised issuing officer
- date of tagging

**Verifying the effectiveness of energy controls**

The authorised issuing officer shall verify the effectiveness of the isolation, dissipation and restraint of energy sources with the PIC, and all the work party if practical to do so.

Once verified and the sources of energy are effectively isolated, dissipated and restrained, the authorised issuing officer shall place the keys used to lock the devices in a group isolation board.

**Placing keys on a group isolation board, and locking and tagging the group isolation board**

The authorised issuing officer shall then place a green authorised issuing officer lock on the group isolation board. At this point the AIO may give permission to the PIC to commence work on the plant, as covered by the PTW.

The work team who are to work on the plant shall then sign on to the PTW and lock the group isolation board with a red personal isolation lock.

Before locking the group isolation board, all workers should verify or request the AIO or PIC to demonstrate that the sources of energy have been effectively isolated, dissipated and restrained (test and prove dead).

**Removing locks**
Workers shall remove their personal isolation locks before leaving the site and may be recalled to remove the locks at their own time and expense.

If any worker has left the site without removing his or her personal isolation lock(s), and it is not practicable to recall the person to remove them, the lock may be removed by an AIO after the lock/tag removal form/process has been completed and duly authorised by the officer or their direct delegate to ensure that the owner of the personal isolation lock and/or danger tag is safe and no longer on site or around the equipment related to the lock and/or tag.

*Note: Removal of locks with this process shall only be used as a last resort. A worker having to drive back to the site is practicable no matter how inconvenient.*

**Locking rules**

- An isolation point shall not be operated, nor an attempt made to override or tamper with an isolation point that has been secured by a red personal isolation lock or tag or a yellow isolation lock.  
  
  *Note that this rule is a cardinal rule that will result in severe disciplinary action.*

- Each worker shall lock on using their red personal isolation lock prior to starting work and remove their personal isolation lock once they have finished work or are about to leave the site.

- The PIC will remove their personal isolation lock when leaving the site but will ensure that an orange defect/restriction lock and hazardous or unusual condition tag is attached, until the work is complete or until transferred to another PIC.

- Isolation locks shall only be placed or removed by an AIO.

- All personal isolation locks shall be clearly labelled with the person's name.

- Personal isolation locks shall only be placed or removed by the owner unless the lock/tag removal process has been completed.

- A worker shall not lend their personal isolation lock or key to another person.

- Loss of a personal isolation lock or a key for a personal isolation lock shall be reported to the lock administration officer.

- Only locks that are approved by Hydro Tasmania and meet the criteria of the isolation procedure can be used.
Isolation flowchart

Select isolation type

- High pressure? High voltage (>1000V)? High energy? (Yes/No)
- Work team member competent & authorised to isolate? (No)
- Can isolation effect energy production? (Yes/No)
- More than four points of isolation? (No)
- More than 6 workers in team? (Yes/No)
- Isolation by physical removal or barrier? (No)
- Means of isolation under direct observation & control? (Yes/No)

- Directly controlled isolation
- Personal isolation
- Group isolation
7.3 Concealed services permit

As far as is reasonably practicable, before starting any excavation or penetration, the precise location of all concealed services, buried pipe work, structures, foundations, electrical equipment, cabling, or hazardous materials, shall be identified and clearly marked to prevent damage during the work. Before beginning work the following shall be completed:

- the concealed services checklist will be completed to assist in the identification and control of hazards, and if appropriate, a concealed services permit issued
- the site will be inspected by a competent person checking for locations of possible concealed services. The person should utilise drawings where available and update the drawings where any differences are found
- ‘Dial Before You Dig’ (www.dialbeforeyoudig.com.au) will be contacted for underground assets

In addition to the above control measures you should:

- Conduct a survey of the proposed excavation/penetration area using electronic locating devices, except in situations where you can prove to the asset owner (or their delegate) through a risk management process that this will not improve the safety of the work.

Where possible all underground assets shall be isolated during ground breaking works.

Once a service is identified, the ground should be marked as follows:

<table>
<thead>
<tr>
<th>Service</th>
<th>Colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power conductors</td>
<td>ORANGE</td>
</tr>
<tr>
<td>Telecommunication cables</td>
<td>YELLOW</td>
</tr>
<tr>
<td>Stormwater, drainage</td>
<td>GREEN</td>
</tr>
<tr>
<td>Water</td>
<td>BLUE</td>
</tr>
<tr>
<td>Sewer</td>
<td>RED</td>
</tr>
<tr>
<td>Limits of approach for mechanical</td>
<td>SILVER</td>
</tr>
<tr>
<td>and non-mechanical removal of material</td>
<td></td>
</tr>
<tr>
<td>Gas main – contact the local gas</td>
<td></td>
</tr>
<tr>
<td>distributor to arrange for a site</td>
<td></td>
</tr>
<tr>
<td>inspection and clearance to proceed.</td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Ground markings from ‘dial before you dig’

7.4 Hot work permit

- Any work involving flames, or producing heat and/or sparks is classified as hot work.
- If possible, move the work to a designated hot work area such as a welding bay. When this cannot be done, a hot work permit shall be issued. The hot work permit, including the control measures, should be completed by an IP and issued by a PIC.
- Hot work examples include but are not limited to the following: oxy acetylene cutting, brazing, arc welding, grinding, grit blasting. At times of high fire danger consideration shall to be given to operating chainsaws, brush cutters and steel track machines. If there is any doubt as to whether the area is a designated hot work area, the hot work procedure shall be used.

7.5 Confined space entry permit

The confined space procedure applies to all Hydro Tasmania work sites and is to be used if confined space entry is required. A JHA shall be completed and the risks controlled by use of a permit to work...
and/or a confined space permit which is issued to assist in the identification and control of hazards and risks associated with each confined space.

**Permits for entering confined spaces within Hydro Tasmania**

Confined spaces require different levels of permitting depending on the hazards associated with the work to be performed in the confined space. (See flowchart below for information to determine the appropriate permitting requirements for a confined space.)

All confined spaces **shall** have one of the three possible permitting combinations below:

- PTW only
- PTW and a confined space entry permit
- Confined space entry permit only

Refer to confined space procedure for more detailed information. Note: references in flow chart below relate to the procedure and not this booklet.
7.6 Diving permit

Hydro Tasmania engages the services of specialist diving contractors to carry out diving work. The following points need to be addressed by the Hydro Tasmania dive permit issuing officer in charge of the diving operation:

- the diving work coordinator is informed of the diving work requirements
- a dive permit issuing officer is assigned to the project to supervise the completion of the diving checklist and issue the diving permit
- a diving permit is issued prior to the start of diving work

The following restrictions apply to all diving work undertaken for Hydro Tasmania:

- dives **shall not** go to depths greater than 50 metres
- divers **shall** hold current and unrestricted medical clearance for diving, and be qualified and accredited under AS 2815 to do the work:
  - up to 30 metres depth, surface supplied air
  - up to 50 metres depth, surface supplied air
- diving equipment provided for the work **shall** be manufactured, maintained and used in accordance with AS/NZS 2299.1
- The Hydro Diving Coordinator **shall** be notified of the diving operations 48 hours before the work is undertaken.
8. HSE management of contractors and suppliers

This procedure explains Hydro Tasmania’s processes for identifying and managing the Health, Safety and Environment (HSE) risks associated with work being done on Hydro Tasmania controlled sites by contractors or the supply of materials, plant and equipment to Hydro Tasmania.

Consideration needs to be given to ensuring adequate information is made available and consultation takes place with prospective contractors and suppliers through all phases of the process from preliminary planning through selection, detailed planning immediately prior to the work, during both delivery and close-out.

<table>
<thead>
<tr>
<th>Contract development</th>
<th>1. Confirm the requirement to engage contractor / supplier as part of the work planning process.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Develop the scope for the contractor / supplier component of the planned work.</td>
</tr>
<tr>
<td></td>
<td>3. Identify the HSE hazards associated with the scoped work and assess the HSE risks. (If none, continue with Hydro Tasmania procurement process)</td>
</tr>
<tr>
<td></td>
<td>4. Nominate the high-level controls required to manage the HSE risks and meet any HSE requirements.</td>
</tr>
<tr>
<td></td>
<td>5. Short-list the potential contractors / suppliers to be approached to deliver the goods or services in accordance with Hydro Tasmania’s procurement process.</td>
</tr>
<tr>
<td></td>
<td>6. Put the works out to sourcing (tender, quote, etc.), providing relevant information on HSE requirements.</td>
</tr>
<tr>
<td></td>
<td>7. Receive and evaluate tenders/quotes, select successful contractor/supplier.</td>
</tr>
<tr>
<td></td>
<td>8. Finalise HSE requirements with the successful contractor/supplier &amp; award contract/purchase order.</td>
</tr>
</tbody>
</table>

**Contract awarded**

<table>
<thead>
<tr>
<th>Prior to starting work</th>
<th>9. Support successful contractor / supplier to fulfil HSE requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10. Review contractor HSE requirements are met and contractor’s controls are suitable and in place.</td>
</tr>
<tr>
<td></td>
<td>11. Issue any required job tickets (Job Manager) or work permits (Authorised Issuing Officer).</td>
</tr>
</tbody>
</table>

**Permission to commence work**

<table>
<thead>
<tr>
<th>During work</th>
<th>12. Monitor and manage HSE performance.</th>
</tr>
</thead>
</table>

**Close out**

<table>
<thead>
<tr>
<th>Conclusion of works</th>
<th>13. Verify completion of contracted works or receipt of goods/services as per contract and de-commission HSE controls.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14. Review HSE performance for contracted works / supply and provide feedback.</td>
</tr>
</tbody>
</table>

HSEF1101.1 Job HSE Requirements
HSEF1101.2 Pre-start HSE compliance check
HSEF1101.3 Contractor HSE Questionnaire

Procurement Contractor Performance Assessment
9. Fitness for work

9.1 Alcohol and other drugs

It is important to ensure that our business is not compromised by the actions of any individuals who are not fit for work having consumed alcohol or drugs.

Hydro Tasmania is committed to providing education on alcohol and drugs for all workers and provides assistance to any workers impacted by alcohol or drugs through the Employee Assistance Program (EAP).

All workers shall:

- have zero blood alcohol content (BAC) in the workplace which includes offices, workshops, power stations, construction sites and Hydro Tasmania vehicles
- not be affected by the consumption of illicit drugs in Hydro Tasmania workplaces
- notify their line manager and colleagues of any prescription or general medication that could affect the ability to drive, operate machinery or complete tasks safely. This means you could be affected by either taking or not taking your medication as prescribed. Do not drive or operate machinery if affected

**Alcohol and drug testing is conducted in the following circumstances**

- Random testing may be carried out on any worker at any time
- following a serious incident or near miss
- you may voluntarily self-test your blood alcohol content
- ‘causal testing’ may be requested by a colleague or manager if there is reasonable suspicion that the zero BAC or drugs requirement has been breached

Alcohol may be served responsibly at authorised functions held in designated areas, providing work areas are not accessed afterwards. Refer to the alcohol and other drugs procedure for more information on designated areas.

Portable blood alcohol testing units are available across the Hydro Tasmania.

On-site functions where alcohol is to be served requires authorisation from the relevant officer.

9.2 Transmissible infections and diseases

To help prevent the spread of infectious diseases, hygiene measures should be used at all times:

- cover your cough
- wash your hands
- keep your distance
- know the signs of the flu
- stay at home if sick
Transmissible diseases include blood borne pathogens

Everyone **shall** take the following preventative precautions, particularly those who are first aid officers and wardens:

- ensure first aid kits are readily accessible and well stocked
- prevent contact with the eyes, mouth, mucous membranes and non-intact skin with blood or other potentially infectious body fluids
- when administering first aid or cardio pulmonary resuscitation (CPR), avoid contact with human blood or body fluids
- do not handle bloody clothing or contact contaminated surfaces unless you are trained and use proper PPE
- report all exposures (contact) with bodily fluids

Travel – infections and diseases

- Consult with a travel doctor for required vaccinations.
- Ensure all vaccinations are current before departure.
- For remote areas, carry first aid kit suitable for planned work (covering any known allergies).
- In areas with mosquito-borne diseases, carry mosquito netting and DEET-based repellent.

### 9.3 Fatigue management

#### Planning to manage fatigue levels

Fatigue management needs to be considered in the planning stages of all work activities, especially where the specific tasks accelerate fatigue, e.g. working in a hot or cramped position or working in a fast paced quick decision-making role like spot traders and generation controllers. Where appropriate, formal strategies **shall** be developed to address fatigue related risks.

Refer to the reasonable working hours procedure for further information.

#### Take care of yourself

- The biggest influence on your fatigue is how much sleep you have had over the past two nights and how long you have been awake. Plan to get sufficient rest.
- As a guideline if you have been awake longer than your past two nights, combined sleep plus one hour (awake for a maximum of 17 hours), then you are ‘running on empty’ (equivalent to a blood alcohol content of 0.05) and need a sleep.
- If family or health issues have prevented you getting enough sleep, let your manager and fellow work mates team know so they can watch out for you and if appropriate, change the work you are doing to reduce your risk.
- Plan to be fit for work and challenge the scope of work for the day if you are concerned that it will result in a long work day that takes you into the fatigue time zone (including travelling).
Take care of each other

- Watch out for each other – if you notice your colleague is tired and starting to make errors or concentration drops, talk with them and help them take steps to manage the risks or take a rest.
- When someone is fatigued they are often unaware of it. Help each other, make the effort to have a discussion about fatigue, and be prepared to act and make decisions to assist others.
- If concerned, ask them if they are near or past ‘running on empty’.

9.4 Working hours

- If working two hours past your normal work day you shall discuss your fitness for work/travel with your manager.
  - The fatigue assessment form is available to help manage and record your fatigue levels.
  - Sometimes just the conversation is enough to find a solution or check that you are okay to continue or put control measures in place to help you.
  - Your job manager or line manager will challenge whether the work needs to be completed or not as part of the escalation and assessment process.
- If working four hours past your normal work day you shall discuss your fitness for work/travel with your manager, and your manager shall conduct a formal fatigue assessment.
  - Your manager will escalate it further to ensure your safety comes first – even if there is the perception or feeling that we may be letting our customer down.
- If you have or intend working longer (including travel) than 14 hours your manager shall have this discussion with their manager and a formal assessment using the fatigue assessment form shall be used.

9.5 Smoke free workplace

- Hydro Tasmania is a smoke free environment.
- Smoking shall not be permitted in work buildings, facilities or other enclosed workplaces.
  - This includes offices, motor vehicles, workshops, underground power station and mess rooms.
  - Smoking is only allowed in designated smoking areas at a minimum of three metres from any doorway, opening or air intake to a workplace.

9.6 Workplace stress

Stress is the body’s reaction to a change that requires a physical, mental or emotional adjustment or response. Simply put, stress is any outside force or event that has an effect on our body or mind.

Stress is caused by an existing factor or ‘stressor’. Depending on the stressors and the types of changes or events we are dealing with, stress can manifest itself physically, emotionally and/or mentally.

To help employees prevent and manage their workplace stress, Hydro Tasmania has made the following programs and information readily accessible and they can be found on Hydro Tasmania’s intranet:
Equal employment opportunity information

- Equal employment opportunity policy.
- Equal employment opportunity internal complaints and support guideline chart.
- Equal employment opportunity frequently asked questions.

**Workplace support officers (WSO)**

In addition to your line manager, workplace support officers (WSOs) are available to offer support to employees. WSOs can be found at various locations throughout the business and have undergone training in workplace support and mental health first aid. A WSO can provide you with referral options and can suggest avenues for support, including counselling or other helpful services within our outside Hydro Tasmania.

Your conversation with a WSO will remain confidential and no action will be taken without your approval, unless there is a safety risk to yourself or another person. A list of WSOs can be found on Hydro Tasmania’s intranet.

**Employee assistance program (EAP)**

The employee assistance program is a confidential counselling and advice service for Hydro Tasmania workers and families if they are undergoing any personal or work-related problems. Other service providers may be arranged by contacting your human resources adviser or by contacting a WSO. Brochures can be found on line at MyHydro or at administration centres that provide you with further information.

**Healthy Hydro**

Healthy Hydro is a program offered to all employees of the Hydro Tasmania, encouraging workers to be proactive in managing their own health and wellbeing, using the tools available.

