

RISK

MANAGEMENT AT WORK



GUIDE 2001
WorkCover NSW Health and Safety Guide

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How to use this information

- **What is this booklet all about?**

The NSW Occupational Health and Safety Act 2000, in conjunction with the consolidation of all associated regulations into the *Occupational Health and Safety Regulation 2001*, is the most significant reform to occupational health and safety laws in almost 20 years.

The changes introduce a move away from old-style laws which attempted to detail how hazards were to be controlled in every situation, to a position which requires employers to assess the risks posed by hazards in their workplace and to determine how best to modify their work processes to effectively eliminate or control the risks.

This process is known as **risk management** and is the main focus of this guidance material.

- **Who is this booklet for?**

This guidance material provides a model for the systematic management of workplace hazards that can be used by: owners or managers of small or medium sized companies; OHS Committees; OHS Representatives; or anyone wanting to improve workplace health and safety.

It demonstrates in a practical way just what risk management is, and how employers and employees can work together to make their workplace and work practices safe and efficient.

- **When to use this information**

As part of replacing outdated laws and re-shaping the legal framework to suit modern industrial conditions and work practices, the new OHS Act and the OHS Regulation formally introduce risk management into the NSW regulatory framework and make it mandatory for employers to consult with workers on matters which affect their health and safety.

Understanding these legal requirements is an essential part of understanding the role of risk management in the management of workplace health and safety and in knowing exactly how to meet your risk management obligations.

What do the symbols used in this booklet mean?



Assess the risks in your workplace



Legal obligations that you must follow



Consult and communicate with employees



Questions you (or others) might ask to clarify issues



Tools that can help you work out your plan



The process of finding things that cause harm, working out how big a problem they are and then fixing them

Risk Management at Work

Because risk management is a practical way of finding and fixing workplace health and safety problems it is best illustrated by way of a workplace example. Consider the following workplace example:

Every week, two council workers are required to clean the public toilet blocks in the local parks.

To do this they take a truck from the depot, which has a small pressure pump and hose stored on the back of it. They drive the truck through the park, up to the front of the toilet block, lift the pump off the truck, carry it into the toilets, attach the hose to the tap and clean the block with high pressure water.

When they have finished hosing out the toilets, they carry the pump out to the truck and reload it onto the back of the truck and go to the next park with a toilet block.

As you might imagine, they don't like doing this job. The pump is heavy and awkward to lift and they find themselves straining every time they have to lift it on and off the truck. When they are using the hose in the confined space of the toilet block the noise is so loud it causes ringing in their ears which can last for hours. They have been given earplugs to wear but they often forget to bring them when they set out for the day.

Sitting in the lunch shed one day they complain to the foreman that they are not getting any younger and they are worried about "doing their backs in" lifting the pump and that the noise in the toilet block is sending them deaf.

Pete, the maintenance fitter, who is having his lunch in the shed overhears the conversation and butts in saying,

"You're bloody mad doing the job the way you do, I know how to make it much easier. Bring the truck to the maintenance yard tomorrow and I'll fit a 30 metre hose which will reach from the truck inside the toilet block and then you won't have to lift the pump off the truck in the first place".

"What a great idea", says one of the two cleaners. "That will also make it much less noisy when we are in the toilet blocks with the hoses 'cause we'll leave the noise outside".

"You know Pete, you're a bloody genius".

What you have just witnessed in the example above is the risk management process at work. Between them, Pete and the two cleaners have unknowingly worked through the steps involved in risk management and as a result have solved the problem of the heavy, noisy pump.

Let's take a closer look at the process they went through to do this.

Step 1. Hazard Identification



Firstly, the cleaners identified that the pump had the potential to cause them harm because it was heavy to lift and noisy. They therefore found that the way they were doing the job was hazardous and they knew this because they did the job regularly. The **hazards** they identified were:

- Manual Handling
- Noise

Step 2. Risk Assessment



Step 3. Risk Elimination or Control

The Risk Management Process

Risk management is the process of identifying and managing risks to avoid exposure or loss.

Because the cleaners have workmates who have hurt their back lifting heavy objects and others who are partially deaf from working in noisy environments, they realised that they too were at risk of such injuries, particularly as they cleaned the toilet blocks every week. The risks that they were concerned about which result from these two hazards were:

Hazards (Problem)	Risks (Harm)
Manual Handling	Muscle strain Back injuries
Noise	Hearing loss

They were lucky that Pete overheard their conversation with the foreman because Pete came up with a great solution to eliminate the need to lift the pump off the truck and, as the cleaners pointed out, it also solved the noise problem.

Hazards (Problem)	Risks (Harm)	Control (Solution)
Manual Handling	Muscle strain Back injuries	Change work practices by increasing length of hose to eliminate the need to lift pump
Noise	Hearing loss	Change work practices by increasing length of hose to reduce the noise level inside the toilet block

So you can see that: by examining what they had to do and what harm they might experience if they kept doing things the same way; and by talking to others about their concerns; the cleaners, with Pete's help, have been able to solve their problem in a very practical way. This is what risk management is all about.

