



# Critical Risk Control Protocol

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# Foreword

## There is nothing more important than keeping our people safe.

From experience gained across the highrisk industries in which we work, we have identified where our greatest exposures to fatal or permanently disabling injuries lie. From those insights we have determined TASWATER CDO's Critical Risks.

To address these Critical Risks, we have developed the Critical Risk Control (CRC) Protocol. The CRC Protocol outlines the mandatory minimum standards required to achieve a step change across our business; specifically defining how we identify, eliminate or manage Critical Risks. The CRC Protocol highlights the most important safety controls from the existing Health and Safety Management system.

The CRC Protocol encompasses much more than what our teams do in the field. It also involves:

- How we assess and tender new opportunities
- How we plan our work
- How we consider safety in our design process.

If you are not working on a site, you still need to understand Critical Risks and how they are managed. This CRC Protocol applies to **everyone** at TASWATER CDO. We need to manage our Critical Risks effectively so everyone can get home safely each and every day.

## Introduction

The CRC Protocol is a set of mandatory minimum health and safety requirements that apply to all TASWATER CDO operations and controlled activities. The protocol defines the Critical Controls required to manage Critical Risks.

The CRC Protocol does not replace the Health and Safety Management system. It has been designed to emphasise the most important requirements to manage risks that have the potential to cause fatal or serious injury.

The CRC Protocol is a practical reference to assist you with implementing the required Critical Controls into every element of planning and execution of work that involves Critical Risks.

## Critical Controls

Critical Controls are essential in preventing fatalities or serious injuries. They must be effectively implemented across the entire business at all times. The failure of a Critical Control has the potential to trigger a significant incident.

When Critical Controls are found to be ineffective, the activity should not start.

Work should only proceed when effective controls have been identified and are in place.

## Exemption Process

Where a part of the business deems that it is not reasonably practicable to meet one or more of the requirements defined within the CRC Protocol, they can apply for dispensation, for a specific period of time, by:

1. Having the proposed dispensation endorsed by the Executive General Manager accountable for the area of the business that the exemption is being applied for.
2. The dispensation must be documented by completing the exemption request form, which outlines:
  - The reason for the request
  - The part of the business that the dispensation applies to
  - The specific duration of the dispensation
  - An assessment of the risk of not complying with a particular requirement defined in the CRC Protocol
  - Other controls that will be put in place as an alternative.

# TASWATER CDO Critical Risks



**1. Working at Height**



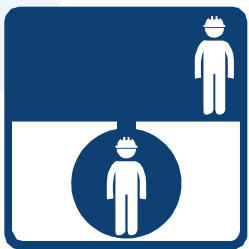
**7. Working with Electricity**



**2. Operation of Mobile Plant**



**8. Managing Traffic**



**3. Working in Confined Spaces**



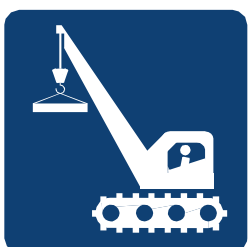
**9. Handling and Storage of Hazardous Chemicals**



**4. Excavation and Trenching**



**10. Working with Asbestos (ACM)**



**5. Cranes and Lifting Operations**



**11. Working In and Around the Rail Corridor**



**6. Energy Isolation**



**12. Movement of Rolling Stock**



# Critical Risk 1

## Working at Height

- 1.1** The hierarchy of controls is applied to **minimise the need to work at height**; including the design of new buildings, plant and equipment.
- 1.2** **Fall restraint or fall arrest equipment** is utilised when working at height and the provision of a secure working platform is not practicable. Workers at height wear full body harnesses that incorporate **shock absorbing lanyards or inertia reels**. Purpose designed anchor points are certified by a competent person.
- 1.3** **Ground conditions** are assessed and verified as solid, stable and suitable for elevated work platform (EWP) operations.
- 1.4** Protection from falling objects is provided through primary controls such as **edge protection** (encapsulation), with exclusion zones and/or overhead protection provided as a secondary means of control.
- 1.5** **Pre-start and periodic inspections** by a competent person are completed to confirm that working at height equipment (including elevated work platforms and scaffolding) is fit for purpose and can be used and maintained in accordance with OEM and statutory requirements.
- 1.6** Everyone undertaking or supervising work at heights is **trained and competent** to understand working at height hazards and controls.
- 1.7** Working at height activity is authorised by, and conducted in accordance with, a **permit and rescue plan**.  
  
