

		Likelihood				
		Very Likely	Likely	Possible	Unlikely	Highly Unlikely
Consequence	Fatality	Extreme	High	High	High	Medium
	Major Injury	High	High	High	Medium	Medium
	Minor Injury	High	Medium	Medium	Medium	Medium
	First Aid	Medium	Medium	Medium	Low	Low
	Negligible	Medium	Medium	Low	Low	Low



RIIWHS202D ENTER AND WORK IN CONFINED SPACES
MSMWHS201 CONDUCT HAZARD ANALYSIS

MAXWELL RECRUITMENT & TRAINING PTY LTD
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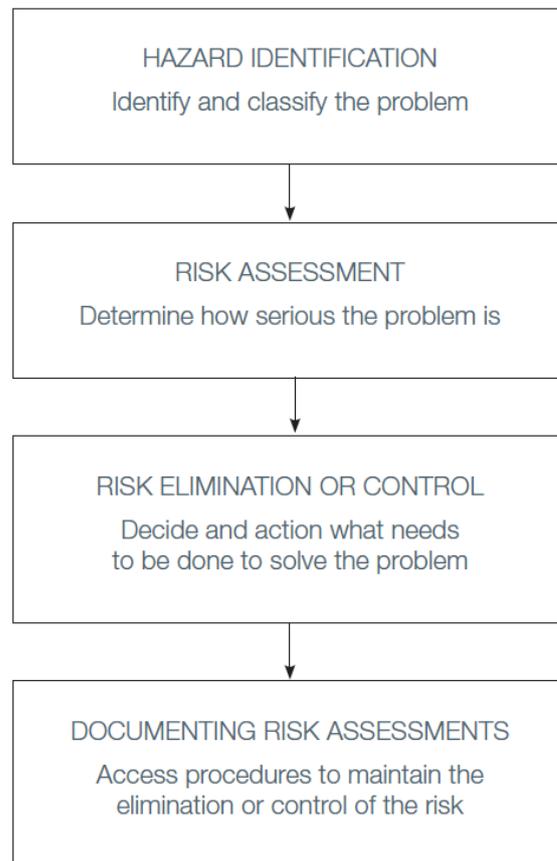
What Is Risk Management In The Workplace?

Risk management protects people's safety and creates a safe work environment. In Work, Health and Safety (WHS) terms, risk management is a way of identifying situations that might cause harm to people or property. It also includes acting to prevent a harmful situation happening or a person being hurt.

The *Work Health and Safety Act 2011* requires all employers to have in place and use risk management processes. Employers must try to identify any possible hazard that could harm the health and safety of workers or anyone else in the workplace.

Risk management involves following clear steps that allow you to make informed decisions about how best to avoid or control the impact of risks. It is as much about identifying risks as it is about avoiding them. By using and following risk management techniques you can help improve safety and quality business performance.

The following chart shows the steps taken to conduct risk management.



Terms used in risk management

The best place to begin the theory of hazard identification and risk assessment is to learn some of the terms used. The following definitions will help you understand.

Risk:	The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.
Hazard:	A source of potential harm or a situation with a potential to cause loss.
Likelihood:	A qualitative description of probability and frequency of an event.
Probability:	The likelihood of a specific outcome, measured by ratio of specific outcomes to the total number of possible outcomes.
Consequences:	The outcome of an event or situation expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain.
Frequency:	A measure of likelihood expressed as the number of occurrences of an event in a given time.
Risk assessment:	The process used to determine site risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria.
Risk identification:	The examination of the work process to predict where accidents/incidents will occur. The process of determining what can happen, why and how.

Hazard Identification

A hazard is something with a potential to cause loss or harm. You need to always be aware of potential hazards at work. Hazards arise from:

- the work conditions
- the use of machinery and substances
- poor work procedures and design
- wrong or out-of-date systems and procedures
- inappropriate actions or behavior



Hazardous substances

A hazardous substance is any substance that has a potential to cause harm, as identified by WorkSafe. You must respect all substances used at or around a drill site or other work site – some may appear relatively harmless but can be hazardous if used incorrectly. Examples include Aerostart, degreaser, diesel, petrol, and Domestos. Some other substances, such as caustic soda, are clearly hazardous. Safety Data Sheets (SDS) are kept in a file at all sites.

