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1 Objective
The objective of this Procedure is to articulate the system by which plant in University of Tasmania (University) workplaces shall be isolated, locked out and tagged to provide protection from the uncontrolled release of energy sources and in so doing, to either eliminate, or if not reasonably practicable, minimise the risk of damage or harm.

2 Scope
This Procedure applies to all isolation, lock out and tagging activities performed by workers and other persons at the University, including when undertaking maintenance, repair, installation, service, cleaning and inspection of plant.

3 Procedure

3.1 Isolation and Tagging of Plant
The procedural steps required to isolate, lock out and tag plant so that work may be performed are outlined below.

Isolations that involve fire protection equipment shall be performed in accordance with the University Fire Protection Systems Impairment Procedure.

3.1.1 Take plant out of service (shut down)

Cease using and shut down the item of plant. Complete and attach an out-of-service tag (see paragraph 3.3.1).

3.1.2 Identify all energy sources and other hazards

Conduct a risk assessment in accordance with the University Minimum Standard – Work Health and Safety Project and Task Risk Management. The assessment must:

- identify all potential sources of energy associated with the item of plant

- identify all other hazards and control measures required to perform the work safely, including any permit to work (PTW) procedures to be applied (e.g. hot work) and requisite training and competency

- be approved by relevant Managers, along with any other required documentation (e.g. permits) prior to work commencing.

3.1.3 Identify all isolation points

Determine the isolation points for each energy source identified. If available/used, record each point on an isolation checklist for the task (particularly for isolations that are repeated).

3.1.4 Isolate all energy sources

Isolate all energy sources at the isolation points identified, in accordance with the task isolation checklist if available.

With the exception of simple electrical equipment connected via a plug and socket, all electrical isolations must be carried out by a licensed electrical contractor.
Wherever practicable, the isolation of plant is to include mechanical locks and whole current isolators.

### 3.1.5 De-energize all stored energy

Stored energy in the plant must be discharged/de-energised by:

- inspecting plant to ensure all parts have stopped moving
- isolating and proving dead all electrical power supply to the plant
- lowering suspended equipment with stored potential energy to its rest position
- blocking moveable parts that may be affected by gravity, pressure or other forces
- draining or bleeding hydraulic and air lines to remove pressure
- releasing or blocking spring energy
- draining process piping systems and closing valves to prevent the flow of hazardous material
- purging tanks and process lines and/or
- dissipating extreme cold or heat (and/or provide appropriate personal protective equipment).

### 3.1.6 Lock out and tag all isolation points/energy sources

Wherever practicable, all potential energy sources must be tagged and locked out as follows:

- each worker intending to work on an item of plant shall complete and attach a Personal Danger Tag (see paragraph 3.3.2) and lock to each isolation point for all energy sources; and
- any plant designed to be operated from more than one location shall be fitted with lock outs that effectively isolate the power source.

The authorised person who locks out the plant shall:

- retain the key to the safety lock(s) or ignition
- ensure the relevant PTW Register is updated and
- notify the relevant Officer of the isolation.

### 3.1.7 Test isolation to prove safe

The worker(s) performing the task shall re-check all energy sources are isolated, de-energised and tagged effectively.

Without exposing the tester or others to risk, test that plant is safe by:

- pushing start buttons (with guards in place where required)
- inspecting moveable parts to see they are at rest
• testing electrical circuits to make sure power is off
• checking tags and locks are in place and
• performing any other test specific to task.

Work shall only commence when tests confirm it is safe to do so.

If the plant engages or moves, work must not commence and workers shall:
• turn the item of plant off at the main isolator where possible
• remove personal danger tags and locks (if leaving the work area), but leave out-of-service tags in place and
• inform the relevant Officer of the incident to determine appropriate action, which may include completion of a University Incident Report Form.

3.1.8 Complete the work

Work must be completed in accordance with the task risk assessment and all relevant procedures and permits.

3.1.9 Test/return plant to service

When testing or returning plant to service, the following steps must be observed:
• notify all personnel involved with the plant
• ensure all personal danger tags have been removed
• remove all locks
• ensure all tools are out of the plant and guards are in place
• ensure braces, pins, blocks, chains etc. are removed and
• ensure all personnel are clear at start-up.

If plant is to be re-energised temporarily for testing purposes, all energy sources must be isolated, locked and tagged out again in accordance with this procedure before work recommences.

If work is complete and plant is safe to return to service and is to be re-energised, the out-of-service tag can be removed and the relevant PTW Register can be completed after the above steps have been performed.

3.2 Exemptions

Lock out or danger tags do not need to be applied in the following circumstances:

• minor adjustments and other minor servicing activities that take place during normal operations where:
  o the plant is under the control of an authorised person
  o the authorised person has a line of sight to all access points of the plant that would place a person at risk if the plant commenced operation and
  o there is no risk of contact with electricity when undertaking the task
• cord and plug-connected electrical plant if:
  o exposure to unexpected start-up is controlled by unplugging the plant from its energy source and
  o the plug is under the exclusive control of the worker carrying out the servicing, maintenance or cleaning of the plant.

