# Plant/equipment safety management

## IMPLEMENTATION

### Aim

To prescribe the responsibilities and actions required for plant/equipment that is University owned, controlled or located on University premises and/or during University-related activities, to ensure the University meets the requirements of the Health, Safety and Wellbeing (HSW) Policy and the relevant sections of the Work Health and Safety (WHS) Act 2012 (SA) and WHS Regulations 2012 (SA).

### 1 Objectives

**1.1** To ensure that the hazards associated with the use of plant/equipment are identified, assessed and the appropriate control measures are in place, to prevent injury and/or minimise the risk of exposure in accordance with the HSW Handbook chapter Hazard Management.

**1.2** To use plant/equipment only for the purpose for which it was designed unless authorised by a competent person (see definitions).

### 2 Scope

#### 2.1 Inclusions

This process applies to:

- all workers who undertake University of Adelaide related activities, use University of Adelaide facilities and/or are employed or engaged by the University or affiliated with the University in any capacity;
- plant/equipment owned, leased, designed, manufactured, installed and hired by the University; and
- gas powered or explosive power tools that are designed to be held or used by hand (e.g. nail gun).

#### 2.2 Exclusions

This chapter does not apply to:

- manually-powered hand-held tools (e.g. a hammer, screwdriver) that are designed to primarily be held or used by hand (except for explosive powered power tools).
- plant/equipment owned by contractors which is not used by University staff or students; and
- heritage plant/equipment (refer to definitions) which must be managed in accordance with SafeWork Australia's Guide for managing risks involving heritage plant.

## 3 Process: Requirements for the design, manufacture, importation, supply, lease/hire, acquisition, installation and commissioning of plant/equipment

| Person Responsible | | Actions |
|---|---|---|
| 3.1 | **University's worker/person in control of the design, manufacture, importation, supply lease/hire, acquisition, installation and commissioning of plant/equipment** | ☐ Ensure that the applicable legislative requirements outlined in Appendix A "Duties for design, manufacture, importation, supply, lease/hire, acquisition, installation and commissioning" are met.<br>☐ Ensure that any infrastructure and/or licensing requirements (refer to Appendix E) are considered prior to purchase, installation and commissioning of the plant/equipment (including electrical connection and supply).<br>☐ Ensure the Infrastructure Branch is first consulted for any purchases associated with the built environment or that requires modification of infrastructure to accommodate the plant/equipment.<br>☐ Ensure that the impact on the work environment is considered during the process of erection or installation process.<br>☐ Ensure where contractors are engaged to erect and install plant/equipment the Contractor Management process is followed.<br>☐ Ensure if plant/equipment is prescribed equipment as defined under the Controlled Substances (Controlled Drugs, Precursors and Plants) Regulations 2014 you can demonstrate that you have:<br>  ☐ a reasonable excuse to possess/use the prescribed equipment; and<br>  ☐ physical control of the prescribed equipment i.e. there is no unauthorised access to the prescribed equipment. |

## 4 Process: Hazard management

| Person Responsible | | Actions |
|---|---|---|
| 4.1 | **Supervisor/Person in control of the area/activity** | ☐ Ensure that the hazards associated with the use of plant/equipment in your area(s) of control, are identified and managed in accordance with:<br>  ☐ the manufacturer's operators manual; and/or<br>  ☐ the HSW Handbook chapter "Hazard Management".<br>  Refer to Appendix B "Plant/Equipment Risk Assessment decision tree" to assist in determining when a formal risk assessment is required.<br>This includes any activity in relation to:<br>  ☐ the design, manufacture, assembly or use of the plant/equipment;<br>  ☐ the storage, decommissioning, dismantling or disposal of the plant/equipment; and<br>  ☐ the inspection, operation, cleaning, maintenance or repair of the plant/equipment.<br>☐ Ensure that additional control measures are in place for specific items of plant/equipment, in accordance with the WHS Regulations 2012 (SA) (2012), for the following:<br>  ☐ Powered mobile plant; (Section 214 and 215)<br>  (e.g. vehicles, tractor, forklift truck, earthmoving equipment)<br>  ☐ Tractors roll-over protection (Section 216);<br>  ☐ Industrial lift trucks (Section 218) see definitions;<br>  ☐ Plant/equipment that lifts/suspends loads (Section 219 and 210);<br>  ☐ Plant used in connection with tree lopping (Section 221);<br>  ☐ Industrial robots (Section 222);<br>Continued |

## 4 Process: Hazard management (Continued)

| Person Responsible | | Actions |
|---|---|---|
| 4.1 | **Supervisor/Person in control of the area/activity** (Continued) | ☐ Ensure that additional control measures are in place for specific items of plant/equipment, in accordance with the WHS Regulations 2012 (SA) (2012), for the following: (Continued)<br>☐ Lasers (Section 223);<br>☐ Pressure equipment (Section 224);<br>☐ Scaffolds (Section 225);<br>☐ Plant with presence-sensing safeguarding system – records (Section 226);<br>☐ Registered plant (Chapter 5, Division 4).<br>Refer to Appendix C for examples using the hierarchy of control and for additional control measures required by the WHS Legislation. |
| 4.2 | **All persons identified in the scope of this process** | ☐ Ensure that where registration and/or operator proficiency and/or high risk work license requirements apply to any plant/equipment, these requirements are included on the risk assessment.<br>☐ Undertake hazard management and implement control measures in accordance with the Hazard Management HSW Handbook chapter and the risk assessment. |

## 5 Process: Identification of training needs and provision of information, instruction, training and supervision

| Person Responsible | | Actions |
|---|---|---|
| 5.1 | **Supervisor/Person in control of the area/activity** | ☐ Ensure that the training needs of workers operating plant/equipment are identified in accordance with the HSW Training Plan chapter of the HSW Handbook including the requirement for any high risk work licences under Schedule 3 of the WHS Regulations 2012 (SA).].<br>☐ Ensure that all workers under your supervision are provided with the relevant level of information/instruction/training in accordance with their Training Plan and the HSW Handbook chapter "Provision of information, instruction and training" before undertaking a task. This includes emergency instructions and how to operate stops and warning devices.<br>☐ Ensure the appropriate level of supervision is provided, based on the skill/proficiency/competency of the worker(s) and the level of risk.<br>☐ Provide information to any person who is involved in installing, commissioning, testing, maintaining or repairing, decommissioning, dismantling or disposing of the plant/equipment (e.g. the types of hazards and risks the plant/equipment may pose to the person when they are carrying out these activities).<br>☐ Ensure emergency instructions relating to an item of plant/equipment, are displayed on or adjacent to the plant/equipment and safe operating procedures, where required by the risk assessment, are available to the operator. |

## 5 Process: Identification of training needs and provision of information, instruction, training and supervision

| Person Responsible | | Actions |
|---|---|---|
| 5.2 | **All persons identified in the scope of this process** | ☐ Comply with the information, instruction and training requirements provided to you.<br>☐ Maintain your high risk work licence as required to use the plant/equipment (see Appendix E).<br>☐ Ensure that you report to your supervisor if any of your licences (required for work) expire and/or are not renewed; are suspended, restricted or have been disqualified.<br>For staff:<br>☐ Log into and record your training competency (where applicable) in Staff Services Online (SSO) by selecting the Profile tile and selecting Licences and Certifications.<br>☐ Attach your training certificate of competency in SSO for the University records. |

## 6 Process: Using plant/equipment in the workplace

| Person Responsible | | Actions |
|---|---|---|
| 6.1 | **Supervisor/Person in control of the area/activity** | ☐ Ensure that control measures identified on the risk assessment are in place and being implemented in your area(s) of control (including Personal Protective Equipment [PPE]).<br>☐ Provide additional supervision, if/where required, based on the level of risk and experience of the worker(s).<br>☐ Ensure the proper use of the plant/equipment and operator controls. This includes taking reasonable steps to ensure:<br>  ☐ that the plant/equipment is only used for the purpose for which it was designed; and<br>  ☐ that all health and safety features and warning devices (including guarding, operational controls, emergency stops and warning devices) are used in accordance with the information provided and safe operating procedures (where required by the risk assessment) are followed.<br>☐ Prevent alterations to or interference with the plant/equipment that have not been authorised by a competent person (see definitions).<br>(In determining whether or not a proposed use increases the risk, a risk assessment must be completed in accordance with the Hazard Management Handbook chapter.<br>(Note: The person making the alterations is considered a designer or manufacturer under the WHS legislation and those specific obligations will apply to that person. Refer to Appendix A for additional information.)<br>☐ Ensure that when not in use the plant/equipment does not create a risk to health and safety.<br>(Note: After an extended period of storage and before the plant/equipment is used, the plant/equipment should be re-commissioned by carrying out the same level of testing and inspection as when it was first commissioned. Refer to Appendix A for additional information.)<br>☐ Ensure that any faulty plant/equipment is tagged/locked out as per Appendix D.<br>☐ Ensure that where contingency testing of emergency stops and warning devices is required by the Risk Assessment and/or the Manufacturer's |