Healthy Hydro offers one-on-one health assessments and customised health programs, as well as flu vaccinations to workers. Healthy Hydro is integrated with other programs such as rehabilitation, family support, worker assistance, workplace support officers, equal employment opportunity training, and safety.

**Mental health in the workplace**

A guide providing the reader with information, tips and tools on how to appropriately support and manage mental health in the workplace is available on Hydro Tasmania’s intranet – refer to *Workers with mental illness: a practical guide for managers.*

**9.7 Rehabilitation**

Rehabilitation is the process that Hydro Tasmania puts in place to enable workers to return to full health and meaningful, productive work following an illness or injury.

The rehabilitation program covers injury and illness that is work or non-work related where a person is prevented from performing all or part of their normal duties as a result of their injury and illness.

Rehabilitation is established on the following principle:

- ill or injured workers are assisted to return to productive employment
- rehabilitation practices are appropriate and recognise current legal, social, worker relations and economic obligations
- Hydro Tasmania is committed to promoting and improving the health and wellbeing of all employees
10. Occupational health and hazards

10.1 Asbestos

Repair and management of asbestos

All tasks involving the disturbance of asbestos shall only be conducted after an appropriate risk assessment and control procedure has been identified and implemented. This shall be done in accordance with Hydro Tasmania’s Asbestos Management Procedure and Model Work Health and Safety Regulations.

Hydro Tasmania has the following systems to assist in assessing and working with asbestos:

- an asbestos risk register for all facilities
- a detailed mandatory checklist of instructions for:
  - gasket and gland packing removal
  - sheeting removal for less than 10 square metres in area
  - drilling into bonded material
- an asbestos management procedure

Engineering, maintenance and construction projects, with potential to disturb asbestos and increase the risk of exposure to airborne asbestos fibres, shall be assessed by a competent person and be included in the safety and environmental management plan with control strategies implemented.

A competent person shall be available to supervise work during all activities involving asbestos.

Whenever maintenance or service work is carried out on asbestos the following shall be recorded in maintenance management systems or project documentation and linked back to the asbestos register if applicable:

- the name of the worker(s) who performed the work
- the date the work was undertaken
- the scope of the work undertaken
- the JHA for the work or standard work instruction applied
- any clearance and disposal certificates

Asbestos removal work

Removal is not always the best action. The decision to remove asbestos contaminated material should be made on the basis of a risk assessment. The code of practice for the management and control of asbestos in workplaces [NOHSC: 2018 (2005)] provides guidance on when the removal of asbestos contaminated material is required or recommended.

Removal work by Hydro Tasmania personnel

Removal of asbestos can be carried out by Hydro Tasmania workers in the following circumstances:

- the worker has undertaken competency training or the job is being supervised by a worker who has undertaken competency training in managing asbestos
- the asbestos to be removed is bonded non-friable material of less than ten square metres
• asbestos samples are needed for analysis or other testing
• Removal of asbestos by a licensed contractor

A licensed asbestos removalist will be engaged to undertake any removal of asbestos over 10 square metres or any other work that the competent person believes should be undertaken by a licensed removalist. The friability of the asbestos will dictate the type of removal required.

Asbestos removal shall not commence unless written acknowledgement of the asbestos removal start work notification (AR1) and asbestos removal control plan (AR2) have been received by Workplace Standards Tasmania. Whenever a licensed asbestos removalist is engaged to undertake work, an SWMS shall be completed and approved by the manager responsible for organising the work in conjunction with an HSE adviser. For all asbestos work an HSE waste management/disposal form shall be completed and kept with the project documentation as well as sending a copy to a Hydro Tasmania HSE adviser for recording in the sustainability management system.

A competent person (usually the licensed contractor) shall conduct a visual clearance inspection of the asbestos work area prior to the removal of the access restrictions. A visual clearance certificate (AR4) shall be issued by a competent person prior to the re-occupation of the area for normal use.

For all asbestos removal projects, appropriate project documentation shall be retained and recorded, along with being updated in the asbestos register. A link to this register can be found on the HSE web page.

10.2 Personal protective equipment

General

Mandatory PPE requirements for Hydro Tasmania hazardous and restricted work sites and sign-posted areas are:

• hard hat
• safety glasses
• high visibility clothing (day time standard minimum)
• safety footwear
• hearing protection and gloves to be carried and worn when required

PPE provides essential protection against injury and illness and as such it shall be kept in a clean and reliable condition, free of defects or damage, and be capable of providing the necessary protection. Any PPE that is degraded, damaged, worn out or otherwise in disrepair, shall be discarded and replaced.

• Loose jewellery is an entanglement hazard and shall be contained or removed.
• Long hair including beards shall be safely contained.
• Long sleeved shirts and pants shall be worn on work sites and not rolled up.
• Clothing shall be properly fitted and fastened at all times to prevent entanglement.

*Note: The minimum equipment listed may not always be adequate for the work and additional PPE should be used based on job specific risk or as posted in the workplace.*
**PPE – culture and behaviour**

In addition to providing a standard level of protection to all workers, Hydro’s PPE standard sets a clear visual statement of Hydro Tasmania’s commitment to safety on all of its work sites.

The wearing of PPE should not be understated.

The perceived impression of any person entering a Hydro Tasmania worksite should be that this is a safe place of work and operation, and that Hydro Tasmania cares about people’s safety and wellbeing.

**Safety helmets**

- Helmets *shall* comply with AS/NZS 1801.
- Safety helmets *shall* be replaced every two years from date of issue and have the date of issue written on the tag provided.

**Eye and face protection**

Safety glasses are supplied to all employees, and for those who wear corrective lenses, prescription safety glasses are provided with management approval. An order form can be found on the HSE web site.

- Safety glasses *shall* meet compliance with AS/NZ 1337.

*Note: Prescription safety lenses are rated for low impact work only. If you are doing ‘high impact’ rated work, you will require additional protection like a face shield or over glasses.*

- Tinted safety glasses should not be worn indoors unless required for hazard specific work.
- Metal framed glasses *shall* not be worn when working on or near exposed energised conductors and switchyards within safe limits of approach.
The following table provides guidelines for the wearing of eye and face protection by task:

<table>
<thead>
<tr>
<th>Task</th>
<th>Safety spectacles</th>
<th>Tinted safety spectacles</th>
<th>Face shield</th>
<th>Goggles</th>
<th>Welding shield / helmet</th>
<th>Oxy acetylene goggles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low speed machines, lathe work, milling and drilling</td>
<td>X*</td>
<td>X*p</td>
<td>X*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of compressed gas and fluids</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High speed tools including explosive power tools, (double protection shall be used)</td>
<td>X*</td>
<td>X*p</td>
<td>X*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grinding (double protection shall be used)</td>
<td>X*</td>
<td>X*p</td>
<td>X*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brush cutting, chainsaw operations</td>
<td></td>
<td></td>
<td>X*</td>
<td></td>
<td></td>
<td>X (shades 3 to 7)</td>
</tr>
<tr>
<td>Handling caustics/acids</td>
<td>X*</td>
<td>X*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas welding and cutting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X (shades 3 to 7)</td>
<td></td>
</tr>
<tr>
<td>Electric welding</td>
<td>X*</td>
<td>X*</td>
<td>X*</td>
<td></td>
<td>X (shades 7 to 15)</td>
<td></td>
</tr>
<tr>
<td>Lawn mowing</td>
<td>X*</td>
<td>X*</td>
<td>X*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery testing</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soldering</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fibre optic jointing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure to high glare and reflective environments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Live electrical equipment within limits of approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X*</td>
<td></td>
</tr>
</tbody>
</table>

Table 9. Eye and face protection guide

Consideration to either tinted or clear glasses for protection against UV radiation in outdoor areas should be given.

* denotes a choice between any one of the Xs

p denotes polycarbonate

m denotes mesh

X in bold font indicates a mandatory item of PPE where double protection is required. This item shall be used in addition.
Hearing protection

- Wear appropriate hearing protection in areas signposted or anytime communication between individuals is difficult due to high noise levels. Consult your line manager or an HSE adviser if you are unsure about the class of protection needed – in general, class 5 is suitable on Hydro Tasmania’s power station work sites.

- Earmuffs provide better protection than earplugs due to their ability to stop additional ‘conducted noise’ (noise that travels in solids) from entering through the skull bone behind the ears. Earmuffs shall have a minimum rating of Class 5, SLC 8030 dB and shall be properly maintained.

- If you are using earplugs ensure that they are fitted correctly. To avoid painful external ear infections, ensure you have clean hands before moulding and inserting disposable earplugs. In addition, re-useable, individually moulded earplugs need to be kept clean.

- Standard hearing testing shall be conducted at the start of employment for anyone who will be exposed to levels of noise above 85 dba in the workplace and then at least every two years thereafter unless directed otherwise by the audiologist.

- Sound level surveys have been conducted at all Hydro Tasmania facilities and are documented and maintained at each station. A new survey shall be conducted any time a change is made to plant or structures that alters the noise level profile in any way.

Hand protection

- Gloves appropriate to the task shall be used to protect the hands and wrist area from exposure to heat, cold, water or steam, chemicals, sharp edges, abrasion, electrical contact and other hazards as necessary.

- Read SDSs for recommended protection from dangerous products or consult with your manager for assistance in selecting the correct hand protection.

Foot protection

- Safety footwear shall comply with standard AS/NZS 2210.3 (occupational protective footwear).

- Sturdy enclosed footwear is acceptable for visitors not engaged in work activities, but higher protection may be required based on risk.

Protective clothing

High visibility clothing shall comply with standards AS/NZS 4602:1999 and AS/NZS 1906.4:1997, e.g. 100% cotton or wool mix trousers and long sleeve shirts that meet minimum 155 gsm and requirements for day time visibility.

Working in electrical environments

e.g. control and protection panels, switchyards

Clothing which complies with but is not limited to the following, shall be worn when conducting work on or near exposed energised electrical conductors:

- properties not inferior to 185 gsm 100% cotton drill and which comply with AS 2919 – Industrial Clothing

- worn so that the body is covered from neck to wrist to ankle
• worn underneath clothing consisting of materials such as nylon/polyester (e.g. rain gear)
• having non-metallic fasteners or fasteners protected by a layer of the same material as that of the garment on both the top and undersides
• arc flash – see electrical safety section for specific PPE requirements

Ultra violet radiation

Employees are to minimise direct exposure to ultra violet (UV) radiation and protect their skin by wearing sun hats, helmets, long skirts, long trousers and long sleeved shirts.

Activities such as welding also require skin protection. Welding hoods, helmets and face shields will provide protection to the face and neck area while long gloves will provide protection for the hands and forearms.

Hydro Tasmania’s minimum PPE requirements have been risk assessed with UV exposure in mind, however, where employees and contractors are exposed to abnormal conditions, the hierarchy of controls shall be considered based on likelihood and exposure.

Respiratory protection

Careful assessment of the respiratory hazards shall be made to ensure the correct type of respiratory protection is issued to employees based on risk, training and competence required to wear it. This shall be based on SDS and/or product information.

• Respiratory protection shall be supplied and worn by employees where there is potential to be exposed to harmful airborne substances.
• Use acceptable engineering controls to control harmful gases, smoke, dust, sprays or vapours as the primary method to prevent airborne exposures.
• If engineering controls are not feasible or practicable, appropriate respiratory protection shall be used with approval.

Respirators can be classified into two main groups:

• Purifying the air that is breathed: P1-P3 for particulates; Class 1-3 for chemicals; combinations for particulates and chemicals.
• Supplying respirable air, e.g. SCBA and air-line.

Wearing a respirator

• Any time a respirator is worn, the user should be clean shaven.
• The user shall receive training and supervision in the use of the respiratory protection being used, and shall be fit tested prior to use.
• The user shall inspect the respirator for damage before and after use, and dispose of/repair/replace any damaged respiratory equipment as required.
• When wearing an air purifying pressure respirator, a positive and negative pressure fit check shall be performed.
• The user shall exit the contaminated work area and remove any breathing apparatus or respiratory device if:
  • breathing difficulty occurs
• the user can taste or smell any contaminant
• the respirator malfunctions

• Do not leave respirators unprotected in contaminated work areas during breaks or intermittent work.
• When not in use, respirators **shall** be stored in a clean plastic bag and kept in a clean disinfected condition.

*Nnote: Workers who cannot wear respiratory equipment due to medical or other reasons shall ensure they discuss this with their line manager or job manager as part of the initial risk assessment for undertaking the work.*

### 10.3 Manual handling

The best way to make manual handling safe is to redesign the task or workplace. There are a number of ways to do this:

- Eliminate unnecessary handling.
- Modify the task to use mechanical handling equipment or tools such as levers, hooks or crowbars.
- Use multiple people or a team for lifting.
- Modify the object (disassemble) being handled so it is easier to hold, or manoeuvre.
- Modify workplace and workstation layout to reduce stooping and reaching.
- Ensure work surfaces are at the correct height.
- Ensure that all heavy objects are at waist level where they can be handled comfortably.
- Reduce body movements and forces such as twisting, reaching and holding.
- Perform basic stretches before doing any unusual physical activity.
- Ensure ongoing evaluation/Take 5.

### Techniques

<table>
<thead>
<tr>
<th>Lifting</th>
<th>Pushing and pulling</th>
</tr>
</thead>
<tbody>
<tr>
<td>• keep the load close to your body</td>
<td>• stay close to the load - do not lean forward</td>
</tr>
<tr>
<td>• bend your knees and hips</td>
<td>• push the load rather than pull</td>
</tr>
<tr>
<td>• lift with your legs</td>
<td>• use both arms</td>
</tr>
<tr>
<td>• avoid twisting as you lift</td>
<td>• ask for help</td>
</tr>
<tr>
<td>• ask for help</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Repetitive motion</th>
<th>Bending</th>
</tr>
</thead>
<tbody>
<tr>
<td>• keep the load small</td>
<td>• kneel on one knee</td>
</tr>
<tr>
<td>• turn your whole body instead of twisting</td>
<td>• bend knees and hips, not your back</td>
</tr>
<tr>
<td>• get close to the load - do not reach and lift</td>
<td>• when leaning forward, move your whole body not just your arms</td>
</tr>
<tr>
<td>• lift with your arms and legs, not your back</td>
<td></td>
</tr>
<tr>
<td>• change positions frequently</td>
<td></td>
</tr>
</tbody>
</table>

| Reaching | |
|----------| |
| • reach only as high as is comfortable – do not stretch | |
| • if you need to reach beyond your comfort level, use a ladder | |
| • test the weight of the load before lifting. Let your arms and legs do the work not your back. | |
10.4 Ergonomics

Ergonomics is essentially about the process of designing or arranging the workplace so it fits the person. All new employees **shall** be given an ergonomic assessment as soon as possible after commencement of employment.

If you experience discomfort at your work station, desk or other location, speak with your line manager and report the symptoms early. Symptoms may include:

- decreased range of motion
- deformity or swelling
- decreased grip strength
- loss of function, e.g. cannot close hand
- persistent numbness
- burning sensation
- pain and tingling
- cramping and stiffness

You **shall**:

- take regular breaks from sitting or standing in one position for more than 30 minutes
- if sitting, make sure your chair is adjusted to support your lower back
- change your posture frequently
- vary your task so you are not doing repetitive tasks for extended periods

**Workstations**

- Adjust height of chair, desk and keyboard.
- Sit in an upright position using good posture.
- Adjust monitor and copy stand to be viewed at a comfortable viewing angle.
- Set angle of monitor and copy stand to reduce glare.
- Keep wrists and hands in line while using keyboard and mouse. Avoid bending wrists forward or backward.
- When using a computer terminal, blink frequently to maintain eye surface moisture.
- To prevent eye fatigue, momentarily focus eyes on a distant object.
- When using a video display terminal for prolonged periods, frequently stretch and move head, neck, shoulders and arms to prevent build-up of muscle tension.
- Ensure chairs are easily and fully adjustable to allow the body to shift position to the greatest extent possible. Use foot rests when adjustments to the chair height do not relieve pressure under the thigh.
- When continually and simultaneously using the telephone and computer, use the telephone head rest, headset or speaker phone to prevent injury.
- Organise work areas to avoid stretching or twisting to reach items.
10.5 Electromagnetic fields (EMF)

What is Hydro Tasmania doing about EMF?

