Plant and Equipment Safety Procedures

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1. Governing Policy

Work Health and Safety Policy

Work Health and Safety Management System

2. Purpose

These procedures set out the requirements for managing the health and safety risks associated with plant and equipment used on University sites or activities.

3. Scope

These procedures apply to:

a. all workers, students and others at workplaces owned, managed, or controlled by Flinders University and any place where work is performed by a worker on behalf of the University, and

b. plant owned, designed, constructed, leased, or hired by the University.

c. These procedures must be read in conjunction with the Electrical Safety Procedures to ensure that the University's electrical safety requirements are met when working with plant.

4. Definitions

Plant	Includes any machinery, equipment, appliance, container, implement, and tool, and includes any component or anything fitted or connected to any of those things. Plant includes lifts, cranes, machinery, conveyors, forklifts, vehicles, power tools, and amusement devices. *Note: Plant that relies exclusively on manual power for its operation and which is designed to be supported primarily by hand (e.g. a screwdriver) is not covered by WHS Regulations. However, the general duty of care under WHS legislation applies to this type of plant.*
Registrable Plant	Plant which must be registered with the relevant WHS Regulator.[1]
Competent person	A person who has acquired through training, qualification and/or experience the knowledge and skills to conduct the required task, and where required, who is licenced or registered to be a competent person.
High-Risk Work	As defined under WHS legislation and includes work involving such items as forklift operation, pressure equipment operation, crane and hoist operation, dogging and rigging work, Elevated Work Platforms and scaffolding work, all of which require a High-Risk Work licence.
PCBU	A person conducting a business or undertaking (PCBU) covers a broad range of modern work relationships and business structures. These include someone operating a business or undertaking for-profit or not-for-profit, whether alone or with others. The definition of a PCBU focuses on work arrangements and the relationships involved in conducting that work. Flinders University is a PCBU. In the context of the University working with other PCBUs this may include University controlled entities, landlords, tenants, co-tenants, and host organisations of students undertaking work integrated learning placements and other collaborators.
Safe Work Procedures (SWPs)	Written instructions which outline the step-by-step process to be followed when undertaking a task, and which include WHS hazards and controls to minimise any risk(s) of harm.
Reasonably Practicable	The term 'reasonably practicable' means whatever is, or was at a particular time, reasonably able to be done in relation to ensuring health or safety. This takes into account and weighs up all relevant matters including: • the likelihood of a hazard or risk occurring. • the degree of harm that might result from the hazard or risk. • what the person concerned knows, or ought reasonably to know, about the hazard or risk, and ways of eliminating or minimising the risk • the availability and suitability of ways to eliminate or minimise the risk.

[1] SafeWork SA (for South Australia), or equivalent regulator in other States/Territories. For radiation apparatus, Environmental Protection Agency (SA) or equivalent interstate regulator.

	whether the cost is grossly disproportionate to the risk
Fail safe	A state or condition where if any component or function of the plant fails, a system exists to prevent any increase in the risks.
Worker	Anyone who conducts work for the University regardless of whether they are full-time, part-time, or casual. This can be an: • employee • contractor or subcontractor, or an employee thereof • outworker, such as a contractor or worker who is engaged to work from their home or at a place that would not previously have been thought of as a business premise. • apprentice or trainee. • school-based work experience student. • labour hire worker. volunteer

5. Plant and Equipment Risk Management

a. Risks to health and safety associated with plant and equipment must be assessed and managed, so far as reasonably practicable, in accordance with the University WHS Risk Management Procedure and WHS legislation.

b. The risk management process must consider all tasks and all stages of the plant/ equipment life cycle, including:

   i. when designing, manufacturing plant

   ii. before purchasing, hiring, leasing, commissioning, erecting, or using the plant

   iii. whenever new information regarding hazards with the plant becomes available.

   iv. when responding to workplace incidents or hazards

   v. whenever changes/ modifications are made to plant or how it is used

   vi. when selling, decommissioning, or disposing of plant.