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| | instructions, the tests are scheduled in consultation with those who operate the plant/equipment. (See section 7.1) |

## 6 Process: Using plant/equipment in the workplace (Continued)

| Person Responsible | Actions |
|---|---|
| **6.2 All persons identified in the scope of this process** | ☐ Operate plant/equipment in accordance with the manufacturer's instructions, operations manual, risk assessment, information/instruction/training provided and Safe Operating Procedure (where documented).<br>☐ Report, if you have concerns that the activity may place you or any other person at risk of injury/illness:<br>☐ to the Supervisor/Person in control of the activity/area: and/or<br>☐ to your local HSW Team; or<br>☐ to a Health and Safety Representative: or<br>☐ using the on-line reporting system,<br>☐ Report damaged or faulty plant/equipment to the relevant supervisor/manager immediately, "tag out" if necessary (see Appendix D) and enter the details of the issue into the University's Report a Safety issue on-line system using the app or on-line form.<br>☐ Do not use plant/equipment that is tagged/locked out.<br>☐ Do not remove tags/locks without authorisation, or damage them in any way.<br>☐ Ensure that you are **not** in a state as to endanger yourself, another person, or cause damage to the plant/equipment or property from the consumption of alcohol or a drug. (See also the Alcohol and drug management in higher risk workplaces HSW Handbook chapter).<br>☐ Report the loss of any prescribed equipment as defined under the Controlled Substances (Controlled Drugs, Precursors and Plants) Regulations 2014 into the University's on-line system using the app or on-line form. |

## 7 Process: Maintenance, inspection and testing of plant/equipment

| Person Responsible | Actions |
|---|---|
| **7.1 Supervisor/Person in control of the area/activity** | ☐ Ensure that the maintenance, inspection and, if necessary, testing of the plant is:<br>☐ scheduled in accordance with the manufacturer's instructions, or as determined by a risk assessment;<br>☐ added to the Schedule of Programmable Events (or equivalent), unless this requirement is centrally managed (e.g. by Infrastructure Branch); and<br>☐ carried out by a competent person (see definitions); and<br>☐ communicated with affected workers to prevent any risk arising from the restarting of plant/equipment operations.<br>☐ Ensure the plant/equipment is isolated from the energy source before maintenance, inspection or cleaning starts or where plant/equipment cannot be isolated, methods to prevent accidental operation are implemented.<br>☐ Ensure control measures implemented, for example guards and warning devices, are regularly inspected and tested to ensure they remain effective.<br>Continued |

## 7 Process: Maintenance, inspection and testing of plant/equipment (Continued)

| Person Responsible | | Actions |
|---|---|---|
| 7.1 | **Supervisor/Person in control of the area/activity**<br><br>(Continued) | ☐ Ensure any guards that are removed during maintenance/inspection, have been replaced correctly before a task re-commences, to prevent access to hazardous parts by the operator.<br>☐ Ensure that faulty plant/equipment, or plant/equipment that requires isolation for cleaning, maintenance or repairs, is tagged or locked out as per Appendix D.<br>☐ Ensure that any certificates of compliance are held where relevant.<br>☐ Ensure any corrective action(s) arising from the maintenance and testing is entered into the University's online safety system or an equivalent system (database) that meets the objectives of the Corrective action HSW Handbook chapter. (i.e. a system that enables the recording, assigning and monitoring of actions to completion, within designated time-frames.)<br>☐ Ensure records of maintenance and testing conducted are held in an auditable format and available on request (e.g. in the University's Records Management System). This includes the records of maintenance and testing conducted by a contractor/external service provider. |
| 7.2 | **Person engaging a contractor (i.e. the person managing the contract)** | Where a contractor is required to maintain, clean or dispose of an item of the University's plant/equipment<br>☐ Follow the processes in the HSW Handbook Chapter Contractor Management and in accordance with the contract specifications where applicable. |

## 8 Process: Decommissioning, dismantling and disposing of plant/equipment

| Person Responsible | | Actions |
|---|---|---|
| 8.1 | **Supervisor/Person in control of the area/activity** | ☐ Ensure that plant/equipment is disposed of in accordance with Appendix H "Decommissioning, dismantling and disposing of plant/equipment". |

## 9 Process: Record keeping

| Person Responsible | | Actions |
|---|---|---|
| 9.1 | **Supervisor/Person in control of the area/activity** | ☐ Ensure that all documentation summarised in Appendix I is maintained and can be retrieved on request.<br>☐ Ensure there is a system for retaining Risk assessments in accordance with the State Records of SA, General disposal Schedule No 30 issued under the State Records Act 1997. (Contact the University's Records Management Office for further assistance/information if required.) |

## 10 Performance Measures

The HSW Team will use performance measures to assist in identifying areas of success and/or where corrective action is required to meet the objectives and targets of this process.
The level of compliance with the chapter and effectiveness will be determined during the internal audit process.

## 11 Useful information and resources

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| **11.1** | **University related documents and resources**<br>• HSW Handbook Chapter Contractor Management<br>• HSW Handbook Chapter Hazard Management<br>• HSW Handbook Chapter Health, Safety and Wellbeing Information, Instruction and Training<br>• HSW Handbook Chapter Radiation Safety Management<br>• HSW Handbook Chapter Alcohol and drugs management in higher risk workplaces<br>• HSW Handbook Chapter Managing HSW in the work environment<br>• Electrical Safety Information Sheet<br>• Hot Work (Heat or Spark Producing Activities) Information Sheet<br>• Personal Protective Equipment Information Sheet<br>• Plant/equipment Acquisition, Installation and Commissioning Checklist Information Sheet<br>• Vehicle Safety Management Information Sheet<br>• Chemwatch |
| **11.2** | **Related Legislation**<br>• Work, Health and Safety Act 2012 (SA)<br>• Work, Health and Safety Regulations 2012 (SA)<br>• Heavy Vehicle National Law (SA) Act 2013<br>• Plumbers, Gas Fitters and Electricians Act 2010<br>• Heavy Vehicle (Fatigue management) National Regulation<br>• AS 1893 (1977) Code of practice for the guarding and safe use of metal and paper cutting guillotine<br>• Grain harvesting Code of Practice<br>• Grain harvesting operation weather restrictions Code of Practice<br>• Model Code of Practice – Managing electrical risks in the workplace<br>• Model Code of Practice – Managing the risks of Plant in the workplace<br>• AS 1121(2007) Agricultural tractor power take-offs<br>• AS/NZS 1200 (2000) Pressure equipment<br>• AS 1319 (1994) Safety signs for the occupational environment<br>• AS 1418.1 -18 (series) Cranes (including hoists and winches)<br>• AS 1473-1991: Guarding and safe use of woodworking machinery<br>• AS 1473.1-8 (series) Wood processing machinery<br>• AS/NZS 1576 (2010) Scaffolding – general requirements<br>• AS 1577 (2013): Scaffold decking components<br>• AS 1636.1 to 3 (1996) Agricultural wheeled tractors – roll-over protective structures<br>• AS 1657 (2013) Fixed platforms, walkways, stairways and ladders – design, construction and installation<br>• AS 1735 (series) Lifts, escalators and moving walks<br>• AS 1755 (2000) Conveyors – safety requirements<br>• AS 1788 (1997) Abrasive wheels Part 1 Design, construction and safeguarding, Part 2 Selection, care and use<br>• AS 1873 (series) Power-actuated (PA) hand-held fastening tools<br>• AS/NZS 1891 (series) Industrial fall-arrest systems and devices<br>• AS/NZS 1892 (series) Portable ladders<br>• AS 2030 (series) Gas cylinders general requirements<br>• AS 2153 (series) Tractors and machinery for agriculture and forestry- technical means for ensuring safety<br>Continued |

## 11 Useful information and resources (Continued)

**11.2 Related Legislation (Continued)**

- AS 2294.1 (1997) Earth-moving machinery – Protective structures
- AS 2359 (series) Powered industrial trucks
- AS 2550 (series) Cranes hoists and winches – safe use
- AS 2593 (2004) Boilers – Safety management and supervision systems
- AS 2971(2007) Serially produced pressure vessels
- AS/NZS 3000 (2007) Electrical installations – (known as the Australian/New Zealand Wiring Rules)
- AS 3760 (2010) In-service safety inspection and testing of electrical equipment
- AS/NZS 3788 (2006) Pressure equipment – in-service inspection
- AS 3947 (series) Low-voltage switchgear and control gear
- AS 4024 (series) Safety of Machinery
- AS/NZS 4576 (1995) Guidelines for scaffolding
- AS 4576 (2020) Guidelines for scaffolding
- AS 4991 (2004) Lifting devices
- AS 60745 (series) Hand-held motor operated electric tools
- AS/NZS IEC 60825.14 (2011) Safety of laser products – a users guide
- AS 61508 (series) Functional safety of safety related systems
- AS 2550 (series) Cranes hoists and winches – safe use
- AS 2593 (2004) Boilers – Safety management and supervision systems
- ISO 12100 Safety of machinery – general principles for design
- ISO/EN 13458 Cryogenic vessels – static vacuum insulated vessels

**Other information**

- Guide for Managing risks involving heritage plant (2013)
- National Hazard Exposure Work Surveillance – Vibration exposure and provision of vibration control measures in Australian workplaces (2009)
- SA Transport Department Heavy Vehicles
- SA Transport Department National Work Diaries
- SafeWork Australia – Guidance material safe design, manufacture, import and supply of plant
- SafeWork Australia – High risk work licensing information sheets
- SafeWork Australia - Cranes
- SafeWork Australia – Industrial lift trucks (including forklifts)
- Safework SA – Respirable crystalline silica

## 12 Definitions

A **boiler –** refer to the definitions in WHS Regulations 2012 (SA).

