CODE OF PRACTICE
WORKING HOURS
2006

commission for occupational safety and health

MIAC

Foreword

This code of practice is issued by the Commission for Occupational Safety and Health and its Mining Industry Advisory Committee under the provisions of the *Occupational Safety and Health Act 1984* (the OSH Act) and the *Mines Safety and Inspection Act 1994* (the MSI Act).

The introduction of the OSH Act enabled the establishment of the tripartite Commission for Occupational Safety and Health. The Commission, which comprises representatives of employers, unions and government, as well as experts, has the function of developing the occupational safety and health legislation and supporting guidance material, and making recommendations to the Minister for Employment Protection for their implementation. To fulfil its functions, the Commission is empowered to establish advisory committees, hold public inquiries, and publish and disseminate information.

The Commission's objective is to promote comprehensive and practical preventive strategies that improve the working environment of Western Australians. This code of practice has been developed through a tripartite consultative process and the views of employers and unions, along with those of government and experts, have been considered.

Scope and application of this code

In April 2006, the Minister for Employment Protection approved the *Code of practice: Working hours* pursuant to Section 57 of the OSH Act and Section 93 of the MSI Act.

This code of practice applies to all workplaces in Western Australia covered by either the OSH Act or the MSI Act. It provides guidance for employers and workers on the management of safety and health hazards and risks commonly associated with working hours arrangements and some of the legislative requirements in the OSH Act, the Occupational Safety and Health Regulations 1996 (the OSH Regulations), the MSI Act and the Mines Safety and Inspection Regulations 1995 (the MSI Regulations).

It is not possible to deal with every situation that may be found at workplaces. The practical guidance in this document should be considered in conjunction with the general duties in the OSH Act and the MSI Act, as well as specific requirements in these and the OSH Regulations and MSI Regulations.

Legislative framework for occupational safety and health

The *Occupational Safety and Health Act 1984*

The OSH Act provides for the promotion, coordination, administration and enforcement of occupational safety and health in Western Australia. It applies to all industries with the exception of mining and petroleum.

With the objective of preventing occupational injuries and diseases, the OSH Act places certain duties on employers, employees, self-employed people, manufacturers, designers, importers and suppliers.

The broad duties established by the OSH Act are supported by further legislation, commonly referred to as regulations, together with non-statutory codes of practice and guidance notes.

Occupational Safety and Health Regulations 1996

The OSH Regulations have the effect of spelling out specific requirements of the legislation. They may prescribe minimum standards and have a general application, or define specific requirements related to a particular hazard or type of work. They may also allow licensing or granting of approvals and certificates etc.

The *Mines Safety and Inspection Act 1994*

The MSI Act sets objectives to promote and improve occupational safety and health standards within the minerals industry.

The broad duties set out in the MSI Act are supported by further legislation, commonly referred to as regulations, together with non-statutory codes of practice and guidelines.

The Mines Safety and Inspection Regulations 1995

The MSI Act is supported by the MSI Regulations, which provide more specific requirements for a range of activities. Like the MSI Act, regulations are enforceable and breaches may result in prosecution, fines or directions to cease operations and undertake remedial action.

Codes of practice published under the OSH Act and the MSI Act

Codes of practice published under the OSH Act and MSI Act provide practical guidance on how to comply with a general duty or specific duties under the legislation.

Codes of practice may contain explanatory information. However, the preventive strategies outlined do not represent the only acceptable means of achieving a certain standard.

A code of practice does not have the same legal force as a regulation and is not sufficient reason, of itself, for prosecution under the legislation, but it may be used by courts as the standard when assessing other methods or practices used.

Regulations and codes of practice

If there is a regulation about a risk in the OSH Regulations or the MSI Regulations, it must be complied with.

If there is a code of practice about a risk, either:

- do what the code of practice says; or
- adopt and follow another way that gives the same level of protection against the risk.

If there is no regulation or code of practice about a risk, choose an appropriate way and take reasonable precautions and exercise proper diligence to ensure obligations are met.