In OHS terms, risk management is the process of recognising situations which have the potential to cause harm to people or property, and doing something to prevent the hazardous situation occurring or the person being harmed. This is what the cleaners did in the example we have just looked at.

The **risk management process** consists of well-defined steps, which can be likened to the problem-solving process, that when taken in sequence lead to informed decisions about how best to avoid or control the impact of these risks. Just like the problem-solving process, risk management involves:

Step 1: Identifying the problem, which is known as **hazard identification**.

Step 2: Determining how serious a problem it is, known as **risk assessment**.

Step 3: Deciding what needs to be done to solve the problem, **risk elimination or control**.

Step 1: Hazard Identification - How do you decide what is a hazard?



Let's now take a look at what is involved in each of these steps.

Employers must make sure that their workplaces are free from hazards that could cause injury or disease to their employees or to other persons in the workplace, such as customers or visitors. An employer, in consultation with his or her employees, must identify all potential hazardous situations which could result in any person in the workplace being harmed. The idea is that hazards are found and something is done about them before they actually cause any harm. How can this be done?

The purpose of the hazard identification is to find all the hazards by asking yourself questions that begin with **“What if ... ?”**

Identifying the hazard is only the first part of this step. It is essential that you observe or predict what could go wrong while the task is being performed.

Therefore, the hazard identification process must look at the whole system of work and requires you to:

1. Take a look back into the past at what accidents have already happened.
2. Talk to the workers doing the jobs to find out what they consider are safety issues.
3. Take a walk around the work area to see and hear what is happening now.
4. Review any information you may have on a particular piece of equipment (manufacturers manual) or chemical Material Safety Data Sheets (MSDS) to see what it says about safety precautions.
5. Think creatively into the future about what could happen if something went wrong. Most incidents occur when something does go wrong.

Walking around a work site, talking with the workers and observing how things are actually done will help you predict what could or might go wrong. Observe: how people actually work; how plant and equipment is used; what chemicals are around and what they are used for; what safe or unsafe work practices exist; as well as, the state of the general housekeeping.

Looking back over any OHS records such as accident records, near miss records, workplace inspection reports or workers compensation records will also give you clues as to what hazards exist. The “describe what happened” section of such reports will help lead you to the problem. If someone has been hurt doing a particular task then a hazard exists, which could hurt somebody else. Other times that hazards should be identified are:

- after a near miss incident;
- after an actual injury.

Both these situations require investigation to find the hazard and its cause.

Step 2: Risk Assessment - How do you determine what harm they can cause?



Once a hazard has been identified, an employer is required, in consultation with his or her employees, to determine how likely it is that someone could be harmed by the hazard and how serious the injury or illness could be.

This is done by reviewing any available information about the hazard. The type of information that you will need to examine will vary with the type of hazard but will generally include some or all of the following:

- **Hazard information** which is required to be supplied to you with the product or equipment such as MSDS or manufacturers information.
- **Experience from the workplace** with the hazard or similar risks such as employees experience as well as injury or incident data.
- Control measures prescribed in Chapters 4-8 of the OHS **Regulation 2001**, which identifies the risk for particular hazards and minimum control measures for certain known hazards.
- **WorkCover guidance material** which will help you assess potential risks for particular hazards, processes or work tasks.
- **Industry Codes of Practice** which will give you direction and detailed guidance on the identification and control of hazards in line with accepted legislative requirements and industry standards.
- **Australian Standards** which set out specifications for a range of equipment, products and materials to ensure that they are safe and of a good quality. Australian Standards represent good engineering practice in relation to fabrication and design. You must comply with the ones that are referred to in the OHS Regulation.

The thing to remember is, if the problem is obvious and the risk of injury is high, act to control the risk immediately in some way, as an interim measure. Then do the research required to assess the risk and decide on the control options. Part of the risk assessment involves identifying what you need to do to eliminate or minimise the risk and deciding which control option is appropriate given the degree of risk.

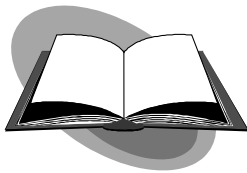
Having found that hazards do exist and that people are at risk of injury or illness from them, there is a legal compulsion on employers to do something about them.

Employers are required to remove or fix any hazards or, if this is not “reasonably practicable”, they must lessen the risk of harm to the lowest possible level. If we think back to the example of the two council workers we can see how this works.

The solution proposed by Pete eliminated the manual handling risk altogether as it removed the need for the pump to be moved from the truck at all. It also significantly reduced the noise problem. Clearly this is the best solution.

Step 3: Risk Elimination or Control - How do you decide the best way to remove or reduce the risk?

When do you do Risk Management?



