



Learners Guide

RIIWHHS201D

**Work safely and follow WHS
policies and procedures**

THIS UNIT FORMS PART OF THE

RIISS00044 Work Zone Traffic Control
Traffic Controller Skill Set

RIISS00041 Work Zone Traffic Control
Implement Traffic Control Guidance Plan Skill Set

RIISS00045 Work Zone Traffic Control Guidance Plan
Developer Skill Set

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Introduction

This Learner Workbook will guide you through this information and will give you the skills and knowledge to work safely in any workplace, not just in a Traffic Control environment.

1 Access & Apply Site Safety

All work carries with it some degree of risk to health and safety, however, the traffic control industry poses unique and elevated levels of risk to workers. Because of this, it is important that you become acquainted with how legislation and company policies and procedures interact to help keep workers safe and with what your own personal responsibilities to health and safety are.

If you have any concerns regarding safety in your workplace, you can raise your concerns with:

- Your supervisor
- WHS representative
- WHS committee
- Traffic Management plan developer

1.1- Work Health and Safety Laws

The Commonwealth, states and territories are responsible for making and enforcing their own work health and safety laws. Although there are many similarities between the laws there are also some differences that can cause confusion.

Below is a list of the workplace health and safety legislation that is currently in place in each Australian State and Territory and in New Zealand. It is important for you to know which legislation applies to the work that you do and what your responsibilities are.

Nation/State/Territory	Legislation
Australia (Commonwealth), ACT, NSW, QLD**	<i>Work Health and Safety Act 2011</i> <i>Work Health and Safety Regulations 2017</i>
SA and TAS**	<i>Work Health and Safety Act</i> <i>Work Health and Safety Regulations</i>
NT	<i>Work Health and Safety (National Uniform Legislation) Act 2011</i> <i>Work Health and Safety (National Uniform Legislation) Regulations</i>
NZ	<i>Health and Safety in Employment Act 1992</i> <i>Health and Safety in Employment Regulations 1995</i>
VIC	<i>Occupational Health and Safety Act 2004</i> <i>Occupational Health and Safety Regulations 2017</i>
WA	<i>Occupational Safety and Health Act 1984</i> <i>Occupational Safety and Health Regulations 1996</i>

It is also important to note that traffic control work may be designated as high-risk work in your jurisdiction. If this is the case, there may be additional safety requirements that must be adhered to on traffic control sites. This is partly why traffic control personnel need formal accreditation before they can work.

1.1.1 Generally as a worker you must:

- take reasonable care of your own health and safety
- take reasonable care that your conduct does not adversely affect the health and safety of others (such as other workers, road users or pedestrians)
- comply, so far as you are reasonably able with any reasonable instructions from your employer
- cooperate with reasonable health and safety policies or procedures that you have been notified about, or would reasonably be expected to know about.

Safe Work Method Statements (SWMS)

One of the key pieces of compliance documentation in high risk environments is a 'Safe Work Methods Statement' (SWMS)

The primary purpose of a SWMS is to enable supervisors, workers and any other persons at the workplace to understand the requirements that have been established to carry out the high risk construction work in a safe and healthy manner. It sets out the work activities in a logical sequence and identifies hazards and describes control measures.

Any activity, no matter how simple or complex, can be broken down into a series of basic steps that will permit a systematic analysis of each part of the activity for hazards and potential accidents. The description of the process should not be so broad that it leaves out activities with the potential to cause accidents and prevents proper identification of the hazards, nor is it necessary to go into fine detail of the tasks.

“Safe Work Australia Construction Work Code of Practice March 2012”

SAFE WORK METHOD STATEMENTS

A safe work method statement must be prepared for all high risk construction work.

The statement must:

- list the types of high risk construction work being done
- state the health and safety hazards and risks arising from the work to be carried out
- describe how the risks will be controlled
- describe how the risk control measures will be implemented, monitored and reviewed
- take into consideration factors that may affect the way in which the high risk work is carried out be accessible and easy to read

The business or employer (or other **PCBU**) must make sure that the high risk construction work activities are carried out in accordance with the statement.

If high risk construction work is being carried out in connection with a construction project, it must take into account all relevant information that is in the **work health and safety management plan**.

A safe work method statement must be given to the principal contractor before the high risk construction work starts. The statement must be reviewed and updated if relevant control measures are revised.

Record keeping

The employer must keep a copy of the safe work method statement until all the work is completed.

If there is a notifiable incident when the work is carried out, the statement must be kept for at least two years after the incident occurs

<http://www.workcover.nsw.gov.au/health-and-safety/industry-safety/construction/high-risk-building-work>

PCBU's are responsible for preparing and distributing SWMS for all high risk activities within the workplace in consultation with workers. The PCBU must provide all workers involved with high risk work with a SWMS.

1.1.3 How to determine the safety requirements for the equipment you are working on?

Always refer to the manufacturers guidelines and specifications before working on any equipment and if still in doubt discuss this with your supervisor.

1.1.4 Safety Data Sheets (SDS's)

Whenever you are working with any material that is toxic to the human body, you must always refer to the safety data sheets which relates to the material in question.

1.1.5 Site Work Health and Safety Procedures

Your work site will have some form of Site Health & Safety Management System. This system will include risk management elements & practices that ensure WHS of workers on site. It is the primary means by which an operator ensures the WHS of employees & others at a work site.

This system is where you will find the operating procedures & work instructions that are relevant to the tasks you will perform. It should be regarded the same force as legislation. In other words, disregarding/ breaching the Site WHS Management System is the same as breaking the law.

Work Health and Safety Procedures on a work site may include:

- The authorisation of supervisors
- Personal Protective Equipment (PPE)
- Hazard identification & risk assessment
- Personal health and hygiene
- Working with chemicals
- Working with hazardous substances
- Working with/around explosives
- Working around conveyor systems
- Working with plant & mobile equipment
- The use of mobile equipment
- Environmental protection
- Fire prevention and fire fighting
- Contraband/prohibited articles
- Site communications
- Training
- Emergency response
- Tagging and isolation
- Defect reporting system
- Standard Operating Procedures
- Work instructions

Specifically, on a road works site, you will need to conduct your work in accordance with any **Safe Work Method Statement (SWMS)** or equivalent document that has been developed for the work being conducted. It is also important that the instructions detailed in the Traffic Management Plan and any associated Traffic Control Guidance Plan are followed. These documents have been prepared to protect the health & safety of both workers & road users while works are being conducted.

Before commencing any task you must be sure you have read and understood the applicable procedures for that task and also for that particular work area. This is your responsibility under the law. If you are ever in any doubt with respect to the procedures of a given area, seek clarification from your supervisor, or the Workplace Health and Safety Officer before you commence work.

1.1.6 Hazardous Substances

It is in your interest to know the safety information for all of the hazardous substances with which you will be in contact.

Safety Data Sheets (SDS) provide an on-job reference to the safe handling, storage, use and disposal of hazardous substances. If you are in any doubt about the storage, issue, use, and disposal of substances, read the relevant SDS or contact your Safety Officer or equivalent.

