



Critical Risks Guideline

**STAY
LIVE**
Electrical Industry
Health & Safety Group

StayLive Electrical Industry Health and Safety Group



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1 Introduction

1.1 Overview

This StayLive document outlines critical risks that exist in the electricity industry and identifies the critical controls to manage those risks.

1.2 Identified Common Critical Risks

StayLive has identified the following critical risks that are commonly found throughout the industry:

- driving
- hazardous substances and materials
- working at height (including dropped objects)
- mobile plant and equipment
- stored energy
- electricity
- confined space
- working around water
- mental health issue.

The focus throughout the document is on aspects of the critical risks associated with the potential for death, serious injury or serious illness.

1.3 Overview of Critical Controls

Critical controls have been identified for each critical risk. These are the controls considered critical to preventing death, serious injury or serious illness. They are described in general terms and targeted at a company level to focus effort on minimising the likelihood of death, serious injury or serious illness.

In applying the controls, end-to-end management of each control needs to be considered, which includes identifying best practice, training and monitoring effectiveness.

Three of the identified critical controls are common to a number of critical risks:

- Work Control Procedures
- training and competency, and
- PPE.

Effective management of the three critical controls above will serve to prevent death, serious injury or serious illness across the majority of critical risks. StayLive recommends that companies focus initially on ensuring systems and processes associated with these above three critical controls are robust and effective; doing so will ensure controls are implemented for most of the critical risks.

1.4 Critical Questions

For each risk, critical questions have been formulated for use in engagement with workers, specifically for exploring critical control processes. These questions can be used as prompts during pre-task risk assessment or as part of assurance activities.

1.5 Definitions

Key terms used in this document are defined below:

- **Critical risks** are the risks in the electricity supply industry that have the highest likelihood of causing death, serious injury or serious illness.
- **Exposure** is defined as the event associated with the critical risk that has the potential to cause death, serious injury or serious illness (note, in some cases there are multiple exposures).
- **Our people** are the individual electricity supply company's employees, contractors and subcontractors.

1.6 Related StayLive Guidelines

Other guidelines have been published by StayLive (www.staylive.nz) and describe industry best practices that serve as controls for some of the identified common critical risks. These guidelines are listed below:

- [Click here](#) for Work Control Procedures.
- [Click here](#) for Confined Space Management.
- [Click here](#) for Working Alone.
- [Click here](#) for Training and Competency.

2 Critical Risks

2.1 Overview

Each identified critical risk is described in the following sections of this document. For each risk, this document outlines:

- the critical risk
- the events that could lead to exposure
- the critical controls
- questions that should be asked for assurance that controls are in place.

2.2 Driving

CRITICAL RISK

Collision or loss of control causing death or serious injury.

EXPOSURE

When driving and travelling in a vehicle on all terrain.

CRITICAL CONTROLS

- Training and competency
- In-vehicle GPS
- Driver fitness for work
- Vehicle safety specification
- Vehicle appropriate for task
- Trip planning.

CRITICAL QUESTIONS

- Are you competent and do you feel comfortable operating the vehicle for the task and environment today?
- Are you safe to drive?
- Is the vehicle appropriate for the conditions and task?
- Have you planned your trip and provided appropriate notifications?
- Are there any specific details of the vehicle which may create unexpected hazards if crashed (eg, battery isolations in electric and hybrid vehicles)?
- Are loads properly secured?
- Will the load affect the vehicle handling?
- Are trailers and other attachments correctly attached?
- Are there any distractions which can be eliminated before driving?
- How could the road conditions and weather forecast impact the journey?

2.3 Hazardous Substances and Materials

CRITICAL RISK

Exposure causing death or serious injury or illness.

EXPOSURE

Working with or near the following:

- Flammable gasses
- Flammable liquids
- Asbestos and other respirable dust
- Asphyxiating gasses
- Biological hazards
- Substances which can have long-term (chronic) exposure risk.

