



MOBILE EQUIPMENT

Queensland Coal Mining



LEARNER GUIDE

Purpose

The purpose of this learner guide and associated theory test is to help remove the common theory questions between the mining competencies for Mobile Plant Operations and be able to reduce the cost to industry. It also acts as a refresher for current operators who need their competencies refreshed to comply with the Coal Mining Safety and Health Regulations Section 84.

Below are the competencies that this learner guide covers.

- ◆ RIIMPO206D – Water Truck
- ◆ RIIMPO208E - Support Equipment
- ◆ RIIMPO301D – Hydraulic Excavator
- ◆ RIIMPO304D – Wheel Loader
- ◆ RIIMPO305E – Stockpile Dozer
- ◆ RIIMPO308E – Tracked Dozer
- ◆ RIIMPO309E – Wheel Dozer
- ◆ RIIMPO310E – Grader
- ◆ RIIMPO312D - Scraper
- ◆ RIIMPO315D – Tractor
- ◆ RIIMPO316D – Compactor
- ◆ RIIMPO317E – Roller
- ◆ RIIMPO318E – Skid Steer Loader
- ◆ RIIMPO319D – Backhoe Loader
- ◆ RIIMPO337D – Articulated Haul Truck
- ◆ RIIMPO338D – Rigid Haul Truck

The guide covers the following topics

- ◆ Legislation
- ◆ Plan and prepare
- ◆ Hazard Identification and Control
- ◆ Tagging and Isolation
- ◆ Emergency Response
- ◆ Communications
- ◆ Processing Records
- ◆ Carry out operator maintenance
- ◆ Conduct housekeeping activities

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1.1 Introduction

Safety on the mine site is critical. Potentially hazardous situations are encountered on a daily basis and each member of the on-site staff must learn to identify and manage hazards as they arise. As a part of safety management, all personnel must meet their responsibilities under their Duty of Care. Your Duty of Care requires your total involvement to act responsibly and perform work in accordance with legislation, site policies, safety standards and relevant codes of practice.

It is your responsibility to protect your own health and safety & the health and safety of other personnel by:

- ◆ complying with health and safety rules and regulations
- ◆ reporting all unsafe conditions, near misses, incidents, dangerous conditions or injuries
- ◆ reporting damage or defective components for repair
- ◆ being responsible for your actions and not endangering the health and safety of yourself or other personnel
- ◆ wearing correct Personal Protective Equipment (PPE) for the task
- ◆ ensuring you are qualified, competent and confident to perform the task.

Your Duty of Care can be summed up in the following sentence.

'A Duty of Care means that a prudent person will take appropriate steps to prevent an incident that was or should have been reasonably foreseeable'.

If you and all personnel working on the site operate in accordance with the above, you will have gone a long way to ensuring that each person can complete each day's work and return home in the same condition as when they started.

A safe and healthy environment is paramount to avoid injury to personnel. In addition, it also provides the conditions for the continued operation of fixed and mobile plants of prime importance in a production environment. The best approach to safety is to prevent accidents or incidents from developing in the first place.

1.1.1 Health and Safety Management

With the introduction of modern health and safety legislation, as exemplified by the *Coal Mining Safety and Health Act 1999* in Queensland, we move away from the prescriptive legislation of the past and into an era of modern legislation based on concepts of obligation, self-regulation and joint consultation between management and workers.

All persons have an obligation to ensure their own health and safety and that of others affected by their actions. We are also all legally obliged to protect the environment. The new style legislation also requires that a specified person, being the Employer or Site Senior Executive (depending on the classification of the workplace) develop and implement both a Safety and Health Management System (SHMS) and a structure to manage it.

1.1.2 Obligation of mine workers

The following is an extract from the *Queensland Coal Mining Safety and Health Act 1999* s39:

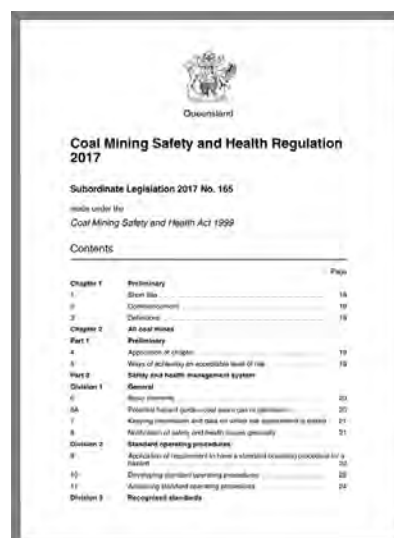
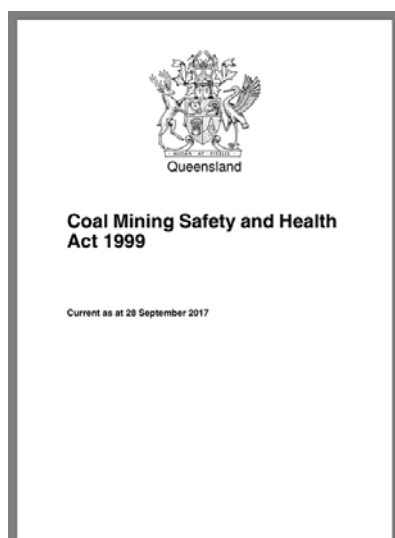
39 Obligations of persons generally

(1) *A coal mine worker or other person at a coal mine or a person who may affect the safety and health of others at a coal mine or as a result of coal mining operations has the following obligations—*

- (a) *to comply with this Act and procedures applying to the worker or person that are part of a safety and health management system for the mine;*
- (b) *if the coal mine worker or other person has information that other persons need to know to fulfil their obligations or duties under this Act, or to protect themselves from the risk of injury or illness, to give the information to the other persons;*
- (c) *to take any other reasonable and necessary course of action to ensure anyone is not exposed to an unacceptable level of risk.*

(2) *A coal mine worker or other person at a coal mine has the following additional obligations—*

- (a) *to work or carry out the worker's or person's activities in a way that does not expose the worker or person or someone else to an unacceptable level of risk;*
- (b) *to ensure, to the extent of the responsibilities and duties allocated to the worker or person, that the work and activities under the worker's or person's control, supervision, or leadership is conducted in a way that does not expose the worker or person or someone else to an unacceptable level of risk;*
- (c) *to the extent of the worker's or person's involvement, to participate in and conform to the risk management practices of the mine;*
- (d) *to comply with instructions given for safety and health of persons by the coal mine operator or site senior executive for the mine or a supervisor at the mine;*
- (e) *to work at the coal mine only if the worker or person is in a fit condition to carry out the work without affecting the safety and health of others;*
- (f) *not to do anything willfully or recklessly that might adversely affect the safety and health of someone else at the mine.*



1.1.3 Coal Mining Safety and Health Regulation 2017

Chapter 2 all coal mines

Part 11 Training

- 83 New coal mine worker not to carry out task until induction training completed
- (1) A person starting work at a coal mine must not carry out any task at the mine unless the person has completed induction training for the mine.
 - (2) Subsection (1) does not apply to a task carried out by the person in the course of induction training.
- 84 Refresher training
- (1) The site senior executive for a coal mine must ensure each coal mine worker at the mine, including each worker holding a senior management or supervisory position and each worker holding a certificate of competency, is given refresher training **under the mine's training scheme at least once every 5 years.**
 - (2) The worker must undergo the training.
- 85 Coal mine worker not to carry out task unless competent
- (1) This section applies only to a task designated, under a coal **mine's training scheme, as a task that may only be carried out** by a person who has been assessed as competent to carry the task out.
 - (2) A coal mine worker must not carry out the task at the mine unless the worker has been assessed as competent, and is **authorised by the mine's site senior executive or the site senior executive's representative, to carry the task out.**
 - (3) Subsection (2) does not apply to a task carried out by a person—
 - (a) in the course of training; or
 - (b) in an emergency.



1.2 Working Safely

You must follow all safety rules and instructions when performing any work. If you are not sure about what you should do, ask your boss or supervisor. They will tell you what you need to do and how to do it in a safe way.



1.2.1 Health and Safety Rules

Every workplace has to follow laws and rules to keep everyone safe. There are 4 main types:

Acts give a general overview of how to make workplaces safe and healthy. They outline your legal responsibilities and duties as an employer and business owner.

Regulations set out the standards you need to meet for specific hazards and risks, such as noise, machinery, and manual handling. They also set out the licenses you need for specific activities, the records you need to keep, and the reports you need to make.

Codes of Practice set out industry standards of conduct. Usually, Codes of Practice are established through consultation with industry representatives and the community. They can be mandatory or voluntary.

Australian Standards are voluntary documents that set out specifications, procedures and guidelines that aim to ensure products, services, and systems are safe, consistent, and reliable.



When **courts are deciding whether workplace health and safety laws have been met**, they may consider whether you've followed the Act, Regulations, Australian Standards or approved codes of practice for your state or territory.

Regulating agencies (also known as **regulators**) **administer health and safety laws**. They're responsible for inspecting workplaces, providing advice and help, and handing out notices and penalties where necessary.

1.2.2 Site Senior Executive's Safety Management System



A safety and health management system for a coal mine is a system that incorporates risk management elements and practices that ensure safety and health of persons who may be affected by coal mining operations.

A safety and health management system must be an auditable documented system that forms part of an overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining a safety and health policy.

Management of health and safety is a statutory function of the Site Senior Executive (SSE), and is outlined in the various components of the SSE's Safety Management System (developed to be site specific).

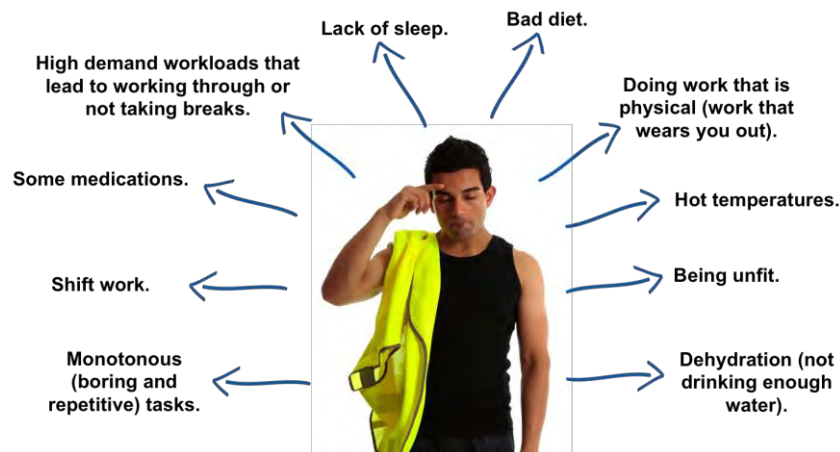
1.2.3 Fitness for Duty and Fatigue Management

Fit for duty means that an individual is in a physical, mental, and emotional state which enables the employee to perform the essential tasks of his or her work assignment in a manner which does NOT threaten the safety or health of oneself, co-workers, property, or the public at large.

Operator Fatigue

Fatigue is one of the leading causes of accidents for operators of all types of vehicles and equipment.

Fatigue can be caused by:



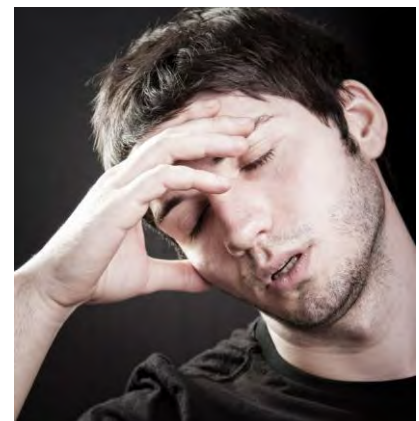
Warning signs that you are suffering fatigue include:

Physical	<ul style="list-style-type: none">◆ Slow reaction time.◆ Tiredness, yawning or sore eyes.◆ Headaches, stomach or other problems.◆ Micro sleeps (nodding off for a short period of time).
Mental	<ul style="list-style-type: none">◆ Trouble concentrating and thinking clearly.◆ Shorter than normal attention span.◆ Boredom, irritability or lack of motivation.
Work	<ul style="list-style-type: none">◆ Poor or careless performance.◆ Overlooking minor but potentially important details.◆ Lower levels of communication and cooperation with others.

It is very important that fatigue is managed properly. Here are some ways you can manage fatigue:

- ◆ Get enough sleep.
- ◆ Drink plenty of water.
- ◆ Take regular breaks.
- ◆ Keep a healthy diet.
- ◆ Keep a reasonable level of fitness.

Talk to your boss or supervisor about breaking up boring or monotonous tasks or rotating the work you are doing with other workers if possible.



On most sites, there is the following levels of authorisation to operate equipment on site:

- ◆ Full authorisation to operate plant and equipment
- ◆ Maintenance Purpose authorisation
- ◆ Specific limited authorisations where relevant - eg stockpile dozer operations.

All authorisations shall be the responsibility of the SSE or their designated representative.

This shall include, but not be limited to:

- ◆ Operators of mobile equipment (including different models of mobile equipment)
- ◆ **statutory activities as described within “the Act and Regulations”**
- ◆ light vehicle drivers operating company vehicles both on and off site
- ◆ Lifting equipment (mobile, fixed or vehicle mounted cranes)
- ◆ Elevating Work Platforms (cherry pickers, etc.)

A SSE may revoke an authorisation given under the coal mines training scheme in the event of a person demonstrating an inability to carry out duties in a safe and competent manner.



1.2.6 Environmental Protection

There are a number of ways that you can protect the environment at the worksite, your manager will advise **you of the specific environmental policies, procedures and SOP's for your site. Generally these will advise on:**

- ◆ Have a controlled waste management plan
- ◆ Follow a controlled water quality protection plan
- ◆ Control the level of noise, vibration and dust on the site
- ◆ Follow the clean-up management
- ◆ Comply with any regeneration requirements
- ◆ Hazardous material & environmentally sensitive oils & fluids need to be disposed of to protect human health and the environment.