Safe procedures are detailed on SDS but general procedures are:

- avoid contact with eyes
- avoid contact with skin, where possible

- do not inhale fumes
- do not taste or swallow
- avoid splashing
- wash hands after handling declared product
- check boots and boot soles and make sure they are clean before entering eating places or accommodation
- change clothes that have become contaminated before entering eating places or accommodation. Wash before reusing

Identifying hazards

A simple 10 point hazard check could be:

1	Can I be struck or otherwise contacted by equipment or machinery in use?	
2	Can I be injured if I make contact with any machinery or equipment in use?	
3	Can I become entangled on any rotating parts?	
4	Can I be drawn into or caught between any moving parts?	
5	Can I strain or over exert myself in the performance of my job?	
6	Can I slip, trip or fall while carrying out my job?	
7	Can I be exposed to injurious conditions, such as heat, cold, gas, fumes or	
8	Can any of my actions adversely affect others in the workplace?	
9	Can damage to equipment or machinery occur?	
1	Can pollution of the environment occur?	

Hazard classification

Once hazards have been identified, they must be classified. This is done to help prepare a Hazard Management Plan. Hazards are classified into five broad areas:

- physical – noise, radiation, light,
- chemical – poisons, dusts
- biological – viruses, plants, parasites
- mechanical/electrical – tools, electrical equipment
- psychological – fatigue, violence

Hazard Assessment

Policies and procedures for assessing risk

Effective hazard identification, assessment and control are central to a successful health and safety program. A hazard is assessed by the harm it can cause.

Hazards are identified in a number of ways, such as:

- job safety analysis and audits or checks
- workplace/site inspections
- equipment checks
- communication and consultation with other crews and employees
- observation and visual checks

- analysis of near misses and incidents
- task mapping
- checklists
- feedback based on experience

It is important for all employees, management and the organisation’s WHS committees to be involved in the identification, assessment and control of hazards. Everyone in the workplace must communicate and state their concerns about anything that is a hazard or a potential hazard. It is everyone’s responsibility to keep the workplace safe.

Ways to identify risks

The involvement of all employees, management and the organisation’s WHS committees is critical in the identification, assessment and control of hazards.

The following descriptions explain these techniques for identifying hazards in more detail.

Safety audit	This is a systematic and periodic inspection of the workplace to evaluate the effectiveness of the organisation’s health and safety system. Safety consultants or workplace WHS professionals such as safety officers may conduct the audit. An audit usually contains a written report for management and is usually referred to as a WHS committee.
Workplace / Site inspection	These are regular inspections of the workplace by managers, supervisors and safety committee members to determine, by observation, what hazards exist in the workplace. Inspections involve consultation with supervisors and employees and a report to management and/or the safety committee.
Equipment checks	These are regular inspections and checks of workplace equipment by managers, supervisors and safety committee members to determine the equipment is in good working order. Equipment checks involve a standard set of procedures determined by the safety committee and often the equipment manufacturer.
Consultation	Employees are often more aware of hazards and the possible ways of controlling them than management. Consulting employees and other crews can improve the assessment process as well as improving cooperation with control measures eventually put in place.

Visual checks	As an employee you should always be on the lookout for any potential danger and report it immediately.
Observation	A supervisor, manager or WHS committee member may observe a workplace hazard as part of his or her normal duties. Part of the WHS program includes clearly defining who is responsible for the activities and how the information is processed and analysed.
Complaints	Many workplace hazards are brought to the attention of a supervisor or manager through a complaint made by an employee. Complaints should be taken seriously and passed to the appropriate person for prompt action, not left to create an industrial problem.
Injury and illness records	Workplaces are required to keep records of injuries and illness. Many workplaces also generate reports and statistics based on workers' compensation claims. These statistics can be analysed to show the
Accident investigations	Many workplaces have a set of procedures for investigating and reporting on accidents and incidents to identify hazards that contributed to the accident/incident, and in helping to avoid them in the future.
Health and environmental monitoring	As with the WHS audits, monitoring may be done by WHS consultants or safety officers to provide technical advice about suspected problems. Monitoring may show that a substance or process is a hazard and its severity. In this way, monitoring is associated with both hazard identification and workplace assessment and evaluation. A workplace hazard can also be brought to management's notice

Reducing likelihood/probability and consequences

It is important to always follow Standard Work Procedures, and to understand what needs to be done for each task. If you are ever in doubt, ask a supervisor what to do.