• situations where isolating the plant will also isolate essential services, provided that:
  o continuity of services is essential and shutdown of the system is impractical
  o equipment is used that will provide proven effective protection for workers and other persons
  o a Take5 risk assessment has been conducted and
  o an approved safe work procedure (SWP) is being followed.

In all circumstances outlined above, out-of-service tags must still be applied.

3.3 Applying and Removing Tags

3.3.1 Out-of-service tags

Out-of-service tags shall be completed and affixed to isolation points of plant, or – where an isolation point is not available or practical – to a readily visible part of the plant, to identify that the plant has been taken out of service.

Out-of-service tags are available from the Infrastructure Planning and Compliance (IPAC) Unit and/or Health and Safety Representatives (HSRs).

All information on the tag must be completed in ink – pencil is not acceptable.

Attached tags must be clearly visible from the position from which the plant is started/operated to identify that it must not be used. Where possible, tags should obstruct the method of starting the plant.

In the case of small items of plant, the plant should also be removed from service.

The relevant Officer (or IPAC Supervisor if the plant is controlled or maintained by IPAC), shall be notified so that they can ensure that a job request and/or purchase order is raised for the repair, maintenance or replacement of the plant.

Details of the tagging shall be recorded in the relevant PTW Register.

Tagged-out plant is not to be operated unless by an authorised person for the purpose of maintenance, testing or repair.

No maintenance or cleaning of plant shall be conducted while the plant is operating unless written authorisation has been given. Where such permission is given, the plant may only be operated by the person carrying out the work.

When plant is safe to return to service, out-of-service tags shall only be removed by an authorised and competent person, who has confirmed that the plant is safe to return to service.

If there is disagreement between a worker and an Officer regarding the application or removal of an out-of-service tag, the matter shall be referred to the area HSR.
3.3.2 Danger tags

Danger tags are used in addition to out-of-service tags to provide personal protection to workers. Each worker working on or near plant that could place them at risk of injury if operated must complete and attach their own danger tag to the item of plant.

Danger tags are available from the IPAC Unit.

All information on the tag must be completed in ink – pencil is not acceptable.

Danger Tags must be placed on the plant isolation control to make it clear to other workers that the plant is not to be started or operated.

Danger Tags may only be removed by the person who applied the tag at the completion of a task or before leaving work at the end of a shift. The out-of-service must remain attached unless the plant is safe to return to service.

Failure to remove a danger tag before leaving the place of work will result in that worker being called back at their own expense to remove the danger tag.

If plant must be returned to service and a worker has become incapacitated or has left the job and cannot be located, an authorised person from the IPAC Unit can inspect the job, declare the situation safe, remove the worker’s Danger Tag and complete the relevant PTW Register. The authorised person shall continue to try and contact with the worker to advise that the worker’s personal danger tag has been removed.

Failure to comply with danger tag removal protocols may lead to disciplinary action.

3.4 Responsibilities

Officers are responsible for ensuring that:

- this Procedure is implemented effectively within their area of responsibility, including the provision of appropriate supervision and equipment for isolation and tagging
- Organisational Unit-specific guidelines are developed where necessary and that these are consistent with this Procedure
- authorised personnel with relevant qualifications and training are designated to carry out plant isolation
- PTW Registers are updated and completed
- Records relating to the maintenance, repair and servicing of plant under their control are retained in accordance with the provisions of the University Records Management Policy and the Work Health Safety Records Management Guidelines
- appropriate resources and processes are available and used to eliminate or minimise risks associated with plant at the University.

The Infrastructure Planning and Compliance Unit is responsible for ensuring that records relating to the maintenance, repair and servicing of plant under its control are retained in accordance with the provisions of the University Records Management Policy and the Work Health Safety Records Management Guidelines.

All Workers are responsible for ensuring that:

- this Procedure is implemented when undertaking work at the University, in accordance with any information, training or instruction they have received
Plant Isolation – Lock out/Tag out Procedure

- plant identified as unsafe/faulty:
  - is not used
  - has an out-of-service tag is attached to it and
  - a Responsible Officer is notified
- all energy sources are effectively isolated, tagged, de-energised and restrained prior to work commencing and
- PTW permits and registers associated with the work are completed when required.