1.2.7 Operations Documentation

Before starting your work you need to make sure you have access to all operations documentation for the job. This will help you to do your work in the safest way and make sure all work is compliant.

Operations documentation includes:

Site Details

The information and safety requirements of the workplace environment (where you will be working).

Hazard Details

Any hazards in the work area or related to the work. This could also include instructions on how to handle dangerous or hazardous materials.

Task Details

Instructions of what the work is or what you will be doing (this can include diagrams or plans). Also instructions on how to safely do the job.

Faulty Equipment Procedures

Isolation procedures to follow or forms to fill out.

Signage

Site signage tells you what equipment you need to have, or areas that are not safe to be in.

Emergency Procedures

Instructions on what to do in emergency situations, for example if there is a fire, accident or emergency where evacuation or first aid is needed.

Equipment and Work Instructions

Details of how to operate plant and equipment and the sequence of work to be done.

1.2.8 How to Keep Everyone Safe

WHS law says that all companies and workers need to keep themselves and other people safe while they work. This is called a duty of care.

To keep yourself and other workers safe you need to:

- ◆ Follow your instructions.
- ◆ Follow all workplace rules.
- ◆ Make sure all equipment is safe to use.
- ◆ Carry out your work safely.
- ◆ Report any problems.

If you think something is dangerous tell your boss or supervisor as soon as possible.



Your worksite will also have instructions for working safely including:

- ◆ Emergency procedures, including using firefighting equipment, first aid and evacuation.
- ◆ Handling hazardous materials.
- ◆ Safe operating procedures.
- ◆ Personal protective clothing and equipment.
- ◆ Safe use of tools and equipment.

1.3 Work Planning

When planning work, it is the operator's responsibility to identify hazards and select suitable hazard control strategies. The operator must determine the job requirements and any workplace rules and procedures. Always communicate with the site safety representative when developing a job plan. And ensure the job planning includes coordination requirements with others at the site. It is important to have workplace emergency procedures on each site in order to follow a plan in the event of an emergency. You need to be clear about what work you will be doing. Make sure you have everything about the job written down before you start. This includes what you will be doing, how you will be doing it and what equipment you will be using.



Make sure you have all of the details about where you will be working. For example:

- ◆ The Site – Is there clear access for all equipment? Are there obstacles in the way? What are the ground conditions like? Is the site ready for **your work to begin? Are there any 'out of bounds' areas you need to avoid?**
- ◆ The Weather – Is there wind, rain or other bad weather? Is it too dark?
- ◆ Traffic – Are there people, vehicles or other equipment in the area that you need to think about? Do you need to get them moved out of the area? Do you need to set up barriers or signs?
- ◆ Hazards – Are there dangerous materials to work around or think about? Will you be working close to other people for example:
 - ◆ Overhead power lines
 - ◆ Overhead service lines and or conveyors
 - ◆ Underground services
 - ◆ Recently filled trenches
 - ◆ Ground conditions such as holes
 - ◆ Adjoining pit walls
 - ◆ Obstructions – fences; stockpile material
 - ◆ Other equipment and vehicles
 - ◆ Surround buildings, structures and trees
 - ◆ Stored energy – engine components; radiators/cooling system
 - ◆ Contaminates
 - ◆ Inadequate lighting
 - ◆ Bridges
 - ◆ Hidden holes
 - ◆ Drop offs
 - ◆ embankments
 - ◆ Hazardous chemicals
 - ◆ Adverse weather – electrical storms; fires
 - ◆ Personnel

You also need to make sure you have all of the details about the kind of work you will be doing:

- ◆ The Task – What kind of material is being moved? How much is there to move? How long do you have to complete the work? Where will the load be discharged?
- ◆ Plant – What type of plant will be used? How big is it? How much room does it need? Is it available?
- ◆ Communications – How are you going to communicate with other workers?
- ◆ Procedures and Rules – Do you need any special permits or licences? Are there site rules that affect the way you will do the work e.g. contamination control requirements?

Always check for hazards before you start work

When developing a Site Plan/Job Safety Analysis, the operator must include hazard control strategies such as:

- ◆ PPE requirements
- ◆ Warning signs barriers
- ◆ Traffic control
- ◆ Adequate artificial lighting
- ◆ Storage of dangerous hazardous materials
- ◆ Public safety
- ◆ Obtaining permits
- ◆ Maintaining the safe distance from known dangers
- ◆ Review the geological and survey data to determine the safest travel route
- ◆ Dust suppression techniques



1.3.1 Reading and Checking Your Work Instructions

All work needs to follow worksite, environment and company safety procedures.

Procedures help to make sure that all work is done in a safe way, without damaging equipment or putting people in unsafe situations. They also help to **make sure that work is done in the correct order and doesn't interrupt or get in the way of other work that is happening on the site.**

Your work instructions will tell you the safest way to do the job, and the equipment that you will need to use. It is a good idea to check your work instructions with your boss or supervisor to make sure you know exactly what you need to do.

If you don't know where to get your instructions or you can't understand them, you can ask your boss or supervisor. They will tell you where to find your work instructions and explain what they mean.



1.3.2 Job Safety Analysis (JSA)



Many worksites require a Job Safety Analysis before any work can start. A JSA is a list of steps that outlines how a job will be done. It also includes any hazards that occur at each step, and what you need to do about them.

These documents can also be known as a Safe Work Method Statement (SWMS)

1.3.3 Plans and Specifications



Some of your work instructions might be given to you in plans, maps, reports and specifications. You will need to get the information out of these documents and use it to do your job.

Project specifications will tell you the types, quantities, grades and classifications of materials you will be working with.

Make sure you are familiar with the site product or materials before you begin work. Some materials are more cohesive or sticky while others may be much less stable to work with, or create hazards like dust, contamination or damage to equipment if they are not handled just the right way.

Plans are usually "scale drawings" that represent a large area on a small sheet of paper and show proportion at the same time.

Project plans and maps give you an overview of the site, for example:

- ◆ The location of your work area in relation to the whole mine site.
- ◆ The position of stockpiles, work zones, roads and access areas.
- ◆ **The location of environmentally sensitive or 'no go' areas.**
- ◆ Contours, or the lay of the land, e.g. slopes, banks, depressions.



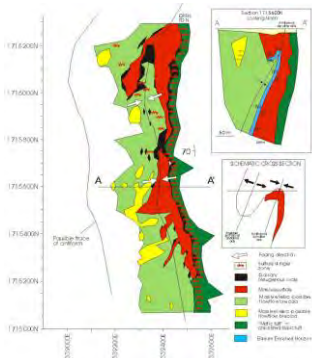
1.3.4 Geological and Survey Data

Geological and survey data is used to guide you through a job. It tells you what the area is like, what things you will need to think about and what work you need to complete.



1.3.4.1 Geological Data

Geological data gives you information about:



- ◆ Rock or material types and characteristics.
- ◆ Wet and dry areas.
- ◆ Water tables or other sources of water.
- ◆ Broken ground, faults or joints.
- ◆ Compaction levels.

All of this information will help you to decide where and how you should travel with equipment and areas to avoid.

1.3.4.2 Survey Data

Survey data covers information about job outcomes including:

- ◆ Bench heights and widths.
- ◆ Floor heights.
- ◆ Floor, ramp and bench grades.
- ◆ Underground working and voids.



Survey data can also be used to mark out:

- ◆ Work circuits.
- ◆ Pick up areas.
- ◆ Dump areas.
- ◆ Spill zones.
- ◆ Routes or traffic ways.

1.4 Inspect and Prepare the Work Area



Before you start any work you need to look around the site. The inspection and preparation of the worksite includes:

- ◆ Working out the path of movement for plant, vehicles and materials.
- ◆ Identifying hazards, and taking suitable actions to deal with them.
- ◆ Making sure all equipment, resources and workers are available for the task.

It is important to coordinate with other workers when you are inspecting and preparing the site to make sure everyone knows what is going on, what you are planning to do and what they need to do.

All workers on site must understand their own role and the roles of others before starting work. It helps to make sure work is done safely and efficiently.

Workers you may need to coordinate with includes:

- ◆ Other mobile plant operators.
- ◆ Processing plant operators.
- ◆ Maintenance workers.
- ◆ Water truck/cart operators.
- ◆ Service vehicle operators.
- ◆ Crane and float operators.
- ◆ Contractors.
- ◆ Inspectors, both internal and external, including WHS, environmental and quality assurance officers.
- ◆ Supervisors.
- ◆ Site visitors.



1.5 Hazard Identification and Control

Before you start work, you need to check for any hazards or dangers in the area. If you find a hazard or danger you need to do something to control it. This will help to make the workplace safer.



1.5.1 Identify Hazards

Part of your job is to look around to see if you can find any hazards before you start any work.



A hazard is the thing or situation that causes injury, harm or damage.

When you start checking for hazards, make sure you look everywhere. A good way to do this is to check:

- ◆ Up high above your head.
- ◆ All around you at eye level.
- ◆ Down low on the ground (and also think about what is under the ground).

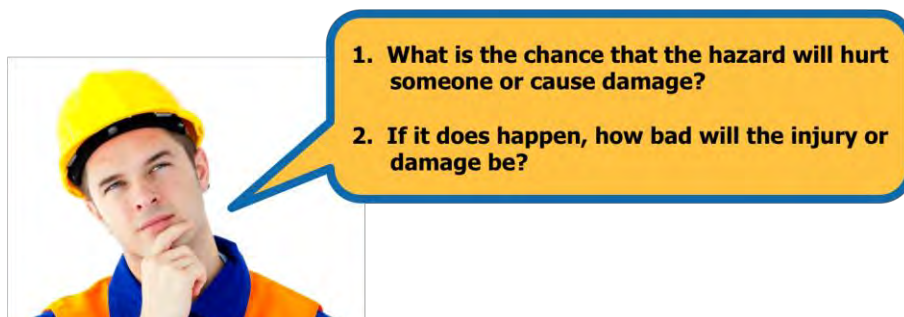
Some hazards you should check for in the work area are:

- ◆ Overhead clearance.
- ◆ Work area and ground conditions:
 - ◆ Uneven or unsafe ground.
 - ◆ Unstable faces.
 - ◆ Overhanging rocks.
 - ◆ Excavations.
 - ◆ Holes and potholes.
 - ◆ Soft edges and sinkage areas.
 - ◆ Dust and noise.
- ◆ Fires.
- ◆ People – site personnel or visitors.
- ◆ Handling characteristics of the equipment.
- ◆ The effects of the load as you haul or dump it.
- ◆ Hazardous materials – chemicals, fuel, contaminants, gases or dusts.
- ◆ Weather conditions – electrical storms, wind, heat, floods, fires, humidity.
- ◆ Equipment or machinery – other vehicles, conveyors, fixed plant, abandoned or unattended equipment, ancillary equipment, lifting equipment.



1.5.2 Control Hazards

After you have found hazards or dangers you need to work out how bad they are:



Thinking about these things will help you to choose how to control the hazards. Hazards controls need to follow:



- ◆ Legislation (laws).
- ◆ Australian Standards.
- ◆ Codes of Practice.
- ◆ **Manufacturers' specifications.**
- ◆ Industry standards.

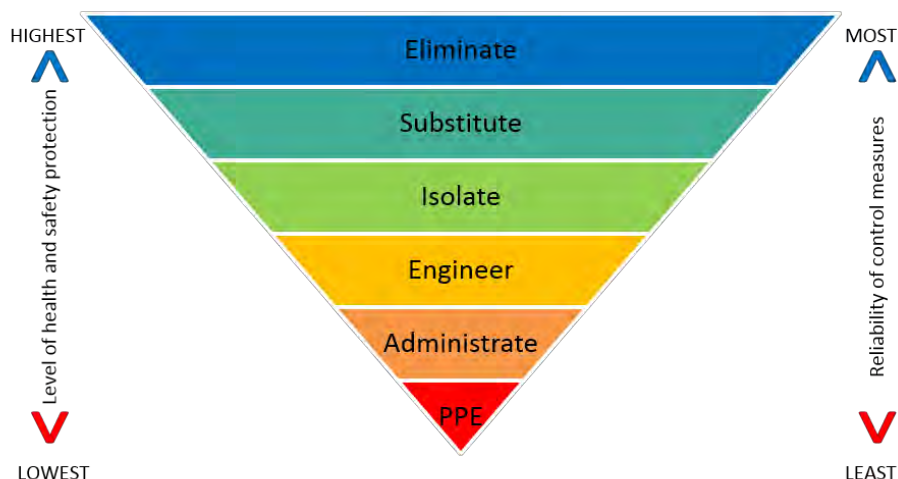
The best way to control hazards is to use the Hierarchy of Hazard Control. The hierarchy of hazard control is a range of options that can eliminate, or reduce the risk of hazards.

You start at the top of the list and see if you can take away (eliminate) the hazard or danger.

If you can't take it away you move down the list to see if you can swap it for something safer (substitution).

Keep working through the list until you find something that controls that hazard or danger.

This table shows you the 6 different types of controls in order from best to worst:



Hierarchy Level	Action
1. Elimination	Completely remove the hazard. This is the best kind of hazard control.
2. Substitution	Swap a dangerous work method or situation for one that is less dangerous.
3. Isolation	Isolate or restrict access to the hazard.
4. Engineering Controls	Use equipment to lower the risk level.
5. Administrative Controls	Site rules and policies attempt to control a hazard.
6. Personal Protective Equipment	The least effective control. Use PPE while you carry out your work.