c. The Code of Practice, Managing the Risks of Plant in the Workplace must be followed as a minimum standard for selecting control measures.

d. Plant guarding, operator controls, emergency stops, warning devices, and isolation of energy sources must meet the Australian Standards AS/NZS 4024 Safety of Machinery and/ or other Australian regulatory requirements.

e. In addition, specific control measures are required under the WHS Regulations and must be in place for the certain types of plant – see Appendix B.

f. Consultation, cooperation, and coordination must occur with workers and others who will use the plant. The University may also have the responsibility to consult, cooperate, and coordinate with other duty holders (PCBU) who are involved with plant at the University or who share the workplace with the University.

g. Specific risk management duties under the WHS Act 2012 apply to those University staff who are responsible for designing, manufacturing, directly importing or supplying plant to the University.

6. Plant Risk Assessments

a. The Manager/Supervisor responsible for the plant or equipment must make sure that as part of the risk management process a risk assessment is conducted.

(note – this excludes the use of domestic items used in a domestic manner where no further controls are required to make it safe- e.g. fridges, kettles, computers etc.- see section 21.2).

b. The risk assessment must identify and record:

i. the hazards and risks that may be introduce into the workplace for all stages of the plant life cycle.

ii. regulatory requirements.

iii. the controls required to be implemented so the plant can be used in a safe manner.

iv. any potential emergency situations.

c. Risks identified must be eliminated or, where that is not reasonably practicable, minimised using the hierarchy of risk control.

d. Risk assessments must be reviewed as a minimum every 5 years, or when there are changes to the plant or its use. Controls implemented must also be reviewed to make sure they are still effective.

7. Safe Work Procedures (SWP)

a. Where controls have been identified in a risk assessment then a Safe Work Procedure must be developed and maintained by the area using the plant / equipment and must take into account the following information:

i. any regulatory requirements, where appropriate

ii. any specific licensing or competency

iii. standard industry best practice/ operation

iv. manufacturer's/supplier's requirements.

b. Safe Work Procedures must be readily accessible to workers, students and others who use, or are likely to use the plant/ equipment and must include, where relevant, instructions on:

i. how to perform pre-operational start up checks

ii. description on the safe operation of the plant/ equipment

iii. the correct use of guarding and other control measures

iv. emergency procedures and responses

v. proper use, wearing, storage, and maintenance of personal protective equipment (PPE)

vi. for mobile plant any traffic rules, rights of way, clearances, and no-go areas

vii. how to conduct inspections, shutdown, cleaning, repair, and maintenance where relevant.

8. Purchasing and Hiring Plant

8.1. Purchasing Plant

Before purchasing plant or equipment the manager/supervisor responsible must:

a. determine if the plant is fit for purpose and suitable for the intended space and environment it will be used in

b. identify what hazards the plant will introduce into the workplace prior to purchase or acquisition and that these hazards are recorded on the University plant pre-purchase and commissioning checklist

c. ensure that the supplier provides the manufacturer's operator manuals covering the proper use, installation, testing and maintenance.

d. ensure that any special skills/ competencies required for people who operate the plant or conduct inspection and maintenance, including preventative maintenance, are identified and people are trained.

e. consult with Property, Facilities & Development (PFD) when purchasing plant that impacts on building infrastructure.

8.2. Second Hand Plant

In addition to s.8.1, care should be taken when purchasing or acquiring second-hand plant and the following must be undertaken:

a. all reasonable steps to obtain all documentation relating to the plant, including the manufacturers operator manuals, installation, testing, and maintenance records.

b. if plant has been in service prior to purchase, and information regarding safe use is not available, a competent person must be engaged to assess the plant and develop this information.

c. assess the safety features to identify if they meet current legislation requirements. Safety features may need to be retrospectively fitted.

d. the supplier must provide information in writing about the condition of the plant and any identified faults or modifications. If the plant is supplied only for spare parts or scrap, then it is not to be used as plant. This requirement is legislated and mandatory.

