

Key Risk Area (KRA)

KRA 1.4 Plant and Equipment

1. Purpose

This document provides guidance on how the University meets its obligation to ensure the health and safety of people in connection with its work, so far as is reasonably practicable, through the processes of selection, use, maintenance and disposal of plant and equipment.

2. Scope

This Guideline applies to all health, safety and wellbeing activities of staff, students, visitors (including volunteers and contractors), Council members, and other persons interacting with the University of Newcastle (workers); the operations of staff of University aligned Research Centres and controlled entities; and all activities conducted by or on behalf of the University of Newcastle on and outside of the University's campuses.

3. Guidelines

3.1. Registration of plant

Operating some plant items like cranes, boilers, pressure vessels and lifts can be dangerous, so they must be registered with the regulatory authority. Both the design of the plant and the individual plant item must be registered. Items of plant relevant to the University's work which typically require registration (subject in some instances to their hazard level) are:

- Tower cranes including self-erecting tower cranes;
- Mobile cranes with a safe working load of more than 10 tonnes
- Lifts, escalators and moving walkways;
- Building maintenance units;
- Certain amusement devices;
- Boilers with a hazard level of A, B or C according to Section 2.1 of AS 4343, with some exceptions;
- Pressure vessels with a hazard level of A, B, or C (except gas cylinders; LP gas fuel vessels for automotive use; serially produced pressure vessels; or pressure vessels that do not require periodic internal inspection); and

- Concrete placing booms, including fixed tower booms.

Further information on plant item registration, exemption and application process can be found at [SafeWork NSW](#).

3.2. Plant and equipment risk assessment

The general Health and Safety Risk Assessment Form (**pending**) should be used to assess all University related plant and equipment activities and tasks in accordance with the Guideline [HSG 3.1 Health and Safety Risk Management](#). In addition, as plant and equipment has been identified as having a higher risk profile due to the potential consequence if something fails, the Plant and Equipment Health and Safety Checklist (**pending**) should be completed to inform the risk assessment prior to purchasing, designing / redesigning, commissioning, installing, modifying or altering plant and equipment and when plant and equipment is in use.

Plant and equipment aspects must be considered in a risk assessment and actions must include (without limitation):

- A visual inspection of the plant and its associated environment;
- Consultation with workers who are or may be directly affected;
- Inspection and testing;
- A technical or scientific evaluation;
- An analysis of injury and incident data;
- Discussions with designers, manufacturers, suppliers, importers or any other relevant parties; and
- A quantitative hazard analysis.

Further consideration must be given to the following plant and equipment specific risk factors:

- Environmental risks, e.g. noise, dust, spillage, heat/cold, ventilation;
- Access for installation, operation and maintenance of the plant;
- Systems of work to ensure quality of instruction, competency, assessment and supervision;
- Systems of communication while performing a task;
- The organisation of work, including traffic around the plant (people and vehicles); time spent on monotonous or repetitive tasks; and associated manual handling;
- Maintenance and repair schedules; and
- Emergency procedures, e.g. first aid and evacuation.

Plant should be purchased in line with information that can be obtained about quality and ability to perform the work that it is to be used for. While initial cost is one factor in the purchase of plant and equipment, ongoing maintenance costs should also be considered.

Plant and equipment purchased shall be fit for purpose and be able to be used safely. Consideration of who will be using the plant and equipment, and the potential skills and qualifications that these users will require, should also be considered.

All plant and equipment shall be received with user manuals and maintenance manuals. These may be in one document however on receipt of the plant and equipment manuals shall be reviewed and used to develop Standard Operating Procedures (SOP). These operating procedures shall be reviewed by workers who will be using the equipment.

This information is required to enable the Leader / Supervisor to review the risk assessment documentation and determine whether the activity can be approved to proceed on their authority, or should be referred to the Health, Safety and Wellbeing Team for further assessment via the [Safety Review process](#) – see Guideline [HSG 3.1 Health and Safety Risk Management](#) for further details.

3.3. Plant and equipment specific risk controls

Where a risk assessment identifies a risk to health and safety, that risk must be eliminated so far as is reasonably practicable or, where this is not reasonably practicable, minimised so far as is reasonably practicable. Where elimination is not reasonably practicable, a hierarchy of controls must be used to minimise risks by selecting the appropriate risk control measures so far as they are reasonably practicable which may include the following:

- Substituting the plant with something that gives rise to a lesser risk;
- Isolating the plant from workers;
- Implementing engineering controls of the plant, such as through modifications of the design or guarding;
- If there is then a remaining risk, implementing administrative controls such as Standard Operating Procedures (SOPs); and
- If there is still then a remaining risk, ensuring the provision and use of suitable personal protective equipment (PPE).

Inspections must be carried out to ensure risks are monitored during installation, erection, and commissioning and steps must be taken to control any risks identified.

3.4. New plant and equipment considerations

Leaders and Supervisors must consult with relevant and/or affected workers (such as operators, engineers, maintenance staff and Health and Safety personnel) prior to the purchase of new plant or equipment. Taking advantage of these workers' practical knowledge and understanding of machine operation and production requirements should reduce the risk of new plant and equipment introducing hazards or being inappropriate.