Be sure to remain aware of what is going on around you. Be alert, particularly to actions that are usually safe but could become unsafe if conditions change, and take notice of hazard control measures such as rod spin guards and whip checks.

Risk management can be as simple as taking time to reduce the likelihood (chance) and/or consequences (results or outcomes) of an accident/incident. This can be done in a number of ways and may include:

- regular inspections to identify possible hazards
- preventative maintenance to keep equipment and machinery in top condition
- training programs in correct equipment use
- improved supervision to assist in correct work techniques
- testing equipment and processes to check for safe work habits
- audits to make sure safety procedures are followed
- reviews and engineering redesign
- quality assurance systems
- worker rotation through high risk tasks to avoid fatigue
- changing the time of tasks to reduce repetition and loss of concentration
- contracting out to better qualified and equipped organisations

The following table shows various examples of:

- potential hazards
- possible outcomes from the hazard
- potential damage/risk that can be caused if they are not managed properly

Potential hazard	Possible outcomes from the hazard	Potential damage/risk
Static lifting	Using incorrect lifting procedures Lifting something too heavy or large	Muscle strain or permanent damage Dropping an item on yourself
Using handtools	Using defective or damaged tools Not being trained	Slippage or breakage causing bodily harm Incorrect usage resulting in injury
Mechanical equipment	Getting caught in a conveyor belt Operating vehicles on shared paths with pedestrians	Limbs caught in conveyor resulting in amputation or possible death Hitting a workmate and causing death or injury
Electrical	Unsafe power supplies to electrical equipment	Shocks, burns, cardiac arrest
Ladders, stairs and platforms	Unstable or damaged rungs/steps	Fall from heights, broken bones or possible death
Storage areas	Incorrectly labelled chemicals Incorrectly sealed or packed	Possible explosion from incorrect mixing of chemicals or leakage
Thermal substances	Hot engine coolant. Hot mechanical components Fire	Scalds, 1st, 2nd, 3rd degree burns
Chemical substances	Acids and alkalis not handled properly	Skin/tissue damage or respiratory damage through
Working outdoors	Not wearing sunblock or safety equipment Not following warning signs	Sunburn, skin cancers, 'arc eye' tissue damage Falling down a hole and breaking limbs
Working in offices	Insufficient or too much lighting	Eye damage or headaches
Plant and machinery noise	Not wearing protective clothing	Loss of hearing (permanent or temporary), disorientation, dizziness

Table 1: Hazard identification

Risk Assessment

There is a legal obligation for employers and employees to do something about any hazards they identify as being a risk to people in terms of injury or illness.

You can work out a risk by thinking about how likely the hazard is to happen and how serious the possible consequences or outcome might be. This is so relevant precautions can be put in place to reduce the chances of it happening and causing harm. Risks should be listed from extreme to low. Those with the highest level of risk require immediate action.



If an employer cannot eliminate or remove a hazard then they must control or manage the risks. The following methods can be used:

- substitute the system of work or machinery with something safer, for example old equipment may be replaced modern equipment that is safer and easier to use
- isolate the hazard, for example taping off the dangerous area or item
- minimise the risk by using engineering controls, for example guard rail, scaffolding
- minimise the risk by using administrative controls, for example warning signs, safe work practices
- use personal protective equipment, for example safety glasses, ear muffs

Sometimes no single control is enough and more than one of the previous controls needs to be used to reduce the risk as much as possible.

Methods 4 and 5 do not always work as well as the other measures, and so the hazard and work procedures should be regularly reviewed.

How PPE reduces risks

The following PPE must be provided, as appropriate to the work situation, and used as required for specific tasks. The PPE must only be used for its intended purpose.