Guidelines on limits of exposure to 50/60 Hz electrical and magnetic fields made by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) are monitored by the HSE team. For the latest advice, please contact your Hydro Tasmania representative.

**EMF surveys of hazardous and restricted areas**

- Hydro Tasmania has conducted EMF surveys on its high voltage installations. The survey results can be found in the computerised maintenance management system and site hazard registers.
- Readings were found in excess of 30,000 milligauss (mG). This measurement was taken in very close proximity to areas such as machine terminals, HV switchgear and transformer HV cable entry. It should be noted that these readings reduced significantly within a distance of one metre, to levels well below the recommended guidelines. This indicates that distance as well as isolation can be used as a control against this hazard.

**EMF signage**

- Signs have been posted for all areas where the magnetic field strength was found to be above 5,000 mG.
- Signs have been posted as close to the source of high EMF as possible

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**Cardiac pacemaker** signage has been posted at all sites warning that 'magnetic fields existing in these power stations may adversely affect pacemaker operation and could be hazardous to health'. Persons requiring entry into these sites should discuss their specific needs with their doctor and manager before entry.

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**Survey requirements**

Where there is a risk of changes to EMF levels due to upgraded plant, or installation of new equipment, a survey **shall** be conducted and any changes **shall** be made available in a report and updated in the Hydro Tasmania documentation system and added to risk registers along with the installation of signage and control measures appropriate to the hazard.

For more information relating to EMF and the latest international guide lines, refer to the International Commission on Non-Ionizing Radiation Protection (ICNIRP).
10.6 Chemical handling

**Chemical information**

- Safety data sheets (SDS) contain relevant information for chemicals, including:
  - hazards and risks
  - PPE requirements
  - spill and emergency responses
- The SDS should be kept where the chemical is stored and be available for use.
- Electronic versions are available online through “Chemwatch”, available on Hydro Tasmania HSE intranet site:
  - search for ‘Chemwatch’
  - to retrieve the SDS enter the name of the chemical
- Food or drink shall not be kept or consumed in chemical handling or storage areas.
- All chemical safety signs shall be obeyed.

**Working with hazardous chemicals**

Before commencing work, identify any hazardous substances you will be using. Hazardous substances are chemicals that pose specific hazards, as listed on the label or in the SDS. Dangerous goods are hazardous substances identified under legislation that:

- pose serious health or environmental hazards
- have specific storage, transport and disposal requirements

Before handling any hazardous chemical:

- check its SDS for the handling requirements
- ensure your work area is fit for purpose, e.g. adequately ventilated, clean and tidy, low risk of spills and contamination, eyewash and/or safety shower available
- wear the PPE specified in the SDS
- ensure a spill kit is readily available and you are familiar with the spill response and clean-up requirements

In case of a chemical spill:

- cordon-off the spill area, assess the hazard and call 000 if required
  - to assess the risk, consult the SDS
  - if a high risk of ignition exists, evacuate the area and call the Tasmania Fire Service on 000
- initiate clean-up immediately using a chemical spill kit
- complete an incident report once the spill has been cleaned up
Dispose of chemical waste appropriately:

- place waste material in a sealed, undamaged container suitable for the chemical type
- label the container as chemical waste and store it in an appropriate chemical storage area, according to its hazards and dangerous goods class
- organise to have stored waste collected and disposed of

For further information on chemical handling, refer to the HSE “Chemical management procedure”

**Chemical spill response**

1. **Stop** the spill at the source
2. **Contain** the spill using booms and pillows
3. **Absorb** the spill using sorbents provided
4. **Dispose** of used sorbents as chemical waste

**10.7 SF6**

Sulphur hexafluoride (SF$_6$) is an insulating and arc quenching gas used in some electrical equipment. SF$_6$ is a tasteless, odourless, non-toxic, inert and heavier than air gas. With a SF$_6$ gas concentration exceeding 35% by volume in air, there is danger of suffocation due to lack of oxygen.

SF6 insulated equipment **shall** be clearly identified and its presence included in the hazard assessment and signage for a facility.

Local procedures **shall** be followed for the maintenance and emergency management of SF6 equipment and under no circumstances **shall** any person enter a room or enclosure after abnormal equipment operation or failure without first conducting a risk assessment and where required, using the protective clothing and breathing apparatus provided in the SF6 emergency kit.

The National Greenhouse and Energy Reporting Act 2007 (NGER Act 2007) and the National Greenhouse and Energy Reporting Regulations 2008 oblige Hydro Tasmania to report on various greenhouse gas emissions. With respect to SF6 measurement and reporting, the clean energy regulator has published ‘Supplementary guidelines - Reporting hydro fluorocarbons and sulphur hexafluoride gases (March 2012)’ which provide that ‘All sulphur hexafluoride (SF$_6$) activity is reportable in all facilities across all industry sectors. See sections 4.100 (2) and 4.101 of the National Greenhouse and Energy Reporting (Measurement) Determination 2008 [NGER (Measurement) Determination].’

The NGER (Measurement) Determination is a statutory instrument made pursuant to s.7B and subsection 10 (3) of the NGER Act 2007.

NGER Technical Guidelines (July 2012) embody the latest methods for estimating emissions and are based on the NGER (Measurement) Determination. The technical guidelines provide additional guidance and commentary to assist reporters in estimating greenhouse gas emissions for reporting under the NGER system.

**10.8 Seismic surveys (working with explosives)**

Explosives used by Hydro Tasmania for seismic survey purposes **shall** be in accordance with the seismic survey safety procedure. Any person conducting work involving explosives must hold a security-sensitive dangerous substance permit.
This person is responsible for the safe handling and storage of all explosives during shot firing and the development of an SWMS on each occasion.

Before conducting seismic surveys

- A blasting plan shall be prepared, complying with regulation 92 of the dangerous substances (safe handling), and approved and signed by the shot-firer.
- Notification shall be given, ideally one week in advance, detailing the blasting dates and times, exclusions zones and road closures (including alternative routes) to:
  
  (a) police
  
  (b) local council
  
  (c) local media (either newspaper or radio)
  
  (d) residents via letterbox drop (where blasting in the vicinity)

- Signage shall be erected on site prior to blasting, normally a week in advance.

**Conducting seismic surveys**

- Only the seismograph operator or blasting contractor may place the key in the shot box or connect the shot box and the shot firing cable.
- No member of the seismic survey team other than the blasting contractor should handle explosives, unless under the direct supervision of the blasting contractor.
- All members of the seismic survey team shall:
  
  - remain in continuous communication via direct contact or portable two-way radio at all times
  
  - know the warning signal to be used to indicate that shots are about to be fired
  
  - the potential for fly rock shall always be assessed and blast mats used where practicable to prevent damage and danger
  
  - seismograph operator and equipment shall be at a minimum distance of 100 metres from the shot and have adequate shielding from potential fly rock

- Shots shall be fired under the following rules:
  
  - all shots shall be fired in the one session
  
  - the detonator lead wires shall remain shorted until connected to the firing cable. They shall not be connected until after loading and tamping
  
  - when the hole is loaded and is ready to be fired, the blasting contractor shall radio the seismograph operator at the recorder to check that the firing cable is short circuited. Only after this is confirmed by the seismograph operator can the shot wires be connected to the firing cable
  
  - no one shall approach the shot area after the firing cable is connected to the shot until the blasting contractor gives permission with confirmation or the all clear is sounded

**Storage, transport and disposal of explosives**

Only a licensed shot-firer, or someone under their direct supervision and instruction, shall transport or handle explosives.

All explosive work shall follow the explosives storage, transport and disposal instructions provided in the seismic survey safety procedure.
**Records**

Accurate records **shall** be kept of the receipt and issue of all explosives.

- Records **shall** be stored and held for five years.
- Permits **shall** be issued by an authorised issuing officer from Workplace Safe Tasmania and be kept as records.

**10.9 Working alone/remote**

A remote area, both in Australia and overseas or even an office complex or facility, is ‘an area that is remote from others or isolated from the assistance of others because of time, location or nature of the work’. As a guide, any situation with an emergency response time greater than 30 minutes **shall** be considered remote.

The following requirement **shall** be considered and implemented based on risk:

- lodge a field schedule with your designated contact – refer to remote areas and working alone procedure
- carry a trunk mobile radio or satellite phone or similar communication technology with you at all times or have a method for communication on site available
- call the duty officer, your manager or tracking service (e.g. Local administration, security Dynamiq) following the check-in procedure in your JHA
- carry or have available a first aid kit with essential items and medications for the work you will be undertaking and to treat any known allergies

*Note: emergency position indicating radio beacon (EPIRB) or a geographic information system (GIS) tracking device **shall** be considered for areas where conventional communication systems will not work.*

Remote area check-in procedure

- Minimum check-in requirements are:
  - Single site – morning and evening.
  - Multiple sites – morning and midday.
  - Multiple sites, single person – on arrival to and departure from each site or work area.
- Your last check-in **shall** be on your return to a non-remote area.
- If you do not check in:
  - Your designated contact or line manager **shall** try to contact you.
  - If you cannot be contacted your designated contact or line manager will attempt to contact any other person with information on your location (e.g. other work parties in the area, scheduled accommodation or family).
    - If you still cannot be located, management will be informed that you are missing.
    - If contact has not been made by 9pm your line manager will:
      — notify your nominated next of kin that you are missing
      — notify the police or appropriate authorities that you are missing
11. Tools and mobile equipment

11.1 Plant

All plant, including mobile plant that is used shall comply with the Workplace Australia national standard for plant and the certification standard for users and operators of industrial equipment. These form the basis for Technical & Operations business standards for operating plant, including mobile plant. Plant operators must comply with the following points:

- mobile generating sets shall be checked for correct phase rotation before being placed in service where the direction of rotation is critical
- warning devices shall be operational
- residual current protection devices shall be used were practicable
- correct earthing of mobile generating sets shall be adhered to

11.2 Welding

Electric shock from open-circuit voltages greater than 48 volts AC and 113 volts DC can be fatal.

The welder can be exposed to these voltages when welding in:

- damp or wet areas on concrete or wet ground
- humid areas
- conductive spaces such as penstocks and pipelines
- on steel structures such as scaffolds and buildings
- exposure to voltages can also occur when changing the electrode

All welders shall have a voltage reduction device fitted.

A voltage reduction device (VRD):

- is built into or adapted to a welding machine
- keeps the no load voltage at the handpiece at low volts until welding is required
- is activated by scratch and strike of the electrode when ready to weld, or in some configurations, by pressing a button on the handpiece, similar to using a MIG gun trigger

Safety precautions shall be adhered to when welding

- DC welders are preferred rather than AC welders.
- Ensure the welding machines, welding cables and welding appliances are in good condition.
- Ensure the welding machines, welding cables and welding appliances have been regularly checked by a competent person and defective equipment is restored to a fit for purpose state prior to use.
- Wear appropriate PPE to avoid radiation burns.
- Use dry welding gloves.
- Wear dry approved clothing with no exposed steel cap boots.
- Use leather cushions, rubber matting, wooden duckboards or other means to insulate the welder from the conductive environment.
• Ensure leads and welding equipment are inspected prior to use, and all joints and connections are secure and insulated.
• Keep the work area clear of rubbish and leads.
• Always use screens to protect people around you from welding flash.

11.3 Grit blasting and painting

Hydro Tasmania requires both safety management and environmental management plans prior to any grit blasting or painting being undertaken.

• People shall be familiar with the SDS for the material being removed or applied.
• All blasting and painting equipment shall be inspected prior to use.
• Metals such as lead, cadmium and manganese are extremely toxic when inhaled. Many existing paints at Hydro Tasmania sites are lead based and contain carcinogens. Regulations require special handling, trained personnel and medical monitoring when these paints are being removed.
• Airless spray equipment that atomises paints and fluids at high pressure shall be equipped with automatic or visible manual safety devices to prevent the inadvertent release of substances.
• To prevent static electricity build up, all paint and blasting hoses shall be grounded at the pot prior to the start of work.
• Silica sand is a serious health hazard and shall not be used as an abrasive on Hydro Tasmania sites.
• Air-supplied respirators should be used when portable units are used in areas without enclosure and under any circumstances where the operator is not physically separated from the abrasive material by an exhausted enclosure.
• Airline respirator and compressor intake hoses shall be placed in an area that provides clean air. An attendant shall be in the area at all times, monitoring air quality and assuring the safety of the blasters and painters.
• Blasting operations that create high noise levels, shall require both the operator and nearby workers to wear hearing protection.
• Dust is nearly always created at any point where abrasives are transferred, whether by hand or shovel. All points of transfer shall be properly exhausted, and workers who handle abrasives manually shall wear particulate filter respirators (P2 minimum).
• Where sensitive equipment such as oil lubrication and electronic control equipment is in place, extra precaution shall be used to protect these from dust contamination during transfer or blasting and painting operations.

Removal of minor quantities of lead based paint

‘Minor’ removal is defined as less than 0.5 metres squared surface area. For the removal of minor quantities, the removal of minor quantities of lead based paint checklist shall be used.

• If unsure, assume that all painted surfaces contain lead.
• If possible, sample material to confirm.
**Removal of lead based paint using wet scraping/sanding method**

- Wear respirator with P2 cartridge to protect self from dust and fumes during removal and clean up.
- Keep use of power grinder to a minimum.
- Clear lead dust remaining on equipment or structures near paint removal area.
- Ensure personal hygiene – thoroughly wash hands and face after completing work tasks.

**Managing lead based paint waste**

- Bag, seal, clearly label and store waste, including rags used for cleaning, in a temporary location until professional removal takes place.
- For all lead based paint work an HSE waste management/disposal form shall be completed and kept with the project documentation as well as sending a copy to a Hydro Tasmania HSE adviser for recording in the sustainability management system.

**11.4 Gas cylinder safety**

**Associated risks and hazards of handling gases**

- Since gases are invisible, their presence is not readily identifiable and they have the potential to asphyxiate, burn or harm users.
- Prior to use, Hydro Tasmania personnel shall familiarise themselves with the respective SDS for the gas being used and the gas equipment operation manual. BOC Gases maintains a library of SDS on the website, or contact BOC on 13 12 62.

**Gas cylinder label**

The label is the primary means for identifying gas cylinder contents. If the label is illegible or missing, do not use the cylinder, but return it to the supplier.

Class diamonds indicate dangerous goods classification.

The class diamond on the label provides further information on the hazards associated with the gas. A label may contain more than one class diamond.

<table>
<thead>
<tr>
<th>Oxidising gas</th>
<th>Many materials which will not burn in air may readily ignite and/or burn in the presence of an oxidising gas, e.g. oxygen. This includes work clothing and many materials considered non-flammable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diamond: yellow</td>
<td></td>
</tr>
<tr>
<td>Lettering: black</td>
<td></td>
</tr>
<tr>
<td>Flammable gas</td>
<td>Flammable gas in the presence of the correct mix of air and an ignition source, will lead to combustion.</td>
</tr>
<tr>
<td>Diamond: red</td>
<td></td>
</tr>
<tr>
<td>Lettering: black or white</td>
<td></td>
</tr>
<tr>
<td>Toxic gas</td>
<td>A gas that is known to be toxic or corrosive to humans, posing a hazard to health.</td>
</tr>
<tr>
<td>Diamond: white</td>
<td></td>
</tr>
<tr>
<td>Lettering: black</td>
<td></td>
</tr>
<tr>
<td>Non-flammable, non-toxic gas</td>
<td>A gas which is non-flammable, non-toxic, non-oxidising and is resistant to chemical action under normally encountered conditions. The displacement of oxygen or air by an inert gas may pose a risk of asphyxiation.</td>
</tr>
<tr>
<td>Diamond: green</td>
<td></td>
</tr>
<tr>
<td>Lettering: black</td>
<td></td>
</tr>
</tbody>
</table>

*Table 11. Gas cylinder labels*
Cylinder colour

Cylinder colour is the secondary means used to identify the nature of the cylinder contents and the nature of the hazard associated with the gas contained in the cylinder. Gases commonly found in use in Hydro Tasmania sites are shown below.

Be sure you refer to the SDS for the gas you are using.