Permits are also utilised for the removal of penetration covers, guard rails or grid mesh that expose a worker to a fall from height.
- 1.8** Hand tools and equipment used whilst working at height have **secondary securing mechanisms** such as lanyards. These must be attached either to the worker or to a fixed point adjacent to the worksite. Chin straps are fitted and used for securing hard hats.
- 1.9** **Spotters** are in place during EWP operations.
- 1.10** Boom type EWPs are fitted with **secondary guarding**.
- 1.11** Where work methods require detaching and reattaching at height, a dual lanyard system is utilised to ensure that at least one connection point is maintained at all times (**100% Hook-up**).



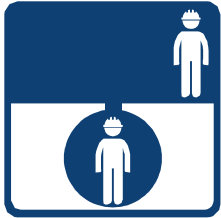


## Critical Risk 2

# Operation of Mobile Plant

- 2.1 Plant risk assessments** are conducted and plant is inspected by a competent person to confirm it is fit for purpose prior to utilisation on site.
- 2.2** Earth moving machinery is fitted with compliant Rollover Protection (**ROPS**) and Falling Object Protection (**FOPS**), unless risk assessment has demonstrated that they are not reasonably practicable.
- 2.3** Mobile plant is fitted with effective **safety devices** such as reversing alarms, rotating/ flashing lights, communication device (radio), seat belts and fire extinguishers.
- 2.4** Mobile Plant operators hold the appropriate **licences and competencies** for the plant they are required to operate.
- 2.5** Mobile Plant and vehicle operators always find a stationary position in a safe place prior to handling a **mobile phone**.
- 2.6 Pre-start and periodic servicing** of mobile plant and vehicles are conducted in accordance with OEM and statutory requirements and any deficiencies are reported for correction.  
Safety related deficiencies are resolved before equipment is put into operation.
- 2.7** Mobile plant is always **switched off** and braking mechanisms are applied before being left unoccupied.





## Critical Risk 3

# Working in Confined Spaces

- 3.1 Confined spaces are identified by a competent person and appropriate signage applied.
- 3.2 Work planning processes consider whether the requirement to enter a confined space can be **eliminated**.
- 3.3 Personnel involved in confined space work have attained **applicable training and competency** for;
  - Working in a confined space
  - Atmospheric monitoring of confined space
  - Supervision of confined space work.
- 3.4 Any systems likely to influence the atmospheric or physical status of a confined space are identified, purged and/or confirmed isolated before entry into the confined space.
- 3.5 Working in confined space is authorised by a **permit and rescue plan**, which is subject to regular testing.
- 3.6 Prior to entry, **testing of atmospheric conditions** is undertaken utilising calibrated equipment.
- 3.7 Confined space entrants wear a harness to facilitate rescue in the event of an emergency.
- 3.8 Confined space **sentry/standby persons** are located outside of the confined space at all times when the confined space is occupied; they have no other duties during the confined space entry.
- 3.9 Where there is a risk of atmospheric hazards, **continuous monitoring** of the atmosphere is undertaken by a dedicated sentry/standby person whilst confined space work is performed.
- 3.10 Sentries have an effective means of **two-way communication** with confined space entrants and a method of activating an emergency response.