CRITICAL CONTROLS

- Use of non-hazardous alternatives where possible
- Registers, signage, and labelling
- Control of ignition sources
- Monitoring for presence of or exposure to hazardous substances
- Adherence to Safety Data Sheet (use, storage, transport, disposal)
- Training and competency
- Storage appropriateness and certification
- PPE.

CRITICAL QUESTIONS

- Have all hazardous substances or materials been identified?
- What are the risks identified for this substance and have you referred to the Safety Data Sheet?
- How is the risk communicated to workers?
- How is the substance you are working with managed?
- What specific PPE is required (eg, right material, grade)?
- Are there any special emergency requirements and are they on hand?
- Are lines, vessels and containing equipment (use or application) appropriately rated, compatible with the substance, and in good condition?

2.4 Working at Height (Including Dropped Objects)

CRITICAL RISK

- Impact from fall from height
- Suspension trauma
- Impact from dropped objects.

EXPOSURE

- Working at heights (including work near excavations, pits or edges)
- Working in or near a drop zone while others are working above.

CRITICAL CONTROLS

- Anchor point selection
- Training and competency
- Exclusion zone identification and implementation
- Appropriate and certified PPE
- Tool tethers and containment, safety nets, coverings to prevent objects falling through
- Fall protection, eg, guard rails, edge protection
- Certified and inspected lift equipment
- Rescue plan.

CRITICAL QUESTIONS

- What other means of safe work access have been considered that would eliminate the hazard (eg, scaffolding, elevated work platforms)?
- How has competence been demonstrated?
- How was the exclusion zone determined and controlled, and are all access points identified?
- Is there any way objects can fall outside the exclusion zone?
- Who is required to be in the exclusion zone and how are you managing their risk?
- What will prevent tools or equipment from falling (eg, boards, plates, tethers, covers)?
- Is fall restraint or fall arrest most appropriate?
- Are all the people familiar with the rescue equipment, and is it available or set up at the worksite?
- Has the rescue plan been rehearsed?

2.5 Mobile Plant and Equipment

CRITICAL RISK

- Contact with people leading to injury or death
- Impact, collision, or rollover leading to injury or death
- Dropped load hits person
- Electrocution from contact with overhead or buried power lines
- Rupture of a fuel or gas line leading to injury or death.

EXPOSURE

- Elevated work platforms, cranes, diggers, forklifts, vehicles
- People in area where mobile plant is in operation
- Use of mobile plant near overhead or buried power lines, cables or other services.

CRITICAL CONTROLS

- Separation of mobile plant and people
- Assessment of ground condition
- Use of equipment that is fit for purpose
- Identification of overhead or buried services
- Training and competency.

CRITICAL QUESTIONS

- Where will site visitors or the public approach from and what will stop them walking into blind spots of mobile plant?
- How were overhead or buried services in the area identified?
- What other work parties, activities or environmental conditions within the area may increase risk?
- What are the ground conditions like?
- How could the weather impact the activity?
- Is the ground capable of supporting the load of the vehicle?
- Have you considered the presence of anything underground which may affect the ability of the ground to support the load?
- Is the equipment and work method appropriate for the load and reach required?
- Is a safety observer required?
- What are the agreed protocols for communicating with plant operators when working in their work zone?

2.6 Stored Energy

CRITICAL RISK

- Caught in or struck by equipment that moves unexpectedly
- Release of stored energy (eg, water, gas, steam, electricity).

EXPOSURE

- Working on or near in-service equipment
- Working under permit
- Working with equipment containing stored energy
- Working with equipment under tension.

CRITICAL CONTROLS

- Work Control Procedures
- Training and competency
- Integrity and certification of equipment
- Dam safety management system.

CRITICAL QUESTIONS

- How is the stored energy appropriately isolated?
- Has energy been released prior to permit issue?
- Has the isolation been tested, if appropriate?
- How did you verify you are working on the correct equipment?
- Can the plant you are working on move due to gravity?
- If required, has the permit area been appropriately identified for the scope of work?