<table>
<thead>
<tr>
<th>Cylinder Colour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon dioxide</strong></td>
<td>Green grey – AS No. N32</td>
</tr>
<tr>
<td>• Can cause the nose to sting</td>
<td></td>
</tr>
<tr>
<td>• Will collect in ducts, drains and low lying areas, e.g. cellars</td>
<td></td>
</tr>
<tr>
<td>• At high concentrations, instant unconsciousness may occur followed by death</td>
<td></td>
</tr>
<tr>
<td>• Much heavier than air</td>
<td></td>
</tr>
<tr>
<td><strong>Nitrogen</strong></td>
<td>Pewter – AS No. N63</td>
</tr>
<tr>
<td>• Odourless</td>
<td></td>
</tr>
<tr>
<td>• No warning signs prior to unconsciousness</td>
<td></td>
</tr>
<tr>
<td>• At high concentrations almost instant unconsciousness may occur, followed by death</td>
<td></td>
</tr>
<tr>
<td><strong>Argon</strong></td>
<td>Peacock blue – AS No. T53</td>
</tr>
<tr>
<td>• Heavier than air</td>
<td></td>
</tr>
<tr>
<td>• Does not burn</td>
<td></td>
</tr>
<tr>
<td>• Largely inert</td>
<td></td>
</tr>
<tr>
<td><strong>LPG</strong></td>
<td>Silver grey or galvanised</td>
</tr>
<tr>
<td>• Is ‘stenched’ (odourised) and has a distinctive odour</td>
<td></td>
</tr>
<tr>
<td>• Will ignite and burn instantly from a spark or piece of hot metal</td>
<td></td>
</tr>
<tr>
<td>• Is heavier than air and will collect in ducts, drains etc and low lying areas</td>
<td></td>
</tr>
<tr>
<td>• Presents a fire and explosion hazard</td>
<td></td>
</tr>
<tr>
<td>• Highly flammable – eliminate all ignition sources prior to use</td>
<td></td>
</tr>
<tr>
<td><strong>Acetylene</strong></td>
<td>Claret – AS No. R55</td>
</tr>
<tr>
<td>• Distinctive garlic smell</td>
<td></td>
</tr>
<tr>
<td>• Fire and explosion hazards are greater than LPG but it is slightly lighter than air and less likely to collect in ducts and drains</td>
<td></td>
</tr>
<tr>
<td>• Requires minimal energy to ignite in air or oxygen</td>
<td></td>
</tr>
<tr>
<td>• Do not use with copper, high copper or brass alloys as copper materials form explosive compounds with acetylene</td>
<td></td>
</tr>
<tr>
<td><strong>Hydrogen</strong></td>
<td>Signal red – AS No. R13</td>
</tr>
<tr>
<td>• Odourless</td>
<td></td>
</tr>
<tr>
<td>• Much lighter than air</td>
<td></td>
</tr>
<tr>
<td>• Will collect at the highest point in any enclosed space unless ventilated at high level invisible flame</td>
<td></td>
</tr>
<tr>
<td>• Presents a fire and explosion hazard</td>
<td></td>
</tr>
<tr>
<td>• Very low ignition energy</td>
<td></td>
</tr>
<tr>
<td>• Burns with an invisible flame</td>
<td></td>
</tr>
<tr>
<td><strong>Oxygen</strong></td>
<td>Black – AS No. N61</td>
</tr>
<tr>
<td>• Odourless</td>
<td></td>
</tr>
<tr>
<td>• Generally considered non-toxic at atmospheric pressure</td>
<td></td>
</tr>
<tr>
<td>• Will not burn, but supports and accelerates combustion</td>
<td></td>
</tr>
<tr>
<td>• Materials not normally considered combustible may be ignited by sparks in oxygen rich atmospheres</td>
<td></td>
</tr>
<tr>
<td>• No oil, grease or lubricants should come into contact with oxygen</td>
<td></td>
</tr>
</tbody>
</table>

Table 12. Gas cylinder colours
Storage

In addition to the above general guidelines, consider the following:

When not in use, gas cylinders shall be returned to designated storage positions at each facility. Where there is no planned work utilising gases, they shall be returned to a workshop or welding bay or bulk store for storage.

Gas cylinders:
- shall be stored vertically
- shall be stored with valves closed and valve protection caps and plugs in place
- shall be secured to prevent falling by chain, cable or rope
- shall be free from the risk of fire and away from sources of heat or ignition
- shall not be stored in or near access or egress passageways
- shall be stored in a well-ventilated area regardless of whether they are full or empty
- shall be stored at least three metres away from fuel gas cylinders such as LPG and acetylene if it is an oxidising gas such as oxygen

Where used on a work site, a single oxygen and acetylene cylinder may be stored together, provided they are:
- secured to prevent fall
- in a location free from the risk of collision
- does not impact on access or egress

If in doubt, the cylinders should be returned to the designated storage position.

General

- Do not smoke or use naked flame near flammable gases or liquids in storage or during transport.
- Check for and do not use damaged cylinders. Identify, tag and remove from service.
- Tag empty cylinders ‘Empty’ or ‘M/T’ (abbreviation used for empty). Keep valve closed and treat as full.

Transport

All gas cylinder safety rules apply

Whenever possible, use a cylinder trolley for transporting cylinders.

For vehicles
- If transporting cylinders by commercial vehicle under 2.5 tonnes, the total weight of cylinders should not exceed 250 kg.
- Cylinders transported in the upright position shall be restrained to the vehicle body or contained in a purpose-built frame with at least two horizontal straps applied.
- Cylinders transported lying down shall be placed lengthwise on the deck on chocks to prevent them rolling sideways, with the valve facing rearwards, and be secured by at least one tie-down strap.
11.5 Power tools and machine guards

Compressed air

The following safety precautions shall apply to working with compressed air:

- Compressed air shall not be used to clean clothing. Do not direct a stream of air at yourself or workmates.
- Inspect air hoses regularly for damage.
- Ensure hoses and couplings are in good condition and connected securely.
- Use approved fittings only.
- Hoses with larger than 30 mm bore shall be coupled with the correct clamps provided with the couplings. These hoses shall also be fitted with an internal steel cable connected to each coupling with locking pins. A whip check or chain shall be used on the outside of couplings.
- Before turning on the compressed air supply to a machine or air tool, ensure the controls are in the off position.
- Turn off the air supply and discharge the air before disconnecting tools or equipment.

Never use compressed air to pressurise or blow out drums or tanks. These containers are seldom, if ever, constructed for use as pressure vessels and serious damage or injury may result should the vessel rupture.

Angle grinders

No worker shall use an angle grinder 170 mm (7 inch) or above for cutting. Grinders above 170 mm (7 inch) may be used for grinding.

Preferred options for cutting are:

- 220 mm (9 inch) demolition saw with enclosed guard and bull handles
- 100 mm (4 inch) grinder with less power and greater control
- Drop saw with enclosed guard and vice
Safe work practices

Section C – Safe people and practices

General safety considerations are:

- never use an unguarded tool
- never force a wheel or disk onto a tool
- never use a wheel or disk that has been dropped or otherwise damaged
- never use excessive tool force
- never stand in front of an operating tool
- never exceed the safe maximum operating speed marked on the wheel or disk
- manage risk of combustion due to sparks

Workers should also be aware of the airborne health hazards which can come from abrasives and bonders in wheels or disks and also from the materials on which the grinders are used. All workers shall consider the appropriate use of any PPE, including face or eye shields and respirators, necessary to protect themselves from physical or airborne hazards when working with or around grinders.

Bench and pedestal grinders

Before use, ensure that:

- the side guard is in place
- the tongue guard extending down from the top of the grinder is in place and within 6 mm of the grinding wheel
- the work rest is tight and adjusted to within 3 mm of the grinding wheel
- eye shields are clean and properly adjusted
- appropriate PPE is being worn
- keep the grinding wheel dressed and in good working condition
- the Grinding wheel is dressed and in good working condition
- the wheel is designed for the purpose you are using it for, e.g. to grind soft metals

Hand tools

- Each tool shall only be used to perform the job for which it is intended.
- Personal tools used on the job are subject to all requirements of these safe work practices.
- Before use, inspect all tools for defects. Remove defective tools from service for replacement or repair.
- Metal rulers, tapes or other tools with metal extending through the handle shall not be used in a manner which will cause them to encroach within the safe approach distances (SAD) of energised electrical equipment.
- Mushroom heads or cracks in chisels, punches, drift pins and other impact tools, shall be dressed, repaired, or replaced before use.
- Keep edge cutting tools sharp and always cut away from the body.
Chainsaw safety
- Workers shall not use a chainsaw unless they are competent and have completed an accredited chainsaw training course.
- Ensure the throttle trigger, safety lock, stop switch and chain brake are in good working order.
- Establish a plan, including personal escape routes, when felling trees and control site access.
- Where possible, use a safety observer.
- Ensure minimum PPE requirements are met:
  - chainsaw pants (chaps)
  - hearing protection (ear plugs or ear muffs)
  - safety helmet with full face visor for eye and face protection
  - safety footwear
  - high grip gloves

Explosive powered tools
- No person shall use an explosive powered tool unless accredited and licensed.
- Explosive powered tools need to be approved for use on Hydro Tasmania sites.

Hydraulic spanner
- The hydraulic spanner is a complex tool and as such has many inherent risks. These include high pressure oil, reaction points, heavy head units with ridged leads and a variety of attachments in varying situations.
- Workers shall ensure they are competent and authorised by Hydro Tasmania to use the device. Ensure that the device is in a serviceable condition, the head unit is suitable and appropriate for the task being performed, the reaction point and alignment are suitable, and the hydraulic spanner checklist is used.
- Authorisation recognises prior learning and, where applicable, formal assessment and training by a Hydro Tasmania representative. This authorisation shall be recorded in the person’s passport and also in the PTW authorisation register. Initial training will include both a theory and practical assessment. Reauthorisation will require evidence of competent hydraulic spanner work and proof to support competence within any two year period. Refresher training and written assessment shall be completed every two years.
- The people physically undertaking the work shall either be directly supervised by an authorised person or be assessed as competent for the particular work setup by an authorised person immediately prior to work beginning.
- Considerations include:
  - Minimum requirements for PPE:
    — safety helmet with full face visor
    — gloves
    — overalls
    — safety footwear
• The hydraulic spanner is to be operated by a minimum of two experienced workers who are assessed by an authorised person as competent in the use of the hydraulic equipment in the specific work setup prior to commencement.

• Wherever practicable, the hydraulic pump operator should be in line of sight with the hydraulic head handler and clear communication shall be established.

• Operate the hydraulic spanner on the floor to check correct mechanical operation; set the correct pressure and check for oil leaks.

• Ensure torque (pressure setting) is known and applied to the specific head unit being used.

• Ensure only sockets or spanners that are approved and identified for hydraulic spanner use are used.

• Ensure the socket or spanner selected is the correct fit to the nut or bolt before applying pressure.

• Ensure all of the hydraulic fittings are of the correct pressure rating.

• Use hydraulic spanner checklist or full details on hydraulic operation.

11.6 Crane use

• All crane drivers shall be competent for the task and hold the correct high risk work licence for the type of crane being used.

• All pre-use checks shall be completed as required, and any faults recorded and reported.

• Riding a load or hook is prohibited.

• Certified man cages may be used and need to be inspected prior to use.

• Loads shall not be lifted over people nor should people walk under loads.

• Crane lift study and the dogging and rigging checklist should be completed as part of the hazard and risk assessment prior to completing a lift.

11.7 Forklift use

• All forklift drivers shall be competent for the task and be a holder of a high risk work licence for forklift trucks.

• All pre-use checks shall be completed as required, any faults recorded and reported, and the forklift removed from service if deemed unsafe.

• Workers do not require a licence if operating a pedestrian walk behind a forklift or pallet truck.

• When operating a powered industrial truck, always travel with the forks approximately 150 mm (6 inches) from the ground so they clear any uneven surfaces.

• Ensure there is enough clearance and headroom for equipment operation through aisles and doorways.

• When carrying a load that obstructs a clear view, travel in reverse or ask another worker to act as a guide.

• Do not carry passengers on the powered industrial truck unless it is specifically designed for that purpose.
• Sound the horn when turning a blind corner.
• Protect against accidents or damage by making sure:
  • the forklift and load weights do not exceed floor limits
  • the raised mast of the overhead guard clears all overhead obstacles, lights, pipes, sprinklers, heaters, overhead tracks and doorways
  • the vehicle is never turned while on a ramp or incline
  • forklifts are not used in areas of poor lighting unless they are equipped with auxiliary directional lighting and the lighting is turned on
  • the vehicle is never parked in front of any fire protection equipment, emergency exits, or in a manner that would obstruct a person from exiting the area

Only personal cages which comply with AS 2359.1 and are name-plate shall be used with forklifts.

11.8 Concrete pumping equipment

When planning for concrete pumping on site, the following points shall be considered:

• The most suitable method of pumping concrete to the pour area.
• The capacity and type of pump to be used to complete the job satisfactorily.
• The location of the pump and access for concrete delivery trucks.
• Assessment of manual handling tasks which could cause muscle and ligament strains and other injuries.
• Provision of personal protective equipment and other safety equipment.
• Provision of safe access, including elimination of trip and slip hazards.
• Electrical safety, including the location of nearby power lines.
• Instruction manuals shall be supplied with the pump unit and boom, giving comprehensive instructions for operation, maintenance and repair and should include a parts catalogue.

The operator should be familiar with the contents of the manual which should be available at the site of operation.

Manuals should be kept up to date with any additional information from the manufacturer.

• Log books shall be kept up to date and be made available on request at the workplace.

11.9 Use of vehicles and fuel burning plant in underground locations

• The use of vehicles and fuel burning plant underground increases the risk of carbon monoxide poisoning.
  • All workers should be aware of carbon monoxide poisoning symptoms such as headache, faintness, dizziness, confusion, nausea and irregular heartbeat.
• Types of vehicles used for accessing underground locations shall be limited for each location.
• Vehicles shall be assessed to suit local ventilation capacity.
• Park facing the exit direction.
• Engines shall never be kept running after parking.
• Only diesel vehicles are allowed underground.

Exception: In the event of an emergency or operational response, petrol, LPG or other powered vehicle may be used based on risk at the discretion of the asset owner or delegate for the relevant location.

12. Working in hazardous environments

12.1 Working at heights, platforms, ladders and walkways

Working at heights

Hydro Tasmania has a number of assets which due to their age, are not to current standards. These have been risk assessed and appropriate hazard control measures put in place. These areas are signposted and added to the facilities hazard register. Work in these areas needs to be risk assessed independently against work being undertaken. As far as fixed ladders and walkways are concerned, Hydro Tasmania will apply the following risk control measures:

• Where fixed ladders and walkways are used frequently, (day to day operation, high use), they will comply or be modified to current standards.

• Other fixed ladders and walkways which do not comply will only be used after a risk assessment has been completed and appropriate fall protection has been identified and implemented.

• At all times, work can only proceed if individuals are protected from falling.

• The working at heights procedure shall apply to all Hydro Tasmania work sites where there is a risk of workers falling 1.8 metres or greater or where workers are operating within two metres of a live edge or brittle surface.

• Workers shall be trained in height safety and competent in the height safety systems unless control measures can be used to protect the worker from the exposed edge or brittle surface. Approved control measures may include:

  • Barriers and hand rails constructed to AS 1657 fixed platforms, walkways, stairways and ladders.

  • Scaffolding compliant to AS 4576.

  • Where height safety is identified as a hazard, a JHA and a working at heights checklist shall be completed.

Exception: The working at heights procedure will not apply for ladder access and egress where workers are required to be within two metres of a live edge, unless a risk assessment dictates otherwise.

Elevated work platform

All workers who operate elevated work platforms, including those with a reach up to 11 metres, shall be fully instructed in the details of the equipment, nature of the work activities and licensed as per platforms reaching 11 metres and above.
Elevated work platform safe work practices

The following safe work practices shall be adhered to:

- For each day of use conduct a pre-use inspection.
- Ensure work platform is operated safely by a licensed person and is used in accordance with its operating instructions.
- Ensure the safe working load at the work platform is not exceeded.
- Never operate on more than a five-degree slope.
- Never position ladders, steps or similar items on platforms to provide reach for any purpose.
- Wear fall arrest or fall prevention equipment where appropriate.
- Be aware of clearances when travelling or operating.
- Do not enter or exit platforms when elevated.
- During travel keep a safe distance from changes in slope depressions, debris, buildings, overhead power lines and other obstacles.