Material Safety Data Sheets are provided by the suppliers of chemicals and form an important part of the substance control system. The SDS will provide important substance information such as:

- ingredients
- storage procedures
- flammability and any specific firefighting techniques
- disposal procedures
- health hazards and first aid
- handling precautions

The appropriate SDS must be available before a chemical can be stored, transported, used, and disposed of on site. Copies of the SDS must be readily available to workers and must be provided where the substance is stored and/or used.

1.2 Energy Sources

A **Hazard** can be defined as a source of potential harm or a situation with potential to cause harm. Hazards are also often described in terms of an **energy source**:

Hazard: a source of potential harm or loss

A source of unwanted or excess energy with the capacity to cause damage, loss or injury.

Energy sources can be categorised as follows:

ENERGY TYPE	EXAMPLE	POTENTIAL DAMAGE
Mechanical	Conveyor nip points, vehicle fan belts	Limbs caught, amputation, death
Pressure (fluids or gas)	Hydraulic systems, compressed air, high pressure water	Skin penetration, eye injuries
Electrical	Power supply to electrical equipment	Shock, burns, cardiac arrest
Thermal	Hot mechanical components, hot liquids, fire	Burns
Chemical	Acids and alkalis, fuels, cleaning products	Burns, skin damage, respiratory damage from fumes
Radiation	Ultra Violet (sun), welding arc flash, microwaves, lasers	Sunburn, skin cancers, eye damage
Gravitational	Suspended loads, falling objects, working at height	Crush injuries, death
Acoustic/Vibration	Plant and machinery noise	Hearing loss, dizziness
Microbiological	Infectious bacteria, viruses	Illness, disability, death
Muscular/Bio-mechanical	Strains, over-use	Pain, disability
Psychological	Discrimination, work pressure, social pressure	Depression, stress,

1.2.1 Isolation of energy sources

To manage risk associated with an energy source, isolation procedures should always be followed. **Isolation** refers to the process of ensuring that there is no possibility of any energy source being present which could cause injury to personnel as they are carrying out tasks on or near plant and equipment.

Isolation: process of ensuring that harm or loss cannot be caused by an energy source when conducting work.

This does not mean simply switching off the source of energy.

Every site will have its own particular isolation system in place. It is important that you become familiar with your site's system and ensure you follow it precisely.

Isolation of equipment usually involves **Personal Danger Tags** and **Personal Isolation Locks**. Tags inform all personnel who has isolated the equipment and why. The lock ensures that only the person who has isolated the equipment can unlock it and allow it to be operated.



The following general procedures regarding isolation provide a basis to which you can add site-specific information.

1.2.2 The basic steps of safe isolation are:

1. **Identify** the equipment to be worked on and the isolation requirements.
 - a. Including all locations where the equipment can be started
 - b. Including any associated equipment
2. **Isolate** - Ensure that the intended isolation will not cause injury or damage and that all points are isolated. Be aware that the equipment may require the isolation of several energy sources.
3. **Lock & Tag** - Apply your personal isolation lock and personal danger tag to the isolation point/s.
4. **Dissipate** - Check and remove all stored energy
5. **Verify** – Test to ensure that the equipment is correctly isolated and cannot be re-energised

Other lockout methods can include group lockouts with items such as scissor locks, lock boxes and isolation boards.

In addition to a Personal Danger Tag other tags often used on site include:

Out of Service Tags – are placed on the isolation point/s of defective equipment which, if operated, could cause injury, equipment damage or adversely affect some part of the operation.

Information Tags – are used to pass on a message or instruction to personnel operating or working on a particular item of equipment or machinery.

1.3 Site Plans and Signs

When moving around your work site you need to be aware of the specific rules governing various vehicle types, pedestrians, signage, restricted areas and **emergency procedures**. You should gain access to a site plan and familiarise yourself with the main locations, access routes and restricted zones. Any areas barricaded off on site must not be entered without permission.

Specifically, you will be working in an environment where specific signs are used for specific purposes, often in potentially dangerous circumstances.

Traffic control signs and devices are specified in **AS1742.3 Manual of Uniform Traffic Control Devices**, as well as in State and Territory Codes of Practice and Manuals for Traffic Control.

In New Zealand, traffic control signs and devices are specified in the Code of Practice for Temporary Traffic Management (COPTTM).

For each particular site, a Traffic Management Plan will exist, which will contain a Traffic Guidance Scheme, which is a diagrammatical specification of the specific signs and devices that will be used on your work site and where these signs and devices should be placed in relation to the work area.

www.invation.com

Scenario 1

Approximate speed of traffic km/h	Recommended taper length, m		
	Traffic control at beginning of taper	Lateral shift taper	Merge taper
45 or less	15	0	15
46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 - 95	N/A	90	145
96 - 105	N/A	100	160
Greater than 105	N/A	110	180

Table 5.1. Recommended taper lengths

NOTE:

- * This TCP has been designed to be used on a worksite with a road speed of 80km/hr.
- * Plan is not to scale.
- * To be used for short term works.

Purpose and usage	Approach speed of traffic km/h	Recommended maximum spacing, m
All purposes	≤ 50	4
Centre-line or approach to a traffic controller position	All cases	4
Outer edge of traffic lane - i.e. work on shoulder or parking lane	51 - 70 > 70	18 24*
Separating opposing traffic on 2 lane 2 way road - in partial or complete lane closure	51 - 70 > 70 km/h	12 18
Separating opposing traffic on a multilane undivided road - i.e. as part of lane closure	51 - 70 > 70	12 18
Adjacent to a closed lane on a multilane undivided road	51 - 70 > 70	18 24
Merge tapers	51 - 70 > 70	6 12
Lateral shift tapers	51 - 70 > 70	12 18
Protecting freshly painted lines	51 - 70 > 70	24 60**

Table 5.1. Recommended maximum spacing of cones and bollards

This plan shall be setup in accordance with AS 1742.3-2009 and Traffic Control Devices at Worksites The RTA "Traffic Control at Worksites Manual V4"

1.3.1 Examples of safety signs found on worksites:

<p>Prohibition Signs</p> 	<p>Red circle with a diagonal line through it</p>	<p>You must not perform the specified action</p>
<p>Caution Signs</p> 	<p>Yellow triangle, black outline</p>	<p>There is a potential hazard in the area, be careful</p>
<p>Mandatory Signs</p> 	<p>Blue circle with a picture inside</p>	<p>Indication that the specified equipment must be worn or used</p>
<p>Emergency Signs</p> 	<p>Green square</p>	<p>Shows the position of emergency infrastructure, escape routes, muster points or first aid kits</p>
<p>Fire Signs</p> 	<p>Red square with white picture inside</p>	<p>Shows the fire fighting equipment near by</p>

Why do we need safety signage?

Safety signs draw your attention to objects and situations affecting your health and safety.

Safety signs are placed in strategic locations as close as possible to hazardous areas. If they become damaged or unreadable, you should report this to your supervisor so that the signs can be replaced. A sign that displays a distinct safety message carries the same authority as a direct instruction from your Supervisor.