It is important to think about all of the options available when deciding on the best hazard controls. You may need to use more than 1 control measure to bring the risk level down to an acceptable level.

Check the situation after you have applied a control measure to see if more controls, or different controls are needed to make the job safe. If more controls are needed, make sure they are applied before you start or continue the work.

Talk to your supervisor or safety officer if you are not sure if it is safe enough to carry out your work. If you think the hazard is still too dangerous you should not try to do the work.

1.5.2.1 Personal Protective Equipment

Personal Protective Equipment (PPE) is clothing and equipment designed to lower the chance of you being hurt on the job. It is required to enter most work sites.

It includes:

- ◆ Head protection – hard hats and helmets.
- ◆ Foot protection – non-slip work boots.
- ◆ Hand protection – gloves.
- ◆ Eye protection – goggles, visors or glasses.
- ◆ Ear protection – plugs or muffs.
- ◆ Breathing protection – masks or respirators.
- ◆ Hi-visibility clothing – clothing that makes you stand out and lets other people know where you are.
- ◆ Weather protection – clothing that protects you from the sun or from the cold.



Make sure any PPE you are wearing is in good condition, fits well and is right for the job.

If you find any PPE that is not in good condition, tag it and remove it from service. Then tell your supervisor about the problem and they will organise to repair or replace the PPE.



1.5.2.2 Fire Fighting Equipment

Firefighting equipment on site could be anything from small fire extinguishers through to large water cannons. Different firefighting equipment should be used for different types of fire. Always check the equipment for information on what type of fire it can be used on.

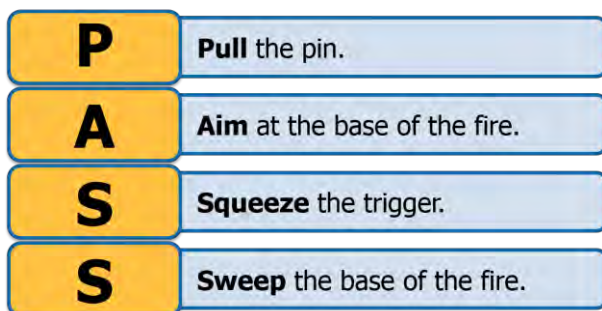
Steps for using a fire extinguisher:

1. Evacuate the area.
2. Isolate the area.
3. Call emergency services or follow other designated on site procedure.
4. If it is safe to do so, use an extinguisher to attempt to control the fire using the PASS system.



The extinguisher will only last for approximately ten seconds which is enough to check a fire in its early stage but there is no time for delay.

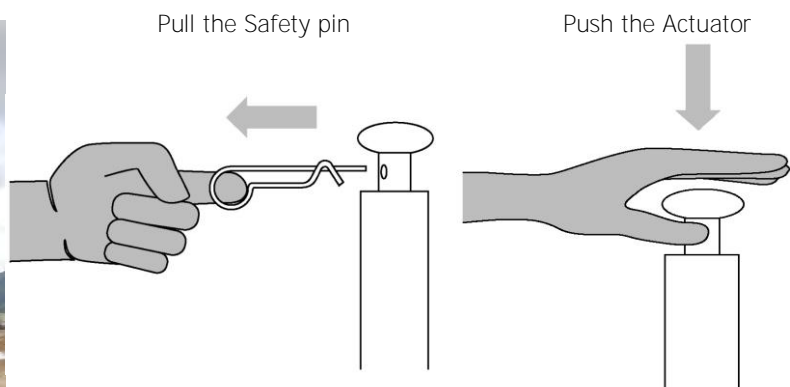
For the use of a fire extinguisher you must follow the job/mine site's emergency procedures



Contact your site emergency management team as soon as possible if a fire breaks out.

1.5.2.3 On Board Fire Suppression

The suppression system will be automatically activated in the event that there is a fire in the engine bay. If a fire is detected prior to the automatic activation, the fire suppression system can be manually activated either from within the cab or from ground level. Further details of the fire suppression system are provided in the later topic on equipment introduction.



1.5.2.4 Permits

The work permit system covers the issue of any and all work permits, and is used by organisations to control worksite situations and tasks involving identified hazards. These are environments where hazards exist or specific procedures need to be followed and monitored to protect the safety of personnel/workers and the integrity of plant or process.

Permits are issued for:

- ◆ Hot work
- ◆ Confined space work
- ◆ Working at Heights
- ◆ Excavation/Penetration
- ◆ Notifiable lifts;
- ◆ High voltage work and
- ◆ Floor/ Handrail removal.



1.5.2.5 Safety Signage

All safety signs follow the appropriate Australian Standards.

Safety signs draw attention to objects or **situations which can affect individual's health and safety**. They are placed in strategic locations as close as possible to the hazardous areas. If they become damaged or unreadable, operators should ensure that the signs are replaced as soon as possible.



1.5.2.6 Flashing Lights



Flashing lights are used on vehicles, cranes and other moving equipment to make them more visible during operation. Generally a flashing light of the following colours is used on vehicles in the workplace:

- ◆ Red – ambulances, fire and rescue vehicles.
- ◆ Blue – slow moving vehicles such as graders, water trucks and cranes.
- ◆ Amber – light vehicles when driving in dusty or hazy conditions; during hours of darkness; when the vehicle enters a restricted area where heavy equipment is operating.

1.5.2.7 Audible Alarms

Audible signals such as sirens, horns, bells, whistles and alarms in the workplace are used to signal a range of meanings. These include:

- ◆ emergencies
- ◆ vehicle movements
- ◆ faults
- ◆ equipment start/stop warnings
- ◆ passage of overhead cranes
- ◆ equipment failure
- ◆ explosions



1.5.2.8 Safety Data Sheets (SDSs)



A safety data sheet (SDS), previously called a material safety data sheet (MSDS), is a document that provides information on the properties of hazardous chemicals and how they affect health and safety in the workplace.

In an SDS, information on the chemical hazards is based on the Globally Harmonized System (GHS) of classification, rather than the hazardous substances and dangerous goods classifications. Both provide equivalent levels of information on chemical hazards and health and safety precautions, and either may be used in the workplace.

A SDS will include the following important information:

Information	Description
Hazard Classification	This information will be present on the SDS in the form of hazard statements, for example “may cause cancer” or “flammable liquid” .
The Route of Entry	This information is important as it lets you assess the health risks to your workers. Routes of entry can include inhalation (breathing it in), skin contact, ingestion (swallowing it), eye contact and injection through high pressure equipment. Depending on the substance, the severity of the harm could range from minor to major, for example, from minor skin irritation to chronic respiratory disease. Some chemicals may not be hazardous by all routes of entry. For example, silica is hazardous only by inhalation so the risk assessment needs to consider how inhalation could occur in the workplace.
Advice or Warnings for At-Risk Workers	The SDS may also include summaries of toxicological data, or advice or warnings for people that might be at risk, such as <ul style="list-style-type: none">◆ People who are sensitised to particular chemicals◆ Warnings for pregnant women.◆ People with existing medical conditions such as asthma.

Information	Description
Instructions on Storage	This may include advice on not to store with certain incompatible materials, or advice on potential hazardous degradation products. Examples include – storage of acids and bases, or storage instructions to avoid formation of explosive peroxides in ether during extended storage.
Physicochemical Properties	Physicochemical properties can have a significant effect on the hazard. Some key properties to note include: <ul style="list-style-type: none"> Physical state: is it solid, liquid or gas? <ul style="list-style-type: none"> If solid – what is the potential for dust explosion? If liquid – is it mobile/viscous/volatile/miscible? If gas (and vapours) – is it lighter/heavier than air? Flashpoint, fire point and explosive limits. Viscosity. Density. Particle size. Vapour pressure. Solubility and pH. Reactivity. Boiling and/or freezing point or range. Electrical and/or heat conductivity. The nature and concentration of combustion products.
Use Situations that may Generate Hazardous Chemicals	Examples may include: <ul style="list-style-type: none"> Use of welding rods which may liberate hazardous fumes and vapours. Directions for use of chlorine bleach, warning that harmful levels of chlorine gas may be generated if the substance is mixed with incompatible chemicals. Warnings that some metals, including alkali metals, in contact with water or acids, liberate flammable gas. Information on by-products or breakdown products like formation of explosive peroxides in ether.
Environmental Hazards	The SDS should contain information on environmental hazards and risks. An awareness of this information will assist you to meet any environmental laws in your state or territory.

Source: *MANAGING RISKS OF HAZARDOUS CHEMICALS IN THE WORKPLACE - Code of Practice*

1.5.2.9 Take-5 Risk Assessments

A 'Take-5' is a quick and simple tool for use in the field to conduct a 'HAZOB' (Hazard Observation).

It can be used to identify hazards and assess the risks associated with activities where documentation or a procedure already exists or when conditions (such as weather) change.

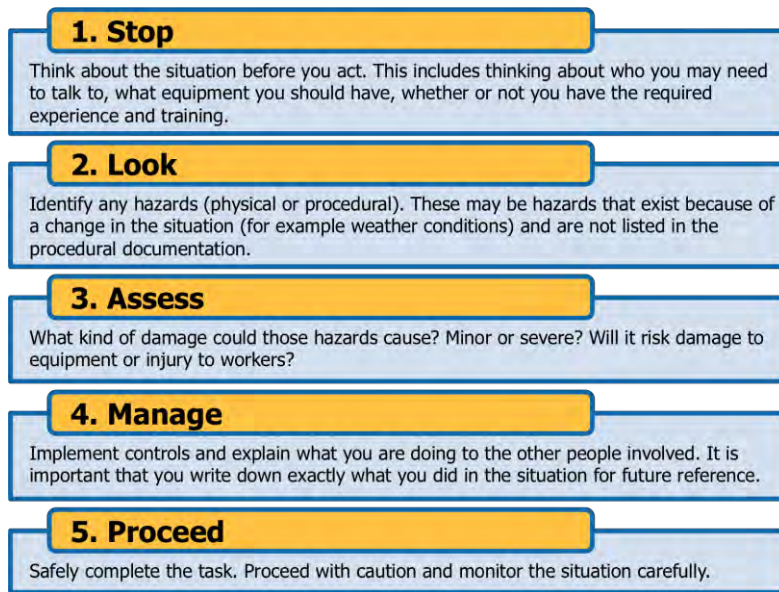
Once identified, the hazard is controlled, where possible, and recorded in accordance with site procedures.

Sites generally have a Take-5 book, checklist or process that is used as standard procedure in line with documentation and processes such as SWMS/JSA/JHA/JSEA and other safety procedures.



1.5.2.10 Steps in a Take-5 Risk Assessment

The Take-5 system uses 5 simple steps to identify and deal with any hazards, on the spot. The steps are:



Different sites may have specific procedures or books for recording the details of the Take-5 process. It is important that you always record and report the details of any hazard in line with site policies and procedures.

1.5.2.11 Completing a the Take 5 Form

A Take-5 form should be used to record the details of the hazard where the hazard cannot be recorded as per standard procedures. This will generally include listing:

- ◆ Date.
- ◆ Time.
- ◆ Your name.
- ◆ Location of the hazard.
- ◆ Details of the hazard (what is the hazard?).
- ◆ Action taken.
- ◆ Details of any further action that is required.
- ◆ Details of recommendations for controls or treatments.
- ◆ Details of the risk level.



It is the responsibility of the person who has identified a hazard during a Take-5 risk assessment to record and report the hazard in accordance with site procedures in a timely fashion.

Hazard ID Tool

Name:

Date:

Task Description:

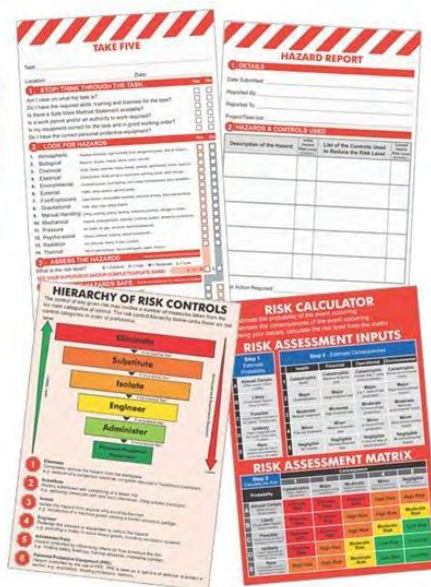
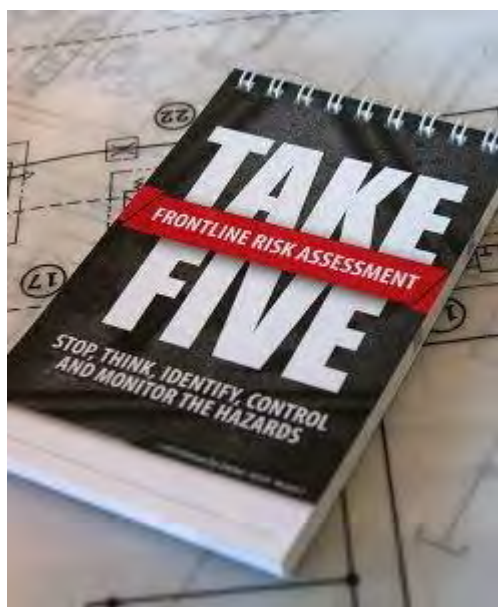
STOP:		Y	N	N/A
Do I fully understand the task?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, seek advice from your supervisor.				
THINK:		Y	N	N/A
Is there a procedure, work instruction, JSA or permit for this task?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, speak to your supervisor to determine task requirements.				
If yes, review/familiarise prior to proceeding.				
Is there a change to the work team, process, procedure or design?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, speak to your supervisor/follow Change Management processes				
Am I trained, competent and authorised to carry out this task?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If no, don't do the task and speak to your supervisor				
ASSESS the Hazards:		Y	N	N/A
1	Can I slip, trip or fall?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Can I strain or overexert myself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Is isolation and 'testing for zero potential' required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Can I be caught in, on, or between anything?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Could stored energy hurt me or someone else (eg. water, air, hydraulics)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Is access and lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Can I be affected by heat stress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Can I come into contact with something that could harm me like hot surfaces, electricity, haz subs or sharp objects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Can I damage equipment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Can something fall on or strike me?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Will this task introduce hazards to others, or could others impact on me?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Do I have a plan of action in case of emergency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Am I missing any PPE required for the task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Could this task impact on the environment (eg. waste, spills)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Have all people involved in the task, read & understood the permit / JSA?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IF YOU HAVE TICKED ANY RED BOXES,
WRITE THE CONTROLS ON THE BACK OF THIS SHEET.**

RISK CONTROL:[illegible]

IF ALL RESIDUAL RISKS CATEGORIES ARE LOW THEN START YOUR TASK

**WHEN CALCULATING THE RESIDUAL RISK, USE THE SITE MATRIX.
IF ANY RESIDUAL RISK CATEGORIES ARE MEDIUM OR ABOVE SPEAK TO YOUR SUPERVISOR,
YOU MAY NEED TO REVIEW AND AMEND YOUR JOB SAFETY ANALYSIS (JSA)**



2.1 Mine Communication



People you are working with need to be aware of what you are doing. To ensure your communication has been heard and understood you need to have positive communication back from others – this is confirmation that they have heard and understand what was said. By clarifying and confirming instructions you will avoid confusion, minimize hazards and achieve quality targets. You must maintain ongoing communication with others to relay: if you change the planned activity; to warn others of hazards; to coordinate with other vehicles .e.g truck drivers; to report defects; and to communicate emergencies.