Consultation should take place as early as possible when planning for the introduction of new plant or equipment or related systems of work, to allow time for changes to be incorporated.

The University of Newcastle [Tender Procedure](#), University of Newcastle [Procurement Policy](#), University of Newcastle [Purchasing, Companion Card and Petty Cash Policy](#) and [Procedure](#), and [HSG 6.2 Health and Safety in Procurement](#) must be followed to ensure that the correct risk management procedures are followed during the acquisition phase.

Before new plant or equipment is used, the manufacturers or supplier's information on the hazards of the plant or equipment and what controls are in place and/or recommended to eliminate or minimise the risks associated with these hazards e.g. guards, safe operating procedures must be obtained and reviewed.

3.5. Guarding requirements

Access to any danger points of plant or hazardous areas, must be prevented by appropriate guarding for normal operation. However, the choice of guarding should consider the levels of control required to prevent access so far as is reasonably practicable to the danger point or area of the plant during normal operation, cleaning and emergency or maintenance access activities. The following criteria and controls must be considered:

- i) Access to plant not necessary during operation cleaning or maintenance.
PERMANENT FIXED PHYSICAL BARRIER
- ii) If access to plant is necessary during operation, cleaning or maintenance.
INTERLOCKED PHYSICAL BARRIER
- iii) If i) or ii) are not reasonably practicable.
PHYSICAL BARRIER ONLY ALTERED OR REMOVED BY TOOLS WHILE THE PLANT IS ISOLATED (WHERE REASONABLY PRACTICABLE)
- iv) If i), ii) and iii) are not reasonably practicable.
PRESENCE SENSING SYSTEM

AS/NZS 4024:2019 Series - Safety of Machinery for details on guarding requirements.

3.6. Operator controls, emergency stops and warning devices

The following must be implemented for plant and equipment operator controls, emergency stops and warning devices:

- Identified with labels or instructions to indicate nature, function and direction of operation;
- Readily and conveniently accessible to personnel using the plant;
- Cannot be unintentionally activated;
- Must be able to be locked into the 'off' position;
- Emergency stop buttons must be red and preferably of mushroom head design and cannot be adversely affected by electrical or electronic circuit malfunction;
- Emergency stops for conveyors should be of the lanyard or stop cord variety with all the above points applicable; and
- Work on plant such as maintenance and/or inspection must be controlled by lock out and tag out procedures and be fitted with appropriate lock out devices. Refer to KRA 3.6 - Electrical Safety and Isolation.

3.7. Plant and equipment training and competency

University Business Units have the responsibility to ensure that operators of all plant and equipment are experienced, informed, trained and/or instructed in the operation of the plant and equipment they will be using, so far as is reasonably practicable. Records are to be maintained locally of operators' training and experience, including any applicable certificates of competency.

Competency assessment included in the Standard Operating Procedures (SOP) should be developed for operators of plant and equipment that do not require certificates of competency, e.g. drill presses, rotating machinery.

Operator information and instruction must comply with the requirements of Guideline [HSG 4.2 Health, Safety and Wellbeing Induction, Training and Competency](#) and include:

- The nature of the hazards and systems of work associated with the plant or equipment;
- Processes for hazard identification, risk assessment and control of risk;
- Standard Operating Procedures associated with operation of plant and equipment;
- PPE requirements; and
- The level of competency and relevant skills necessary to operate the plant or equipment.

People involved in maintenance and inspection, commissioning and installing, testing and decommissioning, dismantling and disposal of plant or equipment should also be given training and instruction to ensure that risks are eliminated or minimised, so far as is reasonably practicable, while carrying out these activities.

3.8. Plant and equipment inspection and testing

Regular maintenance of plant and equipment is essential to protect the environment and the health and safety of workers, as well as to maintain the value of the asset. Legislation requires that the University ensure plant and equipment which is not exclusively operated manually by hand is maintained, inspected and, if necessary, tested by a competent person in accordance with relevant legislative requirements and in accordance with [Guideline HSG 8.1 Health and Safety Inspections and Testing](#).

Plant and equipment in high risk work areas such as workshops and Makerspaces not already serviced and maintained by Infrastructure and Facility Services (IFS), need to be inspected, tested and maintained at regular intervals.

Each business area needs to develop a Plant and Equipment Inspection and Testing Schedule (**pending**) which identifies what items of equipment need to be tested, the relevant legislation and/or standards that apply to that equipment, and the frequency of testing. The frequency for testing will be determined by:

- The level of risk;
- Relevant legislation, Australian Standards, Codes of Practice; and
- Manufacturers' recommendation (as per operating manual or other material provided by the manufacturer).