Note, there may be additional risks at the workplace not specifically addressed in this code of practice. The OSH Act and the MSI Act require identification and assessment of them and implementation of control measures to prevent or minimise exposure.

Disclaimer

Information in this publication is provided to assist people in meeting occupational safety and health obligations. While information is correct at the time of publication, readers should check and verify any legislation referenced in this publication to ensure it is current at the time of use.

Changes in law after this document is published may impact on the accuracy of information. The Commission provides this information as a service to the community. It is made available in good faith and is derived from sources believed to be reliable and accurate at the time of publication.

CONTENTS

1	**Introduction**		**1**
	1.1	General duties at the workplace	2
	1.2	Working hours arrangements and occupational safety and health	2
	1.3	Industry codes of practice	3
2	**The risk management process: the three step process**		**4**
	2.1	Step 1: hazard identification	4
	2.2	Step 2: risk assessment	6
	2.3	Step 3: risk control	8
	2.4	Holistic approach to risk management	9
	2.5	Risk management guidelines	10
		2.5.1 Control measures	15
	2.6	Monitoring and review of control measures	24
Appendix 1	**Relevant sections of acts and regulations**		**25**
Appendix 2	**Other sources of information**		**26**
Appendix 3	**Fatigue**		**29**
	Information for employees		31

1 Introduction

Certain working hours arrangements have been linked to occupational safety and health risks, such as fatigue and impaired performance, and increased exposure to some hazards.

As with other occupational safety and health issues, employers have a general 'duty of care' obligation to ensure that, as far as practicable, employees are not exposed to hazards and risks that could arise from their working hours arrangements and to address them through a systematic risk management process.

See Section 19 of the OSH Act and Section 9 of the MSI Act.

This code of practice addresses issues that might potentially arise in some working hours arrangements, for example extended hours, shiftwork and on call work. It brings together a range of recognised workplace hazard factors that must already be addressed, as far as practicable, where there are occupational safety and health risks.

This code of practice is presented as a starting point for undertaking a workplace or industry risk management process to address relevant issues where the working hours arrangements may have occupational safety and health considerations.

As individual workplaces and industries have different working hours arrangements, this code of practice provides high level general guidance and recommendations on risk management. It is suggested that the risk management approach is tailored specific to the unique demands of each workplace and/or industry.

In order to assess the hazard factors and risks fully, this code of practice emphasises a holistic approach to the risk management process. To undertake this process, a tool is provided for use at the workplace – see the *Risk management guidelines* in Section 2.5.

Joint responsibilities for safety and health at the workplace

All parties at the workplace have responsibilities for safety and health at the workplace. Apart from the employer's responsibilities outlined above, employees have responsibilities to take reasonable care to ensure their own safety and health and that of others affected by their work.

See Section 20 of the OSH Act and Section 10 of the MSI Act.

Where appropriate, workplace education and awareness programs may assist in raising employees' awareness of their responsibilities, as well as lifestyle and individual choices (such as second jobs) that may contribute to fatigue and impaired performance.

Consultation between employers and employees and safety and health representatives (where they exist) is an important part of the risk management process to identify hazards before injury, illness or incident occur and develop measures to eliminate or reduce the associated risks.

Consultation is emphasised in the *Occupational Safety and Health Act 1984* (the OSH Act) and the *Mines Inspection and Safety Act 1994* (the MSI Act), with an obligation placed on employers to consult employees and safety and health representatives (where they exist) on safety and health at the workplace. To complement this, employees have a duty to cooperate with their employer on safety and health matters.

See Sections 19(1)(c) and 20 of the OSH Act and Sections 9(1)(i) and 10 of the MSI Act.

Consultation during risk management is most likely to produce workable measures that draw on the knowledge of those performing the tasks.

1.1 General duties at the workplace

Responsibilities for safety and health are placed on all parties at the workplace.

See Sections 19 and 19A of the OSH Act and Sections 9 and 9A of the MSI Act.

The employer's general 'duty of care' obligations for safety and health under the OSH Act and the MSI Act include:

- providing a workplace and safe system of work so employees are not exposed to hazards;
- providing employees with information, instruction, training and supervision to enable them to work in a safe manner; and
- consulting and cooperating with employees and safety and health representatives (where they exist) in matters related to safety and health at work.