1.4 Safety Breaches

The obligations and requirements of the legislation simply mean that any incident, accident, defect, or dangerous situation should be reported immediately or as soon as practically possible through the appropriate channels. Most reports would be made through your immediate supervisor to your:

- Site Manager
- Shift supervisor/Shift coordinator
- Site Safety and Health Representative/Site Check Inspector/Safety Department

It is important to learn the correct method for reporting incidents, accidents, defects and hazards on your work site.

Caution: Any worker who neglects or fails to follow these obligations/requirements is potentially in breach of the legislation.

2 Personal Safety

2.1 Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is designed and provided to prevent the injuries that can result from minor accidents. However, you should be aware that PPE can only be regarded as **the last line of defence**. Working safely within the standard operating procedures should be considered the main method of preventing personal injury.

Individual sites will have clearly stated requirements around what PPE must be worn or carried at all times whilst on site.

Whilst your site must supply you with correct PPE it is your obligation under the law to firstly wear it, & also to ensure it is serviceable & fits correctly. You should always check your PPE before beginning a task & ensure it is not worn, damaged or out of date.

Commonly used PPE includes (**bold items** are common for work zone traffic control sites):

- | | |
|--|---|
| • Safety helmet | • Hearing protection (ear plugs or muffs) |
| • Eye protection (Safety glasses, goggles, face shields) | • Gloves (wide variety depending on tasks) |
| • Safety boots (reinforced toe cap) | • Hi-visibility clothing (reflective strips) |

Other specific PPE may include:

- | | |
|---------------------------|--|
| • Barrier creams | • Neck protection (neck flaps for sun protection) |
| • Sunscreen | |
| • Respiratory protection, | |



2.2 Safe Work Area

Work zone traffic control areas are dangerous work sites. While specific personnel hold ultimate accountability for the safety and correct operation of the site, everyone on the site can contribute to ensuring that the work area is safe. Specifically, this could include:

- Checking that signs and devices are in the correct place and are clearly visible to road users
- Checking that barriers are in place, where they are needed, to protect road users and workers from each other

Poor housekeeping in the work area can lead to the unnecessary creation of hazards. Rubbish & debris that is left lying around is unsightly, creates a fire risk, & can cause trip or slip hazards.

If the following general procedures are observed, the hazards resulting from the accumulation of rubbish can be minimised. This is called **good house keeping**:

- each worker is responsible for keeping his/her own work area clean and tidy
- all rubbish is to be placed in the appropriate bin as soon as it is generated
- aisles and walkways must be kept clear
- walkways for pedestrians should be wide enough to accommodate two-way flow
- material should always be neatly stacked on stable & level floors capable of carrying the weight of the stack
- all unnecessary items should be removed from the workplace
- food scraps should be placed in bins which have plastic liners.
- rubbish bins provided for the disposal of rags, oily materials or similar flammable materials, should be used
- used aerosol cans should be disposed of in the flammable materials bin provided
- separate bins for the collection of rubbish and scrap metal will be strategically located around the site and should be used.

2.3 Permits

Permit systems are used extensively on work sites for specialised work. They are put in place to:

- provide site management with control of certain activities on site,
- ensure that these activities are planned and carried out safely, and
- ensure that workers who carry out these functions are provided with instructions that are specific to the job in question.

The responsible officer must complete a risk assessment and put all appropriate controls in place prior to issuing a permit.

Some examples of typical permits include:

- Isolation of equipment or plant, Confined space entry, Hot work (e.g. welding) & Excavation

You must also ensure that you maintain your accreditation to work on traffic control work sites. This accreditation is proof that you are able to work safely and effectively in these environments.

2.3.1 Road Access Permits

- The permission required to conduct work on an RMS road is called a Road Occupancy Licence commonly known as an R O L.
- The permission required to conduct work on a council road is known as a permit/certificate 138

2.4 Manual Handling

Between 60-80% of Australian adults will suffer from lower back pain some time in their lives. About 25% of all work-related injuries involve the back, with lower back pain as one of the major sources of permanent disability. Many of these injuries can be avoided by adopting simple lifting techniques.

You are the only person who can protect yourself against preventable back injuries. Before lifting an item, ask yourself the following questions:

- **Is the manual handling activity necessary?** With careful planning and organisation, many lifts can be eliminated altogether. If the move can be avoided, there is no need to make the lift and the risk of injury becomes zero.
- **Should the load be lifted?** Although the load should be moved, it may not need to be lifted. The alternatives to a lift may be that the load can be slid, pushed, pulled, rolled, poured or pumped
- **Can the load be moved mechanically?** If there is no doubt that the load should be lifted, the next question is whether it can be moved mechanically. The options to move a load mechanically include cranes, forklifts and pallet jacks.
- **Can the load be reduced?** If a suitable mechanical lifting device is not available, the next option may be to consider reducing the bulk or weight of the load. Splitting the load into multiple smaller loads is sometimes possible.
- **Can assistance be obtained?** If the load must be lifted manually, it may be the case that its bulk and/or weight dictate that it should be a team lift.
- **Is the load too heavy to lift safely?** Even if assistance is available, this final question should be asked. If the answer is 'No', the lift may proceed using the safe lifting techniques. If the answer is 'Yes', then the lift should not proceed and an alternative should be found.

The amount of effort required and the weight placed on the spine when lifting a load is determined by three factors:

- The weight of the load
- The distance the centre of gravity of the load is from the body
- The height of the lift relative to your body

When you need to make a lift, keep the following points in mind:

- place feet apart for good balance
- get a good firm grip using both hands
- Use your legs to lift, not your back
- always carry the item/load close to your body as possible to reduce the load on your back. The further the object is away from your spine, the greater the forces on your spine.



Note: Whenever possible, you should use mechanical means to assist you whenever carrying out manual handling activities

2.5 High Risk Activities

High risk activities are tasks that require a higher level of precautions to ensure the safety of those involved.

Work zone traffic control work is considered High Risk Construction Work under workplace health and safety legislation. This means that there are additional requirements for employers and employees when working on these sites to maintain the health and safety of workers and of road users.

Performing this type of work on most work sites will require 2 things:

- Permit before the task can begin.
- Safe Work Method Statement (SWMS)

You should check your site what high risk activities are carried out & the permits that are required.

High risk activities are tasks that require a higher level of precautions to ensure the safety of those involved. High risk activities are usually defined by legislation governing the particular industry affected.

