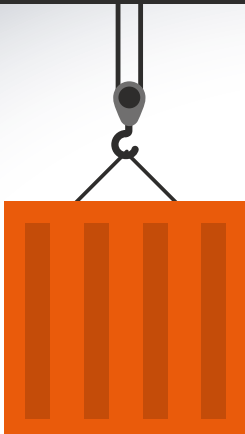


# FATAL AND SEVERE RISK PROGRAM

## LEADER SESSION

### CRUSHED BY A CRANE OR LIFTED LOAD

# ARTC



**STOP**  
**& THINK**

Only do the task if it can be done safely



**CRUSHED BY A CRANE OR LIFTED LOAD**

**OUR  
COMMITMENT**

**LIFE  
SAVING  
BEHAVIOUR:**

**I WILL ALWAYS STAY  
CLEAR OF POTENTIAL  
'CRUSH ZONES' OR  
'SUSPENDED LOADS'**

**NO HARM – LINE IN THE SAND**



# INTRODUCTION

The rail corridor and ARTC workplaces can expose workers to risks such as being crushed by a crane or lifted load.

This booklet provides clear information about the risks and controls associated when working with or around cranes and lifted loads.

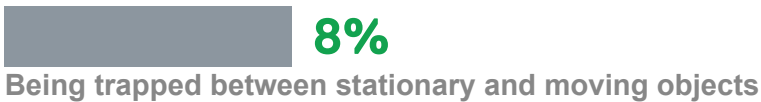
It is part of a series of booklets about the fatal and severe risks present when working for ARTC.



# KEY FACTS AND STATISTICS

Operating or working around cranes is complex and dangerous and workers must have the necessary skills and capabilities to do it safely. Every year there are injuries and deaths from work involving cranes.

## THE MOST COMMON CAUSES OF INJURIES ARE:



SAFE WORK AUSTRALIA.  
[WWW.SAFEWORKAUSTRALIA.GOV.AU/CRANES](http://WWW.SAFEWORKAUSTRALIA.GOV.AU/CRANES)



Between 2003–15  
47 workers were  
killed in incidents  
involving cranes.

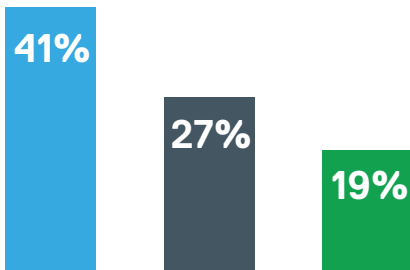
**47**   
**FATALITIES**

On average there  
are around

**240**

serious injury  
claims every year.

## THE MOST COMMON TYPES OF INJURIES ARE:

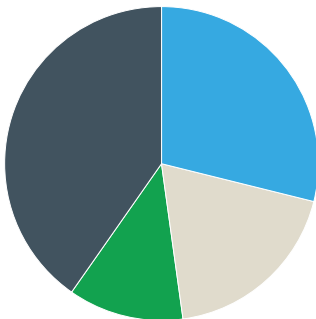


Trauma to the joints, ligaments,  
muscles and tendons

Wounds, lacerations, amputations  
and internal organ damage

Fractures

## The most common occupations involving crane incidents are:



**29%** MACHINERY AND STATIONARY  
PLANT DRIVERS

**19%** AUTOMOTIVE ENGINEERING  
AND TRADE WORKERS

**12%** CONSTRUCTION AND MINING  
LABOURERS

**40%** OTHER

SAFE WORK AUSTRALIA.  
[WWW.SAFEWORAUSTRALIA.GOV.AU/CRANES](http://WWW.SAFEWORAUSTRALIA.GOV.AU/CRANES)

# CASE STUDY RECYCLING DEPOT



## WORKER LOSES FOOT AFTER MOBILE CRANE INCIDENT

A SILO manufacturer was fined \$30,000 after a preventable accident where a mobile crane ran over an employee's leg and crushed his foot, which later had to be amputated.

