STANDARD
MOBILE EQUIPMENT

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CONTENTS

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1 Purpose

This procedure's purpose is to guide personnel in control of, working near, or managing mobile equipment. This procedure aims to ensure workers' and other persons' health, safety, and welfare by managing the risk of injury associated with moving machinery at all Hunter Water workplaces or properties.

2 Scope

This Standard guides how to meet the Hunter Water Corporation requirements under the WHS Act, WHS Regulations, and related Codes of Practice about work that involves moving powered mobile equipment. This Standard applies to all mobile equipment used on Hunter Water sites.

3 Definitions

Term	Definition
Certificate of Currency	A statement of attainment issued by a Registered Training Organisation (RTO) stating the certificate holder has completed the specified Vocational Education and Training (VET) course.
Competent	Having the necessary skill/s, knowledge, experience, or combination to carry out a task safely.
High-Risk Plant	Any plant which requires the operator to hold a High-Risk Work Licence as described in WHS Regulations
High-Risk Work Licences	Any work described in Schedule 3 of the WHS Regulations is within the scope of a High-Risk Work Licence (e.g., Crane, operation of boom-type elevating work platforms, Forklift operation, Concrete placing booms, etc.).
Non-Powered Mobile Equipment	Plant that is generally not self-propelled and must be towed. Examples include Lighting towers, VMS boards, Compressors, scaffolds, Generators, Wacker-packers, etc.
Powered Mobile Equipment	Plant that is provided with some form of self-propulsion and is under the control of an operator (e.g., forklifts, excavators, backhoes, skid steer loaders, mobile cranes, etc.)
Safety Observer/Spotter	A person who has completed specific training and is competent to observe, warn, and communicate effectively and who warns about approach to exclusion zones.

4 Lifesavers – Mobile Equipment

The Hunter Water Lifesavers are a set of minimum behaviours related to high-risk activities.

5 Roles and Responsibilities

All PCBUs must ensure that all mobile equipment and workers under their control comply with this Standard and the WHS Legislation, including appropriate design, maintenance, information, instruction, training, and supervision.

All workers must comply with documented safe work methods, including the requirements of this Standard.

6 Key Element/Requirement

Moving machinery includes mobile equipment traveling around a worksite and stationary machinery with moving parts. Contact with moving machinery can result in severe injury or death.

Controls must be in place to protect workers and others from being struck directly or indirectly by plant moving around a worksite to protect workers and others from coming in contact with moving parts.

The unauthorised removal of machinery guards or other protection devices is prohibited and will be treated as a severe breach of safe operating procedures.

6.1 Plant and Personnel Interaction

Where personnel on foot are required to interact with powered mobile equipment, adequate exclusion zones, effective communication, and appropriate barriers must be used to control the risk of personnel being struck by the plant.

- When approaching pedestrian areas or blind corners, the vehicle must slow down to the walking pace
- All pedestrians must have due regard for moving vehicles and make all reasonable attempts to minimise uncontrolled interaction with mobile equipment
- Ensure people stay at least 3m outside the line of fire when working with mobile plant

- Pedestrians must assume a safe position to allow vehicles to pass. The pedestrian must ensure the vehicle operator acknowledges the pedestrian's presence/location or the vehicle has safely passed before the pedestrian moves from the safe area.
- All persons working on the ground shall wear high-visibility clothing consistent with the relevant Australian Standard
- A communication method must be agreed between the workers on the ground and any workers in machines. Communication may include a two-way radio, verbal communication, hand signals, or eye contact.
- Wherever persons work on roadways, suitable warning signage should be erected.

6.2 Mechanical Hazards

Most machines have some moving parts. The action of moving parts may have sufficient force in motion to cause injury to people.

When reviewing mobile equipment for possible mechanical hazards, consider the following:

- Mobile equipment with moving parts that people can reach
- Mobile equipment that can eject objects (parts, components, products, or waste items) that may strike a person with sufficient force to cause harm
- Mobile equipment with moving parts that can reach people, such as booms or mechanical appendages (arms)
- Mobile equipment, such as forklifts, pallet jacks, earth earth-moving equipment, operated in areas where people may gain access

Common mechanical hazards and associated risks for mobile equipment are as follows:

Hazard	Risk
Rotating shafts, pullies, sprockets and gears	Entanglement
Hard surfaces moving together	Crushing
Moving mobile equipment	Crushing, impact of Collision
Scissors or shear action	Severing
Sharp edge – moving or stationary	Cutting or puncturing
Cable or hose connections	Slips, trips, and falls (e.g. oil leaks)

6.3 Non-Mechanical Hazards

Non-mechanical hazards associated with mobile equipment can include harmful emissions, contained fluids or gas under pressure, chemicals and chemical by-products, electricity, and noise, all of which can cause serious injury if not adequately controlled.