High Risk construction work may include (general) as per the WHS Act 2011 and its Regulation 2017:

- involves a risk of a person falling more than 2 metres
- is carried out on a telecommunication tower
- involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure
- involves, or is likely to involve, the disturbance of asbestos
- involves structural alterations or repairs that require temporary support to prevent collapse
- is carried out in or near a confined space
- **is carried out in or near a shaft or trench with an excavated depth greater than 1.5 metres, or a tunnel**
- involves the use of explosives
- **is carried out on or near pressurised gas distribution mains or piping**
- is carried out on or near chemical, fuel or refrigerant lines
- is carried out on or near energised electrical installations or services
- is carried out in an area that may have a contaminated or flammable atmosphere
- involves tilt-up or precast concrete
- **is carried out on, in or adjacent to a road, railway, shipping lane or other traffic corridor that is in use by traffic other than pedestrians**
- **is carried out at a workplace in which there is any movement of powered mobile plant**
- is carried out in an area in which there are artificial extremes of temperature
- is carried out in or near water or other liquid that involves a risk of drowning, or

High risk work may require;

- Permits and licenses
- Specialised training and certification
- Specialise plant, equipment and specialised facilities
- Designated time frames and environmental controls
- PPE
- Supervision
- Emergency plans & Exclusion zones
- Traffic management & Essential services

3 Operational Safety

Whenever you begin a task or enter a workplace, you should adopt the habit of assessing for yourself where the hazards and potential accidents and emergencies are using the information and processes that you have learned in the last six topics. In this way, many emergency situations can be avoided. If an emergency situation does occur, the effects on the people and plant involved can be minimised by the adoption of the correct procedures.

The first rule of any emergency situation is that any action you take should not make the situation worse than it is. This means:

- do not place yourself in any unnecessary danger,
- do not inflict further injuries when moving an already injured person. In any instance where you are not sure that it is safe to move an injured person, you should ensure instead that they are safe and that their airway is unobstructed.
- understand, memorise, and use the correct emergency procedures both generally around the site and for specific work areas.

3.1 Alarms

Work zone traffic control sites are somewhat different from more conventional Resources & Infrastructure work sites, in that it is not likely that alarms will be installed on most sites. While there may not be fixed alarms, there will still be procedures for alerting site personnel that an emergency situation is unfolding. It is likely that radio communication will play a major role in these procedures, so it is vital that, while you are present on a work zone traffic control site you are in constant hearing range of a radio unit, if you are not in possession of your own Unit. You must also make yourself familiar with the alert mechanisms that are in place for the site, so that you understand and follow.

Note: If there are no alarms on your site, the supervisor or safety personnel will contact the workers

More generally, in the event of an emergency on a work site generally some form of visual or audible alarm will activate. The types of alarms may include:

- Alarm bell (often used for fire) or Electronic tone (warbling, whoop-whoop etc.)
- Sirens (Tones transmitted over site radio/communication systems)
- Flashing lights

Specific work areas across the Resources & Infrastructure Industry such as underground mines, chemical treatment plants & high voltage switching yards have more specialised alarm systems.

Other sirens, horns, flashing lights and audible and visible alarms are used to signal faults, equipment start/stop warnings, reversing vehicles, equipment failure, tank levels, blasting, etc. You should become conversant with these signals in your work area and take the appropriate action when required.

Examples of the purpose of common traffic control site alarms:

- Reversing vehicle alarm is used to warn site users that a vehicle is reversing and the driver may have restricted vision
- Flashing or rotating light on plant is used to warn site users that the plant is operating & the operator may be concentrating on the job in hand & may not be aware of persons in the vicinity
- Smoke detector is used for the early detection of fire through identifying smoke in the area
- Evacuation air horn alarm is a distinctive sound used to cut through ambient noise and warn site users to assemble at the evacuation point

3.2 Responsibilities

Depending on your role on a work zone traffic control site, you will have different responsibilities in the event of an incident, accident or emergency.

Traffic Controllers

Traffic controllers, like all workers, have a responsibility for ensuring their own safety in the event of an emergency. In addition, however, they must manage pedestrian access and ensure that traffic approaching or moving through the work zone is directed safely clear of the incident or affected area. This may mean that traffic needs to be stopped altogether until the issue is resolved or alternate traffic arrangements can be put in place. Because traffic controllers are responsible for issuing safety directions to approaching traffic, they should only evacuate from their designated positions if their own safety is directly threatened by the incident, or if directed to move by the site supervisor.

As always, traffic controllers should not turn their back on approaching traffic and should always be mindful of the positioning of their stop-slow bat.

Road Labourers

Your work site will have an emergency plan that will include the responsibilities of all workers. You should ensure that you understand what you are required to do if an emergency occurs.

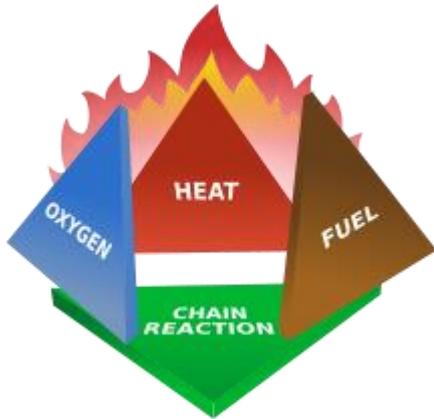
If you are involved or have observed an incident these basic steps are indications of your likely responsibilities:

- Ensure your own safety and the safety of those around you at all times
 - Isolate energy sources (e.g. switch off power, shut down equipment
 - , fight fire)
 - Communicate with nearby workers
 - Trigger an alarm if available
- Clearly communicate the details of the incident to emergency services and/or site control. Commonly the following information is required:
 - EMERGENCY, EMERGENCY, EMERGENCY!
 - Your name
 - Your location
 - Location and nature of emergency
 - Type of injuries (burns, broken bones etc)
 - Number of persons involved
 - What assistance is required (ambulance, fire, mines rescue)
 - What hazards exist (e.g. chemicals near fire)
- Administer basic first aid if required (follow DRSABCD)
- Evacuate if necessary (know where your muster points are)

3.3 Basic Fire Fighting

3.3.1 Conditions for a Fire

Before discussing preventing or fighting fires it is essential that we understand the conditions necessary for a fire to occur.



Four things must be present at the same time in order to produce fire:

1. **FUEL** - any combustible material - solid, liquid or gas.
2. **OXYGEN** - Sufficient oxygen must be present in the atmosphere surrounding the fuel for fire to burn.
3. **HEAT**- Sufficient heat energy must be applied to raise the fuel to its ignition temperature.
4. **CHEMICAL CHAIN REACTION** - This reaction can occur when all three of the above elements are present in the proper conditions and proportions. Fire is the result of this chemical reaction. Specific chemical chain reactions between fuel and oxygen molecules are essential to sustain a fire once it has begun.

The important thing to remember is that if any one of these four things can be removed there will be no fire, or the fire will be extinguished. This can be achieved by:

- **Starvation.** Removal or separation of unburnt fuel (eg turn off the gas).
- **Smothering.** Removal or dilution of the oxygen supply (eg covering the fire with a fire blanket or CO₂).
- **Cooling.** Removal of the heat (eg spraying the fire with water).
- **Inhibiting the chain reaction.** Modifying the combustion chemistry (certain fire extinguishers).

Essentially, fire extinguishers put out fire by taking away one or more elements that the fire needs.

3.3.2 Classes of Fire

The following table sets out the classes of fire. Note that they are classified according to the fuel the fire needs to exist.