- protective clothing including safety footwear
- ear muffs/plugs
- goggles
- dust mask
- gloves
- hard hats
- helmet lights
- fluoro strips /jackets
- sun protection for working outdoors

Protective clothing

Every site you go to will apply the national standard regarding protective clothing and it is highly likely that you will need to 'outfit'. This may consist of:

- **Sturdy trousers/shirts/overalls:** should protect you from dust, dirt scratches, sun, and cold. They should be neat fitting – not too tight that they restrict your movements or too baggy and in hazard of being caught in/on anything
- **Head protection (hard hat etc):** will protect you from impact injury and should be worn at all times except inside offices, control rooms, staff amenities and vehicles with adequate roof protection. Hard hats have an Australian Standard number and should have a date of issue. They should be replaced every three years unless damaged/ worn out before.
- **Foot protection (steel cap boots/gumboots etc):** protect your feet from wet, cold, slipping and impact damage. All areas on sites are designated foot protection areas, however, 'appropriate' footwear depends on the job you maybe doing, the location and weather conditions.
- **Hand protection (gloves):** depending on the material the gloves are made from they can protect you from heat, cold, cuts and abrasions, electricity, chemicals and biological infections. The 'appropriate' gloves for the job could be leather, latex, rubber, vinyl, neoprene, lead lined or any other material fit for the purpose of the job on hand.
- **High visibility vest:** are generally worn on open cut sites, processing plants and quarries to save people from being run over. Many sites, especially underground mines, have high visibility strips integrated into standard issue clothing.
- **Ear protection:** is available in a number of forms, including earmuffs, disposable foam plugs, re-useable plugs, individually fitted plugs etc. Different applications and noise levels will require different protection. Follow the site rule safety signs or check with the appropriate person if in doubt.
- **Eye protection:** is also available in different forms varying from simple glasses or goggles with more impact resistant shields, which could be combined with a dust mask or respirator, depending on the job application. Again, follow the site safety procedure, operation instructions for the job or check with the appropriate person if in doubt (supervisor or safety officer).
- **Respiratory protection:** protects you from inhaling dusts, gases, harmful vapours and smoke. A wide range of devices are available, depending on the job requirements. Disposable dust masks are most common, but do not filter any gases or toxic substances. When using masks with chemical cartridges it is important to have the right cartridge to suit the toxic substance to be eliminated. No one chemical can remove all contaminants. Filters are colour coded. Make sure that the right cartridge is fitted and that the seals are not damaged!

Assessing the likelihood of risks

The likelihood, or probability, is a way of measuring either how often an incident will occur or how likely it is that an event will occur. It is the measure of the chances of an incident/accident happening.

When working out the degree of risk arising from a hazard, ask yourself the following questions:

- does the type of hazard mean there might be a risk?
- do I need to look at more than one hazard together?
- what types of incidents or situations can be predicted?
- will the risk rating increase with more time?
- does the workplace/area have any hazards?
- will the introduction of new work reduce/increase the hazard?
- what is the skill and experience level of the team?
- will the existing control measures be adequate?

To assist in assessing the likelihood, the following table is used to rate the risk.

	Very likely	Likely	Unlikely	Very unlikely
FATALITY	1	1	2	3
MAJOR INJURY POSSIBLE	1	2	3	4
MINOR INJURY	2	3	4	5
NEGLIGIBLE INJURIES	3	4	5	6

Table 2: Hazard and risk assessment table

As you can see from the previous table, if the likelihood of a risk causing a fatality is very likely then it is rated as a category 1. This means it is of the highest priority to be eliminated from the workplace. On the other end of the scale if the risk of an injury is very unlikely and would only be negligible if it occurred then it is given the lowest category and therefore the lowest priority.

Assessing the consequences of risks

A consequence is the outcome of an event. With risk assessment it is usually an injury to a person or damage to equipment or production. Any hazard with a rating of 1 must be eliminated or controlled to an acceptable limit before work can proceed.

Prioritising Risks

At times there could be more than one hazard in the workplace that needs to be addressed. If that is the situation, the hazards will need to be prioritised before they can be treated.

The criteria used for prioritising hazards are:

- level of risk to safety of personnel
- threat to production
- environmental risk
- risk to machinery and equipment
- risk to product quality
- hazards requiring elimination
- hazards requiring engineering control
- hazards requiring administrative control
- hazards requiring PPE

The level of likelihood and in turn the consequences of the hazard/risk will assist in the prioritising of hazards.

Risk elimination and control

Once a risk has been assessed it is time to take action. The action taken will depend on the type of risk and the best way to deal with it. There are two options when deciding what needs to be done to solve the problem. These are elimination and control.