Personnel cage construction and design

The job manager shall ensure that any cage used to carry people on a crane or other lifting device, including a forklift, is registered and has:

- a visible compliance plate displaying safe work load (SWL) and date of registration
- hand rails and grid mesh to all sides to a minimum height of 900 mm
- anchor points for fall arrest devices in appropriate locations
- an inward opening or sliding door that is self-closing and self-latching

Use of personnel cage on a forklift

The job manager shall ensure the following when a personnel cage is used on a forklift:

- the back is at least two metres high with appropriate infill to protect occupants from any moving portion of the lifting mechanism
- at least two independent locks secure the cage to the tynes
- the forklift driver is at the controls at all times
- the forklift is only operated on a hard level surface
- the forklift is not moved with the platform raised
- all work is carried out while standing on the deck of the platform
- no more than two people occupy the platform at any time
- any forklift used for a personnel cage shall have a rating of at least 1000 kg (non-counterbalanced) or 1800 kg (counterbalanced at full mast extension) and comply with AS 2359.1
Use of personnel cage on a crane

The job manager shall ensure the following when a personnel cage is used on a crane or similar lifting device:

- it is suspended by non-rigid and non-elastic supports, e.g. steel chains
- station crane long travel and cross travel operation must be minimised whilst workers are in the cage and be at the slowest practical speed possible
- mobile cranes shall not be moved (walked) with workers suspended in the cage
- all work is carried out while standing on the deck of the platform
- workers enter and exit personnel cages only when the cage is at ground level and where there is no risk of falling

Ladders

Ladder types

Fixed ladders used frequently (day to day operations, high use), shall comply with AS 1657. Use of other fixed ladders which do not comply can only occur after a risk assessment has been completed, fall protection identified and appropriate measures implemented.

Portable ladders shall comply with Australian Standards:

- AS/NZS 1892.1 portable ladders Part 1: metal
- AS 1892.2 portable ladders Part 2: timber
- AS/NZS 1892.3 portable ladders Part 3: reinforced plastic, as applicable

Safe use of ladders

As a rule, ladders should only be used for access and egress and for short-term work. Mobile platforms, elevated work platforms or scaffolds should be used for heavy or lengthy work. If a ladder is required to be worked from, ensure the following:

- only industrial rated ladders having a minimum load rating of 120 kgs are used in the workplace
- only one worker is on a ladder at any one time
- when ascending or descending the ladder, always face the ladder and maintain three points of contact at all times. Do not climb from one ladder to another
- when working on a ladder, always work within easy arm’s reach and remain centred between the stiles, maintaining three points of contact
- a tool pouch, shoulder bag or haul bag shall be used to convey tools
- only undertake light work while on the ladder
- when using a portable or fixed ladder as a working platform and a fall of more than 1.8 metres is possible, use a fall-restraint or arrest system
- do not attempt to ‘walk’ or move a ladder while a worker is on the ladder
- no worker is to stand on a ladder higher than 900 mm from the top
- do not erect portable ladders on elevated walkways, scaffolding or elevated work platforms to gain extra height
• do not use ladders for hot work such as welding or oxy acetylene cutting
• two people shall handle long and heavy ladders (greater than 20 kg)
• follow the manufacturer’s instructions regarding the erection, use and maintenance of the ladder
• metal, wire reinforced or otherwise, conductive ladders shall not be used on or near equipment that may pose an electrical hazard

**Pitch angle**
A portable ladder should be positioned at a slope of one in four, e.g. a four metre long ladder should be placed with the foot of the ladder one metre out from the wall.

**Stepladders**
Ensure the legs of a stepladder are fully spread and braces locked into position before ascending. Do not climb or stand on the top two steps or rear horizontal braces of a stepladder.

Certain specialised types of stepladders are constructed with a platform surrounded by a handrail. These ladders are particularly useful for handling items located at a specific height compatible with the height of the platform.

**Ladder inspection, care and maintenance**
Ladders should be inspected and maintained in good condition. Inspect the ladder before and after use to ensure it is structurally sound and free from any defects.

- The inspection intervals for fixed ladders will depend on the operational environment and service function. Ladders subject to vibration, corrosive environments or extremes of wind or ice may need more frequent inspection.
- Keep ladders clean from mud, grease or concrete that may cause the user to slip. If any damage or defect is discovered, remove the ladder from service until it is repaired by a competent person or replaced. Under no circumstance should any temporary repairs be made to a ladder. Non-repairable ladders shall be destroyed and disposed of.
- Wooden ladders shall never be painted. If a preservative is used, it shall be transparent and remain transparent during the life of the ladder to enable visual inspections to detect deterioration or defects.

**Scaffolding**
All scaffolding work at Hydro Tasmania shall only be undertaken by people holding a high risk licence or by people being directly supervised by a person holding the high risk licence.

*Note: Scaffolding excludes platform ladders and prefabricated mini scaffs. In all cases, people shall be deemed competent in the use of this equipment prior to commencement of use.*

Workers undertaking work outside a scaffold shall use Hydro Tasmania's working at heights procedure. All scaffolding erected as part of a high risk licence shall be scaff-tagged and deemed safe prior to use.
Safe work practices

Where tools or equipment are used on a scaffold and could dislodge or fall onto workers, equipment or infrastructure below, one or more of the following controls shall be adopted:

- Install toe boards.
- Barricade the area below to prevent workers or members of the public entering.
- If materials can be or are expected to be higher than the toe board, use a screen or barrier to contain the materials to the scaffold only.
- Do not work on ice coated scaffolds.
- Wheels and castors shall be locked in place before use.
- Mobile scaffolds shall rest on solid level footings.
- Materials and equipment will not be placed on or stood against scaffold railing.
- Scaffolds will not be loaded above the rated capacity.
- Scaffolds to be inspected for visible defects by a competent person before each work shift and following any occurrence which could affect the scaffold’s integrity.

**Safe walkways and working areas**

- Before starting work or placing any item of plant and equipment on them:
  - assess the risk of falls
  - assess the safety and security of walkways, platforms and ladders, including strength and structural integrity
- Use designated walkways where they are provided and use ladders only for the purpose for which they are designed.
- Walkways and platforms shall be kept dry, clean and free of holes, nails, splinters, loose surfaces or any projections.
- Drainage should be provided in wet areas and mats where possible provided where non-slip surface preparation is not provided.
- Any walkway or platform 900 mm or more above the floor, and any stairway with four or more risers, shall be protected by guardrails and toe boards.
- Do not exceed the weight capacity of floor hole covers.
- Hatches, pits, chutes, ladder point and other floor openings shall be covered or guarded by toe boards and guardrails or gates.
- Where walkways or platforms are not adequately designed or guarded, the Hydro Tasmania working at heights procedure shall be used.

*Note: Hydro Tasmania has a number of assets which due to age, are not up to current standards. These have been risk assessed with appropriate hazard control measures put into place. These areas have been signposted and added to the facilities hazard register. Work in these areas needs to be risk assessed independently against the work being undertaken.*
12.2 Electrical safety

Electrical risks and causes of injury

The common electrical risks and causes of injury can be categorised as follows:

- **Electric shock causing injury or death.** The electric shock may be received by direct contact, tracking through or across a medium or by arcing.

- **Arcing, explosion or fire causing burns.** The injuries are often suffered because arcing or explosion or both occur when high fault currents are present.

- **Toxic gases causing illness or death.** Burning and arcing associated with electrical equipment causes a range of gases and contaminants to be present. Compounds ranging from ozone to cyanide and corrosive acids can be present as well as risks such as low oxygen content.

- **Battery maintenance.** Only appropriately trained and authorised workers are to carry out battery maintenance per the relevant procedures. All work must be carried out in accordance with the local battery maintenance procedure.

- **Electrolyte burns.** The affected area must be flushed immediately with water to dilute the electrolyte. It is essential that an adequate supply of clean water is available at all times. Spilled electrolyte shall be diluted with water or neutralised by addition of a suitable agent, then immediately removed. Protective clothing and gloves shall be worn to prevent electrolyte contact with the skin.

- **First aid treatment for electrolyte contact.** Electrolyte contact with the skin must be flushed with clean water. Flushing should be continued for a period of not less than 10 minutes. It may be necessary to seek medical attention. In case of electrolyte contact with the eyes, flushing must be continued for a period of not less than 20 minutes and immediate medical aid should be sought.

- **General precautions for batteries on charge.** When a cell of a battery is on charge, hydrogen and oxygen gases are released. Hydrogen and air mixed in proportion between 4% and 76% by volume is combustible, and burning is enhanced by oxygen enrichment.

- **Sources of ignition, such as sparks produced by static discharges, smoking, naked flames and arcs from electrical equipment, should not be located in close proximity to the tops of cells.** When a battery is on charge, bubbles may be released which can produce a corrosive mist. This should be controlled by adequate ventilation.

**Competent electrical worker**

For the purpose of this section of the handbook, a competent electrical worker is defined as a licensed electrical practitioner; a person holding a restricted electrical licence or a person authorised under the electrical safety management system. Only competent and authorised electrical workers shall work on electrical equipment.
In addition to trade and technical competencies, Hydro Tasmania requires persons working on electrical assets to be competent in the following:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permits and procedures</td>
<td>Competent in the use of Hydro Tasmania PTW and isolation procedures.</td>
</tr>
<tr>
<td>Wire and cable numbering, and machine prefixes</td>
<td>Competent in reading and deciphering Hydro Tasmania drawings including one line diagrams and able to indicate the relevance and philosophy of the numbering scheme.</td>
</tr>
<tr>
<td>Shielded cabling</td>
<td>Competently test and prove dead shielded cables, with an understanding of shielded cabling and its use.</td>
</tr>
<tr>
<td>AS/NZS 4836 – Safe working on low-voltage electrical installations</td>
<td>Competent in the use and contents of AS/NZS 4836 – Safe working on low-voltage electrical installations, and able to identify its relevance compared with AS/NZS 3000 wiring rules.</td>
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</tbody>
</table>

Table 13. Trade and technical competencies for working on electrical assets

**Apprentices and trainees**

An apprentice or trainee is not considered a competent electrical worker and requires direct or general supervision consistent with their level of competence. Further guidance on the suitable level of supervision for apprentices and trainees can be found on the Workplace Safe Tasmania website under Legislation and Codes.

**Electrical safety management system and restricted electrical licence**

In addition to electrical technicians holding an electrical practitioner licence, non-electrical workers may be covered by the electrical safety management system (ESMS).

The ESMS is specifically designed to cover non-electrical trades and allows for operation, removal from service (isolation), restoration and fault finding processes on approved electrical equipment.

**Live work**

Live work shall not be undertaken without a risk assessment approved by an officer or their direct delegate.

Generally, live electrical work is deemed an unacceptable practice. The only exception is when the electrical work is necessary in the interests of safety and the risk of harm would be greater if the circuits and equipment were de-energised before the work started. In this situation, the work shall be carried out in accordance with AS 4836 as a minimum with approved control measures, which includes a safety observer who is competent in electrical rescue and CPR.

**Risk controls for live work**

Risks associated with the electrical work, including the presence of adjacent energised circuits and equipment shall be assessed with all necessary control measures established prior to starting work. The following control measures should be used as a minimum to ensure the work is carried out safely:

- Identify the circuits and equipment to be worked on and the appropriate sources of power supply.
- De-energise the circuits and equipment and isolate them from all sources of supply.
• Ensure the supply remains isolated by locking off and/or tagging the isolation point.
• Test before you touch – prove the supply is de-energised by using appropriate test methods and approved test instruments.
• Insulate or segregate any part of the installation that remains energised to eliminate or control the risk of inadvertent contact or flashovers.
• Use appropriate clothing and PPE.
• Provide workers with adequate information, instruction, training and supervision regarding the risk control measures to be implemented.
• Use a competent safety observer when both the following apply:
  • The electrical work is necessary in the interests of safety and the risk of harm would be greater if the circuits and equipment were de-energised before the work commenced.
  • A risk assessment undertaken before electrical testing confirms that a safety observer is required.
• When leaving unfinished work, ensure that it does not present a hazard to others at the workplace and clearly communicate and sign its condition.

Examples of tasks considered live work low voltage:
• connecting or disconnecting any live low voltage (LV) conductor
• preventative maintenance on live LV conductors, including tensioning terminals or bolts

Example of tasks not considered live work low voltage:
• connecting and disconnecting test equipment for the purpose of fault finding in an approved manner by competent electrical workers appropriately trained in its use
• using sliding links or similar devices designed for making and breaking live circuits
• replacing of components mounted on bases such as fuses, relays or lamps
• testing high voltage equipment to prove de-energised shall only be performed by an authorised person

Identifying and controlling electrical risks – JHA/Take 5
To work on or near any electrical equipment, it is first necessary to determine whether it is safe to do so by undertaking a risk assessment. All electrical conductors, including earthing conductors shall be treated as energised until proven de-energised.

As part of pre-work planning and the JHA/Take 5 process, the following potential hazards and issues shall be considered:
• reschedule the work so that the electrical equipment can be isolated
• the location to be worked is in the vicinity of other electrical installations
• control of access of all other people
• cramped working conditions and confined spaces
• multiple sources of supply
• reference to facility drawings, electrical drawings and service drawings and manuals
Safe work practices

- the work method being used; machinery, portable or hand tools
- potential fault levels
- operational demands to carry out the work or to restore electricity generation and supply
- concealed services, e.g. in wall cavity or ceiling space
- any activity breaking the ground surface including excavating, digging and drilling
- voltages between phases, between phases and neutral, and between phases and earth – including metalwork, damp situations, other conductive surfaces and workers nearby voltages that may be present in the following:
  - across open switch contacts
  - across undischarged capacitors
  - across the secondary terminals of transformers (including current transformers and voltage transformers)
  - on disconnected conductors (particularly neutrals)
  - electromagnetically and electrostatically induced voltages in cables and equipment
  - voltages between different earthing systems due to earth potential rise and circulating currents
- adjacent equipment in normal or faulted condition
- atmospheric conditions (i.e. thunderstorm activity)
- incorrect wiring connections, faulty equipment (the frame of the fault equipment may become energised)
- consideration should also be given for the safety of people who are remote from the work site
- any conceivable risk to any person either performing the work, entering the work area, and /or coming into contact with energised exposed conductors

**Arc flash**

Arc flash and arc blast occurs as a result of a low impedance fault on equipment failure while opening and closing through insulation failure or through accidental shorting during work. Low voltage arc flash consequences can be greater than those of high voltage depending on the fault current levels and protection clearance times. Over current circuit protection might not operate and should not be relied upon to safeguard the worker.

Arcs that are produced under these conditions have the energy to heat the air to temperatures as high as 19,000°C and vaporise metal in the equipment. The arc flash can cause severe burns to the face and eyes and injury through impact from flying debris or dislodged components. Heating air and vaporising of metal create a pressure wave (arc blast) that can damage hearing, cause concussion and other injuries. Flying metal parts are also a hazard.

**Control risks**

- Operate high voltage switchgear remotely at all times and low voltage switchgear where possible.
- If operated locally, appropriate PPE **shall** be worn (defined below).
- Any enclosure doors are to be securely closed prior to switching
- Avoid live work.
- Use approved insulated tools when live work is the only option and when fault finding.
- If removable or able to be withdrawn, once removed or withdrawn take the switchgear to a safe distance from the switchboard, panel or enclosure before working on. If not:
  - check for planned switching
  - erect a blast screen between yourself and in-service equipment

Minimum PPE for electrical work where there may be a risk of arc flash includes:
- fire resistant 185 gsm cotton, clothing covering ankle-wrist-neck
- face shield, while switching locally
- insulated gloves of the appropriate rating (HV or LV)

Where specific risks are identified, the level of PPE shall include flame resistant clothing and a hood designed for arc flash protection – Reference Hydro Tasmania “Electrical Equipment Arc Flash Hazard Guidelines” GG-AM-112
- local switching or racking of HV metal clad switchgear
- where equipment is marked as a result of an arc flash study

Removing redundant cables (cable or wire cutting)
Cutting cables or wires during removal is a hazardous activity and shall only be undertaken by a competent or authorised electrical worker after an appropriate risk assessment has been approved by a manager. This should include the following actions:
- barrier-off any equipment, terminals, cables or wires not covered by the PTW
- ensure both ends of the cable/wire can be identified
- prove dead by testing for AC and DC voltages and currents (use tong tester where appropriate)

Working on extra low voltage equipment
The potential for high fault currents still exits when working on extra low voltage (ELV) equipment. Short-circuiting battery terminals, connections or points of DC distribution may create substantial arcs or ignite flammable gases or materials. Where the protective device has a rating greater than 20 amps, work shall be considered live work.