If it was not possible to fit a longer hose to the pump, for instance, because the pump was manufactured in such a way that a longer hose would significantly decrease the effectiveness of the pump, then another solution would be to put appropriate wheels on the pump and fit a lifting device to the tray or the truck. This would allow the pump to be lowered mechanically to the ground and then wheeled into the toilet block. It would not reduce the noise problem and this would still have to be fixed.

If it was not possible for the council to fit a lifting device to the truck then perhaps the truck could be supplied with ramps to suit the width of the pump. The pump could then be wheeled on and off the truck. While this does not remove the manual handling risks, it reduces them significantly.

Again, controlling risks for certain hazards will require employers to comply with the specific controls set out in the OHS Regulation.

The OHS Regulation specifically states that risks must be minimised by means other than the provision of personal protective equipment (PPE) wherever possible. PPE should only be relied on when there is no other solution and in most instances should be used as a supplement to other control measures.

Risk management is not something that can just be fitted in when an employer has time or the workplace is a little quiet. OHS laws require that hazards are identified and that procedures are in place and are used to identify, assess and control hazards:

- before setting up and using a workplace;
- when planning work processes;
- before installing, commissioning or erecting plant;
- whenever changes are made to:
 - the workplace;
 - the system or method of work;
 - the plant used;
 - the chemicals used;
- whenever new information regarding work processes becomes available.

How can this be achieved?

To meet the requirements listed above, you need to think about health and safety whenever decisions are being made about how the work is to be done and whenever plans are being made to improve productivity or reduce costs.

Risks are most effectively identified when work activities are actually being designed, planned, talked about and decisions about the impact on health and safety can be made uncompromisingly.

This means risk management **must** be: planned; systematic; done at the right time; and comprehensive, to cover all potential hazards and risks.

Who should be involved in Risk Management?

The OHS Act 2000 requires employers to consult with employees and take into account their views when making decisions that affect their health, safety and welfare. Involving your employees in identifying hazards and solving health and safety problems is an essential step in making your workplace safe and healthy.



The six steps involved in creating an OHS Management System



The earlier example of the council workers showed how those affected by decisions about health and safety are best positioned to help make the job safer. The two workers were able to identify the problem because they did the job regularly. Pete, the maintenance fitter, was able to come up with the solution because he knew the equipment and had the technical skills to find a better way to do the job.

Consultation is a central feature of risk management because involving the people who do the work in identifying hazards and deciding how to control risks is the most effective way to manage workplace health and safety.

These people know the job, know what is needed to make the job safe, know the production process, and above all know how best to solve problems so that hazards are eliminated or controlled.

Consultation is required:

- whenever risks to health and safety are being examined or reviewed;
- when decisions are being made about measures taken to eliminate or control risks;
- when introducing or altering any procedures for identifying and monitoring workplace risks;
- whenever changes that may affect health and safety are proposed to the workplace, the system of work, or the plant and substances used for work;
- whenever decisions are made about consultation arrangements.

In other words, consultation with employees is required when planning how work is to be done and before work involving any new processes, equipment or chemicals begins.

Employers need a process in place to make sure that potential hazards and the health and safety of people in the workplace is not overlooked during the planning of work activities. This can only be achieved by having policies and procedures in place, which make it impossible to overlook OHS in the overall planning of the production process.

The systematic management of workplace health and safety means managing work activities to minimise risks. **An occupational health and safety management system** is simply a documented, co-ordinated plan to make sure the hazards and associated risks are managed.

For risk management to be truly effective it must surround work activities. It cannot be simply hazard-based, where efforts generally attempt to put out the “bush fire” without managing the work activity and the environment safety as a whole.

Step 1: Determine who is responsible for health and safety

While the main responsibility for making sure that work activities are safe lies with the employer/owner of a company, there is a general expectation that employees work safely and take care in what they do so as not to put themselves or others at risk.

The expectations of employees can be broken down into such things as being expected to:

- follow procedures;
- wear personal protective equipment (PPE);
- report any safety problems; and
- report incidents and injuries.

In order to do these things, employees need to have procedures to follow, PPE to wear and a means of reporting OHS problems and injuries. Therefore, a company needs to determine who is responsible for: developing the procedures and the reporting mechanism; and purchasing and supplying PPE.

In most workplaces managers are usually responsible for the range of decisions about what the company will do and how it will be done. Decisions such as what products and services the company will produce, how this will be done and who will do it, are made by the management of the company. In doing this, managers also make decisions about what equipment and materials will be purchased and what production targets are to be achieved. They are responsible for making sure this can all be done safely.

Supervisors are responsible for making sure that the management's decisions are carried out. They make sure production targets are met, that work is carried out to the standard required and that procedures are followed.

Employees do have a role to play in creating a safe workplace and in keeping it that way, but they are only able to meet these responsibilities if procedures such as PPE and reporting systems are in place.