Class Of Fire	Fuel Involved
A	Ordinary combustibles (coal, wood, paper, textiles, most plastics, rubber, etc)
B	Flammable liquids (petrol, oil, paints, spirits, lacquers)
C	Flammable gases (eg LPG, Acetylene)
D	Combustible metals (magnesium, sodium, phosphorous)
E	Electrically energised equipment
F	Cooking oils and fats

FIRE EXTINGUISHER SELECTION CHART



Class & Type of Fire	Colours	A	B	C	D	(E)	F	
Type of Extinguisher		Wood, Paper, Plastic	Flammable & Combustible Liquids	Flammable Gases	Combustible Metals	Electrically Energised Equipment	Cooking Oils and Fats	
Water		✓	✗	✗	✗	✗	✗	Dangerous if used on flammable liquid, energised electrical equipment and cooking oil/fat fires.
Carbon Dioxide (CO2)		LIMITED	LIMITED	✗	✗	✓	✗	Not suitable for outdoor use or large class A fires.
Dry Chemical Powder (ABE/BE)		✓ AB(E)	✓	✓	✗	✓	✗ AB(E)	Look carefully at the extinguisher to determine if it is a BE or ABE unit.
		✗ B(E)					✓ B(E)	
Foam		✓	✓	✗	✗	✗	LIMITED	Dangerous if used on energised electrical equipment.
Wet Chemical		✓	✗	✗	✗	✗	✓	Dangerous if used on energised electrical equipment.
Fire Blanket		LIMITED	LIMITED	✗	✗	✗	✓	Fire Blankets effective for oil and fat fires within saucepans and are effective for extinguishing clothes that catch on fire. (Ensure you replace after every use).

FIRE & SAFETY AUSTRALIA

To obtain Fire Extinguisher or Warden Training please contact us on 1300 88 55 30 or www.fsau.com.au

This information comes from Australian Standards AS 2444 & AS3745 – This standard requires that personnel who are trained in the use of portable fire extinguishers must refresh this training within a 2 year period

3.3.3 Fire Extinguishers

Portable fire extinguishers are your first line of defence when you are confronted by any fire. Fire extinguishers are classified according to the type of fire they are effective in fighting. Not all extinguishers are compatible with all types of fuel. In some cases, particular extinguishers are not only ineffective against classes of fire; they can be dangerous if used in those circumstances.

Fire extinguishers are distinguished by their colour and label. They are colour coded by type and they are also marked with an international symbol indicating what classes of fire they are effective against. The international symbols for each class of fire are as follows:

	A	B	C	D	E	F
Symbol				No Pictograph		
Type of fire	Ordinary combustibles	Flammable Liquids	Flammable Gasses	Combustible metals	Energised Electrical Equipment	Oils & Fats
Examples	Wood, Paper & Plastic	Paint & petrol	LPG & Natural gas	Magnesium & lithium based metals	Domestic & workplace electrical equipment	Vegetable oils and animal fats

Warning: Never use an extinguisher on a fire type not included on the label.

The table below summarises the common extinguishers and their uses.

Colour Coding	Type of Extinguisher	A	B	C	E	F	Caution
	Water	✓	✗	✗	✗	✗	Dangerous if used on flammable liquid, energized electrical equipment & cooking oil/fat fires

Colour Coding	Type of Extinguisher	A	B	C	E	F	Caution
	Wet Chemical	✓	✗	✗	✗	✓ Most Suitable	Dangerous if used on energized electrical equipment
	Foam	✓	✓	✗	✗	Limited	Dangerous if used on energized electrical equipment
	ABE Powder	✓	✓	✓	✓	✗	Special Powders are available specifically for various types of metal fires. Seek expert advice.
	BE Powder		✓	✓	✓	Limited	
	Carbon Dioxide (CO ²)	Limited	Limited	Limited	✓	Limited	Generally not suitable for outdoor fires. Suitable only for small fires.

Note: Class D fires require special purpose extinguishers which are specific to the given metal. This type of extinguisher is not in wide use and will be supplied with instructions specific to the type.

3.3.4 **Fighting a Fire**

Before you consider fighting a fire you should:

- raise the alarm and call for assistance
- assess the danger & make sure that all people in the area are alerted and are evacuating.
- must ask yourself if you should fight the fire at all.

Fire extinguishers are designed to fight small contained fires – larger spreading fires are best left to the experts. If you choose to leave the fire, close off the area as you leave to help contain the fire.

General Fire Fighting Procedure

If you decide to fight a fire:

- Attack the fire with the fire fighting equipment that is available and suitable - fire extinguishers, sand or earth, water hoses and/or fire blankets.
- Send another person to raise the alarm.
- Consider using other workers to remove materials such as gas cylinders or chemicals that could pose a danger, should the fire spread.
- If possible, arrange for power or fuel supplies feeding the area to be turned off.
- Do not move injured persons unless they are in danger of further injury or harm.
- Approach the fire from a safe direction and do not stand downwind from the fire as the smoke and flames can be dangerous and do not turn your back on the fire.
- Evacuate the area if there is any chance of chemicals or explosives in the fire. Never fight an explosives fire.
- If there is any doubt, treat any fire as an electrical fire until you are certain that it is not. In the case of an electrical fire, disconnect the power source if it is safe to do so.
- Never fight fire of a vehicle tyre installed on a rim there is a risk the tyre will explode violently.

Using Fire Extinguishers

Fire extinguishers only work over a short distance and for a short time, so you need to get close to the fire – which is another reason only small fires can be fought with an extinguisher. It is always a good idea to have two extinguishers on hand to extend your fire fighting capacity and in case one fails to operate. Use other workers to obtain additional extinguishers in case they are needed.

There are four (4) basic steps for using modern portable fire extinguishers.

The acronym **PASS** is used to describe these four basic steps.

Pull Pin: Pull pin at the top of the extinguisher, breaking the seal. When in place, the pin keeps the handle from being pressed and accidentally operating the extinguisher. Immediately test the extinguisher. (Aiming away from the operator) This is to ensure the extinguisher works and also shows the operator how far the stream travels

Aim: Approach the fire standing at a safe distance. Aim the nozzle towards the base of the fire.

Squeeze: Squeeze the handles together to discharge the extinguishing agent inside. To stop discharge, release the handles.

Sweep: Sweep the nozzle from side to side as you approach the fire, directing the extinguishing agent at the base of the flames. After an A Class fire is extinguished, probe for smouldering hot spots that could reignite the fuel.

Notes:

- Check that the extinguisher is the correct type for the class of fire;
- Check the gauge reading to make sure the extinguisher is charged;
- Always test the extinguisher before proceeding to the fire.
- Remember that you only have seconds to extinguish the fire, not minutes, but only do so if it is safe and you are trained to.
- The rule of thumb is if you cannot put a fire out with one extinguisher then the fire is too big to fight.
- Make sure that your back is toward a safe and unobstructed exit;
- Do not touch the metal components of the Carbon Dioxide extinguisher, due to the build up of “dry ice” as frostbite may occur.
- Avoid pointing Carbon Dioxide extinguisher applicators at people. If the extinguisher is accidentally operated, frostbite to the face and eyes may occur.
- After Carbon Dioxide extinguishers have been operated into a confined space, the level of oxygen will be reduced and suffocation may occur if the operator remains or the area is entered prematurely.
- Always lay the extinguisher down on its side when empty.