8.3. Hiring Plant

The person hiring plant or equipment must:

a. check that it is suitable for the intended use, including the environment it will be used in and the workers using it.

b. when hiring plant, ensure as far as reasonably practicable, that the plant is safe to use. This may involve checking with the person from whom the plant has been hired from to confirm that the plant has been inspected and maintained (e.g. via logbooks or other) according to the manufacturer's specification.

c. ensure that the supplier provides the manufacturer's operator manuals about the proper use of the plant and equipment including frequency and type of inspection and maintenance.

d. ensure that all hired plant is installed, inspected, and operated by competent person and risk assessed before use.

e. ensure a pre-operation check is conducted on the plant to determine that it is in good working condition, and all controls and safety features are functional.

9. Installation and Commissioning of Plant

a. Plant and equipment must be installed by a competent person, according to the manufacturer's instructions.

b. Any new hazards identified during the installation process of the plant must be risk assessed and control measures identified and implemented before use.

c. The plant, once it is installed, must be inspected and have pre-operational checks conducted by a competent person to determine that it is safe for use, in good working condition and all controls and safety features are functional.

d. The plant commissioning process (including adjusting, testing and inspection) must be documented. All certificates and evidence of the plant passing the commissioning process must be kept (see Section 21).

10. Plant Requiring Registration

a. Specific items of plant, as listed in Appendix A, must be registered with the relevant regulator.

b. Any plant that contains or generates ionising radiation requires registration with the Environmental Protection Authority, EPA (or interstate equivalent) as per the Radiation Safety (Ionising) Procedures.

c. Registrable plant must not be used in the workplace until it has been confirmed it has been registered and all requirements met. Registration certificates must be displayed on/ near the plant.

d. The Regulator may impose additional conditions on registered plant.

11. Licences and Permits

a. Workers who use certain types of plant, such as forklift trucks, materials hoists, pressure equipment, and certain types of cranes, where specified in WHS Regulations, must have a High-Risk Work licence relevant to the work being undertaken. They must obtain the license before they can operate the plant.

b. A University Work Permit/Permit to Proceed must be obtained prior to work commencing where work with or on plant involves:

i. service isolation

ii. confined spaces

iii. asbestos

iv. working with heavy vehicles or cranes

v. hot work

vi. excavation

vii. working at heights.

c. A Safe Work Method Statement (SWMS) will be required to be developed as part of the approval process for Work Permit/ Permit to Proceed and must address as a minimum all items as a covered by a Safe Work Procedure see section 7.

d. Workers, students, or others operating ionising radiation apparatus must refer to Radiation Safety (Ionising) Procedure for details of licensing requirements.

12. Instruction, Training and Supervision

a. Managers and supervisors must ensure all workers, students and others who are to use plant or equipment have been provided with relevant information, training, instruction, and/or supervision in the correct use of the plant prior to use.

b. The training and instruction must cover all elements outlined in the Safe Work Procedure.

c. Users need to have an appreciation of the nature of any hazards, the risks associated with them and the reason for the hazard controls, e.g. plant may produce noise, potential to expel material, heat etc.

d. Training programs should be practical and 'hands on' where possible and take into account the particular needs of staff, students, and others. Training must be recorded - see Work Health and Safety Training and Induction Procedures.

e. Work processes associated with plant must be reviewed regularly to identify any unsafe work practices and any inadequacies that may indicate that people need to be retrained. As a minimum this should occur when the risk assessment is reviewed.

13. Personal Protective Equipment

a. Where personal protective equipment is required to be used with plant and equipment it should be:

   i. appropriate for the task & level of risk

   ii. must not introduce another hazard.

   iii. accompanied by suitable training

   iv. selected and used correctly in accordance with relevant legislation/ Australian Standards

   v. maintained, kept clean and in effective condition.

b. The personal protective equipment required to be used when operating plant must be documented in the risk assessment and the safe working procedure.