For all the occupational health and safety activities that happen, or should happen in a workplace there needs to be people responsible for:

- initiating the actions to be undertaken;
- developing the actions into steps (procedures);
- training others to follow the procedures;
- supervising people to make sure they understand and follow the procedures; and
- reviewing the procedures to make sure they work and updating them as things in the workplace change.

Step 2: Plan to work safely

The way to systematically plan and manage health and safety in the workplace is to build risk management and consultation into all those activities which have OHS implications. As we have seen this involves business activities such as:

Purchasing:	because OHS issues can be thought about and addressed before a piece of plant or a chemical even enters the workplace.
Work methods or procedures:	because jobs can be designed to make sure workers are safe and that the job is carried out in a safe manner.
Using contractors:	because employers need to make sure that other workers who come into the workplace are not put at risk or that the actions of these workers don't put at risk the safety of anyone else.
Reporting OHS problems:	because if hazards are identified and reported as soon as someone notices them then the risks can be examined and fixed before they cause any harm.
Investigating incidents:	because if something does go wrong procedures and work methods need to be reviewed to make sure that the same thing will not happen again.
Emergency procedures:	because risks to people from fire and other emergencies need to be identified and planned for.

Step 3: Involve employees in the process



Step 4: Develop procedures

Next, you need to decide how you are going to involve your employees in the process. Will you do this via an OHS Committee or by using employee OHS Representatives? How will these consultative arrangements be developed with the workforce and communicated to them? WorkCover has developed a Code of Practice: OHS Consultation which provides practical guidance on how you can set up consultative arrangements and make sure they work effectively.

You then need to develop an action plan in consultation with your employees. This action plan needs to spell out what needs to be done, in what order, who is going to do it, and in what timeframe. For example:

“Purchasing procedures to include identification of hazards and assessment of risk. To be developed by Production Manager and Purchasing Officer and referred to committee in 1 month”.

“Three representatives from the Committee to develop draft evacuation procedures within 2 months”.

Probably the most important part of your action plan will be to look at the jobs people do in your workplace and develop safe work procedures for these tasks. If you develop safe work procedures for the jobs which form the core of your business operation then you are likely to address the majority of hazards and risks in your workplace.

To do this you need to: sit down with the committee or employee representatives (or in accordance with other consultative arrangements you have agreed to with your employees); list all the jobs which are done; prioritise them in terms of risk and then, establish a schedule to develop safe work procedures for these jobs over a set period of time. At the end of this booklet there is an example of how you can analyse the tasks in your workplace and develop Safe Work Procedures. There is also an example of how you can look at your purchasing procedures to ensure safety issues are adequately addressed.

Step 5: Train people in the procedures

Procedures don't work if people don't know about them. Once procedures have been developed to include the work activities discussed above, employees need to know about them.

Clearly written and straightforward procedures can be used as the basis for an OHS training program for all levels of the organisation. Managers, supervisors and employees all need information and instruction on what is required and what is in place.

This same information can be streamlined to form the basis of an employee induction handbook to make sure people are informed on how to work safely before they commence on the job.

Step 6: Monitor, review and improve the system

Once procedures have been in place for a while, it is important to monitor their effectiveness and to make sure that people are following them. Reviewing what is in place and how it is working allows for the system to be changed to accommodate any changes in the workplace. This will result in a system which is continually being improved.

Evaluating and reviewing means checking to see if the decisions that were made about the risks and the best way to control them are properly put into place and that they are working.

Once a risk assessment has been done it must be reviewed by both management and the people involved in the job. The effectiveness of the decisions which came from the assessment need to be re-evaluated if:

- there is evidence that the risk assessment is no longer valid; or
- if someone is harmed from exposure to the hazard that the assessment dealt with; or
- if there are changes in the work environment or the work practices concerning the hazard which the risk assessment addressed.

What if Something Does go Wrong?

Reporting Problems

Accident/Incident Reporting

Investigating Accidents, Incidents or 'Near Misses'

Accidents are not just bad luck or unforeseeable. In most cases they occur as the result of a "chain of events" and a failure of one or more links in that chain.

Injury Management

While systematic risk management tries to make sure that procedures are in place so that all work and all related work activities are carried out safely, in reality new hazards will arise in the workplace for various reasons. Old problems, which you thought you solved, may reappear.

As an essential part of a risk management system, everyone in the workplace should be encouraged to report problems as soon as they notice them.

The hazard reporting system should reward people for reporting a problem, not discourage them for finding more problems. It is also a good idea to have some way of writing down the hazard when it is found, recording what is done to fix it, and signing off when it is done.

Risk management systems reduce the likelihood of an accident occurring, nevertheless from time to time incidents or accidents may happen. Such events in themselves are an important part of the risk management process. Let's explore why.

An accident involves an injury or illness of some degree to a person in the workplace. An incident or near miss, on the other hand, is an event where no injury or illness occurs but this is more the result of good luck.