Fire Hoses and Hydrants

These are strategically located around the work site and you should make yourself familiar with their location before commencing work. Details of specific locations will be provided at the site-specific induction.

Fire hydrants, hoses and other fire fighting appliances should be used only for fire fighting, or for approved training purposes authorised by the appropriate authority.

3.3.5 Fire Prevention

Fire prevention is based upon the principle of keeping fuel sources and ignition sources separate. The keys to fire prevention are good housekeeping and following all safety signs.

Observing the following principles will assist in the prevention and/or spread of fires.

- Observe all 'No Smoking' area designations, and signs forbidding flames and sparks.
- Keep aisles and exits clear at all times.
- Clean up or report fuel, oil or chemical spills immediately.
- Dispose of all waste by placing it into the bins provided for that purpose.
- Keep all flammable liquids in sealed containers during transport and storage.
- Don't store flammable materials near timbered areas, electrical equipment, or refuelling points.
- Do not leave rags or other flammable materials lying around.
- Ensure that an adequate water supply, correct type of fire extinguisher, and a supply of fire blankets are available before you commence any burning/welding operations. Ensure you observe any permit requirements for hot work and obey any special requirements of the permit.
- Ensure electrical leads and appliances are in good condition and that circuits are not overloaded.
- Ensure that electrical equipment is not made wet when hosing down.
- Do not smoke:
 - near any explosive
 - near vehicle refuelling operations
 - in any flammable fluid storage area
 - whilst working on or near vehicle batteries.

3.4 Escape Routes and Procedures

3.4.1 Evacuation Paths

When placed as a traffic controller, you must ensure that you have a clear and direct escape or evacuation path that you can use in the event that your health or safety is threatened in your designated position, such as if a vehicle loses control and will hit you. This path should lead you clear of the path of traffic and away from any hazards associated with the work area. Your evacuation path should only be used in these circumstances; otherwise, you should stay in your position, unless directed to move by the site supervisor.

3.4.2 Muster Points

Muster or Assembly points are important because they provide a method of establishing the whereabouts and safety of all site workers in the event of an emergency. The locations of muster points have been selected so that they:

- Ensure your personal safety,
- Facilitate your evacuation off site, and
- Will not interfere with the movement of emergency vehicles and their access to and from the location of the emergency.

You should familiarise yourself with the location of your nominated muster point on site and ensure that you make your way there during an emergency. Once at the muster point you should remain there until you have been notified that the emergency is over.

4 Personal Wellbeing

4.1 Risks

There are many risks to your personal wellbeing both away from and at work. It is essential that you understand that you are primarily responsible for your own personal safety and health. The following are the major issues commonly affecting Resources and Infrastructure Industry workers:

4.1.1 Fatigue

Work zone traffic control workers sometimes work in shifts that can commence early in the morning for day shift and early evening for night shift. Shift work can disrupt the normal body digestive and sleeping functions of some workers when they initially commence shift work.

When working shifts, all workers should be aware of the problems associated with fatigue that may occur where there are periods of consecutive night shifts or during a series of long shifts.

In addition, periods of rest during a shift are mandated for traffic controllers. Generally, this is a 15-minute break for every 2 hours of duty. This is a measure designed to protect traffic controllers from the effects of fatigue. You must remember however that you may only leave your designated position when directed to by the site supervisor or because of an emergency – you are not permitted to simply take a break when you think two hours has passed. If breaks are not being permitted properly on your site, you should speak with your supervisor or your company's workplace health and safety officer.

It is important you understand how to recognise the signs of fatigue. These include:

- Lethargy
- Tiredness
- Vagueness
- Poor concentration (easily distracted)
- Headaches

Some of the common causes of fatigue are:

- Long hours
- Lack of sleep
- Rotating shifts
- Demanding physical or mental work
- Extreme conditions (hot / cold)
- New babies
- Sickness in the family

If you feel fatigued for any of these reasons at the start of or during your shift, you must talk to your supervisor about it immediately so that you can work out a way to manage the risk. You need to be aware too of your responsibility not to drive to and from your place of work while fatigued.

It is recommended that to overcome the problems associated with shift work you should:

- keep a regular sleep routine, eat regular meals with a balanced diet & exercise regularly
- avoid excessive alcohol & avoid taking sleeping tablets.

Workers should have adequate rest so that they are not fatigued at the start of a shift. The important point to remember when working shifts is to try to establish a life style and routine that is as normal as possible.

4.1.2 Disease / Illness / Infection

A worker being sick can not only cause loss of work time for themselves but if the illness or infection is passed on others can be affected also. Actions that will help to prevent illness and infection include:

- Basic personal hygiene measures:
 - consume food only in designated areas
 - wear a clean set of work clothes daily
 - wash your hands thoroughly using potable water before eating, drinking or using the toilet, especially after working with chemicals
 - keep crib rooms tidy and use the rubbish bins provided
 - advise your Supervisor or the Safety Department of any conditions that are unhygienic.
- Wear appropriate PPE for the task:
 - Respiratory protection
 - Gloves, barrier cream
 - Be hygienic when fitting earplugs and don't re-use them
- Ensure that any water you drink is fit for human consumption. DO NOT drink from:
 - hoses
 - other water sources not designated as drinking water.

4.1.3 Heat Stress

Although the incidence of heat illness is not common, it is important to be able to recognise the causes and symptoms and know the treatment for these illnesses because of their serious consequences and rapid development.

Work zone traffic control work is almost exclusively conducted outdoors, and often in conditions that, if not properly treated, can cause heat stress. It is vital that you protect yourself from the effects of heat stress by using PPE (hat, sunscreen, sunglasses, long-sleeve, breathable shirts, etc.) and by consuming sufficient water on a regular basis.

Work load and environmental conditions such as ambient temperatures, working in locations where heat cannot dissipate easily, and where the need for personal protection can restrict the body's ability to dissipate heat, are all factors which need to be considered.

Heat stress is not by itself a medical condition, however the body's cooling mechanisms need to work to maintain normal function and to prevent adverse conditions such as heat stroke. An important consideration for the body to deal with the external and internal factors is to maintain adequate water intake.

People who may be considered overweight, physically unfit, suffer from heart disease or abuse alcohol can be at greater risk from heat stress related problems.

The five forms of heat illness are:

Heat Rash

Also known as prickly heat, heat rash is caused by sweat being continuously present on the surface of the skin where there is no relief from hot humid conditions. This, in turn, leads to blockage and inflammation of the sweat ducts. Heat rash is potentially serious because it causes a decreased sweat rate and reduces a person's ability to work in hot conditions. It is prevented by providing cool conditions between periods in the heat conditions.

Heat Cramps

These are painful muscle spasms mostly in the arms, legs and abdomen. They may occur while working (standing or completing repetitive tasks) or hours after working in a hot environment. They are caused either by a loss of fluid or loss of salt from profuse sweating. Prevention of heat cramps can be best achieved by maintaining an optimum state of hydration. Treatment is by administering fluids. Medical attention should be sought for severe cases.