See Sections 20 and 20A of the OSH Act and Sections 10 and 10A of the MSI Act.

Employees also have obligations under the OSH Act and the MSI Act. They must take reasonable care to ensure their own safety and health at work and that of others affected by their work and report any situations that may be hazardous. Their duty for safety and health at the workplace is complementary to the employer's duty and they need to receive adequate information, instruction, training and supervision to fulfil it.

For responsibilities when hiring contractors, see Section 23D of the OSH Act and Section 15A of the MSI Act.

In addition, people, who in the course of trade or business, engage contractors and their employees have the responsibilities of an employer towards them in relation to matters over which they have control or the capacity to have control.

For further information on the 'duty of care' obligations, see the Commission's *Guidance note: General duty of care in Western Australian workplaces* and Resource Safety's *General duty of care in Western Australian mines: Guideline*.

1.2 Working hours arrangements and occupational safety and health

Further information on fatigue, the body clock and sleep is provided in Appendix 3 of this code.

While knowledge is still growing, some evidence suggests that sleep deprivation, sleep disturbance and fatigue are health risks commonly associated with long working hours. Fatigue has also been identified as a potential health risk with work that involves shifts or regular or periodic night work.

Other issues associated with working hours arrangements may include:

- impaired physical and mental performance;
- symptoms of work-related stress;
- increased exposure to hazards, for example hazardous substances, noise and physical hazards; and
- longer-term health effects.

In the context of performance at the workplace, these health risks may have implications for safety standards and the prevention of incidents.

When considering safety and health issues associated with working hours arrangements, it should be noted that 'work life' and 'personal life' are inter-related, and both can impact on each other, with personal life having the ability to influence a person's fitness for work.

1.3 Industry codes of practice

Some industries may benefit from applying this code's general principles and its tool, the *Risk management guidelines* (in Section 2.5) and developing an industry-specific occupational safety and health code of practice on working hours/fatigue management to address relevant issues. An example of such a code is the Commission's *Code of practice: Fatigue management for commercial vehicle drivers*.

Industry codes of practice can be submitted to the Commission for approval under Section 57 of the OSH Act. Obtaining approval of these codes means they have the same status as other approved codes of practice in Western Australia.

For further information on approved codes of practice, see the Commission's *Guidelines for the development of industry codes of practice*.

2 The risk management process: the three step process

See Regulation 3.1 of the OSH Regulations.

The Occupational Safety and Health Regulations 1996 (the OSH Regulations) contain a specific requirement for employers to undertake a risk management process. This involves a three-step process to:

- identify hazards;
- assess risks of injury or harm arising from each identified hazard; and
- control risks through implementation of control measures to eliminate or reduce them.

See Section 9 of the MSI Act.

For workplaces covered by the MSI Act, the risk management process outlined in this code should also be undertaken to ensure employers comply with their 'duty of care' obligations to provide a safe workplace.

The following sections provide guidance on the three risk management steps and a tool, the *Risk management guidelines* in Section 2.5 is provided for use by workplaces and industries. It lists a range of hazard factors to consider and indicates their general level of risk.

The risk management process should be conducted and monitored on an ongoing basis to ensure control measures are working and no new hazards have been introduced when, for example, work schedules, equipment, tasks or the work environment changes.

See Section 19(1)(c) of the OSH Act and Section 9(1)(c) of the MSI Act.

Employees and safety and health representatives (where they exist) must be consulted on safety and health matters. Their involvement in the risk management process is important, as they are most likely to know about risks associated with their work.

2.1 Step 1: hazard identification

The first step in the risk management process is identifying hazards/hazard factors. This involves identifying anything that may cause injury or harm to the health of a person.

There are a number of ways to identify potential hazards/hazard factors that may cause an injury or harm. Choosing an appropriate process or procedure for identifying them will depend on their nature and that of the work environment involved.