A near miss or incident should be treated as a warning sign. Everyone should be encouraged to report these potential accidents in the same way that they are encouraged to report hazards. Once reported, near miss incidents should be investigated and control measures put in place to make sure the same thing does not happen again.

Investigating accidents, incidents or 'near misses' helps you to find out what went wrong, why it happened and, if a control measure was in place, why it failed. Perhaps the control measure which you thought was in place did not work because people at the workplace did not know about it.

For example, maybe you had gone to the trouble of writing down safe work procedures but you had not spent the time to make sure all workers were familiar with them and understood them. Or maybe there was a casual worker on site for the week and he or she had not been properly trained in your safe work procedures. Perhaps you had been busy and overlooked the maintenance schedule for the machinery or forgotten to buy more gloves.

Investigating what went wrong and why, and what needs to be done to make sure the same situation will not be repeated, is also part of the risk management cycle.

The loss or disruption which a company can experience when a hazardous incident occurs in the workplace can be multiplied tenfold when that incident leads to an injury to a worker.

A comprehensive risk management system must therefore address what needs to happen should an injury occur and should include a

well-thought-out plan to maximise opportunities for injured workers to remain at work.

The two key factors which interact to reduce the effect of a workplace injury for both the injured worker and the employer are **early intervention** and **early return to work**.

Accordingly, your risk management system must define steps to manage injuries and return injured workers to gainful employment. It needs to include:

- early notification of the injury;
- early contact with the worker and his/her doctor and your insurance company;
- the provision of suitable duties as early as possible for an early return to work; and
- a written plan to upgrade these duties in line with medical advice.

It is important to note that the safe work procedures generated as part of your risk management process can be used to find and specify suitable duties.

Conclusion

Systematic management helps employers to recognise hazards and plan to eliminate or control risks. The opposite approach is to ignore the potential for harm at the planning stage and then manage the problem when it does arise. This approach is far more disruptive and usually more costly and risky in terms of non-compliance.

The message is that the risk management obligations should not be seen as an imposition or an added extra but will, when applied effectively, help employers plan and organise their workplace in an efficient and safe manner.

Let's consider the following examples to see how the systematic approach to risk management works. These examples will illustrate that the systematic management of health and safety is the same as any good business planning strategy. It should be emphasised that these are not the only situations in which OHS issues arise but they provide useful illustrations of how OHS issues can be integrated in general decisions about how a business or organisation operates.

Example 1: Job Design



Step 1: Hazard Identification



Step 2: Risk Assessment



This example illustrates the application of risk management principles to designing a new job or set of jobs.

Artlight is a small company that assembles lampstands. The lamp bases have traditionally been made out of plastic or glazed crockery. It has been decided to add a new line with cast metal bases. This will require the employment of a new person to undertake the following tasks:

- unloading the truck;
- using the grinder to dress casts;
- cleaning dressed casts with solvent;
- placing casts on trolley to be taken to paint shop.

The questions to ask are:

1. *What hazards and risks are being introduced into the workplace as a result of this new process?*
2. *How will the hazards be identified?*
3. *How might the risks be eliminated or controlled?*

Listed below are the hazards which this new process would introduce into the workshop.

Task:	Hazard:
Loading/Unloading materials	Manual Handling
Operating Grinder	Mechanical Plant/Machinery
Using Solvents	Hazardous Substances

The tasks obviously involve exposure to significant hazards, namely manual handling, plant and hazardous substances.

The risks associated with manual handling, the use of plant and hazardous substances, need to be assessed to determine what action should be taken to eliminate or control them.

- Follow the recommendations on the MSDS.

The MSDS gives information on the health effects of the solvent. As the solvent is already being used in the workplace, the MSDS is readily available and warns that if not used correctly, it can cause headaches, skin irritation or dermatitis, as well as irritation to the eyes, nose, throat and respiratory tract. It also advises that people should not be exposed to the substance for long periods and that it must be used in a well-ventilated area.

- Follow the recommendations on the operator's manual.

The grinder was supplied with an operator's manual which gives directions on how to use it safely. The manual warns that: only the specified model grinder wheels should be purchased to replace wearing wheels; eye protection should be worn at all times; and the safety guard must not be removed when the grinder is operating. While the manual indicates that the noise levels from the grinder are within the legally specified limits, it does suggest that with

prolonged use over an 8-hour shift, ear muffs should be worn. The manual contains a service log for the grinder and suggests that to prolong the life of the grinder and to ensure the safe operation of the machine, it be serviced by a qualified person every 3 months.

- Use information about accident, incident or ‘near miss’

Examination of the Register of Injuries shows that over the past 5 years there have been 22 reports of a back, neck or shoulder injury from loading and unloading trucks, 6 of these were very serious and resulted in time off work. In addition, 4 people have gone home with headaches and sore eyes reportedly after working for 3 days with the solvent.