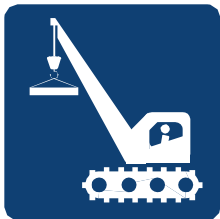


## Critical Risk 4

# Excavation and Trenching

- 4.1 Personnel involved in excavations are **trained and competent** to understand the hazards and controls associated with excavations.
- 4.2 Underground services are **positively located and identified** by mechanisms such as:
  - Pot-holing
  - Scanningas well as from potential sources such as:
  - ‘Dial Before You Dig’
  - Asset owners
  - Reticulation plans
  - Client/property owners etc.
- 4.3 **Spotters** are in place during excavations in the vicinity of underground services.
- 4.4 **Safe Approach Distances (SADs)** for underground services have been identified as per the asset owner’s requirements, with no mechanical devices used within the SADs.
- 4.5 Excavation and trenching (>300mm) activities are authorised by a **permit**. The permit identifies the hazards and controls specific to the task and defines the emergency management requirements.
- 4.6 Excavations >1.5m have been planned with a **temporary works design**, and include controls such as boxing, benching, battering or shoring & de-watering.
- 4.7 Excavations are **established and monitored** to safely enable access and egress and maintain stability. Physical barriers around excavations are installed to prevent unauthorised or inadvertent access by workers, members of public or vehicles operating in the vicinity.
- 4.8 **Exclusion zones** for plant, materials and spoil are identified and maintained with a physical barrier. Spoil must be placed >2m from the edge or if the excavation is <1.5m it must be 45 degrees from the base excavation.
- 4.9 Where a **hazardous atmosphere** is present or likely to be present, excavations are considered a confined space.





## Critical Risk 5

# Cranes and Lifting Operations

- 5.1 Cranes are inspected by a competent person in accordance with statutory & OEM requirements and maintenance log books are current (with **no** open safety related deficiencies).
- 5.2 Lifting gear is periodically **inspected & tagged** by a competent person and visually inspected prior to being used in accordance with OEM specifications.
- 5.3 **Limiting and indicating devices** are fitted to mobile cranes, with load indicators fitted to all mobile cranes with a rated capacity >3 tons.
- 5.4 Crane operator and dogman/rigger have effective **communication processes** in place.
- 5.5 Crane operators & persons slinging loads have appropriate **licences and competencies**.
- 5.6 The **type and weight of loads** is confirmed and is less than the safe working load of the lifting device.
- 5.7 Risk Assessments (SWMS/JHA) and **Lift Plans** are developed and approved for significant lifts.
- 5.8 **Ground conditions** are assessed by a competent person to determine the controls required for ensuring the stability of the lift.
- 5.9 **Exclusion zones** are established and non-conductive tag lines used to guide loads. Personnel remain outside exclusion zones at all times, and never walk or stand under suspended loads.
- 5.10 **Outriggers** are effectively deployed in accordance with OEM specifications.
- 5.11 **Loads capable of shifting** until secured remain attached to the lifting device and tag lines, or are securely propped or chocked until secured.



# Critical Risk 6

## Energy Isolation



- 6.1 Equipment that is purchased and equipment that is designed includes lockable isolation points for hazardous energy sources. Each **isolation point is labelled** with a unique identifier.
- 6.2 All hazardous energy sources are identified, **de-energised and physically isolated** prior to working on equipment/systems, with safe work methodologies for protection of services that cannot be isolated.
- 6.3 All energy sources and equipment are treated as **live until tested for dead** by a competent person.
- 6.4 Work planning includes identification and **isolation** of sources of hazardous energy by a competent supervisor.
- 6.5 Personnel about to commence working on plant or equipment conduct isolation checks before placing their **Personal Danger Tags and Locks**.
- 6.6 Energy isolation activities are authorised by a **permit** which identifies each isolation point and specifies the test requirements for the presence of hazardous materials/stored energy.
- 6.7 Each person that performs work under an energy isolation is trained and competent. Physical isolation, de-isolation and any isolation changes are completed and communicated by a **competent and authorised person**.
- 6.8 Isolation points are clearly identified, proven, labelled, locked and controlled to prevent inadvertent energising.