Batteries
When working on batteries and DC systems, there are risks of explosion from flammable gases, chemical burns and arc flash. The following precautions shall be taken:
- read the operations and maintenance manual for safety direction
- read the SDS for the battery type and implement the safety and emergency procedures
  - no hot work
  - access to eye wash facilities where required
  - arc flash (PPE where required)

If handling battery electrolytes, wear rubber apron, gloves and goggles as per SDS.
Working on low voltage equipment

Workers other than competent electrical workers shall not open enclosures or panels that contain exposed energised electrical parts or equipment.

Competent electrical workers shall only open enclosures or panels that contain exposed energised electrical parts or equipment for the purpose of fault finding, testing and isolation, and shall not undertake live work without an approved risk assessment and control measures in place.

Preventative maintenance on live conductors or the connection and disconnection of live conductors is considered 'live work'. For live work, the controlled risk level shall be no lower than high and the identified controls a Hydro Tasmania manager.

The need for a PTW and level of isolation shall be determined by following the PTW procedure. All work will be carried out in a safe manner as determined by a hazard and risk assessment and control measures taken will be consistent with the risk and work performed.

Low voltage rescue

All workers undertaking electrical work shall be qualified in switchboard rescue and CPR and undertake refresher training annually (HLTCPR211A). Workers shall maintain a copy of evidence of competency with them when signing on to a PTW involving electrical work.

Electric shock

Hydro Tasmania workers experiencing an electrical shock shall receive a medical examination. This applies to all Hydro Tasmania sites. (Refer electric shock procedure.)

If it can competently be determined without doubt that the shock was a static electric shock or an extra low voltage shock (<50 volts AC or <120 volts DC) a medical examination is not required. If in doubt as to the nature and severity of an electric shock, a medical examination shall be required.

Working in the vicinity of high voltage

Any worker engaged to work in the vicinity of high voltage (HV) equipment shall be as a minimum trained as an Instructed Person in Hydro Tasmania's PTW and Isolation procedures. A PTW shall be issued for work in any one of the following categories:

- work undertaken by other than Hydro Tasmania workers, e.g. contract vegetation control
- work that a non-routine activity not defined as part of the maintenance program
- work that requires mobile plant, e.g. vehicles, cranes or work platforms
- work that requires an isolation
- work that breaches a specified safe approach distance (SAD) see the table below

Where the work is routine, has an approved JHA or SWMS and is conducted by a competent Hydro Tasmania worker or contractor, a PTW may not be required.

Electrical equipment shall never be assumed to be dead, de-energised or isolated, and unnecessary approach to electrical equipment or unnecessary contact with parts regarded as live shall be avoided. Clearances shall be maintained until the proven status of electrical equipment, application of the PTW and appropriate isolation and earthing has been undertaken. Refer to isolation procedure.
### Safe approach distances to uninsulated conductors (*Note 1)

**Working under PTW**

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Instructed person</th>
<th>Mobile plant (*Note 2)</th>
<th>Ordinary person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Working</td>
<td>(with safety observer)</td>
<td>(no safety observer)</td>
</tr>
<tr>
<td>Up to 1000 V</td>
<td>500 mm</td>
<td>1000 mm</td>
<td>3000 mm</td>
</tr>
<tr>
<td>Above 1000 V up to and Including 22 kV</td>
<td>700 mm</td>
<td>1200 mm</td>
<td>3000 mm</td>
</tr>
<tr>
<td>Above 22 kV up to and including 110 kV</td>
<td>1000 mm</td>
<td>1800 mm</td>
<td>3000 mm</td>
</tr>
<tr>
<td>Above 110 kV up to and including 220 kV</td>
<td>1800 mm</td>
<td>2400 mm</td>
<td>6000 mm</td>
</tr>
</tbody>
</table>

**Table 14. Safe approach distance to uninsulated conductors**

*Note 1: Further guidance on clearances can be found in the relevant codes and practices.*

*Note 2: See earthing of mobile plant below.*

A safety observer shall be posted to warn mobile plant operators of any dangers or unsafe approach to energised equipment in accordance with the safe approach distances described in the table above.

### Earthing

Earthing is carried out to ensure that an effective discharge of electrical energy to the general mass of earth is maintained and also to maintain a zone of equipotential at the worksite for the reasons of personal safety.

Application and removal of approved operational earths is only to be carried out by the authorised issuing officer. Operational earths are to be applied prior to the issuing of a PTW and removed after the cancellation of the PTW.

Application and removal of appropriately rated portable/working earths can only be carried out when the PTW is in force. Portable/working earths may be applied by PIC or IP with approval of the AIO and authorised as part of a PTW.

### Temporary earthing equipment

#### Portable earths

- All operational portable earth leads shall be of a highly visible colour.
- Portable earths shall be tested periodically in order to determine the integrity of the multiple strand cables and end fitting condition.

#### Operating sticks

- All operating stick must have a current test label attached before use.
- Faulty operating sticks must be tagged and must not be used.
Inspection prior to use

- All temporary earthing equipment shall be inspected prior to use.

Earthing of mobile plant

- Trailing and portable working earths are required for mobile plant when they are within a switchyard, substation boundary or working in the vicinity of any high voltage electrical conductor, to safely direct electrical energy, induced voltage and accidental contact with live equipment to the facility’s earth mat away from workers.
- Portable/working earths are preferred over trailing earths and are required for mobile plant as soon as it is stationary and/or less than six metres away from energised equipment.
- Portable/working earths shall be applied by a PIC or IP as part of a PTW.
- Trailing earths shall be galvanised, mild steel chain of 10 mm size, which shall be attached/clamped to the mobile plant or vehicle’s chassis. At least 1000 mm is to contact the ground surface. Trailing earths shall be applied by a PIC or IP as part of a PTW.

Earthing of scaffold

Scaffolding that is erected within a switchyard or substation shall be earthed via the use of an approved Portable/working earth as soon as the first piece of scaffolding is in place.

Disconnecting or connecting conductors

Where conductors including earths are to be disconnected or connected within an isolated and earthed section, additional work earths, short circuits or bonds shall be applied at the work site to ensure equipotential work area conditions are maintained.

Working on high voltage equipment

Work requiring access to high voltage equipment will be done in accordance with the isolation and PTW procedure.

- All HV electrical work shall be done between earthing devices. If, due to lack of space or design standard, it is not physically possible to apply earths to all sources of HV supply, no work shall commence on isolated equipment until it has been positively identified and proven de-energised at the work location.
- A risk assessment considering the potential for the person to become part of the circuit shall be undertaken and additional safety measures applied.
- In addition to operational earthing requirements, work earths shall be utilised during work to minimise the effect of electromagnetic and electrostatic induction through creating and maintaining an equipotential work environment.
<table>
<thead>
<tr>
<th>Voltage</th>
<th>Activity/task</th>
<th>Hydro Tasmania requirement</th>
</tr>
</thead>
</table>
| Extra low voltage below AC 50 V, DC 120 V | Isolation  
- Perform own isolations for electrical work. | • The need for a PTW and level of isolation **shall** be determined by following the PTW procedure.  
• A competent electrical worker to test that the site is de-energised, apply danger tags and lock. |
|                                | Fault finding  
- Measuring voltages and currents.  
- Performing disconnections and reconnections. | • The need for a PTW shall be determined by following the PTW procedure.  
• Only a competent electrical worker **shall** undertake fault finding; and  
• **shall** undertake a risk assessment;  
• **shall not** perform 'live work' (see description in this document);  
• **shall** be competent with any test equipment used. |
|                                | Testing  
- Injecting signals.  
- Operating plant as part of the test. | • The need for a PTW and level of isolation **shall** be determined by following the PTW procedure.  
• The person testing **shall** be a competent electrical worker; and  
• **shall** be competent with the test equipment and procedure;  
• **shall** undertake a risk assessment. |
| Low voltage for AC-50 V to 1000 V DC-120 V to 1500 V | Perform isolations for electrical and non-electrical work. | • The need for a PTW and level of isolation **shall** be determined by following the PTW procedure.  
• A competent electrical worker to test that the site is de-energised, apply danger tags and lock. |
|                                | Fault finding  
- Measuring voltages and currents. | • The need for a PTW and level of isolation **shall** be determined by following the PTW procedure.  
• Only a competent electrical worker **shall** undertake fault finding.  
• **Shall** undertake a risk assessment.  
• **Shall** not perform 'live work' (see description in this document).  
• **Shall** be competent with any test equipment used. |
|                                | Testing  
- Injecting signals.  
- Operating plant as part of the test. | • The need for a PTW and level of isolation **shall** be determined by following the PTW procedure.  
• The person testing **shall** be a competent electrical worker.  
• Competent with the test equipment and procedure.  
• Undertake a risk assessment. |
|                                | Switching  
- The operation of LV equipment, for the purpose of configuring an LV system in operation or providing safe access. | **Shall** be a PTW issuing officer. |
# Safe work practices

## Section C – Safe people and practices

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Activity/task</th>
<th>Hydro Tasmania requirement</th>
</tr>
</thead>
</table>
| High voltage. Above 1000 volts AC | Prepare electrical schedule of planned operation (SOPO) (switching sheet). | • **Shall** be an authorised PTW issuing officer.  
• **Shall** be reviewed and approved by a second authorised PTW issuing officer. |
| Isolation | | • **Shall** be an authorised PTW issuing officer.  
• Authorised to switch HV equipment.  
• A competent electrical worker to test de-energised, apply danger tags and lock. |
| Application of earths | • Operational earths.  
• Working earths. | • **Shall** be an authorised PTW issuing officer. |
| Work in the vicinity of HV | | • PTW issuing officer to issue PTW when required (see working in the vicinity of HV).  
• People working in the vicinity **shall** be an IP as a minimum. |
| Fault finding | • Including testing and injection of voltages and currents. | • Authorised PTW issuing officer(s) to prepare SOPO, review and approve  
• isolate and earth as per SOPO  
• issue PTW.  
• PIC to work under the condition in the PTW and within their competence. |
| Switching | • The operation of HV equipment, for the purpose of configuring an HV system in operation or to provide safe access. | • **Shall** be an authorised PTW issuing officer (high voltage).  
• A competent electrical worker to test de-energised, apply danger tags and lock. |

### Table 15. Hydro Tasmania voltage requirements

#### 12.3 Test and tag

As a minimum, Hydro Tasmania requires all electrical equipment used on its sites to be compliant to the Australian Standard AS/NZS 3760:2010 in-service safety inspection and testing of electrical equipment. Inspections relating to construction sites can be found in AS 3012:2010 ‘electrical installations-construction and demolition sites’. In addition to this:

- Workers **shall** perform pre-use inspections on all electrical equipment before use and again after, before returning the equipment.
- All electrical equipment that is not in test date or damaged **shall** be tagged out of service until it can be tested and tagged by a competent person.

**Workshop and maintenance equipment**

- Workshop equipment protectively earthed 6-monthly; double insulated, 12-monthly.
- Residual current devices (RCDs), portable, 3-monthly; fixed, 6-monthly.
- Cord sets and power boards in workshops should be tested 6-monthly.
Where a hazard and risk assessment identifies a project or package of work as ‘Construction Work’ tagging and testing of “portable equipment” shall comply with AS/NZ3012 and be carried out 3-monthly as a minimum!

Note: Once identified, work site boundaries for the site shall be clearly delineated if practicable and any portable equipment used within the boundaries of the site shall conform to this standard.

**Office equipment**

- Stationary equipment such as computers, fridges and microwaves and power boards in offices, power cords: 5-yearly.
- Portable equipment such as laptops, projectors and associated cords: 12-monthly.

Note that if equipment is moved, testing and tagging should be performed before re-using.

**Equipment used for commercial cleaning**

- Commercial cleaning equipment shall be six months minimum e.g. vacuum and steam cleaners, polishers etc.

<table>
<thead>
<tr>
<th>Type of environment and/or equipment</th>
<th>Interval between inspection and tests (in months)</th>
<th>Cord sets and power boards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class of equipment</td>
<td>Residual current devices (RCDs)</td>
</tr>
<tr>
<td></td>
<td>Class 1 (protectively earthed)</td>
<td>Class 2 (double insulated)</td>
</tr>
<tr>
<td>1. Factories, workshops, places of work or repair manufacturing, assembly, maintenance or fabrication.</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>2. Environment where the equipment or supply flexible cord is subjected to flexing in normal use or is open to abuse or is in a hostile environment.</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>3. Environment where the equipment or supply cord is not subject to flexing in normal use and is not open to abuse and is not in a hostile environment.</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>4. Residential type areas of hotels, residential institutions, motels, boarding houses, halls, hostels, accommodation houses, and the like.</td>
<td>24</td>
<td>24</td>
</tr>
</tbody>
</table>

12.4 Working in or on water

Water safety

As a minimum a JHA shall be completed before working in and around water, addressing the hazards involved in the work, including, but not limited to:

- drowning
- exposure or hypothermia
- collision with boats and infrastructure
- slip and fall
- snagging and entanglement

Weather and water conditions shall be reviewed prior to commencing work in water, and work postponed if weather conditions are unsuitable.

Small boats

- A certified coxswain shall be on board and in charge of any boat and is responsible for the safety of all workers on board.
- The JHA shall include:
  - the certification details, e.g. qualifications, licences, etc.
  - limitations, e.g. number of passengers, engine size, etc. of the boat
  - name and date of coxswain’s qualification
- A voyage operational checklist shall be completed for each vessel voyage or work block, as part of the JHA.
- The coxswain shall deliver a pre-voyage safety induction, using the boating safety induction sheet.
- The coxswain shall maintain the vessel log book for each voyage.
- All workers on board shall wear the following PPE:
  - personal flotation device – Level 50 (similar to PFD Type 2), Level 100 (similar to PFD Type 1), and Level 150 (similar to inflatable PFD Type 1)
  - rafting helmet (EN 1385-compliant) when instructed by the coxswain

Wading

- For all wading activities undertaken in flowing water above knee depth or still water above waist depth:
  - wader training is required
  - a minimum of two people are required (no working alone)
  - waders in good condition with no leaks and secured with a wading belt
- PPE for wading may include:
  - personal flotation device – Level 50 (similar to PFD Type 2), Level 100 (similar to PFD Type 1), and Level 150 (similar to inflatable PFD Type 1)
  - rafting helmet (EN 1385-compliant)
  - high traction wading footwear (chains, or studded)
Diving

- A PTW and diving checklist should be completed and a dive permit shall be issued prior to undertaking diving work.
- Ensure an outage is in place before diving in areas affected by power station operation, e.g. around power station intakes and outlets.
- Follow the diving operations procedure for all commercial diving work.

Snorkelling

- All snorkelling shall be undertaken in still water conditions.
- A PTW shall be issued and an outage may be required prior to undertaking snorkelling work around power station infrastructure, e.g. intakes, dam walls, etc.
- A JHA shall be conducted using the template provided in the scientific snorkelling procedure.
- Workers shall meet the competency standards and follow the requirements listed in the scientific snorkelling procedure.
- The worker leading the field trip will give a briefing before work starts outlining what happens in case of an accident or emergency in water and point out the appropriate exit and entry points on the shore or from the boat.

Backpack electrofishing

- All electrofishing work shall be supervised by a worker recognised as a senior operator under the Australian Electrofishing Code of Practice.
- Appropriate PPE shall be worn:
  - waders or rubber boots
  - linesman gloves rated to +1000 V
  - personal floatation device – Level 50 (similar to PFD Type 2), Level 100 (similar to PFD Type 1), and Level 150 (similar to inflatable PFD Type 1) or CO2 self-inflating
- Do not electrofish in heavy rainfall or rough water conditions. Pay attention to weather and water conditions at all times.

Follow the electrofishing information in the water safety for small vessels and wading procedure and refer to the Australian Electrofishing Code of Practice for further information.
12.5 Underground safety

Underground structures include tunnels, buried penstocks and steel tunnel liners, adits, shafts (excludes lift shafts) and caverns. This definition also includes caves and other underground geological features but does not include existing underground power stations. Existing access tunnels are considered part of the power station and as such, are a place of work and are also excluded from being considered a confined space.