Heat Collapse

Heat collapse (fainting) is the most common form of heat illness. It is a minor disorder caused by pooling of the blood in dilated vessels of the skin and lower part of the body and a reduced return of blood to the heart and hence the brain. Recovery occurs quickly once the casualty lies down. Intermittent activity helps prevent the occurrence of heat collapse.

Although heat rash, heat cramps and heat collapse may not be dangerous, they may indicate personal or ambient conditions that may produce more serious heat illnesses.

Heat Exhaustion

Heat exhaustion occurs as a consequence of a decrease in the volume of blood being circulated, mostly due to dehydration. It may also be caused by improper distribution of the circulation during heat stress. It is more likely to occur in people who are heat intolerant, not acclimatised to heat, or who are in poor physical condition.

Symptoms:

1. weakness, dizziness, disturbed eyesight, headache
2. intense thirst
3. nausea, vomiting, diarrhoea, cramps
4. breathlessness and palpitations, weak pulse and low blood pressure when standing
5. tingling and numbness of extremities.

Treatment:

1. transfer to a cool area
2. administer water to drink
3. if unconscious, treat as for heat stroke
4. medical examination is required before further heat exposure.

Natural thirst is often not enough to replace fluids lost through sweating. You should drink small quantities of cool water frequently. Salt should never be taken during heat stress because dissolving the salt can decrease the volume of blood and increase the heart rate, thereby reducing the body's ability to deal with the heat stress.

Heat Stroke

This is an acute medical condition due to a dangerous rise in body core temperature. It can cause tissue damage often of an irreversible nature and even death.

The sequence of events leading to a heat stroke starts when a person's metabolic heat generation is greater than their heat loss. This can lead to a failure of the body's temperature control centre, reducing evaporative cooling and causing body temperature to rise even faster. The metabolic processes then speeds up, producing more heat and raising the body temperature even faster.

Due to this process of acceleration, it is imperative that the condition be identified quickly and treatment started immediately.

Symptoms:

1. hot and mostly dry skin
2. unconsciousness and coma
3. irrational, confused or aggressive behaviour
4. involuntary contraction and twitching of muscles
5. loss of control of bladder and bowels
6. dilated pupils, vacant stare.

Heat stroke does not occur in all people in exactly the same way. Not all of these symptoms may occur. The symptoms of heat exhaustion when grouped together may be an early warning of heat stroke.

Treatment:

1. it is essential that treatment start immediately, and that medical assistance be summoned immediately
2. lie the person down and cool them with water and air movement. Water should not be too cold as that can cause constriction of surface blood vessels and hinder the cooling process. Air movement can be by a fan, air mover, or by physically fanning the person
3. splash water on the skin and massage the skin in the direction of the heart
4. if conscious, encourage the person to drink small quantities of water frequently
5. apply artificial respiration if breathing fails
6. continue cooling until the person's core temperature drops below 38.4°C.

Accurate diagnosis to assess the degree of damage and the expected recovery requires tissue analysis of a blood sample. Because of the seriousness of the condition, this diagnosis needs to be done even where there is a marginal suspicion of heat stroke.

Minimising Heat Stress

You can minimise the effect of working in hot and humid conditions by adopting a responsible work attitude and maintaining good ventilation in your work area.

Personal Responsibilities

The following points highlight the ways in which you can reduce the effects of hot and humid conditions:

- drink sufficient fluids to replace the amount lost through sweating – don't wait until you become thirsty as this indicates that you are already dehydrating
- eat suitable foods and do not consume excessive amounts of alcohol
- do not take salt when you are dehydrated
- ensure that you follow any instructions given to you with regard to work procedures in areas where overheating problems can occur
- report hot areas to your supervisor

General control measures to reduce heat stress related conditions would include:

- Permanent / portable shade structures in common rest areas;
- Shift start / finish times scheduled to minimise exposure during the hotter periods of the day;
- Task rotation;
- Planning the tasks / activities to suit the varying intensity of heat experienced through the day. Perform high exposure tasks at early morning or late afternoon;
- Optimising the location and/or orientation of drill rigs to maximise shade;
- Acclimatisation – ensure people moving from other areas with differing climates and environmental conditions are educated and given the flexibility to adjust;
- Ensure potable water is readily available and people understand the importance of maintaining sufficient fluid intake;
- Use of broad brim shades and neck flaps fitted to safety helmets when working outside or in direct sun; and
- Cooling aids such as helmet inserts and cold scarves.

In the event a person is recognised as potentially suffering the early stages of heat stress, take them to a cool shade spot and have them drink plenty of water to allow recovery. If symptoms persist or if they are suffering more serious symptoms, then they must receive immediate medical attention. Heat stroke without medical attention can lead to death.

4.1.4 Hypothermia

While extreme cold is uncommon in Australia, there are regions in both Australia and New Zealand where hypothermia is a risk. Much like is the case with heat-related illnesses, you should protect yourself from cold using appropriate PPE (appropriate clothing for cold conditions) and, where possible, occupying positions that protect you from wind, snow or rain.

Hypothermia occurs when the body's temperature falls below 35 °C. Severe hypothermia can be fatal without prompt medical treatment.

Signs & symptoms

Early warning signs may include:

- feeling cold
- shivering
- clumsiness and slurred speech, apathy and irrational behaviour.

As body temperature drops:

- shivering usually ceases
- pulse may be difficult to find and heart rate may slow
- level of consciousness continues to decline.

At around 30°C body temperature:

- unconsciousness is likely
- heart rhythm is likely to change.

As the body temperature falls further the heart may arrest, resulting in death.

Aim to stabilise core temperature rather than attempt rapid rewarming.

- DO NOT rub affected areas
- DO NOT use radiant heat (e.g. fires or heaters)
- DO NOT give alcohol
- DO not put in a hot bath

Management

1. Follow DRSABCD.
2. Remove the patient to a warm, dry place.
3. Protect the patient and yourself
 - from wind, rain, sleet, cold, wet ground.
4. Remove wet clothing.
5. Warm the patient:
 - place between blankets, in a sleeping bag, or wrap in a thermal/space blanket or similar,
 - cover the head to maintain body heat.
 - hot water bottles, heat packs may be applied to the patient's neck, armpits and groin.
 - Give patient warm drinks if conscious
6. Ensure medical assistance has been called.

4.1.5 Smoking

Smoking on most work sites is either severely restricted or banned altogether. There may be designated smoking areas and these are usually off the work site entirely. In addition to the effects on your own personal health there are significant safety issues addressed by specific rules around smoking:

- No smoking, naked flames or matches within a blasting area,
- No smoking or naked flame near refuelling operations,
- No smoking near a flammable liquid storage area.

4.1.6 Alcohol

Most jurisdictions in Australia and New Zealand have mandated that traffic control workers must maintain a 0% blood-alcohol content (BAC) while on duty. This means that you should avoid excessive alcohol consumption before work shifts. Because of this requirement, you may be required to submit to periodic drug and alcohol testing, but this will be determined by company policies and procedures.