In some cases, people exposed to these hazards may not show signs of injury or illness for many years. Where people are at risk of injury due to harmful emissions from mobile equipment, the emissions should be controlled at the source. When reviewing mobile equipment for possible non-mechanical hazards, consider how mobile equipment can affect the area (environment) around them.

6.4 Risk Control of Mechanical Hazards

Separation is a simple and effective mobile equipment risk control; separation may be achieved by distance, barrier, or time.

- Distance separation means a person cannot reach the hazard due to distance

- Barrier separation means an effective barrier or guard denies access and controls the ejection of parts, products, or waste.
- Time separation means the mobile equipment is disabled at the time of access.

Examples include:

- Physical barriers and guards such as fences, screens, or fixed panels made from various materials
- Various forms of guarding and interlocking (as described in Australian Standard AS 4024, part 1601 and part 1602, Safety of Machinery)
- Making the hazard inaccessible by reach (where the distance between a person and the hazard forms an effective barrier).

Note: When considering the suitability of distance guarding, also consider the safe access requirements of maintenance people who gain access by ladder, scaffold, or elevating work platform.

6.5 Guarding

A guard can perform several functions: deny bodily access, contain ejected parts and tools, prevent emissions from escaping, or form part of a safe working platform.

Guarding must be used with mobile equipment to prevent access to:

- Rotating end drums of belt conveyors
- Moving augers
- Rotating shafts
- Moving parts that do not require regular adjustment
- Machine transmissions, such as pulley and belt drives, chain drives, exposed drive gears
- Any dangerous moving parts

Where access is not anticipated, a **fixed guard** can be permanently applied by welding or secured by bolts. A permanently fixed barrier is the preferred option if access is generally not required.

Where access to the hazard is infrequent, installing a **fitted guard** that can be removed using a tool may be an acceptable control.

Adjustable guarding incorporates movable sections or panels of the guard and allows for material or parts to be fed into the guarded area while preventing bodily contact.

Tunnel guarding provides a tunnel, aperture, or chute to insert material into the mobile equipment. However, due to the restrictive design and depth of the opening, fingers, hands, arms, or the entire person is prevented from intruding into the danger area.

Where frequent cleaning is required, the guard may be constructed of mesh that prevents intrusion of body parts but allows for hosing.

Interlock guarding occurs when moving the guard (opening, sliding, or removing) to allow access stops the action of the hazardous mechanism.

Interlock guarding works by:

- Mechanically disconnecting the drive mechanism (applies a brake or disengages a clutch or geared mechanism)
- Isolating the power source of the drive mechanism (stops the motor)
- A combination of mechanical and power disconnection

Interlock guarding is generally achieved via mechanical or electrical means but may include hydraulic or pneumatic control systems. The energy stored in moving parts (momentum) can cause the mechanism of the mobile equipment to run for some time after the source of driving energy has been removed.

For access panels or doors supporting an interlocking device that allows access to mechanical parts that move for periods after the energy source is removed, a separate mechanism may be incorporated to delay the release of the retaining or locking mechanism.

6.6 Parking requirements

Employees, Contractors, and Visitors shall park in designated parking areas wherever these are provided. Where designated parking is unavailable onsite, employees, contractors, and visitors shall park in a way that does not obstruct other vehicles and pedestrian traffic.

All operators are required to assess the safest means of parking their vehicles. Where possible, a relatively flat area should be selected, and the vehicle should be parked so it does not roll away or move under the influence of gravity.

When parking, the handbrake is to be engaged, the vehicle is left in the park (automatic) or in gear (manual), and the engine is turned off.

Methods that may be used to ensure that a vehicle is parked in a safe configuration include:

- Moving to another more suitable parking location (designated park or flat/level surface).
- Parking against a bank or berm and turning the wheels into the bank or berm.
- Parking across the slope grade with the front wheels facing uphill.
- Using suitable chock/s placed in front and behind vehicle wheel/s.
- Lowering all ground-engaging devices such as blades or tines, if applicable.