Hazard identification processes or procedures may include:

- considering whether the following list of hazard factors apply to the workplace or industry;
- developing a hazard checklist;
- examining records of past incidents and injuries at the workplace;
- examining data, where easily available, for similar workplaces;
- consulting relevant codes of practice and guidance notes;
- collecting relevant information from supervisory staff and employees;
- consulting with employees and safety and health representatives and committees (if they exist);
- talking to industry associations and other similar businesses; and
- identifying fatigue critical tasks – see explanation in following list of hazard factors.

Potential hazard factors associated with working hours arrangements include but are not limited to:

Working hours arrangements:

- hours, for example:
  - average weekly hours other than fly in/fly out (FIFO);
  - total hours over a three-month period (other than FIFO);
  - daily work hours;
  - daily work hours and work-related travel; and
  - scheduling of work;
- shiftwork, for example:
  - length of shift other than FIFO;
  - time, speed and direction of shift;
  - split shifts (see box explaining these in Section 2.5.1);
  - FIFO – total hours over a three-month period;
  - FIFO – sequential night shifts;
  - FIFO – period of non-work following a sequence of night shifts; and
  - FIFO – return from rest and recreation to operations;
- night work, for example:
  - shift end (for those working eight hours or more between 10.00 pm and 6.00 am);
  - length of shift;
  - sequential shifts other than FIFO; and
  - period of non-work following a sequence of night shifts other than FIFO;
- breaks during work, for example frequency of breaks;
- breaks between work periods, for example recovery time; and
- seasonal work arrangements, for example hours worked.

Demands of the work tasks – for example:

- repetitive work, for example inadequate variation of tasks (physical and/or mental) with excessive periods of repetitive physically or mentally demanding work;
- physically demanding work; and
- high concentration and/or mentally demanding work.

Fatigue critical tasks – these are tasks where there are potentially increased risks of incidents, injury or harm should employees become fatigued, for example during operation of certain plant and/or making critical decisions where there may be significant consequences if errors occur.

Extended exposure to hazards – for example:

- exposure to hazardous substances and atmospheric contaminants;
- exposure to noise;
- exposure to extreme temperature; and
- exposure to vibration.

Information and training – for example:

- provision of information on fatigue management skills and health and lifestyle factors;
- provision of training on fatigue management and health/lifestyle factors; and
- training on job skills.

Supervision – for example its adequacy.

Individual and lifestyle factors – for example:

- sleep (amount and quality) in a 24 hour period;
- health, for example poor diet, recent illness/injury and sleep disorders;
- fitness for work ie presenting in a fit state for work; and
- lifestyle factors, for example activities or responsibilities that limit sleep such as a second job, family commitments and long commuting distance.

The hazards/hazard factors and risks may be inter-related and, in some cases, cumulative – see further explanation at the end of Section 2.2.

In identifying the hazards/hazard factors, consider also:

- the type of task/job/occupation;
- individual factors, other than those mentioned above, for example age, emotional state and self-management skills;
- choice and control over work hours and rest breaks; and
- type of work culture, for example work environments where there is an accepted practice of working long hours or a work ethic of working until the job is done, which lead to excessive working hours.

2.2 Step 2: risk assessment

The second step in the risk management process is assessing the risks of injury or harm arising from the hazards/hazard factors identified at the specific workplace.

This involves looking at the chance or likelihood of a hazard occurring and, if it does occur, the extent of any harm or injury, ie the consequences. It is a way of deciding which hazards need to be addressed first, ie where there is the highest risk of injury or harm.

This step should provide information on:

- where, which and how many employees are likely to be at risk of incurring injury or harm to their health;
- how often this is likely to occur; and
- the potential severity of any injuries.

Risk assessment is not an absolute science – it is a 'best estimate' on the basis of available information. Therefore, it is important the person undertaking a risk assessment has the necessary information, knowledge and experience of the work environment and work process, or such a person is involved, and employees and safety and health representatives (if they exist) are consulted as they may be able to advise on the particular hazards and risks associated with different work activities.