2.1.1 Using the Mine Two Way Radio

Throughout operations you will be required to use the mine two-way radio to communicate, coordinate, clarify and confirm hazards, job conditions and job progress.

- ◆ When using be sure to give clear instructions
- ◆ **Don't leave room for confusion**
- ◆ Conversations should be:
 - ◆ **short and 'to the point'**
 - ◆ contain no abusive language
 - ◆ no social chit chat
 - ◆ no confidential information
- ◆ If the 2-way is defected it must be tagged out of service



2.1.2 Using Hand Signals










Working in-sync with your team on the ground is not only crucial for safety but can help your project run smoothly, on schedule and keep the supervisor happy. With absolute precision and accuracy needed for a job, being able to clearly communicate direction is critical – but this is not always an easy task.

Mine sites can be exceptionally loud and busy, meaning verbal communication is at risk of being drowned out by roaring machinery.

Hand signals provide a simple solution for the communication issues faced by crane operators. Although radios can be used to relay messages across the site, there are some situations when an operator will need extra assistance.

Although it recommended to use hand signals during all lifts, it is in these situations when a signal person will definitely be called upon. Easy to understand, hand signals help the operator avoid any potential hazards, completing actions in a safe and timely manner.

HAND SIGNALS

<p>Hoisting Raise</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>2 Short ..</p>	<p>Hoisting Lower</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Long —</p>
<p>Luffing Boom Up</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>3 Short ...</p>	<p>Luffing Boom Down</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>4 Short</p>
<p>Slewing Right</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Long, 2 Short — ..</p>	<p>Slewing Left</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Long, 1 Short — .</p>
<p>Jib/Trolley Out; Telescoping Boom Extend</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Long, 3 Short — ...</p>	<p>Jib/Trolley In; Telescoping Boom Retract</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Long, 4 Short —</p>
<p>Stop</p>  <p>Whistle, Bell & Buzzer Signals</p> <p>1 Short .</p>	
<p>Creep Speed: Appropriate hand signal for motion with hand opening and closing</p>	

2.1.3 Shift Change Meeting / Pre Starts

Information will be communicated between outgoing and incoming shifts. Shift changeover briefings, task requirements, machine defects, potential hazards, permit requirements, lighting equipment requirements, road conditions and work orders are the main avenues for this communication.

These meetings play a major role in maintaining safety and efficiency in the workplace.

- ◆ You receive Instructions regarding the nature and scope of the work you will perform.
- ◆ Your sites 'quality requirements'
- ◆ Information from the previous shift reports that may impact on the days operations.
- ◆ Priorities have to be set for the shift.
- ◆ Daily plans and targets must be set before the shift commences.
- ◆ Co-ordination requirements includes knowing the location and planned activities of other plant and personnel and then maintaining positive communication with them over the mine radio/two way during operations.
- ◆ Attending muster area briefing / debriefing sessions conducted by the supervisor.
- ◆ Verbal instructions direct from the supervisor.
- ◆ Discussions with the previous shift operator
- ◆ Reading Safety / Notice boards
- ◆ Site standard Operating Procedures and Work Instructions
- ◆ Maintaining minimal downtime & re-work by employing good work practices should be discussed before the shift commences.
- ◆ Safety briefs or issues relevant to the daily operation or workplace.



When receiving your work instructions you **MUST**:

- ◆ Listen carefully to your team leader, supervisor
- ◆ Repeat the instructions audibly for verification then write them down!

2.1.4 "HOT Seat" Changeover

Procedures are in place when operators are rotating their shifts with continual production on the mine site. Hot Seat refers to the process of safely finishing your loading activity and allowing the next shift operator to take over from your operations. This process takes place at the production area where other vehicles are working. You should pass on all information that relates to equipment defects, machine performance, the site working conditions and hazards and any other information that affects the health and safety of the next operator. To ensure the safety of everyone you must follow the sites procedures regarding this process.



2.1.5 Emergency Call

Communication procedures are critical; lives depend on it so familiarise yourself with the site emergency numbers & channels. Understand, memorise, and use the correct emergency communication procedures. Emergency procedures generally vary from site to site, so know the procedures at your worksite

Say: "Emergency, Emergency, Emergency"

You will provide and or be asked to provide the following;

- ◆ Your name
- ◆ Your location
- ◆ Location and nature of emergency
- ◆ Types of injuries
- ◆ Number of persons injured
- ◆ Assistance required
- ◆ Hazards

Remain on the air until told otherwise



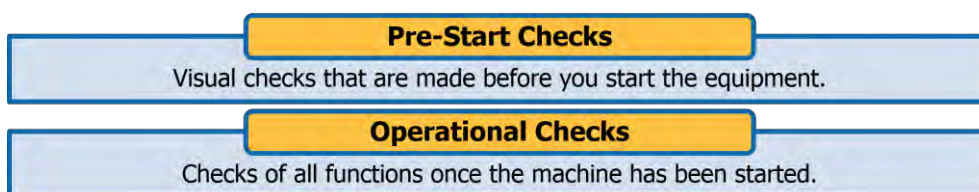
3.1 Routine Checks

Before you use any piece of plant or equipment, you need to conduct routine checks to make sure it is safe to use. Check the machine logbook before you start your inspection to see if there are any faults that still need to be fixed before you can use the haul truck.

Also make sure you are wearing the correct PPE before you start checking the machine.



Routine checks are made of:



Generally, routine checks are performed at the start of each day or shift.

You can use an inspection checklist to keep a record of the checks you have made.

3.1.1 Visual Pre-Start Checks

When inspecting the haul truck there are 3 areas that need to be checked:

- ◆ Walk-around visual inspection.
- ◆ Engine bay.
- ◆ Cabin.



3.1.1.1 Walk-Around Visual Inspection

The walk-around visual inspection is done by walking around the machine and looking carefully for any signs of damage or defects. This includes:

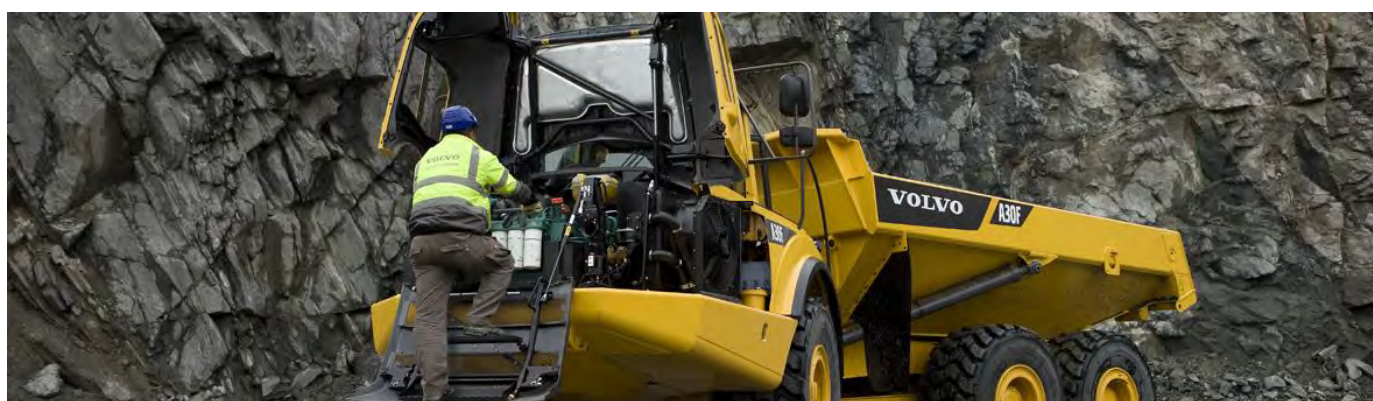
Part/Component	What to Check
Boarding Ladder and Handrails	Damage or wear.
Front of Machine	Damage to headlights, guards or grille.
ROPS Canopy	Damage or wear.
Windshield Wipers and Washers	Wear, damage, fluid level.
Battery Isolator	Check for tags.
Fuel Tank	Check for leaks, condition of hoses, loose bolts or cracks.
Hydraulic Oil Tank	Check for leaks, loose bolts, oil level through sight glass.
Air Tanks	Check for damage, purge tanks.
Battery	Check connections and bracket.
Wheels, Tyres & Rims	<p>Check for cuts, gouges, proper inflation.</p> <p>It is important that tyres are properly maintained. Check for the following defects when carrying out your inspection:</p> <ul style="list-style-type: none">◆ Cuts, broken or deformed bead wire rubbing on the inside of dual wheels.◆ Carcass ply wear.◆ Carcass damage (more than 1/3 of the tyre width).◆ Radial cracks that reach the carcass.◆ Old, deformed or excessively damaged tyres.◆ Check final drives, hubs and wheel ends.
Articulation Joints and Pins	Check pins are not engaged. Check grease, bolts, rams.
Hydraulic Lift Rams	Check for leaks, attachment pins, bolts, dry pivot.
Body Tray – Left, Right and Underside	Check for damage, check attachment pins, dry pivot.
Rear Lights	Check lenses, bolts.
Fire Extinguisher	Check gauge, pin, mount and housing, current tag.

3.1.1.2 Engine Bay

Open the engine bay and check the following items:

Inspection – Engine Bay/s	What to Check
Engine Oil	Fluid level (oil of a milky colour), water in oil.
Coolant	Fluid level.
Air filter	Restriction indicator.
Radiator	Debris, fin blockage, leaks.
Hoses	Condition, rubbing, leaks.
Belts	Tension, wear, cracks.
Overall	Cleanliness, leaks.

Make sure the engine bay latches are back in place before you continue with your inspection.



3.1.1.3 Cabin Checks

Once in the cabin you need to check the following things:

- ◆ Operator Seat - Adjust the seat, check and adjust the seat belt.
- ◆ Steering Wheel - Adjust tilt and lock in place.
- ◆ Windows and Mirrors – Clean
- ◆ Door Handles and Latches – works properly
- ◆ Overall Cabin Interior – Clean, no grease or mud on the floor. Nothing that will get under the pedal and obstruct them from working



3.1.2 Pre Boarding Checks

Before mounting walk around your machine and carry out the following checks:

- ◆ Check that there are no mud clumps on the tyres which can be thrown off when travelling.
- ◆ Check the cubic capacity of the bucket to avoid overlading.
- ◆ Check the type of material to be moved.
- ◆ Check the bucket for worn or missing teeth or worn cutting edges.



- ◆ Check the bucket power arms and connections for excessive wear.
- ◆ Check the hydraulic rams and high pressure hoses for splits, leaks and fractures.
- ◆ Make sure there are no loose bolts or missing keeper plates or pins.
- ◆ Check the diesel fuel, hydraulic fluid, engine oil, transmission oil, water in radiator and the water in the battery.
- ◆ Check for loose gear and under the machine for oil or water leaks. If applicable check the position of all fitted attachments such as Crane Jib, Tyre Handler, Fork attachment and Rippers.

- ◆ Rubber tyred machines – Check the tyre pressure, the condition of the tyres and the wheel **nuts. (Water filled tyres as per manufacturer's compliance plate.) If the pressure is uneven it can cause the machine to overturn.**
- ◆ Tracked machines – Check the tracks, chains, rollers, under carriage

3.1.3 Mounting and Dismounting

Mobile plant should only be accessed / egressed when the plant is fundamentally stable. Prior to access, all persons must assess whether the plant is fundamentally stable.

- ◆ Never jump on or off the machine. Never get on or off a moving machine.
- ◆ When mounting or dismounting, always face the machine and use the handrails, machine or track frame steps and track shoes.
- ◆ Do not hold any control levers when getting on or off the machine.
- ◆ Ensure safety by always maintaining at least three - point contact of hands and feet with the handrails, steps or track shoes.
- ◆ Always remove any oil or mud from the handrails, steps and track shoes. If they are damaged, repair them and tighten any loose bolts.
- ◆ If grasping the door handrail when mounting / dismounting or moving on the track, open and lock the door securely in the open position. Otherwise the door may move suddenly, causing you to lose balance and fall.