Task:	Hazard:	Risk:
Loading/Unloading materials	Manual Handling	Strains due to incorrect or excessive <ul style="list-style-type: none"> • Lifting • Bending • Reaching • Carrying
Operating Grinder	Mechanical Plant/Machinery	Injury caused by: <ul style="list-style-type: none"> • Moving parts • Metal fragments • Explosion • Noise • Dust • Poor maintenance
Using Solvents	Hazardous Substances	Exposure resulting in: <ul style="list-style-type: none"> • Headaches • Skin irritation • Dermatitis • Eye irritation • Nose & throat irritation • Respiratory irritation

Step 3: Eliminate or Control the Risks

Now that the risks have been assessed, the next step is to devise strategies to eliminate or control those risks so as to make the workplace as safe as possible and to make sure that Artlight’s OHS obligations are met. Let’s look at the range of control strategies that could be considered:

Level 1 Controls:

Why design in a problem in the first place? Think first about the possibility of **ELIMINATING** the risk altogether.

Is it possible for Artlight to have casts dressed & cleaned as part of supply contract? This would eliminate the need to use the solvent or the grinder and therefore eliminate the associated risks altogether.

After further investigation Artlight discovers that the cost of buying the casts already dressed and cleaned is prohibitive so eliminating the problem is not possible. They therefore need to consider strategies to reduce the problem.

Level 2 Controls:

If you can't eliminate the risk, think about redesigning the equipment or processes so that less hazardous equipment or materials can be used:

Is it possible to substitute a less hazardous substance for the solvent? There may well be other products that can do the job required and are far less hazardous.

Is it practical to obtain the solvent in smaller containers and so eliminate the risks of skin and eye contact associated with decanting?

Is it possible to have the casts delivered on pallets and transported by a forklift to minimise lifting?

The workers have suggested that a crate could be designed with a gravity feed gate which allows the casts to be removed from the bottom of the crate. This would avoid bending into the crate and would allow the crate to be placed on a table at waist height, preventing bending altogether.

The grinder should be checked to make sure the appropriate guards are fitted to minimise risks of entanglement, and a face shield can be supplied for risks from metal fragments.

Any noise problem may be reduced by an acoustic hood.

To minimise risks from solvent fumes, the area in which the solvent is to be used will need to be properly ventilated and may require an appropriate exhaust system to be installed.

Level 3 Controls:

Because it is not possible to eliminate the hazard but the risk can be minimised by engineering controls, Artlight must consider the need to supplement these controls with the following:

Safe Work Procedures: which clearly define how people are to do their work safely (work methods);

Training and Supervision: to make sure workers know how to do the job the safe way and work according to the safe work procedures;

Personal Protective Equipment: this may involve gloves, eye and hearing protection. As well, safety footwear may well be needed for the tasks associated with manual handling.

The best controls to manage the risks at Artlight are listed in the table following.

What we have done in the following table is complete a Risk Assessment of this new process at Artlight. This process requires that you think more carefully about how work is to be done in the workplace. The advantage of this approach is that it will enable you to:

- 1. Address problems early:** It is much easier and more cost-effective to deal with OHS problems at this stage rather than wait until an accident or incident forces it upon you.

2. Incorporate safety procedures into work practices rather than addressing safety as a separate issue: By considering safety issues when a job is designed or redesigned, you can assess the best way to do a job and what equipment is needed.

Task:	Hazard(Problem):	Risk(Harm):	Controls(Solution):
Loading/ Unloading materials	Manual Handling	Strains due to incorrect or excessive: <ul style="list-style-type: none"> • Lifting • Bending • Reaching • Carrying 	<ul style="list-style-type: none"> • purchase from supplier in crates on pallets • unload with forklift • place crates on waist-high table • gate in crate for gravity feed
Operating Grinder	Mechanical Plant/Machine	Injury caused by: <ul style="list-style-type: none"> • Moving parts • Metal fragments • Explosion of grinder wheel • Noise • Dust • Poor maintenance 	<ul style="list-style-type: none"> • face shield to be supplied • grinder to be guarded • only model of wheel specified in manufacturer's manual to be used • acoustic hood to be fitted • hearing protection to be supplied • extraction system • quarterly maintenance service by fitter
Using Solvents	Hazardous Substances	Exposure resulting in: <ul style="list-style-type: none"> • Headaches • Skin irritation • Dermatitis • Eye irritation • Nose & throat irritation • Respiratory irritation 	<ul style="list-style-type: none"> • non-solvent-based cleaner to be used • buy small containers of solvent/no decanting • gloves to be supplied • eye protection to be supplied • exhaust system to be installed

While it has been easier to illustrate the process of job design by this example using a new job, it is very important to understand that the same thinking and the same process needs to be applied to existing jobs. While you might think this is harder it really just involves you and your employees thinking differently about *“the way things have always been done”* and *“the safe way the jobs should be done”*.

Example 2: Safe Work Procedures and Training

Artlight is now ready to commence production. It needs to recruit a new person to run the cast metal base production. They find a person with manufacturing experience but need to make sure he or she knows how to do the job safely, in line with how it has been designed.