Random alcohol testing is required by law and a breathalyzer is usually used. Generally each site sets its maximum allowable blood alcohol limit. Generally sites do not allow personnel onto site if they have any level of alcohol in their system. Even though you may legally be allowed to drive with a BAC of less than 0.05% the sites who have dictated a level of 0.00% will require that you do not enter their site. You must ensure that you know your site's policy.

4.1.7 Medication and Drugs

Many prescribed and over-the-counter medications may affect your ability to perform your normal work safely. Many work sites maintain a system of recording the details of workers who are currently using prescribed medicine. This system serves two purposes.

1. It allows the allocation of jobs and tasks which are safe for a worker on medication to perform.
2. It provides important information that may be of use in a medical emergency.

For your safety and the safety of others, ensure you notify the relevant person, through the appropriate channels, of any prescribed medicines or other medication you are required to take as you are not allowed to work if you are affected by drugs or other substances.

As part of managing drugs in the workplace, drug testing may be implemented. Drug testing may require the worker to provide a urine or saliva sample. The testing regimes may be random or regular. You will not be allowed on site if you have any level of recreational drugs in your system. Also if you refuse to undertake a drug and alcohol test it may be recorded as a positive result.

Note:

If you are taking any medication which makes you drowsy or affects your performance, do not carry out work where these side effects can reduce your safety. If necessary, discuss any work limitations with the person coordinating your work or the Safety Department

4.2 Fitness for Duty

What is fitness for duty?

Work zone traffic control work requires that you present yourself fit for duty in terms of alcohol, drugs, fatigue, and physical or psychological impairment. If you feel that you are not fit for duty for any reason at the start of or during your shift, you must talk to your supervisor about it immediately.

This is a shared responsibility between workers and management.

You have a responsibility to ensure that you are not impaired by drugs or alcohol when you are working. You should have had adequate rest so that you are not fatigued at the start of shift.

You also should take care with diet and exercise to maintain good health. If you are stressed to the point where it may affect your ability to work safely, you need to address this factor.

Management must ensure that working hours and rosters are organised to limit the fatigue levels experienced by workers and allow for adequate recovery time to ensure physical and mental health.

You also have an obligation to report anything that may affect the safety of you and other workers. This includes reporting a workmate who may not be fit for duty.

4.3.1 Industry Life

Working within the Resources and Infrastructure Industry in Australia can be very harsh and demanding both physically and psychologically. The work itself can be tough because of:

- Weather – work sites are often located in very hot and harsh areas of the country
- Physical effort – some roles require hard physical work
- Work environment – dust, noise, vibration, heat, cold, darkness
- Extended working hours – a typical working shift is often 12 hours long

Many work sites are located away from residential locations and so systems such as FIFO (fly-in-fly-out) and DIDO (drive-in-drive-out) are employed. These systems are then coupled with shift rosters such as:

- 8 days on / 6 days off
- 7 days on / 7 days off
- 2 weeks on / 1 week

This lifestyle can place lots of pressure on workers, their families / friends. Shift workers often stay in accommodation camps & can become quite institutionalised. To combat possible boredom for people not actually working, some camps provide high quality recreational facilities & social events.

Separation from families often has more detrimental effects on those staying at home whilst their partner is away at work. It is recommended that travelling workers set up a support network for their families while they are away.

All of these issues can cause significant stress for workers and can affect their fitness for duty. You should talk to your supervisor if you are concerned about your ability to cope.

4.4 Policies

All the above information regarding your personal health and wellbeing should be understood together with your work place policies and procedures. Your site's Safety and Health Management System will cover all these issues and provide guidance to ensure you and your workmates are safe and healthy at work.

5 Incidents and Investigations

5.1 Statistics

Gathering and displaying incident and injury statistics are an important part of improving workplace health and safety.

It is vitally important to accurately report to your supervisor and record all accidents, incidents and near misses across all work sites. This could also include reporting to emergency services.

The purpose of this reporting is not to attach blame to individuals but rather to determine the cause and severity of the incident and thus take action to ensure that a similar problem does not recur. So the incident report should state the facts relating to the incident and indicate what you believe caused the incident.

Looking wider to a company and industry focus safety statistics are used to observe trends and repeat incidents of a similar nature.

Overall the reporting framework is working to improve safety not only on your site but across the industry. The quality of this data is mostly dependent on how accurately you complete any reporting at your site.

5.2 Records

Serious reportable events, incidents and accidents must be reported to the relevant industry authority and an Industry Safety and Health Representative / Industry Check Inspector.

As a traffic controller you must look after yourself first and then you are required to secured and control the site until an investigation has been completed and the site has been released.

Within a work zone traffic management context, this could include:

- Reports about offending road users (e.g. disregarding traffic management arrangements or road rules, abusing traffic control workers, etc.)
- Inappropriate or unpermitted behaviour of traffic control personnel
- Near misses in the work zone
- Accidents in the work zone

5.2.1 Industry-Generated Significant Incident Reports & Safety Alerts

Significant Incident Reports and Safety Alerts are generated within the industry and circulated to all sites. These reports contain details of incidents that have occurred on sites from around the country. They are provided to ensure that workers are made aware of the causes of incidents.

You are urged to read Significant Incident Reports and Safety Alerts that are relevant to your work area. You are also urged to raise any issues that arise from Significant Incident Reports and Safety Alerts that seem relevant to your work area with your supervisor.

5.3 Investigations

If an injury, illness or dangerous incident has occurred at your workplace you may be legally required to notify the relevant Workplace Health and Safety authority about what happened. In addition, it is likely that an investigation into the incident will occur and you may be required to participate in this activity.

There are many different processes and models that can be used to conduct an incident investigation depending on the Australian state and industry you are working within. Different organisations also have a variety of systems used for investigations.

You may be required to participate in an investigation for many reasons including:

- You were directly involved,
- You observed the incident,
- You are performing a similar task,
- You were supervising a person involved

The following steps are a general guide to investigations. There may be more or fewer steps and they may have different names however this is a broad overview:

1. Immediate Action. (if required)
 - a. Medical attention
 - b. Security of the scene & equipment
 - c. Removal of hazards
 - d. Notification to relevant authority
2. Planning the investigation
 - a. Roles and responsibilities
 - b. Time frames
 - c. Names and contact details of those to be interviewed
 - d. Records needed (photographs, sketches, documents, registers)
3. Collection of information
 - a. Date, time, location etc.
 - b. People involved
 - c. Equipment involved
 - d. Lead up events
 - e. Events occurring at the time
 - f. Conditions (weather, noise, dust)
 - g. Processes and procedures being used at the time

4. Permits and authorities Organise the data
 - a. Sequence of events – timeline
 - b. Key events
5. Analyse the data
 - a. Root cause analysis of each event
6. Recommendations
 - a. Risk assessments
 - b. Hazard identification
 - c. Application of hierarchy of controls
7. Reporting
 - a. Internally within the company
 - b. Report to relevant WHS authority