A **competent person**, for the purposes of this HSW Handbook chapter, is in accordance with the WHS Regulations 2012 (SA)-and means -

a) for electrical work on energised electric equipment or energised electrical installations (other than testing referred to in WHS Regulations (SA) section 150 and 165) - a person registered to undertake the work under the Plumbers, Gas Fitters and Electricians Act 1995.
b) for design and verification of plant/equipment (under WHS Regulations (SA) section 252) – a person who has the skills, qualifications, competence and experience to design the plant/equipment or verify the design.
c) for inspection of plant/equipment for registration a person who has the skills, qualifications, competence and experience in an engineering discipline and knowledge of technical standards of the plant/equipment being inspected.
d) for inspection of cranes and amusement devices a person who has the skills, qualifications, competence and experience to inspect the plant/equipment; be registered as a professional engineer and deemed to be a competent person by SafeWork SA. (See also WHS Regulations (SA) section 235 regarding major inspection of registered mobile cranes and tower cranes.)
e) for any other case - is a person who has acquired through experience the knowledge and skills to carry out the task.

## 12 Definitions (Continued)

**Decommission** means to remove from service.

**Design** means the design of part or all of the plant/equipment and redesign or modification of a design.

**Designer** means a person who designs plant/equipment, substances or structures that are to be used, or could reasonably be expected to be used, as, or at, a workplace.
Designer is a person whose profession, trade or business involves them in:

- preparing sketches, plans, drawings or models including prototypes for plant/equipment to be used, or could reasonably be expected to be used at a workplace including variations to a plan or changes to the plant/equipment; and
- making decisions for incorporation into a design – that may affect the health or safety of people who manufacture, use or carry out other activities with the plant/equipment.

Designers include design professionals like engineers, industrial designers and designers of plant systems, for example software and electrical systems. A person will also have the duties of a designer if they change the design during manufacture or change existing plant/equipment so that new measures for controlling risk are needed.

**Danger tag** means a tag that indicates plant/equipment isolated from its power source and which cannot be operated. This is to allow maintenance or repair work on the plant/equipment to be performed safely (refer to Appendix D for the University-approved tag).

**Hazardous plant**
Any plant/equipment used for a work/task related activity that:

- has the potential:
  - to entangle, crush, cut/stab/puncture, trap, shear, tear or strike;
  - for a pinch point to trap any part of the body or catch loose clothing, hair etc (e.g. conveyor, gears, loaders and other moving equipment);
  - for a worker to come into contact with fluids under high pressure;
  - to cause a serious burn/injury;
  - to expose the worker to live electrical conductors;
  - to expose the worker to gases/vapours/liquids/dusts/other substances triggered by the operation;
  - to explode or implode;
  - to exceed safe noise levels;
  - for the worker to adopt poor posture (see definition for a Hazardous Manual Activity);
  - to overturn, collide with another person or thing (e.g. moving powered plant);
- lifts or suspends a load;
- is an industrial robot or other remotely or automatically energised plant at the workplace;
- involves non-ionising radiation or high level magnetic fields;
- requires registration in accordance with Schedule 5 of the Work Health and Safety Regulations 2012 (SA).

(e.g. an autoclave, forklift, cryostat, boiler, lathe, industrial robot, scaffolding, boiler, laser, microtome, elevated work platform, crane, gantry, reach stacker, pressure equipment)

**Heritage Plant/equipment** means machinery, equipment, appliances, implements or tools which form part of Australia's industrial heritage. To be considered heritage the plant/equipment must be at least 30 years old and not in productive service.

**Hoist** means an appliance intended for raising or lowering a load or people, and includes an elevated work platform, a mast climbing work platform, personnel and materials hoist, scaffolding hoist and serial hoist, but does not include a lift or building maintenance equipment.

## 12 Definitions (Continued)

**Industrial lift trucks** (in accordance with SafeWork Australia) are powered mobile plant designed to move goods, materials or equipment. They are equipped with an elevating load carriage and for normal use, are equipped with a load-holding attachment. There are different types of powered industrial lift trucks including ride-on forklift trucks, pedestrian-operated trucks, straddle carriers and reach trucks.

Mobile cranes, earthmoving machinery and manually-powered lift trucks like pallet lifters are not industrial lift trucks. Forklift trucks are the most commonly used industrial lift truck.

**Isolation and energy dissipation** means a procedure which consists of all of the four following actions:

- Isolating (disconnecting, separating) the machine (or defined parts of the machine) from all power supplies.
- Where necessary (for instance in large machines or in installations), locking (or otherwise securing) all the isolation units in the isolating position;
- Dissipating or restraining (containing) any stored energy which may give rise to a hazard.
  **Note-** energy may be stored in:
  a) Mechanical parts continuing to move through inertia;
  b) Mechanical parts liable to move due to gravity;
  c) Capacitors and accumulators;
  d) Pressurised fluids; or
  e) Springs.
- Verifying by means of a Safe Operating Procedure that the actions taken according to items 1, 2 and 3 above have produced the desired effect.

**Manufacturer**
A person that manufactures plant/equipment or structure that is to be used, or could reasonably be expected to be used at a workplace.

**Mobile crane** means a crane capable of travelling over a supporting surface without the need for fixed runways and relying on gravity for stability.

**Operator** means a proficient or competent person who operates any plant/equipment outlined in this document.

**Out of service tag** means a tag that indicates plant/equipment that either has a fault, or is unsafe to operate and is being removed from service (refer to Appendix D for the University-approved tag).

**Plant/equipment** means:

- any machinery, equipment, appliance, implement or tool; and
- any component of any of those things;
- anything fitted or connected to any of those things.

(It includes items such a lifts, cranes, computers, machinery, conveyors, forklifts, vehicles, power tools, quad bikes, mobile plant and amusement devices. It also applies to explosive power tools that are designed to be held or used by hand.)

A **proficient person** means one who has been trained and assessed in a task, and has been deemed able to carry out those duties without supervision.

**Powered mobile plant/equipment** means plant/equipment that is provided with some form of self-propulsion that is ordinarily under the direct control of an operator (e.g. tractor, forklift truck, earthmoving equipment, crane)

**Prescribed equipment (under the Controlled Substances (Controlled Drugs, Precursors and Plants) Regulations 2014 (SA) (Sections 33LB and 33)**
Equipment that is, or may at some stage have been capable of being used in the manufacture of controlled drugs includes (1) condensers; (2) distillation heads; (3) heating mantles; (4) rotary evaporators; (5) heater stirrers; (6) mechanical stirrers; (7) pressure reaction vessels; (8) separatory funnels; (9) Buchner flasks; (10) in-line membrane filters; (11) reaction vessels; (12) splash heads; (13) tube furnaces; (14) manual or mechanical tablet presses, including parts for such an item; (15) manual or mechanical encapsulators, including parts for such an item; (16) an item modified to perform the function of a condenser, distillation head, splash head, pressure reaction vessel or tube furnace; and a device comprising a hydraulic compression system and a die that is, or may at some stage have been, capable of being used to compress a powdered substance into blocks is prescribed.

**Pressure equipment** means boilers, pressure vessels and pressure piping.

## 12 Definitions (Continued)

**Pressure vessel** means a vessel subject to internal or external pressure and includes interconnected parts and components, values, gauges, and other fittings up to the first point of connection to connecting piping and fired heaters and gas cylinders but does not include a boiler or pressure piping.

**Residual current device** (RCD) means a mechanical switching device designed to make, carry and break currents under normal service conditions, and to cause the opening of contacts when the residual current attains a given value under specified conditions as defined in AS/NZS 3760 (2010) *In-service safety inspection and testing of electrical equipment*.