Artlight needs to formally tell him or her about the hazards involved in the job and instruct him or her in the application of the control measures already decided on.

The control measures can be written up as **safe work procedures** or instructions which inform the new employee how to do the job. The safe work procedures for the metal cast production would look like the table following.

These safe work procedures need to be explained and demonstrated to the new worker. Employees need information and instruction on what is required of them to work safely and what is in place. Procedures don't work if people don't know about them. By turning the control strategies into safe work procedures, writing them down, and telling people about them, you make sure that everyone is trained to do the job safely.

This is particularly important when you have workers who are new and who are unfamiliar with the task and the equipment, and who may be used to working differently. Inducting new staff in OHS does not only apply to safe work procedures but should cover all the OHS requirements of the company such as: OHS responsibilities; hazard reporting; accident reporting; first aid; injury management, etc.

Because everyone in the workplace needs to know about safe work procedures and other risk management activities, writing them down as simple procedures, as shown in the table following, allows you to structure your organisation's OHS training program. This tells you what people need to know about working safely at your workplace. The content of your training program should directly reflect the procedures.

Task:	Metal Cast Production Safe Work Procedure:
Loading & unloading materials	<ul style="list-style-type: none"> • All materials will be supplied in crates on pallets. If materials are not delivered on pallets, do not accept the goods from the supplier. Immediately contact the workshop manager. • All materials are to be unloaded from truck using forklift, driver to be certificated. • The crates are to be stacked on top of each other in the store area, no more than two crates high. • When materials are required, one crate at a time is to be fork lifted onto the designated work bench. • Remove casts from crate by lifting gate on side of crate and casts will gravity feed on to workbench. • Avoid bending into crate to remove casts. • All finished products are to be packed and reloaded into the crates and fork lifted onto the truck for delivery.
Operating Grinder	<ul style="list-style-type: none"> • Only those employees who have been specifically instructed to operate the grinder are allowed to use it. • The guard on the grinder must be in its fixed position when grinder in operation. • If you notice any problem with the guard, switch off the grinder and report the problem immediately to the workshop manager. • The guard must never be removed by anyone other than the maintenance fitter. • The face shield supplied must be worn at all times when operating the grinder. • The extraction system must always be switched on when grinder in operation. • The acoustic hood must be closed at all times while the grinder is in operation. • The ear muffs supplied must be worn when operating the grinder. • Only the model wheel specified in the manufacturers manual will be purchased and used to replace worn wheels. • The workshop manager will maintain maintenance logbook and arrange for the grinder to be serviced by a qualified fitter quarterly.
Using Solvent	<ul style="list-style-type: none"> • Cleaning solvent is supplied in 1 litre containers and is not to be decanted into other containers under any circumstances. • Only those employees who have read the MSDS and have been instructed in the safe use of the solvent are to perform this task. • Gloves must be worn at all times when using the solvent. • Eye protection must be worn at all times when using the solvent. • Care must be taken not to expose the eyes, skin, nose or throat to contact with the solvent. • The main exhaust system must be turned on at all times.

Example 3: Purchasing Decisions

“Buying in” OHS problems can also be prevented by a planned, systematic approach to purchasing. This means thinking about the hazards that new products may present and what risks they will impose on the company before you buy the risk in.

From time to time businesses need to consider purchasing equipment. This may be to replace current equipment or it may be new equipment to make a work process easier or more efficient.

Likewise, the business may need to consider purchasing substances such as solvents, detergents, and lubricants. These may be to replace current substances because new ones have come on the market and are either cheaper or more effective or a new process is being introduced into the work system.

All organisations have someone responsible for the purchase and a purchasing policy, no matter how informal. Such a policy is based on:

- **Cost:** **Value for Money**
- **Efficiency:** **It does the job well**
- **Maintenance:** **How reliable and what’s the supply like?**

These are always the factors which influence decisions to purchase or not to purchase.

The introduction of new plant and substances can pose significant health and safety risks to people in the workplace. The decision on what particular piece of equipment or substance is eventually purchased should not be based only on cost, efficiency and maintenance but should be determined by decisions concerning:

- **What hazards are associated with the product?**
- **What risks will the product introduce?**
- **What control strategies need to be implemented to control the risks?**

A procedure needs to be developed to make sure these factors are considered before the purchase is made. It is much easier and more cost-effective to address these health and safety issues prior to purchase rather than after, when the need to implement costly control measures to address the OHS consequences of the purchasing decision may be required.

Therefore, a purchasing policy needs to be based on consideration of OHS information. This information will enable you to make an informed decision on what you purchase in terms of your OHS responsibilities. By doing this you will know:

- **the hazards and risks associated with the product; and**
- **what work systems need to be implemented to ensure the health and safety of employees.**

Then, you can purchase to eliminate or minimise the risks.