The company was also ordered to pay \$3,430 in costs after pleading guilty to two charges of failing to maintain safe systems of work and failing to provide hazard and risk training under Victoria's Occupational Health and Safety Act (2004).

The accident occurred in March 2016, when a worker was asked to walk alongside the crane that was being used to transport 12 sections of 6-10m long steel pieces, steadying the suspended steel with his hand to ensure the load did not rotate.



The Echuca Magistrates' Court heard that the worker stumbled and fell, and the crane ran over his leg, crushing his foot and causing a fracture to his hip.

A WorkSafe Victoria investigation after the incident found that even though the worker had been with the company for 12 months, and was acting in line with the company's usual procedures when he was injured, he had not received any instruction or training in relation to the hazards and risks associated with stabilising loads or working in close proximity to mobile plant.

The company also had no documented job safety assessments (JSA), safe work procedures, safe work method statements (SWMSs) or maintenance records in relation to the mobile crane.

WorkSafe Executive Director of Health and Safety said that asking a worker to stabilise a heavy load by hand was 'appalling and totally unacceptable.'

'The company failed on many counts,' she said.

'It failed to train its workers and it failed to have appropriate safety processes in place – and followed – for high-risk work.'

In particular, WorkSafe Victoria recommends that businesses ensure that no workers are underneath or alongside a heavy load while it is being transported by crane.

'Be mindful of any workers out of the line of sight of the crane operator during an operation,' she said.

WorkSafe also recommends creating comprehensive safe work policies for each crane being used, considering environmental factors, and adapting these policies for different worksites and different machinery.

'Employers need to make sure every worker understands how and where machines will be used, particularly if multiple sites and equipment are involved,' she said.

**Reference:**  
<https://www.healthandsafetyhandbook.com.au/worker-loses-foot-mobile-crane-incident>

# CASE STUDY RECYCLING DEPOT

## LESSONS

1

Workers should be trained on safe operating practices when working around cranes and lifted loads.

2

Trained workers must operate within documented work method statements (WMS).

3

Safe systems of work should be implemented to ensure that workers are not exposed to risks by working in the vicinity of cranes and lifted loads – e.g. establishing an exclusion zone when cranes are in use, restricted areas and clearly defined walkways.

4

Risk assessments to be undertaken to identify environmental factors such as uneven ground.

5

Clear communication from both the operator and workers on the ground to be clear, consistent and precise – e.g. blind spots (worker and crane operator line of sight).

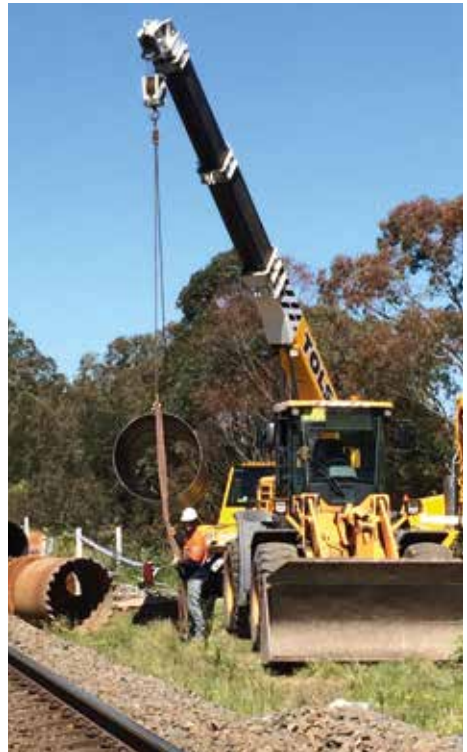




# WHAT IS A 'CRUSH ZONE' IN RELATION TO CRANES AND LIFTING?

You place yourself between the moving load/crane jib and another hard surface.

- Swinging the jib over the operators station while operating a VLC – Vehicle Loading Crane.
- Standing between a load being positioned and another hard surface (e.g. a truck tray).