4 Definitions and Acronyms

<table>
<thead>
<tr>
<th>Term/Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Authorised Persons</td>
<td>Authorised persons are IPAC personnel and workers who have been authorised by the relevant Officer to carry out repairs, maintenance or servicing work and who have undertaken suitable training to be able to apply this procedure.</td>
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<tr>
<td>Contractor</td>
<td>For the purposes of this procedure, a contractor is any worker engaged by UTAS to perform work for gain or reward other than an employee.</td>
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<tr>
<td>Danger Tag</td>
<td>Danger Tags indicate that the worker whose name appears on the tag is working on the item of plant, and that the item must not be operated as operation could result in an incident occurring (e.g. injury). Each worker that is working on any type of plant must complete and attach a personal Danger Tag to an appropriate type of isolation device. It is recognisable as a red and white tag with the wording ‘Danger Do Not Operate’. Tags shall only be removed by the person who placed and signed the tag. Where more than one person or a group is working on the same isolated energy source, multiple tags shall be used on a suitable multiple lockout device.</td>
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<tr>
<td>Employee</td>
<td>For the purposes of this procedure, employee refers to any University staff member or to any student or visitor using plant.</td>
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<tr>
<td>Energy Sources</td>
<td>An energy source is a form of energy e.g. electrical, mechanical, chemical, hydraulic, radiation, thermal (heat, steam), gravitational, pneumatic, and kinetic energy systems, that has the potential for uncontrolled or catastrophic release, which can result in an incident occurring. The energy source must be rendered safe using 'isolation measures' to avoid injury.</td>
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<tr>
<td>Fire protection equipment</td>
<td>Fire protection equipment includes:</td>
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<tr>
<td></td>
<td>• automatic sprinkler systems;</td>
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<td>• special dump systems (foam, CO2 etc);</td>
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<td>• fire pumps;</td>
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<td>• fire doors;</td>
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<td>• fire indicator panels (FIP’s) including detectors and circuits;</td>
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<td>• early warning information systems (EWIS);</td>
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<td>• fire hydrants;</td>
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<td>• external fire plugs;</td>
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<td>• water mains and valve arrangements;</td>
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<tr>
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<td>• backflow prevention systems; and</td>
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• municipal council connection water meters and valve arrangements.

Hierarchy of control
The ways of controlling risk can be ranked from the highest level of protection and reliability to the lowest. This ranking, known as the hierarchy of control, is as follows:

**Eliminate** the hazard  
**Substitute** the hazard with something safer  
**Isolate** the hazard from people  
**Engineering** controls to reduce the risks  
**Administrative** actions to reduce the level of harm;  
**Personal Protective Equipment.**  

If it is not reasonably practicable to eliminate a hazard, you must minimise the risk by working through the other alternatives in the hierarchy.

Incident
An incident includes injury, near miss and damage; i.e. An event which causes, or has the potential to cause, an injury to a person, and/or damage to plant.

Isolation
Isolation is the removal of the energy source from an item of plant to prevent the possibility of accidental or unplanned energisation of the whole, or a specific section of that plant, so that the plant does not move or start up. Isolation must also prevent the introduction of contaminants or conditions through equipment such as piping, ducts, vents, drains, conveyors, service pipes and fire protection equipment. Isolation of plant also ensures that entry to a restricted area is controlled while the specific task is being carried out.

Isolation measures
Isolation measures to isolate plant include locks, clamps, tags, closing and blanking devices, removal of mechanical linkages, blocks, slings, and removal from service. An appropriate measure that is high on the hierarchy of controls must be used where practicable to isolate the energy source(s).

Permit to Work (PTW) Register
Registers are available to record PTW activities in each Organisational Unit, including the application of lockouts and tags. PTW Registers shall be readily accessible by all workers. For more information refer to the University Permit to Work (PTW) Registers Guidelines.

Lockouts
Lockout is where a positive isolator is turned to the OFF position and secured in that position by removal of a key or having a physical block fitted such as a padlock and the key removed. This stops the plant being turned on accidentally or in an unplanned circumstance.

Lock out/tag out
The term used to identify the combined process of lock out of plant and application of an out-of-service tag.

Officer
Any person at the University who makes, or participates in making, decisions that affect the whole, or a substantial part, of the University is an Officer. As such, members of UTAS Council, Boards, Committees, Senior Management Team, Heads of
Colleges, Deans of Faculties, Organisational Unit heads and Directors/Principals of Institutes are deemed to be Officers at the University.

**Organisational Unit**
College, Faculty, School, Centre, University Institute, other University Entity, Division, Section or University Business Enterprise.

**Out-of-Service**
Plant that is deemed to be unsafe to operate can be taken out-of-service by the placement of an Out-of-Service Tag.

**Out-of-Service Tag**
Out-of-Service Tags are placed on plant to indicate it may be unsafe, as it is not operating correctly or is not ready to be operated, and use of that plant could cause an incident. It is recognisable as a yellow and black tag, with the wording ‘Caution Out of Service’. Out-of-Service plant must not be operated until all faults have been rectified and an authorised person has removed the tag.

**Person Conducting Business or Undertaking (PCBU)**
PCBUs are the principal duty holder, with primary duty of care for the operation of the University. As such, Members of UTAS Council, Board members, Executive Deans and Heads of Academic Units, are deemed to be PCBUs at the University.

**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.

**Worker**
Any person carrying out work in any capacity at the University, including work 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.

### 5 Supporting Documentation
- AS/NZS 4024.1:2000 Safety of Machinery
- University Fire protection systems impairment permit system
- University of Tasmania Permit to Work Procedure
- University Minimum Standard – Work Health and Safety Project and Task Risk Management
- University Records Management Policy and Procedure
- University Work Health Safety Record Management Guidelines
- Relevant Codes of Practice (e.g. Managing Risks of Plant in the Workplace)

### 6 Versioning

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<tr>
<td>Current Version(s)</td>
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<tr>
<td>Version 3 – <em>Plant Isolation – Lock out/Tag out Procedure</em> (current document); approved November 2014, amended in December 2017 to incorporate final academic structures and a change in nomenclature for the owning organisational unit.</td>
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