WorkCover Offices

HEAD OFFICE

Office Hours 8:30am-5:00pm
Monday to Friday
400 Kent Street
SYDNEY NSW 2000
Phone: (02) 9370 5000
Fax: (02) 9370 5999
Postal Address
WorkCover NSW
GPO Box 5364
SYDNEY NSW 2001

Client Contact Centre

Office Hours 8:30am-4:30pm
Monday to Friday
Ground Floor, 400 Kent Street
SYDNEY NSW 2000
Phone: 13 10 50
Fax: (02) 9370 6150

REGIONAL and LOCAL OFFICES

Office Hours: 8:30am-4:30pm
Monday to Friday

REGIONAL OFFICES

Newcastle

956 Hunter Street
NEWCASTLE WEST 2302
Phone: (02) 4921 2900
Fax: (02) 4921 2929

Parramatta

Level 8, 128 Marsden Street
PARRAMATTA 2150
Phone: (02) 9841 8550
Fax: (02) 9841 8490

Wollongong

106 Market Street
WOLLONGONG 2500
Phone: (02) 4222 7333
Fax: (02) 4226 9087

LOCAL OFFICES

Albury

463 Kiewa Street
ALBURY 2640
Phone: (02) 6021 5911
Fax: (02) 6041 2580

Batemans Bay

Shop 6, Fenning Place
12 Orient Street
BATEMANS BAY 2536
Phone: (02) 4472 5544
Fax: (02) 4472 5060

Blacktown

125 Main Street
BLACKTOWN 2148
Phone: (02) 9671 8701
Fax: (02) 9831 8246

Dubbo

Suite 3, 157 Brisbane Street
DUBBO 2830
Phone: (02) 6884 2799
Fax: (02) 6884 2808

Central Coast

3/13 Anzac Road
TUGGERAH 2259
Phone: (02) 4350 6370
Fax: (02) 4353 2373

Goulburn

21-23 Clifford Street
GOULBURN 2580
Phone: (02) 4822 1243
Fax: (02) 4822 1242

Grafton

NSW Government Offices
49 - 51 Victoria Street
GRAFTON 2460
Phone: (02) 6641 5111
Fax: (02) 6641 5100

Griffith

NSW Government Offices
104 - 110 Banna Avenue
GRIFFITH 2680
Phone: (02) 6964 2027
Fax: (02) 6964 1738

Hurstville

Level 4, 4-8 Woodville Street
HURSTVILLE 2220
Phone: (02) 9598 3366
Fax: (02) 9585 0261

Lindfield

345 Pacific Hwy
LINDFIELD 2070
Phone: (02) 9936 3000
Fax: (02) 9936 3030

Lismore

Suite 4, Level 4
Manchester Unity Building
29 Molesworth Street
LISMORE 2480
Phone: (02) 6622 0088
Fax: (02) 6622 0090

Liverpool

Suite 4, Ground Floor
157 - 161 George Street
LIVERPOOL 2170
Phone: (02) 9827 8600
Fax: (02) 9827 8690

Narrabri

Level 1, 55 Maitland Street
NARRABRI 2390
Phone: (02) 6792 4643
Fax: (02) 6792 3532

Newcastle

956 Hunter Street
NEWCASTLE WEST 2302
Phone: (02) 4921 2900
Fax: (02) 4921 2929

Orange

74 McNamara Street
ORANGE 2800
Phone: (02) 6361 7070
Fax: (02) 6362 8820

Parramatta

Level 8, 128 Marsden Street
PARRAMATTA 2150
Phone: (02) 9841 8550
Fax: (02) 9841 8490

Port Macquarie

Shops 1 & 2,
Raine & Horne House
145 Horton Street
PORT MACQUARIE 2444
Phone: (02) 6584 1188
Fax: (02) 6584 1788

Shellharbour

134 - 134A Lamerton House
Shellharbour Square
BLACKBUTT 2529
Phone: (02) 4297 3796
Fax: (02) 4296 8914

Tamworth

Shop 20, 341 Peel Street
TAMWORTH 2340
Phone: (02) 6766 2490
Fax: (02) 6766 4972

Lake Macquarie

Shop 2, 33 The Boulevard
TORONTO 2283
Phone: (02) 4959 6366
Fax: (02) 4950 5587

Tweed Heads

Suite 5, 1 Sands Street
TWEED HEADS 2485
Phone: (07) 5536 3262
Fax: (07) 5536 4389

Wagga Wagga

Level 2, 76 Morgan Street
WAGGA WAGGA 2650
Phone: (02) 6937 3600
Fax: (02) 6937 3616

Wollongong

106 Market Street
WOLLONGONG 2500
Phone: (02) 4222 7333
Fax: (02) 4226 9087



WorkCover NSW 400 Kent Street Sydney NSW 2000
GPO Box 5364 Sydney NSW 2001 Client Contact Centre 13 10 50
Email contact@workcover.nsw.gov.au Website www.workcover.nsw.gov.au
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