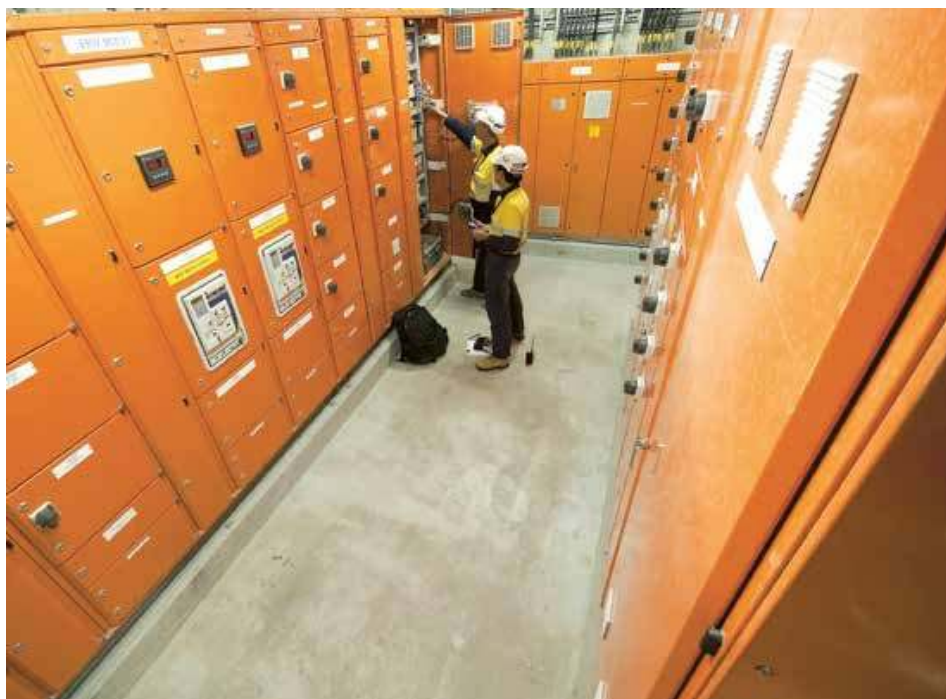




## Critical Risk 7

# Working with Electricity

- 7.1 All electrical equipment is **compliant** with Australian or international standards, **tested for ground continuity**, tagged and recorded.
- 7.2 Testing and tagging of portable electrical equipment is conducted by appropriately **trained and competent** persons.
- 7.3 Welding equipment is correctly **earthed and staked** as required by the OEM. Voltage Reducing Devices (VRD) are installed and tested for all Manual Metal Arc welding machines.
- 7.4 **Live cabling is protected from** mechanical damage.
- 7.5 All temporary **electrical leads are secured off the ground** by insulated hooks and/or lead stands.
- 7.6 SWMS/JHA's/Safe Work Instructions are developed and approved for all activities involving the **potential for contact with live conductors**. If a risk of contact with electrical energy exists, controls are identified and implemented including the provision and use of insulated tools, gloves, mats, low voltage rescue kits.
- 7.7 All live electrical circuits are identified prior to any penetrations of surfaces (walls, flooring and roofing).
- 7.8 **Temporary electrical works** are installed, tested and certified in accordance with the applicable standard.
- 7.9 All circuits and powered equipment have **Residual Current Device (RCD) protection**.
- 7.10 When working near live Overhead Line Equipment (OHLE) or live electrical parts, regulated **safe working distances/exclusion zones** are identified and maintained.



## Critical Risk 8

# Managing Traffic

- 8.1 Mobile plant and vehicle movements on sites are in accordance with an approved Traffic Management/Movement Plan which is available to all personnel.
- 8.2 Physical (solid barrier) separation from mobile plant operations are used to protect personnel and/or members of the public wherever practicable.
- 8.3 Loading/unloading zones are clearly delineated with controls to prevent unauthorised access.
- 8.4 All overhead services and structures in the work area are identified with appropriate control measures to prevent collision by mobile plant and vehicles.





## Critical Risk 9

# Handling and Storage of Hazardous Chemicals

- 9.1 Hazardous Chemicals are **risk assessed** and controls are implemented prior to storage or utilisation on site.
- 9.2 Identification signage/labelling is in place on vessels, containers or pipes containing hazardous chemicals, including when decanted.
- 9.3 **Current Safety Data Sheets** are available at the worksite and the required controls are applied.
- 9.4 Hazardous chemicals are **segregated** from, and do not come into contact with, incompatible materials.
- 9.5 Chemicals are stored in **designated storage** areas and containers when not in use, with sufficient **bunding** to contain potential spills/leakage.