14. Using Plant in the Workplace

Once the plant or equipment has been installed and commissioned, risks assessed and safe work procedure developed, Managers and Supervisors must also as far as reasonably practicable:

a. prevent unauthorised alterations to, or interference with, plant or equipment.

b. take all reasonable steps to ensure that the plant is used only for the purpose for which it is designed and as per manufacturer's instructions, unless a competent person has undertaken and documented a risk assessment to determine that any alternative proposed use does not increase the risk to health and safety.

c. ensure that all safety features, warning devices, guarding, operational controls and emergency stops are used in accordance with instructions and information provided.

d. not allow the removal, overriding or modification of safety devices or guards

e. ensure any accident/ incidents, or hazards identified during the use of plant are reported via FlinSafe.

15. Modifying Plant or How it is Used

a. The risk management process must be undertaken if any proposed modification or change in the use of plant and equipment is to occur.

b. If the plant is to be used in a different way or for a purpose for which it was not designed, the risks associated with the new use must be re-assessed and documented by a competent person. If a competent person decides that the plant is not suitable for the proposed task, it must not be used for that task.

c. If the design of a registered plant is altered so as to require any new risk control measures, the altered design must be re-registered with the regulator.

d. Changes made to plant must be shown on the plant's technical drawings and/or electrical wiring diagrams where these are available. These documents must be kept for the life of the plant.

e. Where plant has been modified, inspection and testing must be conducted prior to being returned to service.

f. Information and training must be provided to users relating to the modifications.

16. Inspection and Testing

a. Supervisors/ managers of plant and equipment, where inspection and testing are required, must develop, and maintain a schedule for periodic inspection, testing, and monitoring.

b. Inspection and testing of plant must be conducted by a competent person.

c. The frequency of the requirements for inspecting and testing (including of safety devices) must align to what is identified by legislation, Codes of Practice, Australian Standards, manufacturer's recommendations, or if this is not specified, as determined by risk assessment.

d. To protect the health and safety of the person(s) conducting inspection or testing, the plant must be decontaminated and cleaned of any materials that may pose a hazard prior to the work occurring (e.g. chemicals, radiation, or biological agents).

e. Plant should be isolated from energy sources and brought to fail safe state prior to any testing and inspection. If this is not reasonably practicable to do so, then other controls must be identified.

f. Evidence that plant / equipment has been inspected and tested must be recorded (see Section 21).

17. Maintenance, Repair and Cleaning of Plant

Plant and equipment must be maintained, repaired, and cleaned:

a. according to the manufacturer's specifications

b. in the absence of manufacturer's specifications, plant must be maintained, repaired, and cleaned in accordance with a competent person's recommendations or as identified by a risk assessment.

c. plant must not have maintenance or repair work conducted without first ensuring it has been decontaminated and cleaned of any materials that may pose a hazard.

d. cleaning, repairs, and maintenance processes must be risk assessed and if controls required documented in the operational SWP or in a separate SWP for such processes.

e. when the maintenance work involves high or extreme risk then some form of risk assessment process should occur each and every time prior to the work commencing.

18. Isolation and Lock Out / Danger Tags

a. Before maintenance, repair or cleaning begins:

   i. plant must be isolated from energy sources and brought to fail safe. This must be confirmed prior to any work on plant commencing.

   ii. where plant that cannot be isolated, methods (including effective communication and consultation with affected workers and others) to prevent accidental energising or start-up of the plant must be implemented to ensure the health and safety of the person undertaking the work.

   iii. Personal Danger Lock(s) and a completed Personal Danger Tag(s) must be attached to the isolator switch(es), valve(s), or device(s) so as to provide effective isolation.

   iv. where more than one person is to work on the plant, each person must attach their own Personal Danger Lock and Personal Danger Tag. See Plant information, out of service, isolation, and lockout tags for further information.

   v. each person must remove their own Lock and Tag when the task has been completed or if required to leave the work site.

vi. if the task is not complete and no persons are currently working on the task, a completed Out-of-Service tag must be placed at the isolation points.