3.1.4 Start the Machine

When starting the machine:

1. Turn the battery disconnect switch to ON.
2. Adjust seat & steering column, fasten seat belt.
3. Check transmission control lever is in neutral.
4. Make sure PARK BRAKE is on.
5. Make sure body is down (if applicable)
6. Make sure all personnel are clear of the machine.
7. Turn the start key to ON.
8. Test supplementary steering.
9. Test backup alarm.
10. Turn the key switch to START. Allow machine to do all checks.
11. Perform start-up test on EMS or VIMS.
12. Check the operation of all the controls and gauges.
13. Listen and watch for equipment defects and report trouble immediately



Truck Warm-Up

- 1** Allow the truck to warm up – minimum of 5 minutes at low idle.
- 2** Perform all brake tests according to operator manual specifications (OEM).
- 3** Check gauges, action lights and monitor panel.









3.1.5 Operational Checks

Once the engine has warmed up you can carry out operational checks. This includes checking all movements and systems.

Before moving the machine it is important to warn people nearby what you are doing.

Sound the horn:

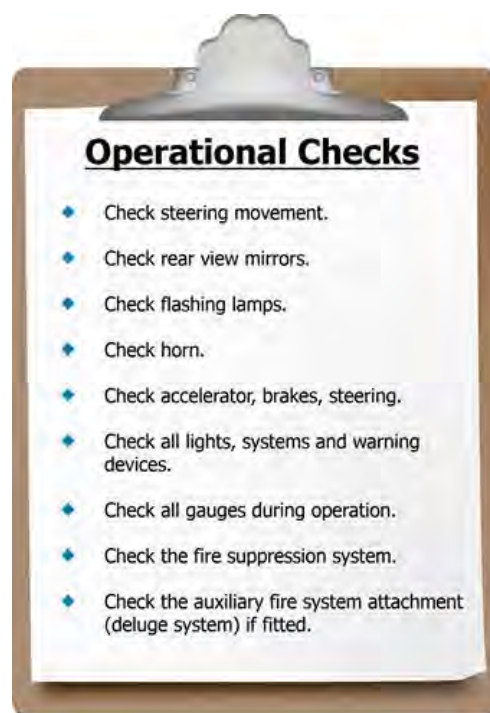
Number of Times to Sound the Horn		Action
Once		Before starting the haul truck.
Twice	 	Before moving forward.
Three times	  	Before reversing.

Always wait for 5-10 seconds before moving off after sounding the horn to give people time to get out of the way.

Before moving off:

- ◆ Make sure that all grounded attachments (ripper or stabilising legs) are fully retracted.
- ◆ Test that the handbrake is fully applied before raising the rippers and bucket for travelling.
- ◆ Test the lights, horn and backup alarm (if fitted). Test the steering, limiting devices and all equipment controls.
- ◆ Test the brakes. If the machine has air assisted brakes, they must reach the correct air pressure before moving off. If the machine has a torque converter, test the brakes against the engine speed after warm up.
- ◆ Adjust the mirrors for proper vision.
- ◆ Make sure that everyone is standing clear before moving off and move off slowly.

Once you have finished your operational checks it is a good idea to check for external signs of oil or fluid leaks. It is common for the start-up process to cause a leak through hoses breaking. Look for signs of leaks.



3.1.6 Safety Systems

- ◆ Seat Operated Lockout Device – a device activated by pressure of the operator sitting on the seat which positively prevents any movement or function of the machine until it is activated.
- ◆ Seat Belt Connected Switch – a switch that functions to positively prevent any movement or function of the machine until the seat belt is connected. This device is relatively easy to bypass.
- ◆ Meshed Side Panels – Mesh side panels must be in place to prevent the operator being caught in the lift arms.

3.1.7 Report All Faults



Once all routine checks are finished, you will need to report any problems, faults, defects and damage that you found during the inspection. This is so that they can be repaired and the machine and equipment are safe for you or the next operator to use.

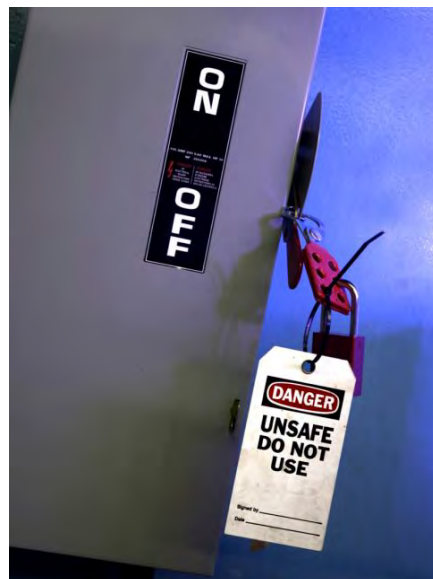
Make sure the truck is tagged out (isolated from use) until the repairs have been made.

Record the details of the problem in a fault report or the truck logbook.

4.1 Isolate Energy Sources

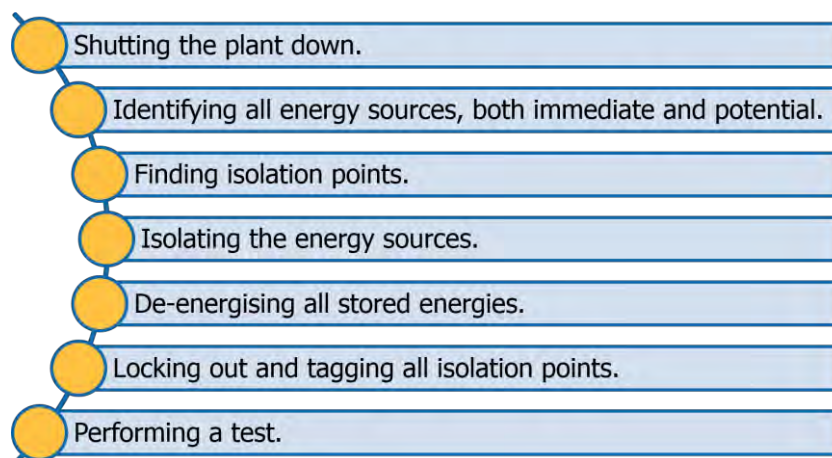
Before starting any inspection or maintenance work on plant or equipment, you must follow your site isolation procedures.

These procedures exist to stop plant from being set in motion or from releasing stored energy. This helps to keep you and other personnel safe.



4.1.1 Basic Isolation Procedures

Your site will have its own set of steps to follow to isolate plant. However, the basic isolation steps may include:



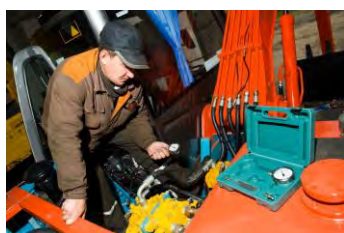
4.1.2 Immediate and Potential Energy Sources

After shutting down the plant item, you will need to identify all sources of energy, including immediate and potential sources.

Part of this task may be to find any other hazards or risks that could potentially cause a problem.

Immediate energy sources could include:

- ◆ Battery.
- ◆ Fuel.
- ◆ Electrical sources.
- ◆ Power.



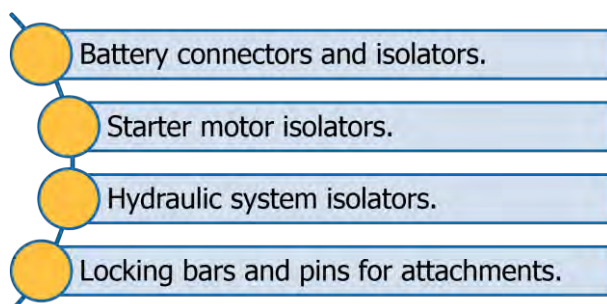
Potential energy sources may include:

- ◆ Electrical.
- ◆ Hydraulic.
- ◆ Mechanical.
- ◆ Air pressure.
- ◆ Water pressure.
- ◆ Static electricity.
- ◆ Any pressurised vessel.
- ◆ Gas build up.
- ◆ Fire e.g. work with oxy-acetylene equipment.
- ◆ Moving parts of machinery or equipment.

4.1.3 Find Isolation Points

Once you have worked out the sources of energy, you will need to find the isolation points for the plant or equipment. These will be different for each item.

Common isolation points will include:



For a list of appropriate isolation points, always check the procedures and operation manuals for each item of plant and equipment.

4.1.4 Isolating or Immobilising Energy Sources

All immediate sources of energy will need to be isolated following the hierarchy of hazard control.

Potential energy sources should also be put out of action (immobilised). You may also need to remove any stored energy.



Isolation methods will vary in different workplaces and for different plant, however common methods may include:

- ◆ Operation of electrical switches.
- ◆ Removal of fuses or battery terminals.
- ◆ Closure of valves.
- ◆ Securing of confined space entries.
- ◆ Using chocks, pins and other devices.
- ◆ Putting up barriers or other safeguards.
- ◆ Use of rubber mats (non-conductive platforms).
- ◆ Putting on protective clothing, including HV isolation gloves.

The type of isolation devices that are used will depend on the method of isolation used, the site and permit procedures, and the individual situation. Isolation devices can include breakers, valves and gates.

The risk assessments that you conducted earlier will help you decide on the most appropriate method for isolation, and the devices to be used.





Whenever you are working with electrical voltage, it is important to identify the distribution and switching system that is involved. These systems are designed to convert high voltage to lower voltage.

Each high and low voltage distribution and switching system must be isolated following the procedures that apply to that system. If procedures are not followed, you are taking a risk of working with power systems that are still live. Always confirm the steps needed for isolation before you attempt any work or activities on the system.

Depending upon the system and your site requirements, it may be that work can only be carried out by licenced and accredited personnel such as electricians. Always ensure that the correct licencing, qualifications, permits and permissions are in place before undertaking any activities on these systems.

4.1.5 Follow Safety Requirements

When conducting all isolations you need to make sure that you follow the steps, as well as any safety requirements.

Your site and operational safety requirements could include:

- Boarding and disembarking procedures.
- Working behind protective barriers.
- Procedures for the clearing of blocked chutes and excessive spills.
- Procedures to protect against moving parts.
- Procedures for working with hot machinery.
- Other site-specific requirements.

Always make sure that you are using the correct personal protective equipment, and making use of non-conductive platforms where necessary.

Site safety equipment will need to be used while you are undertaking your work. As each site will have a wide range of safety equipment, it is important that you take the time to find out which items should be used, and learn how to use the equipment safely and correctly.

If you are unsure of the safety equipment that you should be using, always check with your supervisor.



5.1 Start up, Emergency Response and Shutdown

5.1.1 Travel Route

Before moving off, ensure your planned travel route is safe to travel. Identify and control the following hazards: Personnel; Hidden holes; Drop offs; Embankments; Overhead obstructions; Underground services; Overhead power lines; Telephone lines; Other obstructions that could be dangerous; Recently backfilled excavations; Chemicals; Dust/noise; pit walls; fences; stored energy



5.1.2 General Safety Precautions

All light and medium vehicles when proceeding to or entering work areas of the site must have their flashing amber light on, do not drive when tired, ill or under the influence of alcohol or drugs, or medication which can cause drowsiness.

Do not carry passengers unless an approved seat is fitted.

Be familiar with the site traffic control system and who will be giving the signals. Watch all signals carefully and obey them. Keep the machine under control at all times.

**REDUCE
SPEED
NOW**

Do not speed. Operate at the correct ground speed for the working conditions and terrain. Keep in control at all times. Drive slowly and carefully if visibility is poor or when operating in dust, smoke or fog.

No person shall get on or off a moving vehicle, No person shall get on or off a vehicle unless they are facing that vehicle. All access steps, ladders and lifts must be in good working order at all times. Persons accessing the machine or vehicle must use the access provided.

All operators are responsible for operating their equipment safely and correctly under all conditions. If an incident does occur, it must be reported immediately.

A driver shall be responsible for the cleanliness of windows, lights and reflectors on any vehicle that they is operating.

Vehicles authorised for use on most mine sites shall be equipped with:

- ◆ A UHF radio with site channels
- ◆ A reflective flag
- ◆ An Amber Beacon
- ◆ A set of High Bay Lights;
- ◆ A Reverse Alarm;
- ◆ A Fire Extinguisher (5 kg, mounted, tagged and dated);
- ◆ A First Aid Kit suitable for general use;
- ◆ A safety check by a competent person prior to coming to site



5.1.3 Internal Combustion Engines

Internal combustion engines produce carbon monoxide, an odourless but poisonous gas. Make sure there is adequate ventilation wherever the machine is operating. Be aware of possible ignition of volatile gases or flammable liquids.

Never refuel while the engine is running. Fuel can ignite from the heat of the engine.

Do not smoke near the refuelling area.



5.1.4 Diesel Engines

Diesel engines must warm before they start (Glow Plugs). When the ignition is turned on, a glow plug is activated and this warms the motor. A light on the dashboard goes out when the engine is ready to start. If a diesel engine runs out of fuel, a competent person must bleed the system of air before it can be restarted.



5.1.5 Reverse Alarm

Do NOT operate machinery that has a faulty reversing alarm. Personnel and other operators will not be aware of Reversing operation and this could result in Collisions, Striking or other harmful incidents.

Do not let the fuel tank run dry or air will enter the fuel system.

5.1.6 Positive Contact

Means that drivers of vehicles shall; make radio contact with the identified vehicle, equipment or work area using their vehicle number or call sign.

Specify or identify the vehicle or equipment by its vehicle number or work area and clearly communicate their intentions.

Receive acknowledgment from the vehicle, equipment or work area acknowledging your intentions.

Confirm acknowledgement using their call sign.