**Reciprocating steam engines -** refer to WHS Regulations 2012 (SA).

**Residual Risk** means the risk remaining after implementation of risk controls.

**Scaffold** means a temporary structure specifically erected to support access or working platforms.

**Scaffolding work** means erecting, altering or dismantling a temporary structure that is or has been erected to support a platform and from which a person or object could fall more than 4 metres from the platform or structure.

**Tower crane -** refer to definitions in the WHS Regulations 2012 (SA).

**Tractor** means a motor vehicle whether wheeled or track mounted, designed to provide power and movement to any attached machine or implement by transmission shaft, belt or linkage system but does not include earth moving equipment machinery.

**Turbine** – means equipment that is driven by steam acting on a turbine or rotor to cause a rotary motion.

**Work box** – means a personnel carrying device, designed to be suspended from a crane, to provide a working area for a person elevated by and working from the device.

**Worker** means according to the WHS Act 2012 (SA) a person where the person carries out work in any capacity for a person conducting a business or undertaking, including work as -
(a) an employee; or
(b) a contractor or subcontractor; or
(c) an employee of a contractor or subcontractor; or
(d) an employee of a labour hire company who has been assigned to work in the person's business or undertaking; or
(e) an outworker; or
(f) an apprentice or trainee; or
(g) a student gaining work experience; or
(h) a volunteer; or
(i) a person of a prescribed class.

The person conducting the business or undertaking is also a worker if the person is an individual who carries out work in that business or undertaking. Note -Higher Degree Research students and Academic Visitors are likely to be workers under the WHS Act 2012 (SA).

# PLANT/EQUIPMENT - DUTIES FOR DESIGN, MANUFACTURE, IMPORTATION, SUPPLY, LEASE/HIRE, ACQUISITION, INSTALLATION AND COMMISSIONING

## LEGISLATIVE REQUIREMENTS

**Designers of plant/equipment**

- **In accordance with WHS Act (SA) section 22**

  The designer of plant/equipment that is to be used, or could be expected to be used at the workplace, must ensure the plant/equipment is designed to be without risks to the health and safety of persons who:
  - use the plant/equipment for which it was designed; or
  - who store the plant/equipment at the workplace; or
  - who carry out any reasonably foreseeable activity at the workplace in relation to the manufacture, assembly or use of the plant/equipment for which it was designed, or the proper storage, decommissioning, dismantling or disposal of the plant/equipment (e.g. inspection, operation, cleaning, maintenance or repair of the plant/equipment); or
  - who are at or in the vicinity or could be affected by a use or activity associated with the plant/equipment.
- **In accordance with WHS Regulations (SA) [section187]**

  Designers of plant/equipment must provide or relay to the manufacturer relevant information (including the risk assessment) in relation to:
  - information which enables the manufacture in accordance with design specifications;

  and if applicable, information about the
  - installation, commissioning, decommissioning, use, handling and storage and, if the plant is capable of being dismantled, dismantling of the plant; and
  - hazards and risks associated with use of the plant/equipment that the designer has identified; and
  - testing or inspections to be carried out on the plant/equipment; and
  - systems of work and competency of operators that are necessary for the safe use of the plant/equipment; and
  - emergency procedures (if any) that are required to be implemented if there is a malfunction of the plant/equipment; and
  - registration of design if required under WHS Regulations 2012 (SA) [section 243-263].

**In addition**

- Where the designer uses guarding as a control measure, the requirements of WHS Regulations (SA), section 189 are to be met. This includes the requirements:
  - to prevent access to the danger point or danger area of the plant/equipment;
  - for fixed barriers, interlocks, presence-sensing safeguarding systems where applicable;
  - for the safe maintenance and cleaning if the guarding is removed.
- Where the designer provides for operational controls for the plant/equipment, the requirements of WHS Regulations WHS Regulations (SA), section 190 are to be met.
- Where emergency stop controls are fitted, the requirements of WHS Regulations (SA) section 191 are to be met.
- Where a warning device is necessary to minimise the risk, the requirements of WHS Regulations (SA) section 192 are to be met.
- A designer must ensure that the plant/equipment is designed so that noise emission is as low as is reasonably practicable and meets the requirements of WHS Regulations (SA) section 59 are met,
- A designer must ensure that the plant/equipment is designed to eliminate or minimise the need for any hazardous manual task to be carried out and meets the requirements of WHS Regulations (SA) section 61.
- Where the plant/equipment includes a space that is or is intended to be a confined space, the requirements of WHS Regulations (SA) section 64 are met.

**If your Faculty/Division/area designs plant/equipment then the responsibilities outlined above are applicable to the person(s) in control of the design activity.**

Continued

# PLANT/EQUIPMENT - DUTIES FOR DESIGN, MANUFACTURE, IMPORTATION, SUPPLY, LEASE/HIRE, ACQUISITION, INSTALLATION AND COMMISSIONING

## LEGISLATIVE REQUIREMENTS

**Manufacturers of plant/equipment**

For the duties on manufacturing of plant/equipment please refer to:

- ☐ WHS Act 2012 (SA) [section 23]
- ☐ WHS Regulations 2012 (SA)
  Section 59 (Noise emission)
  Section 61 (Hazardous manual tasks)
  Section 64 (Confined spaces)
  Section 188 (Hazard identified in design during manufacture)
  Section 193 (Control of risk)
  Section 194 (Guarding)
  Section 195 (Information must be obtained and provided)

**If your Faculty/Division/area manufactures plant/equipment then the responsibilities outlined above are applicable to the person(s) in control of the manufacturing activity**. This includes ensuring that hazards (i.e. those listed under hazardous plant) are managed throughout all phases of the manufacture/construction (e.g. from the start to the completion of a student project in a workshop/laboratory).

**Importers of plant/equipment**

For the duties on importing of plant/equipment please refer to:

- ☐ WHS Act 2012 (SA) [section 24]
- ☐ WHS Regulations 2012 (SA) [ Section 196 – 197]

Importers must:

- ☐ obtain as much documentation from the overseas designers, manufacturers and suppliers as possible. This information must be in English.
- ☐ ensure that plant/equipment is inspected, tested and hazards are identified.
- ☐ not supply plant/equipment under WHS Regulations 2012 (SA) schedule 5 part 1 unless the design is registered.

**Suppliers of plant/equipment**

For the duties on supplying of plant/equipment please refer to:

- ☐ WHS Act 2012 (SA) [section 25]
- ☐ WHS Regulations 2012 (SA)
  Section 198 (Information to be obtained and provided by supplier)
  Section 199 (Supply of second-hand plant – duties of supplier)
  Section 200 (Second-hand plant to be used for scrap or spare parts)

(Note – A person who hires or leases plant/equipment to others will have duties as a supplier of plant/equipment.)

**Persons who install, construct or commission plant/equipment**

For the duties please refer to:

- ☐ WHS Act 2012 (SA) [section 26]
- ☐ WHS Regulations 2012 (SA)
  Section 201 (Duties)
  This includes ensuring that the plant/equipment is installed, constructed or commissioned having regard to the information provided by the designer, manufacturer, importer or supplier of the plant/equipment under the Act and Regulations.
  Section 204 (Control of risks arising from installation or commissioning)
  This includes installing the plant/equipment, the positioning of the plant/equipment, performing the necessary adjustments, tests and inspections to ensure the plant/equipment is in full working order to specified requirements before the plant/equipment is commissioned and used.

# PLANT/EQUIPMENT - DUTIES FOR DESIGN, MANUFACTURE, IMPORTATION, SUPPLY, LEASE/HIRE, ACQUISITION, INSTALLATION AND COMMISSIONING

**Purchasing and hiring plant/equipment (including second-hand plant/equipment)**

For information refer to:

- Code of Practice "Managing the risks of plant in the workplace"
  Section 3.1 (Information that must be provided by the supplier of the plant/equipment)
  Includes, but not limited to:
  - The purpose for which the plant/equipment was designed or manufactured;
  - The results of calculations, analysis, testing or examination carried out to determine that the plant/equipment is without risk to health and safety;
  - Conditions necessary for the safe use of the plant/equipment;
  - Alterations or modifications made to the plant/equipment;
  - If second-hand, written notice of the condition of the plant/equipment and any faults identified;
  - That the plant/equipment is safe to use;
  - The manufacturer's information about the purpose of the plant/equipment and its proper use.
  - Arrangements for inspecting and maintaining the plant/equipment in accordance with the manufacturer's specifications.

  For information on plant/equipment acquisitions, installation and commissioning, please refer to the prompts within the Plant/equipment Acquisition, Installation and Commissioning Checklist Information Sheet.

**Registering an item of plant/equipment**

Certain items of plant/equipment and types of plant/equipment must be registered in accordance with the WHS Regulations 2012 (SA) Schedule 5.

A person must not use a registrable item of plant/equipment in the workplace if it has not been registered.