- Hydro Tasmania workers vehicles used underground shall have diesel-powered engines or alternatives to the petrol-powered engines (e.g. LPG) which are safe and correctly maintained.
- All underground structures shall be designated smoke-free zones.
- All workers entering the underground structure shall:
  - have current confined space certification and be Level two inducted
  - have attended an above ground induction including rescue procedures prior to commencement of underground inspections or work
  - sign on to the PTW and confined space permit prior to entry
  - have the minimum PPE consisting of Australian Standard compliant safety helmet, safety boots or safety gumboots and a torch or electric cap lamp

For each Hydro Tasmania project, there shall be an underground management plan, as summarised below:

- an underground management plan shall be completed by Hydro Tasmania or its main contractor and submitted to the job manager before inspection or work starts in the underground structure
- this plan shall include scope, hazard identification and assessment, agreed control measures and actions to be taken, a detailed schedule of all vehicles and engines to be used underground and an emergency evacuation plan
13. Travel and transport

13.1 Domestic travel

- Consider the risks and hazards involved in your planned journey and complete a JHA if required, including those to do with:
  - (a) the method of travel, e.g. driving or flying
  - (b) your destination
  - (c) the amount of time you will spend travelling
  - (d) any loads you will need to carry, including chemicals
  - (e) any equipment or documents you will require, and the security

- Manage your fatigue levels. Plan rest stops and breaks while travelling – refer to the fatigue management procedure.

- Comply with any call-in requirements.

- Tell your line manager or job manager about any new or potential risks you learn of while travelling and take measures to avoid these risks at all times.

13.2 Overseas travel

Follow the rules and advice provided in the overseas travel procedure and emergency response plan.

**Before you go**

- Register your trip with the Department of Foreign Affairs and Trade (DFAT), the Australian Embassy or High Commission.

- Familiarise yourself with the customs, laws and protocols of your destination. Discuss these with your hosts if possible.

- Ensure you have had any vaccinations required and can carry or obtain any medical supplies you may require in all the countries you will be travelling to or through – refer to transmissible disease and Infections.

- Ensure all your travel documents are in order and securely stored. Take photocopies to use in place of original documents where possible.

- Dynamiq/AHI Assist cards will be given out prior to any overseas travel or are available for collection from your travel officer.

- If travelling in or through high risk countries or environments, refer to Hydro Tasmania’s travelling safe in high risk environments guidelines. Take a copy of these guidelines with you for reference.

**While you are away**

- Maintain an up-to-date itinerary at all times, advising the travel officer of all changes, no matter how small:
  - the travel officer will track security updates and warnings using your itinerary and pass any information on

- Upon arrival, arrange a safety briefing with your hosts to discuss local hazards and safety precautions.
• Report all travel detail changes daily to the Dynamiq duty officer by voice call, SMS or email.
• Adhere with the Dynamiq call-in procedure.
• Dynamiq will SMS or email you at a previously nominated time – you **shall** respond within three hours from your set time with ‘OK’:
  • if no response is received in three hours, Dynamiq will try to contact you over the next hour (using a secondary number, if available)
  • if contact has not been established within this four hour period, the call will be escalated and Dynamiq will call your designated emergency contact
  • or you can reverse charge call into Dynamic daily on +61 2 9978 6668

**Emergencies**

• Medical or security emergency – reverse charge call Dynamiq Assist on +61 2 9978 6668 and follow the advice and instructions provided.
• Data loss or breach of corporate privacy – report directly to your manager.
• Evacuation – if necessary, emergency evacuation will be coordinated by Dynamiq and AHI Assist. Follow any instructions given.

**13.3 Road safety**

Hydro Tasmania’s road safety guidelines **shall** be followed by all workers.

• Check the vehicle is fit for purpose and is in good working order, plus:
  • check weather and road conditions
  • vision is unobstructed and windows are clear
  • tyres are in good condition and suitable for the expected conditions
  • the fuel type is known and there is enough fuel to reach a suitable service station
  • any loads are properly loaded and secured
  • you are equipped for the conditions you are likely to encounter
• Do not drive if you are impaired:
  • manage fatigue by taking regular breaks to rest and walk around
  • follow the Hydro Tasmania fatigue management procedure
  • maintain a blood alcohol level of 0.00
• Follow the road rules and drive to suit the current conditions at all times:
  • slow down in wet conditions
  • use defensive driving techniques; do not drive aggressively
• Be aware of likely hazards you may encounter:
  • watch for animals at dawn and dusk
  • wear sunglasses to minimise glare
  • watch for tourist vehicles
  • be mindful that logging trucks and other heavy vehicles will hold to the middle of dirt roads
• If travelling through remote areas, especially if out of normal business hours, phone check in is required.
• Report any defect noted while operating a vehicle and correct any unsafe conditions before further use of that vehicle.
• Hand-held mobile phones shall not be used when driving or stationary in traffic unless the phone
  • is secured in a commercially designed holder fixed to the vehicle, or
  • can be operated without you touching any part of the phone
• Always pull over and park the vehicle in a safe area before dialling out on a mobile phone.
• All other functions (including video calls, texting and emailing) are prohibited while driving.
• Don’t use a two way radio when driving or stationary in traffic.

**Vehicle accidents and emergencies**

• In case of vehicle trouble (e.g. breakdown, flat tyre, mechanical issues) turn on the hazard lights and pull over. Pull off the road where possible and contact the roadside assistance provider.
• In case of an accident:
  • stop as soon as it is safe to do
  • call emergency services (112 or 000) if the ambulance, police or fire service is required
• If you are uninjured:
  • put on a safety vest, if available, and provide assistance
  • notify the police and your line manager as soon as possible
  • exchange names, addresses, vehicle registration and insurance information with other drivers involved in the accident
  • get the names and contact details of any witnesses
• Report the incident as per Hydro Tasmania’s incident management procedure.

**13.4 Aircraft practices**

Work may require use of an aircraft other than standard passenger airline travel, e.g. accessing remote field sites, travelling to remote work locations, undertaking cloud seeding work. In these cases small fixed wing aircraft or helicopters may be used.

**Using aircraft**

Use reputable, registered operators only:

• Within Australia aircraft operators shall be registered with the Civil Aviation Safety Authority (CASA) and have a reputation for reliability, good records, good site knowledge and flexibility.
• Overseas aircraft operators may only be used if they are current members of the International Air Transport Association (IATA).
• Select aircraft that are fit for purpose, considering:
  • the task being completed and the flight range required
  • the seating and load-carrying capacity
  • operator and pilot experience
Safe work practices

Section C – Safe people and practices

- aircraft landing requirements
- maintenance, servicing and fuelling arrangements

Plan work to minimise fatigue – refer to the fatigue management procedure.

A safety induction covering safety in and around the aircraft shall be provided by the pilot before every flight.

Extreme care should be taken around aircraft:
- do not approach aircraft until the blades stop turning. Watch for rotor wash from helicopters
- wear hearing protection if within 100 metres of operating turbine-powered aircraft or helicopters
- wear high-visibility clothing or safety vests
- approach aircraft from the front, in full view of the pilot. Crouch to avoid helicopter rotors
- follow the instructions of the pilot at all times

Workers shall not participate in loading or unloading helicopter sling loads unless trained to do so.

The pilot has the final word on any matter affecting the safety of the aircraft, crew or loads.

Pre flight
- Check weather conditions, always wear seatbelts and ensure all cabin items are secured. Take motion sickness medication if required.
- The pilot will make the final decision to go ahead with the planned flight after considering the conditions.
- Leave a copy of the flight plan and passenger list with your job manager or line manager, or follow the notification procedure in your JHA.
- Advise the pilot of any changes to the aircraft load/loading, any dangerous goods being carried or known flight route hazards.
- Undertake a pre-flight briefing with the pilot:
  - confirm the roles and procedures of each person on the flight, aircraft and fuel status, search and rescue procedures, and the communications frequencies to be used
  - confirm the flight plan, including destination and flight path, any way-points, potential deviations and anticipated flight duration
  - ensure all passengers know the locations of, and how to use, all relevant safety equipment on the aircraft:
    - seatbelts
    - emergency exits and doors
    - personal flotation device (PFD), oxygen masks and other emergency equipment
    - aircraft radios
    - fire extinguishers
    - first aid kits and survival kits
    - emergency locator beacon (EPIRB)
During flight

- Wear hearing protection on small fixed-wing aircraft and helicopters.
- Prevent deep vein thrombosis (DVT) by moving legs regularly. Follow commercial airline DVT prevention recommendations.
- Cooperate with the pilot and follow pilot instructions at all times.
- Remain seated with seatbelts fastened unless otherwise instructed by the pilot.
- Keep alert for hazards and inform the pilot.

After the flight

- Conduct a de-briefing with the pilot. Discuss any safety or logistical issues arising from the flight.
- Follow any call-in requirements.

Aircraft emergencies

- Try to contact all staff on board.
- Confirm who may be on the aircraft.
- Establish and confirm details of the incident.
- Start the Hydro Tasmania emergency response process.
- Notify your line manager or officer as soon as possible.

13.5 Transporting loads

A transport checklist shall be completed prior to transporting loads, including using contractors to transport loads.

- Complete the transport checklist.
- Ensure the vehicle is suitable for the purpose. Consider:
  - load size, shape and weight
  - the carrying capacity of the vehicle
  - towing requirements
  - how to secure the load
  - tow to lift loads on and off the vehicle
  - dangerous goods transport requirements
  - licence class and competency of driver
- Ensure loads are adequately secured, protected and signed:
  - people securing loads shall be competent, having undertaken relevant training or having appropriate experience
  - tie loads down and cover with a tarpaulin wherever practicable
  - loads projecting over 1.2 metres behind the vehicle require a warning flag or a red light at night
  - cargo barriers shall be fitted to passenger vehicles to protect passengers from injuries caused by loose cargo
• Check your load before moving off and during the trip, every time you remove or add an item and after any abrupt manoeuvre or emergency braking.
• Follow the driving safety rules.

For more information, obtain a copy of the Tasmanian Heavy Vehicle Driver’s handbook from the Department of Infrastructure, Energy and Resources under publications.

Transporting dangerous goods

Dangerous goods are substances identified under federal and international legislation that pose serious health or environmental hazards and have specific storage, transport and disposal requirements.
• Prepare a dangerous goods transport plan as part of your JHA. The following HSE documents can be used to determine what needs to be incorporated in your transport form:
  • EF1503 – Chemical Transport Checklist
  • EF1504 – Chemical Transfer Checklist
• If transporting a large quantity (≥ 50 litres or 50 kg) of dangerous goods, you will also need to:
  • carry a copy of the SDS for each declared dangerous good being transported
  • display appropriate signage (placarding) of the hazard on your vehicle. Placards shall be placed on the transport vehicle so as to be clearly visible to other road users at all times.
• If transporting gas cylinders, complete the safe transport of gas cylinders checklist.
14. Safe workplace

14.1 Safety signs

- Colours used in safety signs for the occupational environment (AS 1319) are:
  - **Red** – prohibitive
  - **Blue** – mandatory (regulatory)
  - **Yellow** – hazard (warning/caution)
  - **Green** – emergency information

- Signs should be located where the messages are legible and are clearly visible to all.
- Mandatory and hazard signs should be put in place in relation to a particular hazard so as to allow a worker ample time to heed the warning after first viewing.
- Signs should be maintained in good condition, kept clean and well illuminated.
- External or internal illumination of signs should be considered when the general lighting does not provide adequate visibility for signs.
- All signs should be removed immediately when the information they contain is no longer relevant, especially in the case of hazard signs.
- All persons entering a worksite shall comply with all prohibitive and mandatory signs.
- All persons entering a mandatory signposted area shall wear the relevant PPE indicated by the sign.
- All persons entering a worksite should familiarise themselves with the information contained in all hazard and emergency information signs located within the worksite.
- Care should be taken when placing several signs close together, as it may result in information overload or make it difficult for information to be absorbed, or worse still, create confusion.
## Appendix A. Revision history

<table>
<thead>
<tr>
<th>Revision number</th>
<th>Date approved</th>
<th>Detailed revision description</th>
<th>Document owner</th>
<th>Document reviewer</th>
<th>Document approver</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Handbook created</td>
<td>Mick Cuppari</td>
<td>Charles Woolen</td>
<td>Mick Cuppari</td>
</tr>
<tr>
<td>0.1</td>
<td>14/06/2011</td>
<td>Legislative changes to Section 12.4 PFD type revised &amp; Wading (removal of felt from high traction footwear)</td>
<td>HSE Team</td>
<td>Adam Rosevear</td>
<td>Mick Cuppari</td>
</tr>
<tr>
<td>0.2</td>
<td>21/07/2011</td>
<td>Elevated Work Platform 1st paragraph wording aligned to procedure</td>
<td>HSE Team</td>
<td>Bruce Hill</td>
<td>Mick Cuppari</td>
</tr>
<tr>
<td>1.0</td>
<td>30/10/2011</td>
<td>Significant changes and additions to PTW section</td>
<td>HSE Team</td>
<td>Charles Woolen</td>
<td>Mick Cuppari</td>
</tr>
<tr>
<td>2.00</td>
<td>02/08/2013</td>
<td>Changes to bring document in line with WHS Model Regulations as at 1/1/2013 and approved variance requests</td>
<td>HSE Team</td>
<td>Bruce Hill</td>
<td>Mick Cuppari</td>
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## Appendix B. HSE Procedure Change/Variance Request Form

### HSE Change/Variance Request & Approval Form

<table>
<thead>
<tr>
<th>SECTION A: INITIATION</th>
<th>(To be completed by the initiator and/or manager)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of request:</strong></td>
<td>Initiator:</td>
</tr>
<tr>
<td><strong>Type of change</strong></td>
<td><strong>Nature of change</strong></td>
</tr>
<tr>
<td>Permanent</td>
<td>Equipment</td>
</tr>
<tr>
<td>Temporary</td>
<td>Operations</td>
</tr>
<tr>
<td>Emergency</td>
<td>People</td>
</tr>
<tr>
<td>Urgent</td>
<td>Legal</td>
</tr>
<tr>
<td>Routine</td>
<td>Documentation</td>
</tr>
<tr>
<td></td>
<td>Other</td>
</tr>
</tbody>
</table>

**Proposed change request details:** *Include Doc ID & Title for document revision*

**Reason for change:**

**Implications of change:** *E.g. Training, documentation, SOPs, Incident/event. Legal, other…*

**Communications:** *who needs to know of change? i.e. stakeholders, contractors*

**Risk mitigation measures:** *refer to the HSEP0301 - Hazard Id & Risk Management Procedure*

**Risk level after the change:** *Apply JHA Matrix and attach JHA and other supporting documentation when forwarding this form to HSE Group*

<table>
<thead>
<tr>
<th>Low</th>
<th>Medium</th>
<th>High</th>
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</thead>
</table>

**Line Manager signoff / approval**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
<th>Approved: Y/N</th>
</tr>
</thead>
</table>

*(If change not approved Line Manager to discuss with Initiator)*

*Email to HSE Group for processing if approved.*
SECTION B: EVALUATION, RISK ASSESSMENT AND IMPLEMENTATION  
(To be completed by HSE Review Panel)

Proceed to evaluation?  
(If rejected, notify Change Initiator and Line Manager of reason) 

<table>
<thead>
<tr>
<th>Accepted</th>
<th>Rejected</th>
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Impact of change:  
Minor (low impact)  
Major (Complex/significant)

Minor change implementation details:

Authorisation to proceed with minor change:

<table>
<thead>
<tr>
<th>Authorised by:</th>
<th>Title:</th>
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<tbody>
<tr>
<td>Signature:</td>
<td>Authorised change date:</td>
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</tbody>
</table>

Major or Significant change implementation details:

DESCRIPTION OF PROPOSED CHANGE AND POTENTIAL HAZARDS — (refer to the HSEP0301 Hazard Identification & Risk Management Procedure)

<table>
<thead>
<tr>
<th>Action/s required to close out change</th>
<th>Who</th>
<th>When</th>
</tr>
</thead>
</table>

Authorisation to proceed with Major/Significant change:

<table>
<thead>
<tr>
<th>Title:</th>
<th>Name</th>
<th>Date</th>
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<tbody>
<tr>
<td>Responsible officer</td>
<td></td>
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<tr>
<td>Safety manager</td>
<td></td>
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<tr>
<td>Environment manager</td>
<td></td>
<td></td>
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<tr>
<td>Subject matter expert (as required)</td>
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### Appendix C. Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIO</td>
<td>Authorised issuing officer</td>
</tr>
<tr>
<td>ALARP</td>
<td>As low as reasonably practical</td>
</tr>
<tr>
<td>AO</td>
<td>Asset owner</td>
</tr>
<tr>
<td>EMF</td>
<td>Electromagnetic fields</td>
</tr>
<tr>
<td>EPT</td>
<td>Explosive powered tool</td>
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<tr>
<td>EWP</td>
<td>Elevated work platform</td>
</tr>
<tr>
<td>IP</td>
<td>Instructed person</td>
</tr>
<tr>
<td>JHA</td>
<td>Job hazard analysis</td>
</tr>
<tr>
<td>JSR</td>
<td>Job safety requirements</td>
</tr>
<tr>
<td>SDS</td>
<td>Safety data sheets</td>
</tr>
<tr>
<td>HSE</td>
<td>Occupational health and safety</td>
</tr>
<tr>
<td>PIC</td>
<td>Person in charge</td>
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<tr>
<td>PPE</td>
<td>Personal protective equipment</td>
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<tr>
<td>PTW</td>
<td>Permit to work</td>
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<tr>
<td>O</td>
<td>Officer</td>
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<tr>
<td>SAD</td>
<td>Safe approach distances</td>
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<tr>
<td>SO</td>
<td>Safety Observation</td>
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<tr>
<td>SF(_6)</td>
<td>Sulphur hexafluoride</td>
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<tr>
<td>WSO</td>
<td>Workplace support officer</td>
</tr>
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</table>
Appendix D. Definitions

These definitions are common terms used across many safety documents and are intended to ensure commonality in use.