Example of Positive Communications

Light Vehicle 17-2 overtaking Grader 98 grading on haul road

◆ Driver of 17-2 Light Vehicle

"17-2 light vehicle to Grader 98. Am I clear to overtake you?"

◆ Driver of Grader 98

"Grader 98 receiving you 17-2, you are clear to pass me"

◆ Driver of 17-2 Light Vehicle

"17-2 received that, I am passing you now Grader 98"

5.1.7 Access to Operational Work Areas

Entering restricted and operational work areas.

When accessing or parking within 50 metres of an operating vehicle / equipment other than in a designated parking area.

When overtaking slow moving equipment engaged in road maintenance e.g. grader or roller etc, provided it is safe to do so.

When signage or procedures require you to.

5.1.8 Seat Belts

Seat belts shall be worn by all passengers in any vehicle in which they are fitted.



5.1.9 Reversing

A vehicle shall not be reversed unless the driver/ operator:

Has personally checked that the rear and sides of the vehicle are clear of any obstruction or other vehicles; or

Has, and can maintain, a clear view to the rear of the vehicle; or

Is being directed by a worker and / or contractor who has a clear view of the back and sides of the vehicle and is in constant view of the driver; and

Has given the required warning signal.

5.1.10 Flashing Lights

Where visibility of the vehicle operator is restricted, either by the nature of the vehicle load or adverse climatic conditions, heavy vehicles and items of mobile plant are to be fitted with, and use, flashing amber lights when in motion.



5.1.11 Traffic Signs

A driver shall comply with the direction or indication given by a traffic sign and have the same meaning as those signs off-site.



5.2 Duty to Give Way – General

A driver of a vehicle having right of way over another vehicle or pedestrians shall not endanger himself or others through lack of consideration of the operational requirements of the other vehicle or persons, and should therefore forego the right of way if necessary, to avoid a collision or accident; In an emergency, all drivers shall give way to vehicles showing flashing red, blue or amber lights; and
All drivers shall approach with caution any vehicle showing a flashing red, blue or amber light.



5.2.1 Light Vehicles

A driver of a light vehicle shall at all time give way to all haul trucks, scrapers, graders and water trucks, and any vehicle showing a flashing blue light;
A driver of a light vehicle entering or leaving the main haul road shall give way to all vehicles proceeding in either direction along the main haul road



5.2.2 Safety of Pedestrians

A pedestrian shall ensure that operators of heavy machinery and drivers of light vehicles are aware of his location and purpose. All machines and vehicles should be given right of way. However, if extenuating circumstances exist, communication is to be made with operators / drivers to enable them to take necessary measures to avoid a dangerous situation.

5.2.3 Electric Cables

A driver shall not drive his vehicle over unprotected trailing electric cables.

5.2.4 Safety Berms

We will provide safety berms on all dumps where vehicles are required to tip over the edge.
If a separate tipping area has been prepared for smaller types of vehicles, such as semi-trailers, the safety berm height may be less than 1.5m, however the minimum height is not to be less than half the wheel height of the truck tipping.



5.2.5 Driver to Reduce Speed to suit Prevailing Conditions

Where visibility or road conditions are poor, a driver shall reduce the speed of his vehicle to the extent necessary to enable him/her to maintain effective control.

5.2.6 Entry to Heavy Equipment Work Areas

Drivers of vehicles intending to enter areas where equipment such as draglines, shovels, scrapers, rear dump trucks or coal haulers are, or may be working, shall:

- (a) Only do so if it is necessary for the performance of their work.
- (b) Prior to entering the pre-strip circuit or coal hauling ramps all personnel shall make contact with the supervisor in charge or OCE to confirm entry into the area and relate any existing changes i.e. hazards, traffic route changes etc.
- (c) From a safe place, ascertain the mode of work, direction of traffic flow, number of vehicles in the circuit, the degree of visibility and like matters before proceeding with care into the working area.

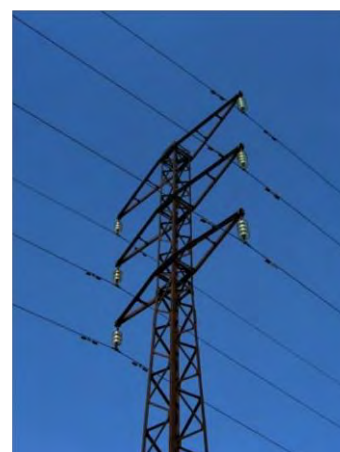
5.2.7 Working near Power Lines

Working near power lines can be dangerous if you are not careful.

It is very important that you know the safe operating distances for different types of power lines and the steps you must take if your job needs you to work closer than the safe distances.

Generally, if you need to work closer than the safe work distance you must:

- ◆ Contact the local electrical authority for permission to work closer (this is called an exemption).
- ◆ Have the power lines shut off. If this is not possible then have the power lines insulated.
- ◆ Use a spotter (depending on local laws and rules).



Distances are different depending on the state or territory you are working in and the voltage of the power lines. You should check with the local electrical authority for information and advice to find out the voltage of power lines in your work area.

Queensland

The Queensland Electrical Safety Regulation breaks down the distances in detail. Exclusion zones are broken down not only by size of electric/power line but also by the competency level of the operator. This means that the requirements should be clarified with the electrical authority before work commences even if the distance appears to be outside the zones.

The following minimum distances are provided as guidance:

Electric/Power Line Type	Distance
Up to 132kV	3.0m
132kV up to 330kV	6.0m
330kV and above	8.0m

5.2.8 Contact with Power Lines

If the machine makes contact with power lines you must:

1. Warn people to stay away.
2. Try to break contact with the power lines.
3. Stay in the machine if it is safe. Otherwise jump from the machine without touching the machine and the ground at the same time. Keep your feet together and jump or shuffle away until you at least 8m away from it.
4. Report the incident to your supervisor, power company and safety regulator.
5. DO NOT use the machine again until it has been checked and returned to service.



5.3 Vibration While Driving

Whole-body vibration (WBV) is vibration transmitted to the whole body by the surface supporting it, for example through a seat or the floor. It is commonly experienced by drivers, operators and passengers in mobile plant when travelling over uneven surfaces. WBV may also be experienced while standing, for example standing on platforms attached to concrete crushing plant. WBV includes sharp impacts like shocks and jolts.

Exposure to WBV mainly occurs in vehicles used off-road or on un-sealed roads, for example on construction, mine and quarry sites.

Most people who drive vehicles on surfaced roads in good repair are not likely to experience harmful levels of WBV. When road-going vehicles are used off road this activity may result in higher levels of vibration.

The design of plant should be considered as part of eliminating or minimising WBV. For example:

- ◆ Cab layouts and control levers should be arranged so operators are able to maintain a comfortable upright posture and do not need to twist their body excessively or maintain twisted postures.
- ◆ Suitable tyres should be selected so the plant can handle the terrain. Tyre selection can be important as tyres absorb some effects of uneven ground. However, tyres cannot absorb the vibration from larger lumps and potholes and soft tyres on uneven ground can **increase a plant's vertical motions**.



5.4 Operating the Machine

There are some important things to keep in mind while you are operating the machine. They include:



- ◆ Stay in constant communication with other personnel throughout operations.
- ◆ Continuously monitor and check for hazards, and warn other workers if there is danger.
- ◆ Avoid driving over rocks – it can damage the tyres.
- ◆ Report your progress on a regular basis to your supervisor.
- ◆ Modify your work to meet any new project or quality requirements, or changing conditions.

You must stay within the limitations of the machine at all times while operating. It will help to keep you safe and prevent damage.

There are a range of instruments and gauges in the cabin of the truck that will warn you about any issues with the vehicle including:

- | | |
|---------------------------------|------------------------------|
| ◆ Engine oil pressure. | ◆ Electrical system. |
| ◆ Coolant temperature. | ◆ Check engine. |
| ◆ Brake oil temperature. | ◆ Coolant flow. |
| ◆ System air pressure. | ◆ Transmission oil filter. |
| ◆ Fuel level. | ◆ Steering system. |
| ◆ Parking brake (on or off). | ◆ Air filter restriction. |
| ◆ Maintenance required. | ◆ Payload management system. |
| ◆ Transmission oil temperature. | |



Keep an eye on these system indicators – they will help you to operate the vehicle within its limitations and avoid damaging the unit.

Keep to the left of roads – stay approximately 0.5 to 1 metre from the edge of the road, fill or embankment as they could collapse.

Maintain a safe distance of 5 truck lengths when driving behind other trucks and give plenty of room to other mobile equipment, such as graders, dozers and water trucks.

Use two-way radios to communicate when overtaking or entering a congested area, or with people involved in activities around you.

5.4.1 Working around Other Vehicles

Mobile plant shall not approach within 50 metres of operating heavy equipment without making positive contact with the operator of the heavy equipment.

All mobile plant will be fitted with a radio communication system, or plant operators provided with a hand held radio. Mobile plant without radio communications shall not operate when other operating plant or pedestrians are present.

Passing Working Equipment: Slow down and call the operator, wait for confirmation and stay well clear to avoid putting them in danger (e.g. with falling rocks) or disrupting their working operations.

Passing Light Vehicles: Slow down to a safe speed and steer wide to reduce the danger of falling rocks particularly when cornering.

Passing Personnel: Slow down and watch for people working in the area. Attempt to keep dust levels to a minimum.

Drive around Survey Pegs: These pegs have been placed there for a purpose. Ask to have them highlighted with cones or flashing lights if they are hard to see.

Slow Moving Equipment: Caution is needed around slow moving equipment. Watch for light vehicles in tow.



General Rules for Giving Way to Other Plant:

A loaded haul truck has right of way over all empty vehicles and non-working plant including light vehicles as they are easier to stop.

A grader grading a haul road has right of way over all vehicles including loaded haul trucks and light vehicles.

A water truck watering a haul road has right of way over empty and loaded haul trucks including light vehicles and non-working plant.

An empty haul truck has right of way over non-working plant and non-working water trucks including light vehicles.

5.4.2 Adapt to Changing Conditions

While you are working the site will change. Equipment will move. The sun will rise and set again. Materials will move from one place to another. Other equipment and materials may be delivered or removed.

Where conditions become hazardous (i.e. rain, dust or wet ramps) slow down and drive to the conditions. If the conditions are deemed too dangerous park in a safe flat area and call the area Supervisor and wait for further instruction.

You need to be aware of changes in conditions including:



Lighting Changes: While working underground, you may not be greatly affected by changes between night and day, but when working on the surface you could be. Twilight is the time when your eyes might become more tired and difficult to focus. It could be more difficult to see the terrain and to judge distances. Set up temporary lighting where possible and go slowly.

Weather Changes: Rain, sleet, snow, wind and humidity can all affect both your truck and the materials you are working with. Additional moisture from any source will change the composition of the materials, possibly making them heavier and slippery. This means you will not be able to haul as much and you will need to adjust the quantities you are dealing with in each load. You should notify your supervisor or another appropriate person that schedules and completion times may not be met.



Wet Conditions or Watered Routes: Wet roads increase the chance of incidents, especially if operators do not adjust their driving techniques to suit. Wet conditions can occur on site because of rain, but can also occur because of the use of water trucks. Whenever driving in the wet give yourself extra time and space to turn and stop. Use the controls smoothly and do not brake suddenly.

Inclines: When the haul road includes driving up or down inclines you need to make sure you implement the retarder before downhill travel and allow for the camber, crown and surface condition of the road. Coal can be slippery when it is dry and roads can be slippery when they are wet. Always drive defensively and safely while on site.

Rough Surfaces: The more a road is used during haulage the rougher the surface can become. You may need to reduce your speed, reduce the amount that is loaded and be aware of areas that are no longer level or stable, especially when dumping materials.

Soft Spots: A non-compactable area in a road surface caused by various factors such as a pocket of fine material, moist soft material. Continual hauling operations through these spots cause the road surface to slump. This adds to operator fatigue, damages truck suspension and reduces tyre life. Slow down, drive around the affected area where possible. Report to your Supervisor and request the area is repaired. Rutted, pot holed or uneven surfaces add to driver fatigue and put stress on the truck suspension and tyres. Call for a grader to rectify the problem.



Super Elevation: A super elevation is the forming of a road surface, where a corner is involved, to allow for cross fall to slope in the direction of travel i.e. when cornering to the right, the road is built up on the left hand side allowing a slope down to the right hand side.

The purpose of super elevation is to help maintain an even weight distribution over the truck suspension while cornering.



5.4.3 Responding to Monitors and Alarms

Each machine has its own set of alarms, monitoring systems and gauges to help you safely and efficiently operate it, and warn you if something is wrong.

Each make and model of the same type of machine can be different so it is important that you are familiar with all of the systems for the equipment you are using. Check the operator's manual for a full list of devices, alarms and warnings.



Here are some examples of the gauges and warning systems:

Brake Monitors	Air pressure, oil temperature, parking alarms.
Temperature Gauges	Oil, water.
Filters	Fuel, steering, transmission.
Engine Gauges	Fuel, engine oil pressure.
Gauges and Meters	Tachometer, torque converter, voltmeter, speedometer/odometer, service meter, retarder, computer indicators.

5.4.4 ISO Symbols

Two of the best ways to catch potential heavy equipment problems before they turn into major repairs and downtime are machine alerts and warnings. To get more component and machine life out of your equipment, recognizing these symbols may save serious downtime if addressed in a timely manner.

 Check engine	 Engine air filter	 Electrical
 Check Brake	 Check Transmission	 Hydraulic oil filter pressure
 Engine overspeed	 Transmission oil filter	 DEF fluid
 Fuel Water Separator	 Ride Control	 Emissions Fault

5.4.5 Engine Management Systems

There are many systems available today that monitor the performance levels of heavy machinery, for example:

- **EMS** Engine Management System
- **CMS** Computerised Management System
- **EVMS** Electronic Vehicle Management System

These are a sample of the many systems in use today. The systems are designed to monitor the critical components of machinery and alert the operator if one or more of the systems start to fail.