In order to have an item of plant/equipment registered, the item must be inspected and a statement provided by a competent person stating the plant/equipment is safe to operate. A person is competent to inspect an item of plant/equipment if the person has educational or vocational qualifications in an engineering discipline relevant to the plant/equipment, or knowledge of the technical standards relevant to the plant/equipment to be inspected.

If the design of the plant/equipment was also required to be registered, the design registration number must be included with the application.

Registration duration

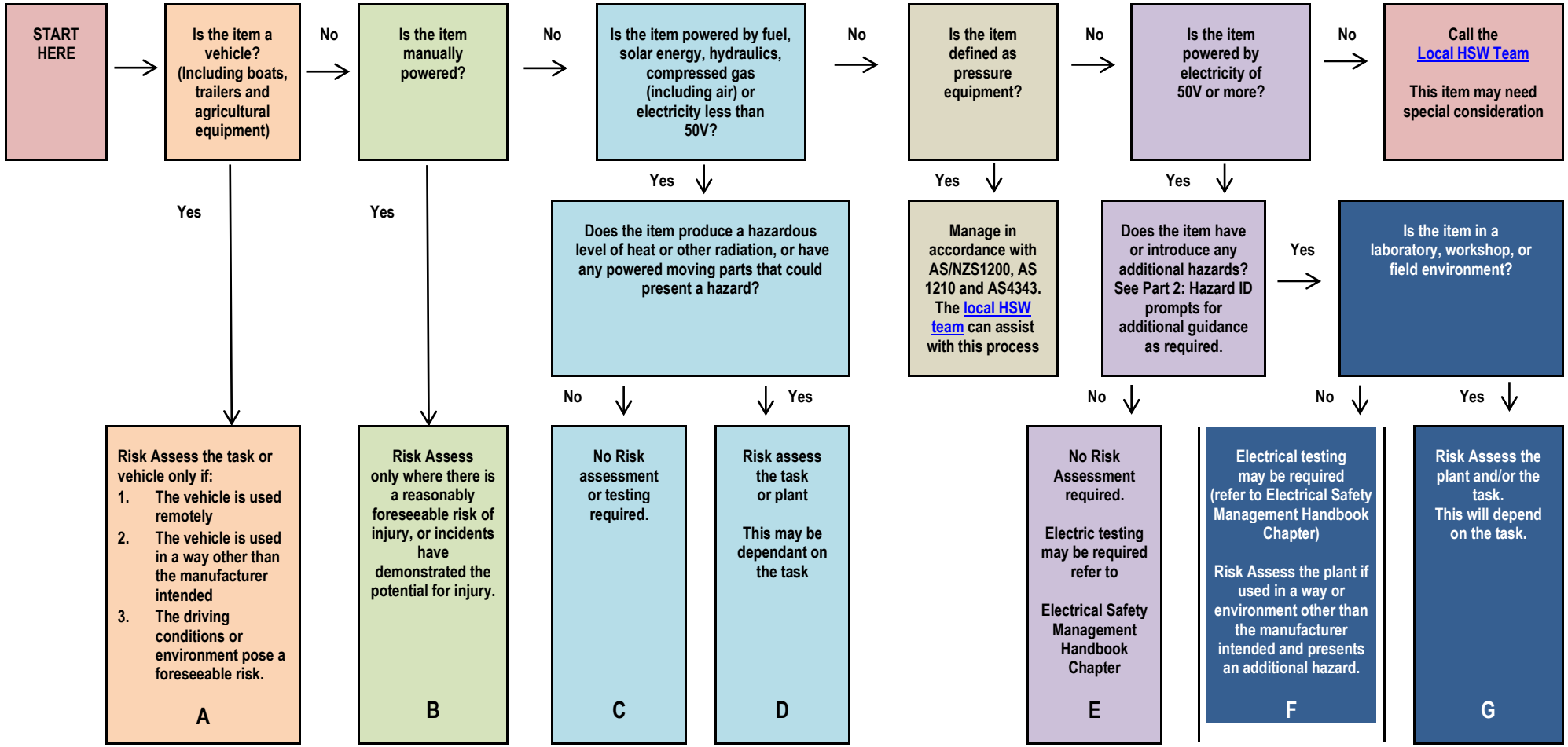
Registration of an item of plant/equipment applies for 5 years and takes effect on the day the registration is granted.

Once the item of plant/equipment is registered

The regulator will issue a registration document. The regulator may impose conditions on registered items of plant/equipment including conditions about the use and maintenance of the plant/equipment, record keeping or providing information to the regulator.

Further information on registering plant/equipment is provided in Chapter 5 of the Code of Practice "Managing the risks of plant in the workplace".

# PLANT/EQUIPMENT "RISK ASSESSMENT" DECISION TOOL PART 1



# PLANT/EQUIPMENT "RISK ASSESSMENT" DECISION TOOL

**Part 2: Hazard Identification prompts (to assist with your risk assessment, where required by part 1)**

**Can the plant/equipment cause:**

- entanglement of hair, clothing, gloves, jewellery, brushes, rags or other materials in moving parts?
- crush or impact injuries from parts due to unexpected failure and/or ejection of plant/equipment or material?
- injury by uncontrolled or unexpected movement?
- injury by cutting, puncturing, shearing, trapping, abrading or tearing?
- injury by electrocution, burn (by heat, steam, flame), explosion, leak of a high pressure substance (hydraulic fluid and air) toxic substances or radiation?
- high falls, suffocation, noise, vibration and contact with overhead or underground power lines?
- the exposure to dust from silica and silica containing products (e.g. during sawing, grinding, cutting, crushing - rock, concrete, brick, block and mortar sand)?

**Are:**

- Workers unable to access the plant/equipment without risk of slip, trip or fall?
- Paths of access and egress less than 600mm?
- Hazards foreseeable if the controls and/or power are able to be switched on or off accidentally when in use (e.g. where the switch is not shrouded)?
- Guards inadequate for the type of plant/equipment and the work being undertaken?

**Work environment hazards**

- Does the plant/equipment create hazardous conditions due to harmful emissions (e.g. fluids, gas under pressure, vapour, fumes, noise etc)?
- Is any discharge of hazardous chemicals contained?
- Does the area which the plant/equipment is being placed have any weight restrictions (refer to Infrastructure Branch)?

**Hazards with plant/equipment used for lifting people or materials**
**(Note** all lifting equipment must have current certification for the weight being lifted and you must not lift loads above that certified/rated capacity).

- Is plant/equipment used for lifting people or hazardous materials?
- Are loads inadequately protected if they are required to be suspended over people or property?
- Has all required maintenance and servicing been conducted?

**With plant/equipment in operating position:**

- Are there any other foreseeable hazards that may occur during the operation of the plant/equipment (e.g. electricity/water, surface, hazardous chemicals, security and/or dust)?

**Part 3: Plant/equipment Categories**

A. Vehicles. (e.g. boat, trailer, agricultural equipment, all-terrain vehicles/ATV)
B. Manually-powered. (e.g. simple hand tools, bench vice, hand winch)
C. Battery, hydraulic, solar, compressed gas/air or fuel-powered **portable** or **movable** items with no additional hazards. (e.g. portable radio, cordless screwdriver)
D. Battery, hydraulic, solar, compressed gas/air or fuel-powered **portable** or **movable** items with additional hazards. (e.g. some cordless power tools, gas burner/soldering iron, air tools)
E. Mains-power electrical items with no additional hazards, used as the manufacturer intended. (e.g. computer, photocopier, printer, refrigerator - including refrigerators purpose-designed for flammables)
F. Mains-powered office-based electrical items with additional hazards. (e.g. heater, kettle, microwave oven)
G. Mains-powered **fixed**, **portable** or **movable** lab, workshop and field equipment that may present additional hazards. (e.g. circular saw, heater-stirrer, lathe)

# PLANT/EQUIPMENT RISK CONTROL (Hierarchy of Controls)

Risk controls are to be implemented using the "Hierarchy of Controls" below. In most cases, risk is controlled by a combination of several levels. Where a risk cannot be eliminated, then the risk is to be minimised by using level 2 – 4 control measures .

| Hierarchy of control | | Examples of control measures |
|---|---|---|
| **Level 1** | **Elimination** | Decommissioning/disposal of the plant/equipment |
| **Level 2** | **Substitution** | Purchasing alternative plant/equipment which meets the legislative requirements |
| | **Engineering/Isolation** (Refer AS 4024 series. *Safety of Machinery*) | **Installing:**<br>• Safeguarding (see below)<br>• An interlocking device<br>• A limiting device (i.e. prevents from exceeding design limits)<br>• A mechanical restraining device (e.g. wedge, strut)<br>• A protective structure<br>• A switching device<br>• An emergency stop (see below) |
| **Level 3** | **Administrative** | • Use of Danger/Out of Service tags<br>• Documenting Safe Operating Procedures (SOPs)<br>• Provision of information, instruction, training and supervision<br>• Obtaining licences and permits<br>• Fatigue management (Refer Appendix F) |
| **Level 4** | **Personal Protective Equipment** | Providing operators with appropriate safety equipment (e.g. eye and ear protection, safety boots, helmets, gloves, mask, vest as applicable).<br>Also refer to Personal Protective Equipment Information Sheet. |