6.7 Fit for Purpose Mobile Equipment

All mobile equipment that accesses public roads shall meet the NSW Roads and Maritime Services (RMS) requirements and be road-worthy, registered with the state road authority, operated by a suitably licenced person, and adequately insured.

Mobile equipment must be capable of being operated safely and contain suitable safety equipment relevant to the type of vehicle. Depending on the type of mobile equipment, this may include items such as;

- First aid kit
- Fire extinguisher
- Spill kits
- Revolving or flashing amber light
- UHF radio or other suitable communication equipment
- Warning devices such as travel/reversing alarms
- Emergency stops
- Battery isolators
- Reversing cameras
- Reflective tape
- Roll Over Protective Structures (ROPS) and Falling Object Protective Structures (FOPS)

Where mobile equipment is accessing a site under the control of a Contractor, the Contractor may have a list of mandatory safety equipment that must be fitted to access their workplace. This must be confirmed with the Contractor who controls the work area before accessing their site.

6.7.1 Plant inspections

Operators of vehicles are responsible for ensuring powered mobile equipment is in a safe condition to operate and documenting this pre-start inspection daily in the vehicle's inspection logbook.

If a defect is identified on the powered mobile equipment that affects the safe operation, it shall not be used for work. The mobile equipment must be tagged out of service and appropriate repairs arranged before the mobile equipment is returned to service.

Non-powered mobile equipment is to be inspected in accordance with the manufacturer's specifications, statutory requirements, or relevant standards. Evidence of inspection shall be available upon request.

6.7.2 Scheduled Inspection(s)

A competent person shall perform scheduled inspection/s of plant and mobile equipment in accordance with the manufacturer's specifications, statutory requirements, and relevant standards.

Scheduled inspections may include but are not limited to;

- Annual inspections for cranes, mobile concrete boom pumps and elevating work platforms
- Six (6) yearly major inspections (strip downs) for mobile concrete boom pumps
- Ten (10) years of major inspection for cranes

6.7.3 Servicing and maintenance

Plant maintenance and servicing are to be conducted by a competent person in accordance with the manufacturer's specifications, statutory requirements, and relevant standards.

Where possible, servicing and maintenance of the plant should occur off-site.

If servicing is required on-site, an appropriate area shall be selected which is:

- Firm, relatively flat ground where the machine can be parked safely. Where the machine cannot be moved onto firm flat ground, the wheels must be firmly chocked, or another suitable barrier put in place to prevent the plant moving.
- The area should be at least 20 metres away from watercourses or other environmentally sensitive areas (unless the plant cannot be moved from the area due to a breakdown), and away from drains which may lead to these environmentally sensitive areas.
- Spill kits should be kept in the immediate work area.

Personnel conducting plant maintenance and servicing must be competent to perform the activity.

6.8 Plant Registration

The Plant stated in schedule 5 of the WHS Regulations must be registered with the relevant authority. Mobile equipment operated on a road must also be registered per the relevant road authority. The registration holder of the plant must keep the registration document available for inspection upon request.

6.9 Load / Cargo Restraints

Operators of vehicles are responsible for the safe operation of their vehicle and associated loads.

Employees, contractors, and visitors shall secure all tools and equipment from movement while in transit using the guidance material in the National Transport Commission's (NTC) Load Restraint Guidelines. Light vehicle operators should refer to the NTC's Load Restraint Guide for Light Vehicles.

The restraint method may be a combination of:

- Load-rated straps/lashings/chains (must have load rating stamped/printed on)
- Cargo netting/tonneau cover/tarp as appropriate (for loose/lightweight loads)
- A fit-for-purpose cradle or bracket/toolbox/tool chest.

Vehicles shall be loaded according to the Chain of Responsibility (CoR) requirements. Operators are responsible for ensuring they comply with height and overhang restrictions and ensuring the vehicle is loaded in a way that prevents the vehicle from coming into contact with structures on site. Operators must ensure that their vehicle and its load can safely pass below areas with restricted height clearances (e.g., bridges, overhead powerlines, etc).

Vehicles shall not be loaded above their rated capacity or above RMS road limits.