# Critical Risk 10

## Working with Asbestos (ACM)

- 10.1** All sources of Asbestos Containing Material (ACM) are identified, labelled (where practicable) **and recorded** in a register which is available at the worksite.
- 10.2** Where asbestos or ACM is identified, an **Asbestos Management Plan** is developed, communicated and regularly reviewed.
- 10.3** Class A or B asbestos is always removed by appropriately licensed persons.
- 10.4** Controls are identified that **prevent the release** of fibres to the atmosphere to the extent that is reasonably practicable for all instances of ACM removal, including the use of wet methods and avoiding abrasive work methods (e.g. drilling, cutting, grinding) for removal or demolition.
- 10.5** Where ACM is identified, there is a **regular inspection process** by a competent person to determine the condition of ACM and identify any potentially hazardous environments.
- 10.6** Where personnel are required to undertake Class A and Class B ACM removal work an **Air Monitoring program** must be established and conducted by a licenced asbestos assessor.
- 10.7** **Appropriate decontamination facilities** are available and material is decontaminated or sealed before removal.





## Critical Risk 11

# Working In and Around the Rail Corridor

- 11.1** Trained and competent personnel plan and undertake the works as per Accredited Rail Transport Operator (RTO) requirements.
- 11.2** The requirements of the relevant Rail Infrastructure Manager (RIM) are documented in site specific safety plans and applied.
- 11.3** All rolling stock conforms to the Rail Transport Operators (RTO) criteria and AS:7502:2016 (or equivalent) with systems in place for managing that rolling stock.
- 11.4** Highest order safe working arrangements are in place to eliminate the risk of being struck by trains or other rolling stock. The first choice is total possession/occupation of track.
- 11.5** Physical Exclusion zones are established to prevent fouling of live tracks or personnel straying onto live tracks.
- 11.6** Rail protection personnel are located with the work crews, knowledgeable with the worksite conditions and can maintain effective communication with protected workers.
- 11.7** Above and below ground services are physically identified and controls are implemented to prevent contact with live services, with a first choice to isolating the services.





## Critical Risk 12

# Movement of Rolling Stock



- 12.1** A Rolling stock **movement plan and checklist** is completed prior to rolling stock movement.
- 12.2** Rolling stock **exclusion zones** are identified, communicated and maintained during rolling stock movements.
- 12.3** Shunting Coordinators ensure that **risk assessments** are completed for each type of rolling stock to be moved and/or used.
- 12.4** All rolling stock movements are planned, conducted and monitored by appropriately **competent and authorised personnel**.
- 12.5** **Routes** are confirmed as set and clear of obstructions.
- 12.6** All shunt vehicles used on a siding are **regularly** inspected, tested and maintained according to its specification and/or statutory requirements.
- 12.7** **Communications protocols** are established and confirmed as functioning.
- 12.8** Checks confirm that **brakes are applied** to rolling stock prior to removal of chocks.
- 12.9** **Riding on or in rolling stock** must only occur in a safe, designated and enclosed position.
- 12.10** Workers to **remain clear of points** assemblies during movement.
- 12.11** Rolling stock is **moved at or below 5km/hr** in siding/yards, and 2km/hr in workshop or shed.
- 12.12** With the exception of piloting, all rolling stock movements are carried out by at least a Shunt Driver, Lead Shunter and a Shunter (**3 man shunt team**).



# Definitions/Acronyms

## ATMOSPHERIC TESTING

Includes the measurement of oxygen, carbon monoxide, hydrogen sulphide, lower and upper explosive limits and other known contaminants with the potential to cause serious harm.

## CHECK FOR DEAD

Processes to verify energy isolation and zero energy state;

## CONFINED SPACE

Means an enclosed or partially enclosed space that:

- Is not designed or intended primarily to be occupied by a person; *and*
- Is, or is designed or intended to be, at normal atmospheric pressure while any person is in the space; *and*
- Is, or is likely to be, a risk to health and safety from:
  - an atmosphere that does not have a safe oxygen level; or
  - contaminants, including airborne gases, vapours and dusts, that may cause injury from fire or explosion; or
  - harmful concentrations of any airborne contaminants; orengulfment.

## EWP

Elevating Work Platform; includes both boom lifts and scissor lifts.