vii. prior to returning plant to service a competent person must ensure all safety controls are reinstated, inspected, and tested they are working and effective. This must be recorded with the service records.

a. Damaged or unsafe plant and equipment:

i. **must be taken out of service** and it must be brought to a state that does not create a risk to the health and safety of any person.

ii. an **Out-of-Service tag** must be attached securely to the controls of the plant once the plant has been brought to a failsafe state. See Plant information, out of service, isolation, and lockout tags for further information.

iii. an Out-of-Service tag must only be removed by a competent person who has conducted repairs or maintenance to the plant, and once they have confirmed the plant has been inspected and tested and the plant found in a condition fit for use.

19. Storing Plant

a. Plant and equipment that is not in use must be stored so that it does not create a risk to workers or others in the workplace.

b. Plant in storage for extended periods must be re-instated by conducting testing and inspection to ensure there is a level of safety no less than when it was first commissioned.

c. Measures must be taken to prevent stored mobile plant from moving on its own accord (e.g. rolling down a slope) or to prevent unauthorised operation.

20. Disposal or Transfer of Ownership/ Management of Plant

a. Plant must be decommissioned and/or dismantled by a competent person.

b. Any hazards (e.g. exposure to hazardous substances, electricity, pressure, radiation sources, stored kinetic energy) in the decommissioning and dismantling of plant must be identified, risk assessed and controlled.

c. All items must be rendered safe before disposal or transfer.

d. The Disposal of Plant / Acceptance Conditions form must be used to record disposal of and/or transfer of management of plant.

e. Where there is a transfer of ownership/ management of plant, the owner must:

i. ensure the plant is safe to load, transport, unload and store.

ii. provide information relating to the plant design, registration, installation, operation, and maintenance with the plant to the reseller or buyer.

iii. for registered plant, the person disposing or transferring the plant must notify the regulator.

f. Where the plant is to be used for scrap or spare parts, the person who is receiving the plant must be advised in writing, or by marking the item of plant unusable.

21. Record Keeping

21.1. Plant and equipment record keeping

a. Managers and supervisors must establish and maintain records for plant in their area of responsibility. The following documentation, where relevant, must be kept:

   i. commissioning, decommissioning, dismantling and any alterations of the plant.

   ii. the scheduled and results of all inspections, testing, (including of safety devices), maintenance and any repairs undertaken.

   iii. all registrable plant certificates of registration

   iv. competencies of operators (e.g. licenses), training, and any other information provided.

   v. all associated risk assessments, safe work procedures

   vi. manufacturer's specifications (model & serial numbers) and user manual

   vii. records if dismantling, transferring, or disposal.

b. These records must be available on request by the University or a Regulator and can be recorded either on a plant register, logbooks, electronic online registers, or other means.

c. Records must be kept for the lifetime of the plant or until the University relinquishes control of the plant (see Section 20).

21.2. Domestic items

a. The requirement for record keeping excludes domestic items used in a domestic manner- e.g. fridges, kettles, computers etc.

b. However electrical tag and testing must still occur on these domestic items as per the Electrical Safety Procedures and the associated electrical testing records kept.

22. Responsibilities

Vice-Presidents and Executive Deans of College, and Portfolio Heads	Ensure that: a. these procedures are implemented in their College/Portfolio b. there are adequate resources to manage all aspects of plant and equipment safety. c. workers, students, and others in the workplace are: i. aware of their responsibilities in relation to plant and equipment. ii. provided with adequate information, training, instruction, and supervision.
Managers and supervisors	Implement these procedures in their area of responsibility, including: d. ensure that plant and equipment is managed and maintained in accordance with these procedures and legislative requirements. e. ensure that where required by legislation, plant is registered with the appropriate authority. f. establish and maintain a plant register or appropriate records including a schedule of plant inspection, maintenance and where required, testing.