## PLANT/EQUIPMENT – ADDITIONAL CONTROL MEASURES FOR GENERAL PLANT

**Where any of the control measures or plant/equipment listed on the following tables, apply to your activities/area of work, please refer to the relevant section of the WHS Regulations/legislation for further requirements.**
**The examples provide an indication of the additional control measures required. The examples are not exhaustive.**
**Controls will also need to take into consideration the specific item of equipment and the environment.**

| | |
|---|---|
| **Guarding**<br>WHS Regulations 2012 (SA) Section 208 | This includes ensuring that:<br>☐ if access to the area where the plant/equipment is necessary during operation, maintenance or cleaning, the guarding is an interlocked physical barrier; or if it is not possible<br>☐ the use of a physical barrier that can only be altered or removed by the use of tools; or if it is not possible<br>☐ the guarding includes a presence-sensing safeguarding system that eliminates any risk arising when a person is in the area;<br>☐ the guarding is properly maintained. |
| **Guarding and insulation from heat or cold**<br>WHS Regulations 2012 (SA) Section 209 | This includes ensuring that:<br>☐ where any pipe or other part of the plant/equipment associated with heat or cold is guarded or insulated. |
| **Operational controls**<br>WHS Regulations 2012 (SA) section 210 | This includes ensuring that any operator controls are:<br>☐ identified on the plant/equipment to indicate their nature and function and direction of operation;<br>☐ located so they can be readily and conveniently operated by each person using the plant/equipment;<br>☐ located or guarded to prevent unintentional activation; and<br>☐ able to be locked into the "off" position to enable disconnection from energy sources. |

# PLANT/EQUIPMENT RISK CONTROL (Hierarchy of Controls)

## PLANT/EQUIPMENT – ADDITIONAL CONTROL MEASURES FOR GENERAL PLANT (Continued)

| | |
|---|---|
| **Emergency stops** WHS Regulations 2012 (SA) section 211 | This includes ensuring that:<br>☐ the stop control is prominent, clearly and durably marked and immediately accessible to each operator;<br>☐ any handle, bar or push button associated with the stop control is coloured red;<br>☐ the stop control cannot be adversely affected by electrical or electronic circuit malfunction;<br>☐ where the plant/equipment is designed to be operated or attended by more than one person and there is more than one emergency stop, that the the multiple controls are of the "stop and lock-off" type. |
| **Emergency warning devices** WHS Regulations 2012 (SA) section 212 | This includes ensuring that:<br>☐ the device is positioned on the plant/equipment to ensure that the device will work to best effect;<br>☐ where there is a possibility of the plant/equipment colliding with pedestrians or other powered mobile plant/equipment, that there is a warning device to alert the operator and others in the workplace (e.g. automatic audible alarms, motion sensors, lights, flashing lights). |
| **Powered mobile plant** WHS Regulations 2012 (SA) section 214 and 215 | This includes ensuring that:<br>☐ the plant cannot overturn (e.g. if operating on an uneven or unstable surface);<br>☐ things cannot fall onto the operator of the plant;<br>☐ the operator cannot be ejected from the plant;<br>☐ the plant does not collide with any person or thing;<br>☐ plant reach has been taken into consideration<br>☐ the mechanical failure of pressurised elements of the plant does not release fluids that pose a risk to health and safety<br>☐ any traffic hazards are identified and traffic management plans implemented to control areas of interaction between people and mobile plant (e.g. exclusion zones, spotters and traffic controllers) in accordance with the requirements of the Managing HSW in the work environment HSW Handbook chapter.<br>☐ mobile plant movement plans are communicated regularly<br>☐ alarms for moving plant are operational and appropriate for the site conditions<br>☐ traffic speeds are clearly identified<br>☐ loads are adequately secured<br>☐ plant operators are competent and have the relevant licences<br>(Where the plant is a vehicle, the Vehicle Safety Management information sheet provides further guidance on the safe operation of vehicles at work) |
| **Roll-over protection on tractors** WHS Regulations 2012 (SA) section 216 | This includes ensuring that:<br>☐ The tractor is not used unless it is securely fitted with a roll-over protective structure unless the specific requirements of the legislation have been implemented. |
| **Quad bikes** | Refer to the SafeWork SA for guidance<br>Note the requirements of Aust Government Quad Bike Safety Standards (October 2019). |
| **Agricultural plant/equipment** | Ensure that:<br>☐ agricultural plant/equipment during harvest is used in accordance with Grain harvesting Code of Practice.<br>☐ plant/equipment (especially Agricultural equipment and vehicles) that are used in an external environment which has the potential to cause bush/grass fires are managed in accordance with the CFS Codes of Practice. |

# PLANT/EQUIPMENT RISK CONTROL (Hierarchy of Controls)

## PLANT/EQUIPMENT – ADDITIONAL CONTROL MEASURES FOR GENERAL PLANT (Continued)

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|---|---|
| **Industrial lift trucks (see definitions)** WHS Regulations 2012 (SA) section 218 | This includes ensuring that:<br>☐ the truck is equipped with lifting attachments that are suitable for the load to be lifted or moved by the truck; and<br>☐ that the truck is not used to carry a passenger unless the truck is designed to carry a seated passenger and/or the requirements of the legislation have been implemented.<br>(Note – Industrial lift trucks include forklifts) |
| **Plant that lifts or suspends loads** WHS Regulations 2012 (SA) section 219 | This includes ensuring that:<br>☐ the plant used has been specifically designed to lift or suspend the load or otherwise meets the requirements of the legislation;<br>☐ when lifting and suspending a load, the lifting attachments are suitable and within the safe working limits of the plant/equipment;<br>☐ the loads are not suspended or travel over a person unless the plant/equipment is specifically designed for that purpose. |
| **Exception – Plant not specifically designed to lift or suspend a person** WHS Regulations 2012 (SA) section 220 | This includes ensuring that:<br>☐ the person(s) are lifted or suspended in a work box that is securely attached to the plant/equipment;<br>☐ the person(s) in the work box remain within the work box while they are being lifted or suspended;<br>☐ if there is a risk of a person falling from a height, a safety harness is provided and worn by the person in order to prevent an injury as a result of the fall; and<br>☐ there is a way in which the person(s) being lifted or suspended can safely exit from the plant/equipment in the event of a failure in its normal operation. |
| **Plant used in connection with tree lopping** WHS Regulations 2012 (SA) section 221 | Note WHS Regulation 220 1 (a) and (b) do not apply if:<br>☐ a risk assessment shows that lifting or suspending a person in a harness with a crane to place the person in a tree to carry out tree lopping does not creat a grater risk to health or safety than using plant specifically designed to lift a person or climbing a tree; and<br>☐ the tree lopping is carried out by a person who is a competent person in the use of the harness referred to above; and<br>☐ a crane is used to put the competent person in the tree to lop it; and<br>☐ the crane has safety mechanisms that would prevent the competent person from inadvertently falling; and<br>☐ while attached to the crane, the competent person is in visual, audio or radio communication with the crane operator<br>In this regulation **harness** means a work positioning harness that is designed and certified, in accordance with AS/NZS 1891.1:2007 (Industrial fall-arrest systems – Harnesses and ancillary equipment), for the purpose of lifting and suspending a person. |
| **Industrial robots Or other remotely or automatically energised plant/equipment** WHS Regulations 2012 (SA) section 222 | This includes ensuring that:<br>☐ no person works in the immediate vicinity of the plant if it could start without warning and cause a hazard, unless suitable control measures are in place (e.g. by isolating the area or by providing interlocked guards, or presence-sensing devices or a permit to work system.) |