Most systems have three levels of warning. The fault is prioritised into one of three levels, and this message is then sent to the operator by way of flashing lights, audible alarms and in some machines a LED display message indicating the fault and the action required.

The operator must monitor the warning system and gauges and inform the Supervisor if a problem exists. Some warning systems will record a wide variety of information including, whether the machine has been operated outside its recommended safe guidelines.

Generally alarms and warnings fit into 3 categories:

Warning Type	Category Description	Examples	What You Should Do
Category 1	These types of warnings let you know that the machine needs some attention, but it is still safe to operate.	<ul style="list-style-type: none">◆ Low fuel.◆ Low system voltage.	Keep operating as long as it is safe to, and report the problem once you stop work.
Category 2	These warnings indicate that there is a problem caused by the way you are operating that may lead to problems with the equipment.	<ul style="list-style-type: none">◆ Equipment is overheating.◆ Equipment is overloaded.	Change the way you are operating and if the problem is not fixed, stop operating and report the issue.
Category 3	This is the most serious warning level. Continuing to operate while this warning is sounding will cause damage to the machine.	<ul style="list-style-type: none">◆ The park brake is on.◆ Low engine oil pressure.	Stop operating and shut down the equipment immediately. Report the problem straight away.

You should have a basic understanding of the machines control panels, switches and instruments. If you have any questions or require clarification of any switches, controls or switches you should consult with the Operators manuals, and contact your supervisor or trainer/assessor to help.

In all cases, any faults must be reported.



6.1 Respond to Emergencies

To keep yourself and others safe on site it is important that you know how to react in an emergency or dangerous situation.

6.1.1 Emergency procedures

Emergency Procedures are designed to be short and precise in their nature, so that employees know what to do in the event of an emergency, be that a FIRE, an ACCIDENT, an INCIDENT, an INJURY or whatever constitutes an emergency.

These procedures must be memorised so that in the unlikely event of an emergency, the emergency procedure will flow smoothly and efficiently so that precious time is not lost.

6.1.2 Emergency Radio Procedure

Lives depend on it so familiarise yourself with the site emergency numbers & channels. Understand, memorise, and use the correct emergency communication procedures.
Emergency procedures generally vary from site to site, so know the procedures at your worksite

Say: "Emergency, Emergency, Emergency"

You will provide and or be asked to provide the following;

- ◆ Your name
- ◆ Your location
- ◆ Location and nature of emergency
- ◆ Types of injuries
- ◆ Number of persons injured
- ◆ Assistance required
- ◆ Hazards

Remain on the air until told otherwise



6.1.3 Emergency Fire Procedure

In the event of an on-board fire, the following procedure should be used:

- ◆ Use the EMERGENCY RADIO PROCEDURE.
- ◆ SHUT the ENGINE down as soon as possible.
- ◆ Activate the FIRE SUPPRESSION SYSTEM in the cab.
- ◆ Apply the PARKBRAKE, put the TRANSMISSION in NEUTRAL and ISOLATE the BATTERIES.
- ◆ Vacate the Machine.
- ◆ Also activate the FIRE SUPPRESSION from the ground.
- ◆ Remove the HAND HELD EXTINGUISHER and be at the ready, until help arrives

6.1.4 Accidents

An accident may be defined as an unplanned or unforeseen event causing injury or damage.

Being an unplanned or unforeseen event, an accident brings with it a line-up of contributing factors that were also unforeseen at the time. Had these contributing factors not been present, then it is safe to say that no accident would have happened.

Safety systems rely on accident investigations to find these contributing factors so we can take remedial action to eliminate these factors.



6.1.5 Tyre Blowout

If one of the haul truck tyres blows out:

1. Stop the haul truck safely.
2. Call your supervisor and maintenance to organise repairs and site signage (isolation).
3. Check to see if there is a chance of tyre fire.
4. Stay with the truck unless there is a chance of tyre fire.



6.1.6 Tyre Fires and Explosions

Under extreme conditions tyres can overheat to the point of setting fire. This is rare but can be caused by a range of tyre defects such as:

- ◆ Friction from rubbing (dual tyres).
- ◆ Dragging wheel brakes.
- ◆ Failed wheel bearings.
- ◆ Tyre fatigue.
- ◆ Running underinflated tyres.
- ◆ Contact with high voltage electrical equipment.
- ◆ Lightning strikes.



If you experience a tyre fire:

- 1** Keep a safe distance – at least 300m from the tyre as it could explode.
- 2** Keep other unnecessary personnel away.
- 3** Isolate the vehicle.

Generally you should allow 24 hours after putting out the fire before you approach the equipment.

If a tyre explodes there is a chance that the others could follow. Do not attempt to release the pressure of tyres to try to prevent them from exploding. There is no guarantee that they will not explode.

6.1.7 Steering Loss

If your haul truck loses steering an emergency steering system will engage. This system activates when:

- ◆ The hydraulic pump for steering is defective.
- ◆ The engine has stalled.

If you experience steering loss, bring the truck to a stop as quickly and safely as possible and call maintenance personnel.



6.1.8 Down Ramp Runaway

If the truck is gaining too much speed while travelling downhill:

1. Apply the retarder.
2. Apply the foot brake.

If the truck is still gaining speed apply the emergency brake and follow emergency stop procedures.

6.1.9 Brake Failure

If the brakes fail during operation apply the emergency brakes and move the truck to a safe position. Call for assistance straight away.

Any equipment that has been stopped using the emergency brakes cannot be operated again until it has been checked by maintenance personnel.

6.1.10 Monitor and Check for Hazards

While you work it is important to always be on the lookout for new hazards, and to check that hazard controls are still in place and working effectively.

This will help to ensure the safety of yourself, other personnel, plant and equipment.



Check the following things while you work:

Overhead Power Lines or Structures – Know how far you are from overhead power lines at all times. Use a spotter to guide you if visibility is reduced. Be aware that the distance to the overhead services may be reduced as fill goes up.



Other Vehicles or Equipment – At all times you need to know when other machines are working near the truck. Know and stick to your agreed travel paths or roads. Good communication between operators is essential to avoid incidents such as collisions.

Personnel – Good communication is the key to working with other workers. Be aware of people in work area. Make sure they are not in danger and are a safe distance from the truck. **If you are authorised, tell them to leave if they shouldn't be there, or call on someone who is authorised.** Make sure you are aware of the correct worksite procedures for working near or around other people in the area.



6.2 Break Downs

- ◆ At all times turn wheels into a kerb, berm or embankment where possible.
- ◆ If a vehicle is broken down at night, leave the parking lights and hazard lights on. If causing an obstruction on the road, place flashing lights around the vehicle.
- ◆ Do not park light vehicles in the vicinity of heavy vehicles if it can be avoided.
- ◆ Contact your supervisor and other traffic to advise them of the breakdown and your location.
- ◆ If a heavy / auxiliary vehicle breakdown occurs on a gradient:
 - Unless unsafe to remain, do not leave the cab of the vehicle until advised by the breakdown crew or your supervisor to do so.
 - Ensure park brakes are engaged and turn wheels into the direction of a berm.
 - Implements must be lowered on auxiliary vehicles.
 - For broken down heavy vehicles, one of two options must be implemented:
- ◆ Tip the vehicle load to act as a berm if in the direction of roll back, if not possible, a track dozer must be called to push a berm up to prevent roll back;
- ◆ Or
- ◆ Call for assistance to chock the vehicles wheels.



6.3 Night Operations

The following summarise most of the points of the information provided:

- ◆ In adverse conditions or when operating at night, you rely on driving and working lights. Ensure that all lights function correctly and are kept clean.
- ◆ **Make sure that the operator's cab glass is kept clean and in good condition.**
- ◆ Ensure that mirrors are correctly adjusted for night operations.
- ◆ Maintain high levels of vigilance during night operations especially when reversing and turning into off-side corners.
- ◆ Where necessary, use a spotter to assist with positioning the machine. Always use the correct spotting procedures.
- ◆ Wide spread lighting should be used in open areas to minimise the effects of shadows and maximise visibility. Position lighting plants to illuminate potentially hazardous areas.
- ◆ Always assume that other operators are affected by similar visibility limitations.
- ◆ Approach shadowed areas with caution.
- ◆ Maintain greater separation distances from other equipment than you would during the day.
- ◆ Lookout for headlights and tail lights of other vehicles.
- ◆ Avoid sudden stops or changes of direction.
- ◆ Try to remain in areas with which you are already familiarised



6.4 Check Completed Work

The key to completing assigned tasks efficiently is good time management and knowledge of the methods of operation and capabilities of the machinery being operated.

Always make sure you are aware of the work schedule and your work requirements are clear and confirmed.

Once you have completed your work you will need to check it against:

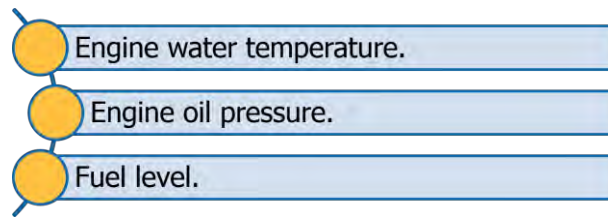
- ◆ Your work instructions or work plan.
- ◆ Site quality requirements and timelines.
- ◆ Product quality requirements.
- ◆ Project details and information.



Speak to your supervisor when the work is completed to see if there are any other tasks that need to be done to complete the task.

7.1 Park the Machine

At the end of the shift you need to check the following things before shutting down the machine:



If the engine has overheated do not stop the machine suddenly. Run it at mid-range speed to cool it down gradually before you stop.

When you have finished the work you need to park the machine:

- ◆ Park on firm, level ground if at all possible.
- ◆ Park in a non-operating area or a designated parking place, clear of fire hazards, entrances, exits, firefighting and electrical equipment.
- ◆ Park away from deep excavations and trenches.
- ◆ Position the machine up and down the slope when parking on a grade.
- ◆ Place the transmission in neutral or park position.
- ◆ Apply the handbrake if fitted.
- ◆ Lower the implements to the ground.



7.1.1 Shut Down the Machine

Once you have parked the machine you need to:

1. Run the engine for at least 5 minutes at low idle speed to allow the engine to cool down gradually.
2. Once the temperature has come down you can turn the ignition key OFF and exit the machine.
3. Remove the ignition key and secure the machine as recommended in the operating instructions or as advised by the supervisor.



After you climb down from the machine look around the bodywork and undercarriage to check for oil or water leaks.

DO NOT use the retarder or emergency brake. Block the wheels if you have to leave the haul truck on an incline.

7.1.2 Post-Operational Checks

Post-operational checks need to be done to make sure the machine is ready for the next operator.

General maintenance activities are done to keep all plant and equipment working safely for longer.

As part of your job as an operator, you need to inspect your machine to find and report any faults or damage that may have occurred during your work activities.



Your inspection should include:

Visual Inspection	Physically looking for anything odd, wrong, broken or damaged.
Visual Inspection of the Environment	Is any fluid leaking?
Signals	Alarms, lights, electronic indicators showing that something may be wrong.
Gauges	Showing temperatures and the levels of fuel, oil and other fluids.

Post-operational checks should include all of the things you look for when conducting pre-start checks. For example:



- ◆ Fluid levels.
- ◆ Oil Leaks
- ◆ Condition of tyres.
- ◆ Visibility (windows and mirrors).
- ◆ Hydraulics (rams, hoses and connections).
- ◆ Structure and tipper body for damage or wear.

7.1.3 Reporting Faults

Once a fault has been found, it needs to be reported and fixed.

Most sites have a fault report form that will need to be filled in with the details. The form will generally need the machinery or equipment make and model numbers, the site identification numbers, the type of fault and the person reporting the fault.

You also need to make sure the machine is tagged out (isolated from use) until the repairs have been made.

Some sites will have a verbal system of reporting where you speak with a supervisor who then documents the fault, while others may require the operator to organise repairs of the fault directly.



7.1.4 Housekeeping



Good housekeeping is fundamental to safety and it is the responsibility of all employees to maintain high housekeeping standards.

Consider how you have left the work area – is it safe, has any rubbish been removed, have you disposed of any environmentally sensitive maintenance products and rags, are all attachments and tools put back in their designated areas? Operators have a responsibility to ensure the machine is in good operating condition and clean before and after operation.

Do not leave spares or tools strewn around waiting for a clean-up crew - even rubbish can be placed tidily out of the way.

- ◆ Wipe up spilled liquids immediately.
- ◆ Do not leave hoses or leads trailing across passageways or access routes. If they cannot be elevated above the walkway, place warning markers beside them.
- ◆ Keep all passageways, aisles, roadways and stairways clear of obstruction.
- ◆ Keep clear access to all fire protection equipment.
- ◆ Return all excess tools to the tool room or store.

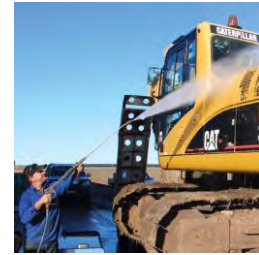


8.1 Prepare Mobile Equipment for Relocation

Mobile equipment can be moved from one site to the next, however it will need to be prepared before it is transported

Some issues in moving mobile equipment to another worksite may include:

- ◆ Cross-contamination between sites
- ◆ Hazards from loose or detached parts
- ◆ Movement of mobile equipment in transit



Before relocating the mobile equipment you may need to do some or all of the following things:

- ◆ Clean the equipment thoroughly.
- ◆ Empty the fuel tank (if practical).
- ◆ Secure all moving parts.
- ◆ Make sure all connectors are secure and locked.
- ◆ If possible, lower the bucket or G.E.T to rest position and lock it into place or remove the bucket if needed.