# WHAT IS A 'SUSPENDED LOAD'?

An object that is temporarily raised, lowered, moved and hangs above the ground:

- Load on a Gantry, Vehicle Loading, Mobile or Road Rail Crane.
- Crane lifting work boxes or a load with slings, chains, chain blocks, shackles etc.
- Excavator lifting with raised buckets and implements.



**'KEEP OUT OF THE DROP ZONE AS CONDITIONS CAN CHANGE QUICKLY AS LOADS MOVE'**



# WHAT IS NOT A 'SUSPENDED LOAD'?

- An object that is safely positioned on the ground or on a solid construction and is free of any lifting force.
- An assembled structure that is pinned with permanent guy suspension ropes.



**'DROP HAZARDS DO NOT EXISTS FOR LOADS  
THAT ARE NOT SUSPENDED'**

CRUSHED BY A CRANE OR LIFTED LOAD

# STOP & THINK

OUR LAST LINE OF DEFENCE WHEN IT COMES TO MANAGING OUR RISKS

## HAZARDOUS SITUATIONS



TAGGED – DAMAGE TO SOFT SLING



ARE YOU IN THE DROP ZONE?



VLC OUTRIGGERS



SUSPENDED LOADS CLOSE TO THE GROUND

NO HARM – LINE IN THE SAND



# STOP & THINK

OUR LAST LINE OF DEFENCE WHEN IT COMES TO MANAGING OUR RISKS

## EFFECTIVE CONTROLS



BOLLARDS AND SIGNAGE



INSPECTED AND TAGGED LIFTING GEAR



EXCAVATOR – HYDRAULIC HOSE BURST PROTECTION VALVES



TAG LINE USED TO CONTROL LOAD. IS TAG LINE LONG ENOUGH TO BE CLEAR OF DROP ZONE?

## KEY ACTIONS

### WORK METHOD AND PROCEDURES

#### Work Method Statement Vehicle Loading Cranes:

- **Plan the lift** – determine lifting method.
- **Identify and maintain clearance** to overhead lines and structures.
- Position vehicle on **stable, level ground**.
- Use **stabilisers and outriggers**.
- Set up an appropriate **exclusion zone**.
- **Correct load slinging** techniques.
- **Lift, move and lower** the load **slowly and smoothly**.
- **Do not travel** the load **over a person**.

Operate within the safe working limits of the plant.

### TRAINING

- Correct **high risk work licence** to operate a crane.
- Competent to **select, inspect and apply** slinging techniques (Dogging).

### PLANT AND EQUIPMENT

- **Fit for purpose** – designed for lifting (including remote controls).
- **Pre-start on plant, lifting gear tested and tagged**.
- **Item and design registration**.
- **Not to use defective equipment**.
- Excavators – **hose burst protection valves** fitted on critical hydraulic cylinders.



# REFERENCE DOCUMENTS

## AVAILABLE ARTC PROCEDURES AND PROCESSES

- WHS-WI-400 Vehicle Loading Cranes Work Method Statement.
- WHS-WI-002 Plant & Equipment – Loading Unloading Work Method Statement.
- WHS-WI-004 Underground Overhead Services Work Method Statement.

## AUSTRALIAN STANDARDS, CODES OF PRACTICE AND INDUSTRY REQUIREMENTS

- Managing the risk of falls at workplaces code of practice April 2016.
- Managing the risks of plant in the workplace code of practice July 2014.
- **AS 1418** Set-2011 Cranes, hoists and winches – Design and Construction.
- **AS 2550** Set-2011 Cranes, hoists and winches – Safe use Set.
- All cranes guidance material – Safe Work Australia.



## FURTHER INFORMATION

If you require any further information, discuss with your supervisor or contact the ARTC safety adviser for your location.

### Information sources:

- Safe Work Australia
- Health and Safety Handbook

**ARTC**