For more information, refer to the Load Restraint Guidelines on the National Transport Commission or under Guidelines on the Hunter Water Reservoir;

- NTC Load Restraint Guide (2018)
- NTC Load Restraint Guide for Light Vehicles (2018)
- Hunter Water Guideline – Mobile Equipment
- Hunter Water Guideline – Light Vehicles
- Hunter Water Guideline – Heavy Vehicle Guideline
- Hunter Water Guideline – Heavy Vehicle Certification
- Hunter Water Guideline – Direct Restraint - Mobile Equipment

6.10 Seat Belts

Operators and passengers must wear seat belts wherever these are fitted at all times while the vehicle operates.

A seatbelt must be reported and repaired if it is no longer serviceable.

6.11 Electrical and Services Safety

Before mobile equipment operating in an area where energy sources and essential services exist; identification and if practical, de-energisation or isolation of those sources and services are to occur before the mobile equipment operation. Asset owners are to be contacted in advance to obtain advice. If energy sources cannot be de-energised, suitable additional controls in line with the hierarchy of controls must be adopted.

Refer to Hunter Water's Risk Standard for Underground and Overhead Services for more information regarding the management of electrical services.

6.12 Safety Observer / Spotter

A safety observer/spotter observes, communicates effectively, and warns personnel about approaching exclusion zones. Safety observers/spotters must be trained and assigned to an individual plant operating within exclusion zones. Safety observers/spotters are required where plant operations have the potential to enter an exclusion zone of an electrical installation but may also be necessary as required by the asset owner (as noted in the Dial Before You Dig (DBYD) information).

Safety observers/spotters must not be assigned any other tasks while specifically performing duties as a safety observer/spotter.

7 Training for Hunter Water Personnel

All personnel operating mobile equipment must be provided with any information, training, instruction, or supervision necessary to protect all personnel from risks to their health and safety arising from activities associated with mobile equipment operation.

Vehicles and mobile equipment shall only be driven/operated by Employees, Contractors, and Visitors who hold the relevant licenses, certificates, or evidence of appropriate competencies. Someone with the prescribed qualification shall suitably supervise personnel undertaking training or is adequately experienced.

If a person loses their license, it is the responsibility and accountability of the person to immediately notify their team leader and discuss arrangements for working onsite.

7.1 Evidence of Competency

Acceptable evidence of competency may include one or more of the following;

- Completion of a nationally recognised qualification where the person has received a statement of attainment from a registered training organisation
- Training completed at an industry training school (apprenticeship completed at TAFE)
- On-the-job job training conducted by an experienced, competent person
- Current relevant experience demonstrated by evidence of logbooks, on-site assessment, previous employer references, or familiarisation training on a specific type and model of the plant.

7.2 High-Risk Work Licences

All persons operating high-risk plants require a high-risk work licence as required by Schedule 3 of the WHS Regulations 2017. Examples of classes of high-risk work licences include but are not limited to;

- scaffolding
- dogging and rigging
- crane operation
- concrete placing booms
- boom-type elevating work platforms
- forklift operation

The person conducting the high-risk work must provide written evidence they hold the relevant high-risk work license before commencing a high-risk work activity.

7.2.1 Direct supervision of high-risk work

High-risk work must be directly supervised unless the nature or circumstances of a particular task make direct supervision impracticable or unnecessary, and the reduced level of supervision will not place the health or safety of the supervised worker or anyone else at risk.

8 Related Documents

Document ID	Document Title
Assessment	Pre-Task Risk Assessment (PTRA)
SWMS	Working with Mobile Plant
Standard (System)	Risk Management
Standard (Risk)	Underground and Overhead Services
Standard	Fleet Management
Work Instruction (WI)	WI 060 – Working with Cranes and Lifting Equipment
Guideline	Mobile Equipment
Guideline	Light Vehicles
Guideline	Heavy Vehicles
Guideline	Heavy Vehicle Certification
Guideline	Direct Restraint – Mobile Equipment

9 Associated Regulations and Standards

Document ID	Document Title
Act	WHS Act 2011 (NSW)
Regulation	WHS Regulation 2017
Code of Practice	Code of Practice – Managing Risks of Plant in the Workplace
Guide	NTC Load Restraint Guide (2018)
Guide	NTC Load Restraint Guide for Light Vehicles (2018)
Code of Practice	Code of Practice – How to manage work health and safety risks
Code of Practice	Code of Practice – Work Health and Safety Consultation, Cooperation and Coordination
Guide	AS4024 Safety of Machinery, part 1601 and part 1602