For the purpose of Hydro Tasmania’s Health Safety and Environment Management System, the following definitions shall be considered to represent and be in line with the definitions of a Person Conducting a Business or Undertaking (PCBU) as described in the Model Regulations and Act.

**Officer:** Due diligence and to ensure PCBU complies.
An Officer of Hydro Tasmania will be one of the Members of the Board of Directors, Chief Executive Officer, Level One Managers, Chief Officers and Directors of Departments within Hydro Tasmania or;

A Principal Contractor that assumes the role of a PCBU for a Hydro Tasmania project;
Or a Hydro Tasmania Project Manager assuming the role of a PCBU for a project that Hydro Tasmania takes responsibility for as part of external services.

**Duty holder:** Due diligence, advise, develop, implement/reasonable care and enforce.
Project Managers, Supervisors, Asset Owner, Asset Owner’s Delegate, Authorised Issuing Officers, Person in Charge, Operators, Competent Persons, Specialist and Principal Engineers/Scientists, Line Managers, Site Managers, Design Managers and Job Managers.

**Worker:** Reasonable care, obey, cooperate and take care.
Any person carrying out work in any capacity for Hydro Tasmania, including working as an employee, contractor or sub-contractor, employee of a labour hire company, outworker, apprentice or trainee, work integrated learning or work experience student and volunteer.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Asset owner (AO)</td>
<td>A person delegated by Hydro Tasmania, who is in charge of a facility or worksite and is in control of the approval of all work (under permit to work conditions or otherwise) to be conducted at the facility or worksite. The AO shall ensure coordination of all work on their facility and or worksite (duty holder and worker).</td>
</tr>
<tr>
<td>Asset owner’s delegate</td>
<td>A person delegated by the asset owner to take control of a specified work site and or activity. For example: the asset owner may delegate accountability for a project, outage, site or job for a defined worksite, scope of work and expected duration. A list of delegates will be maintained and held at each operational centre (duty holder and worker).</td>
</tr>
<tr>
<td>Authorised issuing officer (AIO)</td>
<td>A worker authorised by Hydro Tasmania, who acts on behalf of the asset owner to issue permits to work and who accepts sign-off and hand back of the permit to work on completion (duty holder and worker).</td>
</tr>
<tr>
<td>Breathing apparatus</td>
<td>A device that supplies breathable air for use in areas with high levels of airborne contaminants or irrespirable atmospheres (self-contained breathing apparatus or self rescuer).</td>
</tr>
<tr>
<td>Competent person</td>
<td>A worker who has, through a combination of training, qualification, education, assessment and experience, acquired knowledge and skills to correctly perform a specified task (duty holder and worker).</td>
</tr>
<tr>
<td><strong>Confined space</strong></td>
<td>An enclosed or partially enclosed space that: is not intended or designed primarily to be occupied by a person; and is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; and is or is likely to be a risk to health and safety from: an atmosphere that does not have a safe oxygen level; or contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion; or harmful concentrations of any airborne contaminants; or engulfment.</td>
</tr>
<tr>
<td><strong>Construction work</strong></td>
<td>Any work carried out in connection with the construction, alteration, conversion, fitting-out, commissioning, renovation, repair, maintenance, refurbishment, demolition, decommissioning or dismantling of a structure (refer WHS Regulation, Part 6.1).</td>
</tr>
<tr>
<td><strong>Consultation</strong></td>
<td>Consultation requires that: • relevant work health and safety information is shared with workers; • workers are given a reasonable opportunity to express their views and to raise health or safety issues; • workers are given a reasonable opportunity to contribute to the decision-making process relating to the health and safety matter; • the views of workers are taken into account; and • workers are advised of the outcome of any consultation in a timely manner. If the workers are represented by a health and safety representative (HSR), the consultation must involve that representative.</td>
</tr>
<tr>
<td><strong>Contractor</strong></td>
<td>Any person who performs work for Hydro Tasmania either as an independent contractor or a worker of a contractor.</td>
</tr>
<tr>
<td><strong>Design manager</strong></td>
<td>Design manager is a role taken on by a worker responsible for the safe delivery of a scope of work. This involves the responsibility to ensure safety and design practices are followed.</td>
</tr>
<tr>
<td><strong>Duty of care</strong></td>
<td>Duty of care refers to a legal obligation to avoid conduct that poses an unreasonable risk of danger to others or the environment. All persons in a work place have duty of care obligations for themselves and any persons working under their direction or supervision.</td>
</tr>
<tr>
<td><strong>Employee assistance program (EAP)</strong></td>
<td>The Worker Assistance Program is a confidential counselling and advice service for Hydro Tasmania workers and their families if they are undergoing any personal or work related problems.</td>
</tr>
<tr>
<td><strong>Equipment</strong></td>
<td>Electrical, mechanical or civil assets that form part of the power system which is under operational control. The definition includes any associated plant, tools, equipment and building infrastructure associated with all Hydro Tasmania assets.</td>
</tr>
<tr>
<td><strong>Hazard</strong></td>
<td>A source with the potential to cause harm to persons or loss to property or process, measured in terms of risk.</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>This embraces both physical and psychological health.</td>
</tr>
<tr>
<td><strong>Hot work</strong></td>
<td>Any work that will introduce an ignition source (heat, flame or spark) and which could ignite combustibles (flammable material, gas or vapours), scatter sparks or hot particles, or require time to cool to below the ignition temperature of any potential fuel sources.</td>
</tr>
<tr>
<td><strong>Incident</strong></td>
<td>Includes injury, near miss and damage events; i.e. an event which causes, or has the potential to cause, an injury to a worker, and/or damage to property, plant and/or the environment.</td>
</tr>
<tr>
<td><strong>Instructed person (IP)</strong></td>
<td>A worker who is trained and competent in the application of the Hydro Tasmania permit to work and isolation procedure (worker and/or duty holder).</td>
</tr>
<tr>
<td><strong>Job hazard analysis (JHA)</strong></td>
<td>The process and document used to record hazards of all types, job steps and appropriate control measures to manage the identified risks.</td>
</tr>
<tr>
<td><strong>Job manager</strong></td>
<td>A role taken on by a worker responsible for the safe delivery of a scope of work. This worker may take on the role and responsibilities of person in charge where a permit to work is required (duty holder and/or worker).</td>
</tr>
<tr>
<td><strong>Line manager</strong></td>
<td>A delegated worker to whom queries or approvals can be addressed. Example: a JHA with a controlled risk level of ‘high’ requires approval by a line manager (duty holder and/or worker).</td>
</tr>
</tbody>
</table>
| **Notifiable incident** | Notifiable incident means:  
(a) the death of a person; or  
(b) a serious injury or illness of a person; or  
(c) a dangerous incident.  
Such incidents must be notified immediately to Workplace Standards Tasmania, in accordance with the Model Work Health and Safety Act (Part 3). |
| **Operator** | A worker who is qualified and authorised by Hydro Tasmania to operate specific stations and/or specific equipment, or a worker operating a piece of apparatus being described (duty holder and/or worker). |
| **Person in charge (PIC)** | A worker trained as a PIC and is authorised to issue special permits for confined space, concealed services and hot work; and who will take charge of the conduct of work and the work site defined in a permit and is accountable for the safety of workers (IPs, visitors or members of the public) and equipment within the scope of the work. An individual shall only assume the role of PIC where they have both the competence and confidence to fulfil the role (duty holder and/or worker). |
| **Personal danger tag** | A tag placed by a worker to identify isolation points that form part of personal isolations (as defined by the isolation procedure) and placed for their personal protection of work under their control. |
| **Personal protective equipment (PPE)** | Defined as anything used or worn by a worker (e.g. equipment or clothing) to minimise risks to the worker’s health and safety. |
| **Plant** | Plant includes any machinery, equipment, appliance, container, implement and tool, any component of any of those things, and anything fitted or connected to any of those things. |
### Reasonably practicable

A duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters, including:
- (a) the likelihood of the hazard or the risk concerned occurring; and
- (b) the degree of harm that might result from the hazard or the risk; and
- (c) what the worker concerned knows, or ought reasonably to know, about:
  - (i) the hazard or the risk; and
  - (ii) ways of eliminating or minimising the risk; and
- (d) the availability and suitability of ways to eliminate or minimise the risk; and
- (e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

### Remote or isolated work and or working alone

A worker or work that is isolated from the assistance of other persons or routine interaction due to travelling on their own, time, location and or nature of work.

### Safety data sheet (SDS), formerly MSDS

Provides information on Health, Safety and Environment precautions that should be taken, including types of personal protective equipment (PPE) and emergency procedures to be used when handling chemicals.

### Safety observer

A competent worker specifically instructed and dedicated as an observer on each occasion. Any safety observer appointed shall be appropriately skilled in all respects of safety observation and be fully aware of the potential risks associated with the work. Examples of where to use: confined space, hot work, work in vicinity of HV, excavation/concealed services (duty holder and/or worker).

### Self rescuer

A type of respirator used in the event of underground fires which either converts carbon monoxide to carbon dioxide or becomes an oxygen generator/storage unit. This device is usually contained in a metal container which can be attached to a safety belt.

### Site manager

A worker delegated by the asset owner or outage manager to take control of a facility or work site, and who is in control of the approval of all work to be conducted at the facility or work site (duty holder and/or worker).

### Safety management plan

A safety management plan (referred to as an SMP) is a collection of documents that outline how the duty holder will manage health and safety for employees, sub-contractors, suppliers, visitors and the general public. It will cover all work activities that make up the job. The content and detail expected in an SMP will depend on the size and complexity of the proposed work.
| **Safe work method statements**<br>**(SWMS)** | The primary purpose of an SWMS is to enable supervisors, workers and any other persons at the workplace to understand the requirements that have been established to carry out the high risk work in a safe and healthy manner. It sets out the work activities in a logical sequence and identifies hazards and describes control measures. |
| **Take 5** | A risk assessment process to assess hazards associated with single tasks. |
| **Visitor** | Any person who attends a Hydro Tasmania worksite who is not a worker and is under the direct supervision of an authorised Hydro Tasmania worker, where the level of authorisation matches the activity being undertaken. |
| **Working at heights** | Where a worker or object has the potential to fall more than 1.8 metres off, into, or through something, a safe system of work (working at heights) shall be adopted. If a worker believes that their safety is at risk at a lesser height, they shall also apply the working at heights procedure. |
| **Working hours** | The time between the normal commencement and the conclusion of the working day. Normal working hours include lunch or other breaks, company business conducted away from the company’s premises, recalls, and paid travel to and from work. |
| **Workplace hazard register** | A register containing a list of all hazardous areas (including confined spaces), hazardous substances, and control measures identified through a risk assessment process. |
| **Work sites** | Any site where Hydro Tasmania workers are engaged and Hydro Tasmania has an influence over the health and safety of those workers. |
## Appendix E. Reference material

<table>
<thead>
<tr>
<th>Element 1: Policy &amp; Commitment</th>
<th>Policy</th>
<th>Procedure</th>
<th>Form</th>
<th>Register</th>
<th>Ref Doc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Leadership: OH&amp;S Commitment</td>
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<tr>
<td>Hydro Tasmania Environmental Policy</td>
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<td>Entura Environmental Policy</td>
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<td>Momentum Environmental Policy</td>
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<td>Hydro Tasmania Sustainability Code</td>
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<td>HSEP0101 HSE policy and commitment</td>
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<td>HSEREF0101.1 Safety commitment expectations EST members</td>
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<td>HSEP0102 Cardinal rules procedure</td>
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<tr>
<th>Element 2: Legal &amp; other requirements</th>
<th>Policy</th>
<th>Procedure</th>
<th>Form</th>
<th>Register</th>
<th>Ref Doc</th>
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<tbody>
<tr>
<td>HSER0201.3 OHS legislation compliance register</td>
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<td>HSER0201.4 Register of permit and notification requirements</td>
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<td>HSEP0201 Legal and other requirements</td>
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<td>HSER0201.2 Register of HSE compliance instruments and agreements</td>
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<tr>
<td>Summary of environmental laws 2010</td>
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<td>HSEP0202 Animal ethics permit guidelines</td>
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<table>
<thead>
<tr>
<th>Element 3: Hazard Identification &amp; Risk Management</th>
<th>Policy</th>
<th>Procedure</th>
<th>Form</th>
<th>Register</th>
<th>Ref Doc</th>
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<td>HSER0301.1 Register of HSE assessments and plans</td>
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<td>HSEF0301.1 Environmental impact assessment and management plan (EIA/EMP) form</td>
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<td>HSER0302.2 Strategic environmental risk register</td>
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<td>Hazard identification checklist</td>
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<td>Hazard study record sheet</td>
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## Section C – Safe people and practices

<table>
<thead>
<tr>
<th>PLAN</th>
<th>DO</th>
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<tbody>
<tr>
<td><strong>HazOpS controls (what if) prompt</strong></td>
<td></td>
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<tr>
<td><strong>HazOpS guidewords</strong></td>
<td></td>
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<tr>
<td><strong>HSEP0305 Safe act observation procedure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SAO driving checklist</strong></td>
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<tr>
<td><strong>SAO field checklist</strong></td>
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<tr>
<td><strong>SAO office checklist</strong></td>
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</tr>
<tr>
<td><strong>HSEP0306 Workplace hazard register procedure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Workplace hazard register update/amendment form</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Workplace inspection checklist – office</strong></td>
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</tr>
</tbody>
</table>

**Element 4: Planning & objectives**
- HSEP0401 Planning and objectives
- HSEP0402 HSE program management

**Element 5: Accountability & leadership**
- HSEP0501 Accountability and leadership
- HSER0501.1 HSE system key responsibilities

**Element 6: Awareness, training & competency**
- HSEP0601 HSE awareness, training and competency
- HSER0601.1 HSE training register
- HSEF0601.1 HSE training plan form
- HSEF0601.2 HSE training attendance record
- Driver assessment form
- Instructed Person training presentation
- Instructed Person assessment sheet
- Training module for self-rescue units
- HSEP0602 HSE induction process
- HSE induction guide
- HSE induction assessment
- HSE induction employee assessment answer sheet
- HSE induction trainer marking sheet

**Element 7: Communication, Consultation & Involvement**
- HSEP0701 Communication, consultation and involvement
- HSEP0702 Communication and consultation guidelines

**Element 8: Document & Record Management**
- HSEP0801 Document and records management procedure
- HSEF0801.1 HSE system change variance request form
- HSEREF0801.1 HSE document map
- HSE system change/variance request register
- HSEP0802 Management of change procedure
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