2.7 Electricity

CRITICAL RISK

- Electrocution
- Arc flash causing fatal or serious burns.

EXPOSURE

- Working on or near in-service electrical equipment
- Inadvertent livening of equipment
- Drilling or cutting through live equipment
- Working on live equipment.

CRITICAL CONTROLS

- Work Control Procedures
- Test before touch
- Training and competency
- Minimum approach distances to high voltage
- PPE
- Integrity and certification of equipment and PPE
- Identification of hidden sources of electricity.

CRITICAL QUESTIONS

- Can the equipment you are working on be livened in any other way?
- How are all electricity sources appropriately isolated, earthed, tested and verified?
- What is the arc rating of your PPE and is it appropriate?
- Are your undergarments made of natural fibres?
- What is the minimum approach distance for the voltage you are working near?
- Have you considered (before drilling, cutting or digging) the potential for live equipment to be encountered?
- Have you appropriately assessed the risk of working on or near live equipment?

2.8 Confined Space

CRITICAL RISK

- Unsafe atmosphere leading to asphyxiation
- Inability to rescue injured or ill worker
- Engulfment.

EXPOSURE

Working in confined spaces.

CRITICAL CONTROLS

- Work Control Procedures
- Confined Space Certificate or Permit
- Monitoring and maintaining safe atmosphere
- Rescue plan and equipment
- Training and competency.

CRITICAL QUESTIONS

- How has competency for critical roles, such as safety observer, supervisor and rescue team, been demonstrated?
- Is additional ventilation required?
- Is your gas detector functional for the gases potentially present?
- Can your activity change the atmosphere in the confined space?
- Can an associated activity change the atmosphere or conditions in the confined space?
- How are roles and responsibilities within the work party communicated?
- Is your rescue plan practical, rehearsed, and have all rescue team members been briefed?
- Have you checked your rescue equipment and does the rescue team know how to use it?

2.9 Working Around Water

CRITICAL RISK

- Drowning
- Hypothermia.

EXPOSURE

- Working on structures around water, dam gates or valves
- Working in or near waterways, eg, consent activities
- Working or travelling on boats
- Diving operations.

CRITICAL CONTROLS

- Barriers or fencing, eg, stopping people falling in
- Appropriate warning systems for unexpected changes to water levels or flows
- PPE
- Assessment of work area and ground stability
- Training and competency
- Appropriate boat for the task
- Weather monitoring.

CRITICAL QUESTIONS

- How could someone fall in?
- Have you planned your activity and provided appropriate notifications?
- Do you understand how plant operations may change water levels or flows?
- If someone fell in, how will he or she be prevented from drowning?
- If you are working alone, what precautions are you taking for working around water?
- Do you have a rescue plan in place and the people and equipment on hand to carry out the required emergency response?
- Could adverse weather affect flow conditions?
- Is the boat appropriate for the task?
- Is the skipper appropriately qualified for the task?

2.10 Mental Health Issue

CRITICAL RISK

- Mental health issue causing an inability to work
- Suicide
- Harm to others.

EXPOSURE

- Mental health issue caused by or impacted by job (eg, stress)
- Post-traumatic Stress Disorder relating to an illness
- Post-event trauma
- Workplace bullying.

CRITICAL CONTROLS

- Proactive workforce engagement
- Clear policies and processes with respect to bullying, harassment and human rights
- Post-incident counselling, rehabilitation planning and monitoring process
- Formal debriefing processes for workers undertaking high risk activities
- People leader, peer, champion training for identification of first steps and referral
- External support (eg, Employee Assistance Programme).

CRITICAL QUESTIONS

- Have you checked in with your employees (eg, “Are you okay?”)?
- What support systems do you have in place for those involved in a traumatic event?
- What would you do if someone was being bullied?
- Where would you send an employee for support?
- Would you feel comfortable to respond to someone in need?
- How could you tell if someone had suicidal tendencies?