Elimination

Elimination is when a hazard is completely removed. Obviously the consequences of the risk occurring are no longer present because the hazard has been eliminated. An example of this would be if there was an electrical drill with an exposed and frayed electrical lead that created the hazard of an electrical shock for an operator. Eliminating the risk of this hazard occurring would be to replace the faulty equipment with one that did not have a damaged power lead

Control

Control is used when the hazard cannot be completely eliminated. An example of this would be the use of dangerous machinery. To control the risk of a hazard occurring, such measures as machinery guards, warning signs, proper training and personal protective equipment will be put in place to reduce the risk of injury

If it is not possible to do anything about the hazard itself, a change will need to occur in the way work is done so that you spend less time exposed to a hazard. For example, workers can be kept out of noisy areas if they don't have to be there or away from machinery when it is in use.

Reducing likelihood/probability and consequences

Risk treatment can be as simple as reducing the likelihood and/or consequences of an accident/incident. There are a number of ways of reducing the likelihood and could include:

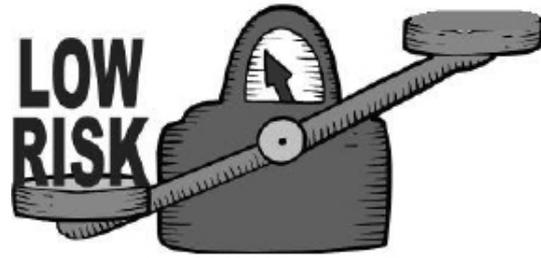
- regular inspections
- preventative maintenance
- structured training programs
- improved supervision
- testing equipment and processes
- audit and compliance programs
- reviews and engineering redesign
- quality assurance systems
- rotation of personnel through high risk tasks
- changing the time of tasks
- contracting the risk to better qualified and equipped organisations

In addition there are also a number of ways of reducing the consequences, such as:

- use of additional PPE
- design changes on equipment to minimise injury/damage
- implement emergency response procedures
- install emergency equipment
- plan for possible contingencies
- conduct emergency drills

Review Of Risk Assessment

Reviewing risk assessment is an important part of risk management. By continually reviewing the existing risk of hazards and identifying new ones, new information will become available. Once implemented, control strategies must be documented or recorded. They need to be properly used and maintained, and training should be provided where necessary.



Ongoing monitoring and review are necessary to make sure controls are suitable and to encourage continual improvement. There are a number of procedures and activities that can be used to make sure that risk assessment approaches are continuously reviewed.

Summary of hazard identification, assessment and control

ACT:

- identify hazards

PLAN:

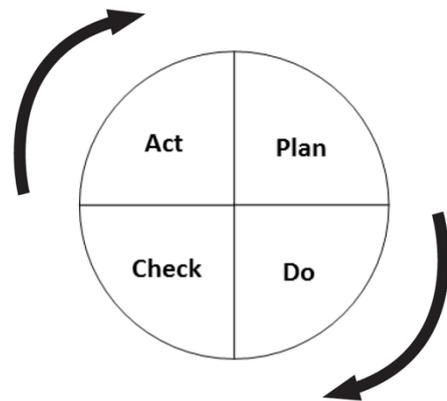
- classify
- analyse and assess and evaluate the importance and effect of each hazard

DO:

- do something about the hazards

CHECK:

- monitor the success of the actions - obtain feedback (this then leads to ACT and the cycle continues)
- use Quality Assurance procedures to act as the support wedge during the cycle



Standard safety work procedures

Many hazards can be overcome or avoided by the use of Standard Work Procedures/Instructions. These provide instructions on how to carry out tasks safely. They are provided for jobs that could, in some way, be considered hazardous.

If Standard Work Procedures/Instructions have been written for a job you are about to do, you must follow the instructions. Your supervisor will be able to provide you with a list of Standard Work Procedures/Instructions and you should read through them. They can be presented in different ways such as:

- written tasks
- checklists
- flow charts
- drawings and diagrams
- information sheets
- manufacturer's instructions

Apart from making good common sense, it is your legal duty to take reasonable care for the health and safety of yourself and others while working. This means that you are responsible for your own conduct (and the impact of your conduct and performance on others).

Workplace health and safety is jointly shared between you and your employer. Be proactive – do something about things that aren't right before they cause an accident.