8.1 Relocate the Mobile Equipment

Moving larger plant and equipment between worksites is normally done on a float (trailer) because the machines are too slow, or not allowed to drive on the road.

Make sure that an approved traffic management plan is in place before moving between worksites. This may include:

- ◆ Stopping other traffic to allow the equipment to move freely.
- ◆ Using escort vehicles where needed.
- ◆ Sometimes a haul vehicle crossing will be established to allow materials movement across public roadways. Always follow designated traffic control and maintain communication with other workers involved.



When transportation is required, you will need to drive the machine onto the float. The safest way to do this is to use a spotter to make sure you are moving onto the float as straight as possible and that you stop in the right position to secure the equipment onto the trailer.

Once the equipment is in place on the back of the float, locking pins will need to be engaged and it will be tied down and secured onto the float.

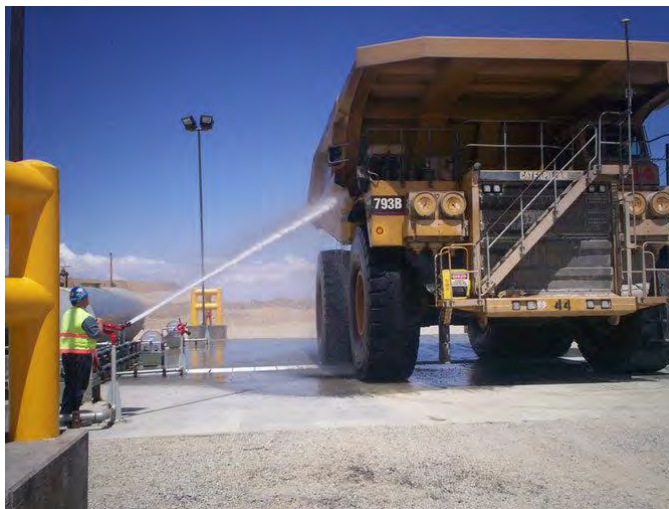
A spotter would also be used when unloading the vehicle once it gets to the next place.

9.1 Carry out Maintenance Tasks

Before carrying out any maintenance on any machine you may need to clean it. This will need to be done in a designated area to avoid any negative impact on the environment or contamination of the site.

Clean windows, mirrors and lights regularly. Clean hand holds and grip points to make them safe. Clean the grill and check oils and coolants in the radiator.

Minor Maintenance Tasks may be undertaken, if it is within the **capacity of the operator's** competency, when working with or under the guidance of a tradesperson and lending support during major machine maintenance.



The following are typical minor maintenance skills the operator should be capable of conducting.

- ◆ Air filters – should be checked regularly in dusty conditions. Clean or replace them as necessary.
- ◆ Greasing or lubricating pivots, joints or swing points.
- ◆ Tyres – check air pressures and condition.
- ◆ Battery checks – clean the battery, check electrolyte levels.
- ◆ Fuel and other fluids – check and maintain levels.
- ◆ Refuelling.
- ◆ Recording and reporting of faults through workplace procedures.
- ◆ Check hoses for loose fittings, tighten / replace / report as necessary
- ◆ Engine components for fuel and oil leaks, tighten/replace /report
- ◆ Rear view mirror adjustment and replacement
- ◆ Clearance, indicator and working lights and fittings for damage and operation
- ◆ Replace blown lamps, fuses
- ◆ Cleaning and housekeeping



When conducting maintenance activities it is important to keep people in the area safe by using barricades or fences if necessary and locking out machines.

Tasks should be completed within designated areas and others should be informed of what you are doing.

You should conduct servicing, maintenance and housekeeping tasks to ensure the truck stays at its operating capacity for as long as possible.

You will also need to coordinate with mechanics, maintenance supervisors or other site workers to ensure the vehicle is serviced at regular programmed intervals.



9.1.1 Refuelling the machine

All refuelling of equipment needs to be done in line with safety procedures and workplace instructions.



Some sites may have refuelling areas for plant and machinery set up to make sure any spills or incidents can be contained without causing damage to the environment. Spill response procedures need to be clear and spill kits available to manage any incident.

Other sites use a service truck or fuel tanker that travels to each machine to refuel. On these sites it is very important that all procedures are followed to avoid any incidents (such as fires in a coal mine environment) or damage to

the environment. For example, there may be site rules against refuelling plant and equipment near a waterway or sensitive area.

Refuelling can be a dangerous activity, so it is important that you know and understand the correct procedures and techniques. If you are not sure what to do, speak with your supervisor.

These are some general guidelines for refuelling haul trucks. Always check the procedures for your worksite before any refuelling is done:

- ◆ Park the vehicle in an appropriate location or within a bunded area. This contains any environmentally sensitive fluids or spills from entering and causing damage to the environment.
- ◆ Shut down the truck and apply all brakes and isolations.
- ◆ Leave the cabin, or if company procedures do not allow this make sure you do not restart the machine until you have permission from the refuelling operator.
- ◆ If you are responsible for refuelling the machine make sure you have the right PPE on before you start. This may include safety glasses, face shields, gloves or other approved gear.
- ◆ Activate the fuel pump correctly and make sure all safety procedures are followed.
- ◆ Shut down the fuel pump once the machine has been refuelled.
- ◆ Roll up or safely tidy all fuel lines or hoses.



Never refuel your machine while the engine is running as the fuel could be ignited by the running engine.



9.2 Recycling and Waste Disposal

All sites will vary slightly as to their recycling and waste disposal requirements, it is your responsibility to know what is required of you at your site. Always dispose of environmentally sensitive fluids and materials in an environmentally acceptable manner and in accord with site rules.

General items for recycling include:

- ◆ Batteries
- ◆ Tyres
- ◆ Oil
- ◆ Radiator coolant
- ◆ Steel



General items for disposal include:

- ◆ Dirty grease rags
- ◆ Filters

You will need to identify who is responsible for removing waste.

There are different types of waste including:

- ◆ general waste
- ◆ recycling waste – glass, aluminium, soil
- ◆ infectious waste – blood, needles, bandages, human waste
- ◆ hazardous waste – chemicals and harmful substances

In most cases:

- ◆ general waste is put straight into the rubbish bin
- ◆ recycling waste is put in a specially marked area
- ◆ Infectious and hazardous waste should only be handled using personal protective equipment such as gloves, masks and goggles. Specialised help may be needed to do this task, so you should always consult your supervisor



Recyclables
Lilac



Hazardous
Yellow



Regulated Waste
Brown



General Waste
Green

9.2.1 Housekeeping Activities that involve Chemical Spills

Each site will have a specific chemical spill containment and reporting process, you are required to know what this is and follow the process immediately if you cause or see a chemical spill. Doing so reduces the negative impact this will have on the environment, and health and safety of people.



9.3 Return the Vehicle to Service

Before your vehicle is returned to service you need to confirm that all designated maintenance activities and repairs have been completed.

Each site will have different processes for checking that the designated work has been correctly completed. Procedures could include:



- ◆ Third party checks – often done by a non-involved team member.
- ◆ Supervisor checks.
- ◆ Checklists or worksheets.
- ◆ Procedural documentation, e.g. maintenance contract.
- ◆ Other site-specific processes.

Once the maintenance work has been completed and checked, any locks and tags on the equipment will need to be removed.

Tools and equipment: All servicing tools and equipment should be cleaned and returned to designated area.

9.3.1 Removing Locks and Tags

There are two primary people who are authorised to remove a lock or tag: the person who applied it and the designated, authorised repairer.



Locks and tags may have been applied to the machine as a whole or to isolation devices attached to the machine. Double-check each possible location for locks and tags. Never assume that removing one lock from an isolation device will remove all locks or tags.

Before any tags or steering locks are removed, the vehicle or equipment should have been checked to ensure all repairs and maintenance have been completed.

Once tags and locks have been removed, follow record keeping requirements to log the removal on the job card or other relevant documents.

The truck will then be listed as returned to service in accordance with worksite procedures.

10.1 Processing Maintenance Records

Most sites have workplace forms, logbooks or checklists for writing down details of all machine maintenance work.

They are used to record the history of the machinery and equipment so that all operations and any problems can be monitored.

They are also a way of making sure that all repairs and maintenance are done correctly and on time.



Written maintenance records for your haul truck may include:

- ◆ Inspection checklists.
- ◆ Fault reports.
- ◆ Fuel, oil, hydraulic and other fluid usage.
- ◆ Computer readings of various haul truck functions.
- ◆ Diary entries.
- ◆ Service manuals or logbooks.
- ◆ Repair request forms.
- ◆ Part requisition forms.

You will usually need to include details like the truck make and model number, site identification numbers, the type of maintenance carried out, the repairs or replacements that were done and the person who did the work.

Follow your site record keeping and reporting procedures. If in doubt about completing and processing written maintenance records, talk to your supervisor or an experienced worker.

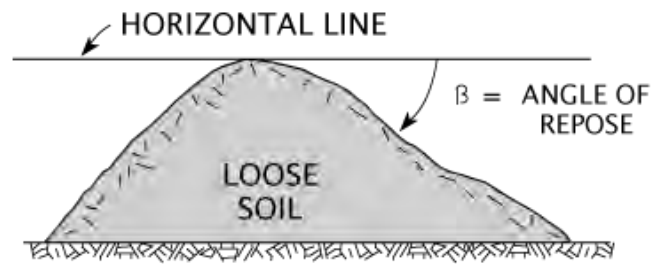


10.2 Terminology

Angle of Repose:

A mound of loose clay or sand assumes a characteristic shape with sloping sides. The angle which a sloping face of loose earth makes with the horizontal is known as the angle of repose.

The minimum safe angle of response (batter) is 1:1 for all material other than rock.



Batter:

The profile or slope of the sides of cuttings and embankments other than rock. The angle of the batter depends on the angle of repose of the soil.

Bench:

The stepping of the face, sides, walls or bottom of an excavation. Benches are more than 1.5 metres deep and 1.5 metres wide. For construction there is a site SOP for this procedure for Surface and Underground.

Cut and Fill:

An excavation formed by removing earth or rock materials to fill or level an adjacent site.

Diameter:

The length of a straight line drawn from one side to the other through the centre of a circle.

Direct Load:

A load attached to a single, perpendicular sling.

Excavation Work:

Work involved in the breaking of ground, excavation or filling of trenches, ditches, shafts, drifts, rises, tunnels, pier holes, cuttings, benches, wells or canals or any similar work.

Load:

The raised bucket with or without a load attached.

Quick Hitch:

A latching device with rapid coupling action between the appliance boom termination and gear.

Safety Decal:

A warning notice attached to a machine.

Safe Working Load:

The maximum load which may be lifted by a machine, slings or accessories.



Shoring:

Method of supporting a building, structure, excavation or trench.

Slewing:

Swinging from side to side from a pivot. For example, the movement of a crane on its base.

Undercutting:

Over-excavation at the bottom of a trench side wall.

10.3 Mining Acronyms

ALARA	As low as reasonably acceptable	HPH	High Potential Hazard
ALARP	As low as reasonably practicable	HSEC	Health, Safety, Environment and Community
ASAP	As soon as possible	HR	Heavy Rigid Vehicle
ANFO	Ammonium nitrate/fuel oil	HV	Heavy Vehicle
AS/NZS	Australian Standards/New Zealand Standards	JSA	Job Safety Analysis
bcm	Bank cubic metres	JSEA	Job Safety Environment Analysis
BMA	Billiton Mitsubishi Alliance Coal Operations Pty Ltd	KPI	Key Performance Indicator
BHP		LEL	Lower Explosive Level
BOM	Bureau of Meteorology	LV	Light Vehicle
CEO	Chief Executive Officer	MC	Multi Combination Vehicle
CHPP	Coal Handling and Preparation Plant	MIA	Mining industrial area
CMHS	Coal Mine Health and Safety	MOU	Memorandum of Understanding
CSE	Confined Space Entry	MOP	Mine Operating Procedure
CSG	Coal Seam Gas	MR	Medium Rigid Vehicle
DERM	Department of Environment and Resource Management	OCE	Open Cut Examiner
DIDO	Drive-in, drive-out	PPE	Personal Protective Equipment
DME	Queensland Department of Mines and Energy	RA	Risk Assessment
DMR	Queensland Department of Main Roads	RPL	Recognition Prior Learning
DNRW	Department of Natural Resources and Water	RII	Resources Infrastructure Industry
DPI	Queensland Department of Primary Industries	RTO	Registered Training Organisation
EAP	Employee Assistance Program	SDS	Safety Data Sheets
EEO	Equal Employment Opportunity	SES	State Emergency Service
EIS	Environmental Impact Statement	SLAM	Stop. Look. Assess. Manage
EMP	Environmental Management Plan	SMP	Safety Management Plan
EMS	Environmental Management System	SMS	Safety Management Systems
EPA	Environmental Protection Agency	SOP	Standard Operating Procedure
EPCM	Engineering, Procurement and Construction Management	SSE	Site Senior Executive
ERA	Environmentally Relevant Activities	W@H	Working at Heights
ERT	Emergency Rescue Team	WH&S	Workplace Health and Safety
ERZ	Explosive Risk Zone Controller	QAS	Queensland Ambulance Services
FIFO	Fly in/Fly out	QFRS	Queensland Fire and Rescue Service
GPS	Global positioning system	QR	Queensland Rail
HAZOB	Hazard Observation	ROM	Run-of-mine
HAZOP	Hazard and operability	TLO	Train load out
HC	Heavy Combination Vehicle	TMP	Traffic Management Plan
HPI	High Potential Incident		