# PLANT/EQUIPMENT RISK CONTROL (Hierarchy of Controls)

## PLANT/EQUIPMENT – ADDITIONAL CONTROL MEASURES FOR GENERAL PLANT (Continued)

| | |
|---|---|
| **Lasers**<br>WHS Regulations 2012 (SA) section 223 | This includes ensuring that:<br>☐ laser equipment intended for use on plant is designed, constructed and installed so as to prevent accidental irradiation of any person;<br>☐ laser equipment on plant is protected so that any operator of the plant or any other person is not exposed to direct radiation, radiation produced byconstruction reflection/diffusion/secondary radiation;<br>☐ any visual equipment used for the observation or adjustment of laser equipment on plant does not create a risk from laser rays;<br>☐ workers operating the laser equipment are provided with the relevant level of information, instruction and training in the proper operation of the equipment in accordance with the Manufacturers instructions, AS/NZS IEC 60825.14:2011 Part 14: A user's guide and the Risk Assessment. (This will ensure users are aware of any hazards to which they may be exposed during the use of laser equipment and the procedures necessary to ensure protection);<br>☐ Class 3B and Class 4 lasers (within the meaning of AS 2397:2015 "Safe use of lasers in the building and construction industry" are not used in construction work.<br>Refer to AS/NZS IEC 60825.14:2011 "Safety of laser products Part 14: A user's guide for more specific information, including laser radiation hazards, control measures, maintenance, requirements for a Laser Safety Officer, medical surveillance etc.<br>☐ there is a locking interlock system in place to physically prevent unauthorised access into a laser area. (Note – manual locking of a laboratory door is not acceptable.) The locking system must be fail-safe, shutting down the laser and allowing access to the room in the event of power failure or when emergency access is required. Refer to AS/NZS IEC 60825.14:2011 "Safety of laser products Part 14: A user's guide for more specific information<br>☐ adequate warnings are displayed.<br>These warnings should include the laser hazard symbol. The warning signs should be clearly displayed on the outside of all laser controlled areas. Refer to AS/NZS IEC 60825.14:2011 "Safety of laser products Part 14: A user's guide for more specific information |
| **Pressure equipment**<br>WHS Regulations 2012 (SA) section 224 | This includes ensuring that:<br>☐ the equipment is inspected on a regular basis by a competent person; and<br>☐ any gas cylinder that is inspected is marked with a current inspection mark showing the date of the most recent inspection.<br>Refer to AS/NZS 1200 (2015) "Pressure equipment", AS 2971 (2007) "Serially produced pressure vessels" and AS 3788 (2006) "Pressure equipment – in-service inspection" for more specific information. The requirements include autoclaves. |
| **Scaffolds**<br>WHS Regulations 2012 (SA) section 225 | This includes ensuring that:<br>☐ the scaffold is not used unless the person receives written confirmation from a competent person that the inspection has been completed;<br>☐ the scaffold and its supporting structure are inspected by a competent person at least every 30 days;<br>☐ the scaffold and its supporting structure are repaired, altered if an inspection identifies a risk to health or safety and again inspected by a competent person before use of the scaffold is resumed;<br>☐ unauthorised access to the scaffold is prevented while the scaffold is incomplete or unattended. |

# PLANT/EQUIPMENT RISK CONTROL (Hierarchy of Controls)

## PLANT/EQUIPMENT – ADDITIONAL CONTROL MEASURES FOR GENERAL PLANT (Continued)

| | |
|---|---|
| **Plant with presence-sensing safeguarding system – records**<br>WHS Regulations 2012 (SA) section 226 | This includes ensuring that:<br>☐ a record of safety integrity tests, inspections, maintenance, commissioning, decommissioning, dismantling and alterations of the plant are kept for 5 years; or for the life of the plant; or until control of the plant is relinquished (if the plant is registered or has been altered).<br>☐ the record is available for inspection under the Act;<br>☐ the record is available to any person to whom the plant is relinquished. |
| **Control measures for registered plant**<br>Major inspection of registered mobile cranes and tower cranes<br>WHS Regulations 2012 (SA) section 235 | This includes ensuring that:<br>☐ major inspections of the crane are carried out by, or under the supervision of a competent person (see definitions):<br>  ☐ at the end of the design life recommended by the manufacturer for the crane; or<br>  ☐ if there are no manufacturer's recommendations, in accordance with the recommendations of a competent person; or<br>  ☐ every 10 years from the date that the cane was first commissioned or first registered, whichever occurred first. |
| **Lifts**<br>WHS Regulations 2012 (SA) section 236 | This includes ensuring that:<br>☐ during the maintenance of the lift, secure barriers are provided to prevent access to openings in the lift well by someone other than a person who is performing the work, if there is a risk of a person falling down a lift well; and<br>☐ secure working platforms or equivalent arrangements are provided for a person who is working in the lift well to prevent a fall from height; and<br>☐ if there is a risk from objects falling onto that person, a secure barrier is provided to prevent falling objects from striking the person or causing a risk;<br>☐ there is a safe means of entry to and exit from the base of the lift well;<br>☐ in the lift, a fixed sign stating the safe working load is displayed in a prominent place (as specified in the design of the lift). |

# TAG OUT AND LOCKOUT (ISOLATION) PROCEDURE

This information is in accordance with the requirements outlined by SafeWork SA and the Code of Practice "Managing the risks of plant in the workplace".

Before any plant/equipment is inspected, maintained, cleaned or repaired, it must be shut down and its energy sources locked out and tagged as part of an isolation procedure (often called Lockout Tagout) to ensure the safety of those doing the work.

Examples of energy sources include electricity, hydraulic pressure, compressed air or gas, gravity, kinetic spring tension and moving parts.

The aim of an isolation procedure is to:

- Isolate all forms of potentially hazardous energy to ensure that an accidental release does not occur;
- Control all other hazards to those doing the work; and
- Ensure that entry to a restricted area is tightly controlled.

**Risk control measures**

The risks associated with any plant/equipment undergoing inspection, maintenance, cleaning, repair or construction should be assessed and appropriate control measures put in place.
Before work commences the plant/equipment should be stopped, appropriately isolated/locked and danger tagged, and any stored energy should be dissipated.

Separate controls away from the plant/equipment operator or immediate work area must also be isolated or locked and danger tagged.

**Isolation procedures**

The following lock-out process is considered to be the most effective isolation procedure.

- Shut down the machinery and equipment
- Identify all energy sources and other hazards
- Identify all isolation points
- Isolate all energy sources. In the case of electrical equipment "whole current isolation" such as the main isolator, should be used instead of "control isolation" by way of the stop button on a control panel
- Control or de-energise all stored energy
- Lock-out al isolation points, using padlocks, multi-padlock hasps (refer figure 1) and Danger tags (refer figure 2)
- Danger tag machinery controls, energy sources and other hazards.

Figure 1: Multi-padlock hasp


Figure 2: Danger tags

# TAG OUT AND LOCKOUT (ISOLATION) PROCEDURE (Continued)

Test that the isolation is effective by "trying" to reactivate the plant/equipment without exposing the tester or others to risk. Failure to reactivate the plant/equipment means that the isolation procedure is effective and that all stored energies have dissipated. This may require further measures to safely release these energies (e.g. hydraulic or pneumatic pressure, suspended weight or compressed springs).

**Locks and Danger tags**

Every person working on isolated equipment should fit their own lock an/or Danger tag. Alternatively, another management approved system that achieves an equivalent level of safety is to be used and included in your risk assessment.

When using locks or Danger tags, consider the following:

- ☐ Tags should be dated and signed
- ☐ Locks should be accompanied by a corresponding tag to identify who has locked out the plant/equipment
- ☐ Tags and locks should only be removed by the person who applied them or by the supervisor after consultation with the signatory of the Danger tag. In the event that the person who applied the Danger tag is unavailable, their tag or lock may only be removed in accordance with a management approved procedure. (see note below)
- ☐ Danger tags and/or locks should be fitted to all isolation points.

**Note: Removing another person's Danger tag**

Under normal conditions, no person will remove or destroy another person's Danger tag or locking device. However, at times a piece of plant/equipment is required to be returned to operation and the isolation point contains one or more Danger tags belonging to people absent from the workplace. This may occur due to workers taking a break without removing their tags or they have left the workplace to retrieve tools or other materials.

- The person requiring the plant/equipment will advise their work supervisor/person in control of the area/activity of the situation.
- The supervisor/person in control of the area/activity will contact the individual indicated on the tag and have them come back on site to remove the Danger tag/lock.
- If this is not possible, or if the person cannot be contacted, the supervisor/person in control of the area/activity will nominate a suitable **proficient** or **competent person** (in relation to task) to investigate the situation. This investigation must ensure that no person or plant/equipment will be endangered or damaged by the removal of the tag/lock by other than the signatory.
- The supervisor/person in control of the area/activity along with the nominated proficient/competent person shall co-sign the Danger tag(s), remove the locks and tags and submit them, detailing the event, to the Head of School/Branch within 24 hours of the incident occurring. The incident must be then recorded as per HSW Handbook Chapter Report a safety issue or Incident.

**Out of service tags**

Out-of service tags are used to identify plant/equipment/machinery that has been taken out of service due to a fault, damage or malfunction.

The out-of-service tag is to be securely fixed to the operating control power isolator with the appropriate details completed on the tag (explaining the reason for the machine being "out of service"). The out-of-service tag should not be removed until the plant/equipment is safe to be returned to service, or the reason for the out-of-service tag no longer exisits.

The out-of-service tag may be removed by:

- ☐ The person who attached it
- ☐ The supervisor responsible for the operation or repair of the equipment
- ☐ The maintenance person who carried out the repairs.

Tags can be purchased from Facilities Management Maintenance North Terrace Campus, or areas Schools/Branches can source tags from external suppliers.