Acceptable/unacceptable risk

The acceptability/unacceptability of a risk is based on the level of likelihood and consequences. The higher the risk, the more unacceptable it is.

The information on what is acceptable/unacceptable risk will depend on your site procedures and can be found in your workplace:

- legislation
- site policy
- WHS exposure limits
- goals and objectives



Safety procedures

Accidents in the workplace can occur for a number of reasons. These might include:

- a lack of knowledge of safety rules
- a lack of skills to do the job
- attempting to take shortcuts
- a failure to consider the consequences of actions
- forgetting important steps in procedures
- working with a the wrong attitude
- inadequate job training

- defective tools and machinery

All organisations are required to have safety systems and procedures in place to protect employees. Safety systems and procedures are covered in:

- government legislation and regulations
- management plans and rules
- WHS policies and procedures
- codes of practice
- manufacturer's instructions
- safety alert sheets
- tool box talk information sheets
- standard work procedures/instructions
- other informal systems



These are designed to protect your personal safety, the safety of your workmates, and the safety of workplace equipment. You need to understand what is required of you in the workplace so you can act in a safe manner.

Standard safety work procedures

Many hazards can be overcome or avoided by the use of Standard work procedures/instructions. These provide instructions on how to carry out tasks safely. They have been provided for the jobs that could in some way be considered hazardous.

If Standard Work Procedures/Instructions have been written for a job you are about to do, you must ensure that you obtain a copy and follow the instructions. Your supervisor will be able to provide you with a list of Standard work procedures/instructions and you should familiarise yourself with them.

Remember: Standard work procedures/instructions are considered to be part of a site plans and rules and as such by not following them you are effectively breaking the law.

Monitoring and Completing Records and Reports

It is important that workers on the job continually check the worksite for new hazards.

Changes, even minor ones, to work equipment/tools, procedures, and schedules might create hazards that nobody has thought about.

You should always be aware of potential hazards particularly in situations that are out of the ordinary, or when things have changed from the original plan.



Where to go for advice

Information about reporting hazards or any concerns you may have about safety risks at work can be reported to a:

- supervisor
- health and safety officer
- health and safety representative
- health and safety committee (usually found in larger workplaces)

Work health and safety representatives

Workers may elect co-workers to represent them on health and safety issues. Extra representatives can be elected after negotiations with the employer.

Work health and safety committees

The main function of work health and safety committees is to promote cooperation between employers, principal contractors and workers to ensure work health and safety.

The committee also provides information to workers and advice to the employer or principal contractors on work health and safety matters.

NOTE:

- if the workers at your enterprise elect a work health and safety representative, your employer must consult with that person on health and safety issues;
- if a health and safety committee is established at your enterprise, your employer must allow the members of the committee to be involved in health and safety matters at your enterprise

Work health and safety Officer

With written approval from the head of the appropriate state body, an employer or principal contractor can appoint a person to be workplace health and safety officer for more than one workplace, if the person can carry out the duties at each workplace.

Work health and safety officers:

- advise on health and safety at the workplace;
- carry out inspections to detect unsafe conditions and practices;
- report unsafe conditions
- analyse reports
- recommend training
- make recommendations to the safety committee
- make recommendations to the site manager

Complete records and reports

It is important to keep records and to document and report all hazards/risk control. There are many types of records and reports that may be required in your workplace and they could include:

- hazard reporting forms
- deputy/CEO's reports
- incident/accident reports
- near miss reports
- shift reports
- environmental reports
- legislative reports

Most reports are designed not to place blame, but to try and work out the cause of an accident/incident. Reports can assist in finding ways to take action to make sure it doesn't happen again.

Employees will be faced with hazards at your workplace. Any injury or exposure to hazards must be reported. A simple form makes the reporting easier and increases the chance of getting the information a manager needs.

An accident/incident report form is a legal document. It is essential, both from a legal standpoint and as a way of identifying any problems, that reports are clear, accurate and include the facts. Make that you stick to the facts, avoid guessing at causes or blaming others when filling out forms.

Each record must be kept for at least five years. If the accident/incident is related to WHS, these should be noted in the WHS section. If it leads to maintenance on plant or equipment, it should be recorded in the maintenance log.

Do your part in improving safety by making sure all reports are completed and directed to the right people. If you're not sure what to do, ask your supervisor.