Further information on plant and equipment inspection and testing requirements can be found in:

- [KRA 3.6: Electrical Safety and Isolation](#)
- [KRA 3.7: Testing and Tagging](#)
- [KRA 3.8: Overhead Travelling Cranes](#), and
- [KRA 3.9: Pallet and Steel Storage Racking](#)

3.9. Plant and equipment divestment and disposal

When any plant or equipment is to be removed from a University site and supplied to another person, a risk assessment must be conducted. The assessment will consider:

- Whether the plant and equipment are fit for operation by a prospective purchaser, or the purchaser needs to be made aware of any faults which may inhibit its safe use, or

that it is otherwise being supplied for scrap and spare parts only and it should not be used as plant in its current form;

- What other information needs to be provided to the supplied party, such as information provided by the manufacturer;
- How the plant and equipment is to be removed from site and what special considerations need to be taken into account e.g. size or height of equipment; and
- The documentation required to prove the plant and equipment has been appropriately removed/sold.

4. Definitions

In the context of the Health and Safety Management System Framework:

Employer	Means the University of Newcastle (the University).
Executive Committee	Consisting of the Vice-Chancellor, the Deputy Vice-Chancellors, the Pro Vice-Chancellors, the Chief Operating Officer, Chief People and Culture Officer and the Chief Financial Officer, the University Secretary and the President of Academic Senate.
Leader / Supervisor	Any member of the University who is responsible for supervising staff and/or undergraduate or postgraduate students and/or for leading research projects.
Plant and equipment	Includes any machinery, equipment (including scaffolding), appliance, implement or tool and any component or fitting thereof or accessory thereof.
Worker	Includes an employee, conjoint, student on work experience, contractor, sub-contractor, and volunteer. A person is a worker if the person carries out work in any capacity for the University or another person conducting a business or undertaking, including work as: <ul style="list-style-type: none"> (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.

5. Responsibilities

A comprehensive list of health, safety and wellbeing responsibilities is provided in [HSG 1.2 Roles and Responsibilities Guideline](#).

Specific responsibilities under this Guideline include:

Executive Committee

- Ensure that resources are allocated for the appropriate selection, use, maintenance and disposal of plant and equipment;
- Monitor that processes are in place and are being used, to ensure that the health and safety of people is not put at risk from plant and equipment.

Leaders and Supervisors

- Implement and monitor systems, resources and processes in line with these procedures and ensure that these are being used and followed to control the risk to the health and safety of people who may be using or affected by plant and equipment;
- Ensure that all documentation including any necessary manuals and instructions are received and kept in a place for future reference;
- Ensure that any registration, installation and commissioning requirements are implemented prior to plant or equipment being used;
- Ensure that relevant operating procedures are developed and that instruction is provided to the users and others who may be affected by the plant or equipment;
- Ensure that any operator of plant or equipment has any required certificates or competencies prior to use, and that those certificates are kept up to date;
- Ensure that any plant or equipment that requires registration is notified to the Infrastructure and Facilities Services team or Health and Safety Team as required;
- Monitor that all inspections, testing, certifications or registrations have been undertaken in line with the requirements of the particular plant and equipment;
- Ensure that the records of all commissioning, testing, inspections and registrations are kept and made available to anyone who uses or has reason to verify that these things have been done; and
- Ensure that any plant or equipment that is no longer required is decommissioned and disposed of in line with the designer and manufacturer's recommendations.

Health, Safety and Wellbeing Team

- Provide advice to the University community in regard to the particular requirements of safe use of plant and equipment; and
- Support the University community in the selection, use, maintenance and disposal of plant and equipment.

Workers

- Follow the Standard Operating Procedures and instructions provided for using and maintaining plant and equipment; and

- Attend instruction and training sessions relating to use and maintenance of plant and equipment.
- Report any health and safety or compliance issues to the Leader / Supervisor in addition to lodging a report in the online Incident Hazard Reporting System (AIMS).

6. References & Related Documents

The following documentation is referenced in, or applicable to this Guideline:

[HSG 1.2 Roles and Responsibilities](#)

[HSG 3.1 Health and Safety Risk Management](#)

[HSG 4.2 Health, Safety and Wellbeing Induction, Training and Competency](#)

[HSG 8.1 Health and Safety Inspections and Testing](#)

[KRA 3.6: Electrical Safety and Isolation](#)

[KRA 3.7: Testing and Tagging](#)

[KRA 3.8: Overhead Travelling Cranes](#)

[KRA 3.9: Pallet and Steel Storage Racking](#)

Plant and Equipment Health and Safety Checklist (**pending**) (CHK-EL03.05)

[University of Newcastle Tender Procedure](#)

[University of Newcastle Procurement Policy](#)

[University of Newcastle Purchasing, Companion Card and Petty Cash Policy](#)

AS/NZS 4024:2019 Series Safety of Machinery

AS 4343-2005 Pressure Equipment—Hazard levels

[SafeWork NSW - Plant item registration](#)

7. Amendment History

Version	Date of Issue	Approval	Section(s) Modified	Details of Amendment
1	June 2015	Director, People and Workforce Strategy	-	Original version.
2	October 2023	CPCO	All	<ol style="list-style-type: none"> 1. All sections reviewed for legal compliance 2. Updated content in all sections 3. Added new/renamed Related Documents 4. Added Amendment History 5. Amended document control header and footer

8. Appendices

Nil