Example of an "out of Service" tag

# REGISTRATION AND LICENSING

## General

### Plant/equipment registrations

The School/Branch/Faculty/Division who has control of an item of plant/equipment that requires registration in accordance with the WHS Regulations may apply to the regulator (SafeWork SA) for the registration of that item of plant/equipment.

Plant/equipment registration is issued for a maximum 5 year period. Registration of plant design does not expire.

If your area is responsible you must:

- Keep a copy of your registration and all inspection certificates/reports
- Ensure the registration number is marked on or near the item of plant/equipment
- Provide your registration documents to the SafeWork SA inspectors, if requested
- Notify SafeWork SA of any change of details

SafeWork SA send out renewals for plant/equipment registration when due.

If another area of the University is managing registrations or licences then the Faculty/Division/School/Branch/area does not need to duplicate the records kept by the area. (e.g. radiation registrations are managed by Human Resources so the Faculty/Schools/ Branch/area are not required to duplicate these records, please refer to Appendix A of the HSW Handbook Chapter Schedule of Progammable Events)

### Vehicle licence requirements in the University

All workers wishing to use University owned vehicles and mobile plant/equipment (including boats) must have current, valid and appropriate licences.

For vehicle licences please refer to the SA government website.

The vehicle driver/operator is to inform their supervisor/ person in control of the activity if they are not familiar with the type of vehicle (e.g. manual vs automatic, 4 wheel drive).

### High risk work licences and Plant/equipment Registration

WHS Regulations 2012 (SA) Schedule 3 defines high risk work licences and classes of high risk work.
(e.g. Scaffolding, dogging/rigging work, crane/hoist operation, reach stackers, forklift operation, pressure equipment operation.)

WHS Regulations 2012 (SA) Schedule 4 defines high risk work licences – competency requirements
(e.g. qualifications required for high risk work licences)

WHS Regulations 2012 (SA) Schedule 5 defines registration of plant and plant designs (including exceptions)

For design registration processes please refer to WHS Regulations 2012 (SA) [sections 248 – 263]
For plant/equipment registration process please refer to WHS Regulations 2012 (SA) [sections 264-288D] or SafeWork SA website.

# FATIGUE MANAGEMENT

**General Fatigue Management**
Supervisors/Person in control of the activity should take fatigue management into account when scheduling vehicle operations.

Refer to the SafeWork Australia website for a Guide to managing fatigue at work for further information and the Hazard Management Handbook chapter to determine if a Risk Assessment is required.

**Heavy Vehicle Legislation**
In 2013 National legislation for heavy vehicles came into effect. The fatigue relevant sections of this legislation apply to any person who drives a heavy vehicle with a **gross vehicle mass or aggregated trailer mass over 12 tonnes**, or a bus with **more than 12 adult seats** (including the driver's) with a gross vehicle mass of over 4.5 tonnes.

Additional information is available on the SA Transport Department website.

In terms of the University, this will apply mainly to field trips involving extended driving, and activities of a farm-related nature.

**APPENDIX G (Page 1 of 2 )**

# FACULTY/DIVISION/SCHOOL/BRANCH/AREA RECORDS

**Records to be kept by the Faculty/Division/School/Branch/Area**
**Note** that records are to be kept in a format or in a known location (to all applicable workers) which can be easily retrievable if required to be viewed by the University or a Regulatory organisations (e.g. SafeWork SA).

| Document(s) | Required information | Comments |
|---|---|---|
| Plant design (if plant is required to be registered under Chapter 5, Part 3 of the WHS Regulations). | WHS Regulations sections 228 – 230. | • To be kept for the design life of the plant |
| Registered Plant/equipment records under Chapter 5 part 3 of the WHS Regulations. | Registrations, tests, inspections, maintenance, commissioning, decommissioning, dismantling and alterations of plant/equipment for the period that the plant/equipment is used or until the control of the plant/equipment is relinquished. | • To be kept for the life of the plant/equipment.<br>• A copy given to the new owner if the plant/equipment is transferred |
| Electrical testing records (including RCDs). (Refer to the Electrical Safety Handbook Chapter for further information) | Supplied by the electrical tester. | To be retained for 10 years in accordance with the State Records of SA, General disposal Schedule No 30 issued under the State Records Act 1997 (Section 14.4.2).<br>(Contact the University's Records Management Office for further assistance/information if required). |
| Risk Assessments and SOPs (where required) in accordance with the Hazard Management Handbook chapter | Identification of reasonably foreseeable hazards; and<br>Control measures to eliminate or minimise the risks. | The Risk Assessment and SOP is to be maintained in accordance with the State Records of SA, General disposal Schedule No 30 issued under the State Records Act 1997. (Contact the University's Records Management Office for further assistance/information if required.)<br>Reviewed if:<br>• a new/previously unforeseen hazard has been introduced;<br>• requested by a Health and Safety Representative;<br>• new legislation is introduced;<br>• new information becomes available which could eliminate or minimise the risk;<br>• after an incident;<br>• there is a change to the activity<br>• if control measures were ineffective in controlling the risk<br>If the plant/equipment is transferred see Appendix H, a copy is to be given to the new owner) |

# FACULTY/DIVISION/SCHOOL/BRANCH/AREA RECORDS

**Records to be kept by the Faculty/Division/School/Branch/Area (Continued)**

| Document(s) | Required information | Comments |
|---|---|---|
| Licences and qualifications (where applicable, see Appendix E). | | Refer to the HSW Handbook chapters Training Plan and Provision of Information, instruction and training |
| Processes for testing, maintenance, inspection and calibration reports (where these activities are conducted in-house). | • Standards against which plant/equipment should be inspected.<br>• The frequency of inspections.<br>• Critical safety processes to be followed during inspections (e.g. isolation process).<br>• The process for different types of inspections (required by manufacturer's instructions).<br>• Results of tests or location of where the results are kept. | |
| Specific Proficiency record or Qualification/competency record where instruction/training identified by the risk assessment and/or a legislative requirements. | • Copy of the record | Refer to the HSW Handbook chapters Training Plan and Provision of Information, instruction and training |
| Presence-sensing safe guarding Records | • Safety integrity tests<br>• Inspections<br>• Maintenance<br>• Commissioning and decommissioning<br>• Dismantling and alterations | The record must be kept for:<br>• 5 years; or<br>• the life of the plant or until the person relinquishes control of the plant if the plant is registered plant or has been altered. |
| Decommissioning, dismantling and disposing | • See Appendix H | |
| If the plant/equipment is prescribed equipment as defined under the Controlled Substances (Controlled Drugs, Precursors and Plants) Regulations 2014 i.e. capable of being used in the manufacture of controlled drugs | • Treat as a controlled drug. Maintain a register for use, supply and disposal | The record must be kept for the life of the plant/equipment or until the person relinquishes control of the plant/equipment |

# DECOMMISSIONING, DISMANTLING AND DISPOSING OF PLANT/EQUIPMENT

**Disposing of plant/equipment may include reselling, in full or part, scrapping, waste disposal or recycling**

The Supervisor/Person in control of the activity is to ensure:

- the same procedure to identify any hazards inherent in the process of decommissioning and dismantling the plant/equipment is followed in accordance with the Code of Practice "Managing the risks of plant in the workplace",
  - A risk assessment is to be conducted prior to disposal where the act of disposal presents a hazard in accordance with the HSW Handbook chapter "Hazard Management".
    The risk assessment should include considerations of:
    - hazardous chemicals, including asbestos. (For radiation equipment refer to the HSW Handbook Chapter Radiation Safety Management and speak to the HSW team.)
    - electrical isolation and energy dissipation of the plant/equipment.
- the plant/equipment is dismantled in accordance with the designer's and manufacturer's instructions where applicable.
- all items are rendered safe (disabled) prior to disposal (e.g. electrical isolation and energy dissipation**;** removing the power cord, or releasing any contained pressure).
- any documentation relating to the plant/equipment is available to the person carrying out the decommissioning process.
- the person who decommissions or dismantles the plant is a competent person. (Engage licensed contractors where required);
- where the plant/equipment is hard-wired or part of the building infrastructure that Infrastructure Branch is contacted.
  (In most cases Infrastructure Branch will engage and manage any external contractors on the area's behalf.)
- information relating to the plant/equipment design, registration, installation, operation and maintenance is provided with the plant to the reseller or buyer.

If the plant is to be scrapped, used for scrap or spare parts
The Supervisor/Person in control of the activity:

- should consult with the recycling or waste disposal authorities or organisations so the plant/equipment can be made safe to load, transport, unload and dispose of;
- must inform the person that the plant/equipment is being supplied as scrap or spare parts and the plant/equipment in its current form is not to be used as plant/equipment. This must be done in writing or by marking the item of plant/equipment.

It is the responsibility of the Supervisor/Person in control of the activity to arrange and bear the costs for the removal of plant/equipment from the University.