	g. ensure that users of plant are trained, competent and where required, licenced, and have available, and use, appropriate safety equipment. h. inform workers and students they supervise about the safe use of plant and ensure they understand emergency procedures associated with the plant they use. i. report all incidents or hazards on FlinSafe and ensure that any identified issues are rectified. j. ensure that other PCBUs demonstrate compliance with legislation relevant to plant which they bring onto University sites, or plant which they use whilst at University sites.
Competent persons	k. Ensure that all work they undertake on plant complies with relevant mandatory requirements set down by legislation and the safety standards outlined in these procedures. l. Undertake ongoing training in plant safety, the details of which will be determined by the person's supervisor.
Workers, students, and others in the workplace	m. Ensure they have the appropriate licence or permit when required by legislation. n. Ensure they have the training and competency necessary to operate the plant/ equipment. o. Comply with safe work procedures, including use of any required risk control measures. p. Comply with any reasonable safety instruction by the manager/supervisor, including the use of supplied PPE. q. Ensure start-up and shut down checks are undertaken and recorded. r. Report all incidents or hazards. s. Ensure any guards or other safety devices are not removed, modified, or overridden.

23. Related Documents and Legislation

WHS Act 2012 (SA)

WHS Regulations 2012 (SA)

–or equivalent in each State or Territory

WHS Risk Management Procedures

Electrical Safety Procedures

Radiation (Ionising) Safety Procedure

Plant Safety documents

Code of Practice – Managing the risks of plant in the workplace

Code of Practice – How to manage work health and safety risks

Australian Standards

Australian Standard AS/NZS 4024 Safety of Machinery

Users must refer to Intertek Inform (formerly SAI Global) for the latest version.

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Appendix A–Regulatory additional controls required for certain plant

Additional control measures are required to be in place for specific items of plant/equipment, in accordance with the WHS Regulations 2012 (SA), for the following:

i. Lasers (Regulation 223)
ii. Pressure equipment (Regulation 224)
iii. Scaffolds (Regulation 225)
iv. Plant with presence-sensing safeguarding system (Regulation 226)
v. Registered plant (Chapter 5, Division 4)
vi. Powered mobile plant (Regulation 214 & 215)
vii. Plant used in connection with tree lopping (Regulation 221)
viii. Plant that lifts or suspends loads (Regulation 221)
ix. Industrial robots (Regulation 222)
x. Tractors - roll-over protection (Regulation 216).

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FEARLESS

Appendix B–Plant requiring registration.

a. **Plant items requiring registration with SafeWork SA** (or equivalent interstate regulator):

i. Boilers categorised as hazard level A, B, or C according to criteria in Section 2.1 of *AS 4343 - Pressure equipment - hazard levels.*

ii. Pressure vessels categorised as hazard level A, B or C according to the criteria in Section 2.1 of AS 4343 - *Pressure equipment - hazard levels*, except for gas cylinders; LP Gas fuel vessels for automotive use and serially produced vessels.

iii. Tower cranes including self-erecting tower cranes.

iv. Lifts, including escalators and moving walkways.

v. Building maintenance units.

vi. Amusement devices covered by Section 2.1[2] of *AS 3533.1:2009 - Amusement Rides and Devices*, except for certain Class 1 structures (see below).

vii. Concrete placement units with delivery booms.

viii. Mobile cranes with a rated capacity of greater than 10 tonnes.

b. **Note**: The plant listed as requiring item registration does not include:

i. a crane or hoist that is manually powered.

ii. any pressure equipment (other than a gas cylinder) excluded from the scope of AS 1200:2000 (Pressure equipment)

iii. a reach stacker

iv. certain Class 1 structures:

- playground structures
- water slides where water facilitates patrons to slide easily, predominantly under gravity, along a static structure.
- wave generators where patrons do not come into contact with the parts of machinery used for generating water waves.
- inflatable devices, other than inflatable devices (continuously blown) with a platform height of 3 metres or more.

c. **Plant requiring registration with the Environmental Protection Agency** (for South Australia), or equivalent authority interstate:

i. Contains or Generates Radiation (ionising).

[2] Note: continuously blown inflatable amusement devices with a platform height of 3 metres or more must be registered