## HAZARDOUS CHEMICAL

A substance, mixture or article that satisfies the criteria for a hazard class in the United Nations 'Globally Harmonised System of Classification (GHS) and Labelling of Chemicals'.

## HAZARDOUS ENERGY

Energy sources including; stored, electrical, hydraulic, mechanical, pneumatic, magnetic, gravitational, radiation.

## LIFTING GEAR

Components or equipment used between lifting device and the load being lifted, which are not an integrated part of the lifting device. E.g. shackles, slings, chains, ropes, spreader bars etc.

## OEM

Original Equipment Manufacturer.

## PREVENTION OF FALLS HIERARCHY OF CONTROL

Where possible, arrange for work tasks to be undertaken on the ground, or on a solid construction.

Where it is not possible to work from the ground or from solid construction, the work must be controlled using one of the options below, in descending order of priority:

1. Passive fall prevention devices must be used (e.g. Temporary work platform, roof safety mesh or guard railing);
2. Work positioning system (e.g. elevated work platform, industrial rope access system, travel restraint system);
3. Fall arrest system (e.g. safety harness system, industrial safety net, catch platform); or
4. Fixed or portable ladder that is fit for purpose, appropriate to complete the task including consideration of duration and appropriately set up.

## REASONABLY PRACTICABLE

What is reasonably able to be done to implement or adhere to the Critical Controls, taking into account relevant matters relating to the control of a hazard, or risk including:

- a) the likelihood of the hazard or the risk concerned occurring; and
- b) the degree of harm that might result from the hazard or the risk; and
- c) what the person concerned knows, or ought reasonably to know, about:
  - i) the hazard or the risk; and
  - ii) ways of eliminating or minimising the risk; and
- d) the availability and suitability of ways to eliminate or minimise the risk; and
- e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk.

## Further Guidance for Determining Reasonably Practicable

Ask yourself, what would a reasonable person in my position do to either eliminate, or if that's not possible, minimise the risk?

You must at all times require the use of the highest level of protection that is available to eliminate or minimise the risk.

## SECONDARY GUARDING

Devices which assist in the prevention of crushing injuries on EWP's. Includes protective structures, pressure sensing devices and proximity systems.

## SIGNIFICANT LIFTS

A significant lift is a lifting operation which involves one or more of the following:

- Exceeds a gross weight of 20 tonnes (including rigging and lifting gear)
- Requires two or more cranes
- Involves lifting over live operational plant
- Exceeds 75% of the crane's rated capacity in that particular configuration
- Involves lifting tilt-up or pre-cast panels
- Involves turning or flipping the load where shock loading and/or side loading is likely to occur
- Involves lifting in areas of poor or unknown ground conditions or bearing value
- Lifting a person in a man-box / cage.

## SECURE WORKING PLATFORM

A non-mobile platform or area that has:

- A surface that is structurally capable of supporting all persons and things placed on it
- Barriers around its perimeter and any openings to prevent a fall
- An even and readily negotiable surface and gradient
- A safe means of entry and exit.

## WORK AT HEIGHT

Also called fall risk.

Risks to health and safety associated with a fall by a person from one level to another that is reasonably likely to cause injury to the person or any other person. Includes the risk of a fall:

- In or on an elevated workplace from which a person could fall;
- In the vicinity of an opening through which a person could fall;
- In the vicinity of an edge over which a person could fall;
- On a surface through which a person could fall; or
- In any other place from which a person could fall.
- As a minimum, falls risk of 2m or more must be treated as work at height.

## WORK PERMITS

The work permitting processes provide verification that minimum controls are in place prior to commencing a high risk activity. While the method for achieving this may differ in different parts of the business, the process must include:

- Hazard identification, risk assessment and control practices to be followed (e.g. task based assessments, SWMS, Take5 etc.);
- The location specific elements that apply (e.g. isolations, inspections, plans, equipment checks etc.);
- Training requirements, including licenses where required;
- Any specific emergency protocols that apply or need to be verified prior to commencement;
- Duration, location and activities that approval to complete the work is granted for; and
- Verification that controls are in place / implemented prior to proceeding with the work activities.



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