Risk assessment methods may include:

- conducting an audit of all hours worked. Where appropriate, related issues to consider in the audit may include work-related travel and work completed outside of normal hours, for example situations where people take work home;
- using the *Risk management guidelines* (see Section 2.5) and its general risk indicator to assess the risks for identified hazard factors;
- consulting employees on workloads and schedules;
- reviewing workplace data. Consider recording relevant incident data and reviewing it in regard to hazard factors; and
- consulting industry or employee associations who may be able to assist with risk assessments for type of work and workplace.

With risks of acute sleep deprivation and/or fatigue, additional risk assessment methods may include:

- assessing schedules and whether there may potentially be effects on employees' body clocks and alertness that may impact on performance and safety and health at the workplace. Consider the time of day/night when the work or work schedule is carried out and when employees start and finish in the context of the body clock and the times people are normally awake or asleep; and
- when investigating incidents at the workplace, considering whether fatigue was a contributing factor.

For information on fatigue, sleep and the body clock, see Appendix 3.

A way to start assessing the risks of acute sleep deprivation and/or fatigue, may be to work through Section 1 of the *Risk management guidelines* in Section 2.5 of this code, reviewing individual jobs, work groups and/or operations in relation to opportunities for sleep and recovery from fatigue.

To further assess the risks of acute sleep deprivation and/or fatigue, consider also:

- looking at research on working hours, shiftwork and fatigue, in particular on the specific industry, workplace and/or tasks. Information can be found through internet searches and, in some instances, employer associations;
- obtaining information and/or advice on developing adequate scheduling, shiftwork and fatigue management planning to minimise fatigue and other health effects;
- implementing techniques that enable estimation of potential sleep deprivation and fatigue; and
- implementing a fatigue management plan as part of a safety management system.

Risk assessment methods for fatigue should, where possible, be based on objective incident data or, if available, published research for comparable workplaces, rather than relying on employees' self-assessments as these can be subjective with feelings masked by other factors.

The risk assessment should identify the hazards/hazard factors with the highest risks that will require risk control measures.

In assessing risk of hazards/hazard factors, it is important to recognise that many of them will be inter-related and they should not, therefore, be considered in isolation.

Example of the inter-relationship of hazard factors effect on risk level

In the case of new workers, there may be an inter-relationship between hazard factors of daily work hours, training and work task demands. For example, the risks of injury and/or harm could be higher where there are new workers working long daily hours in a physically demanding job, with inadequate training in job and fatigue management skills. See the information on training in Section 2.5.1 for issues that could be addressed.

2.3 Step 3: risk control

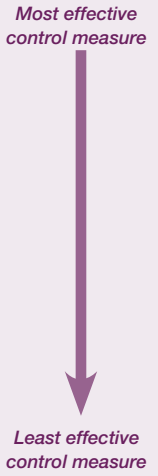
The third step is to implement control measures to eliminate or reduce the risks of a person being injured or harmed and ensure they are monitored and reviewed on an ongoing basis.

There is a general preferred order of control measures, ranging from the most effective to the least effective, to eliminate or reduce the risks of injury or harm. This is outlined in the following table.

Table 1 Preferred order of control measures to eliminate or reduce the risk of injury or harm

1. **Elimination** – removing the hazard or hazardous work practice from the workplace.
2. **Substitution** – substituting or replacing a hazard or hazardous work practice with a less hazardous one.
3. **Isolation** – isolating or separating the hazard or hazardous work practice from people involved in the work or people in the general work area.
4. **Engineering controls** – if the hazard cannot be eliminated, substituted or isolated, an engineering control is the next preferred measure.
5. **Administrative controls** – this includes introducing work practices that reduce the risk, such as providing procedures, instruction and training.
6. **Personal protective clothing and equipment** – these should be considered only when other control measures are not practicable or to increase protection. While essential for some work procedures, these should be last in the list of priorities.

In some instances, a combination of control measures may be appropriate.



In applying the above principle of preferred order to develop control measures to address potential risks arising from the working hours arrangements:

- an example of an elimination or substitution control measure may be reviewing whether the type of work is suitable for the allocated time period and modifying it, if practicable, if there are risks of employees developing fatigue;
- an example of an administrative control may be training employees about the hazards and risks, their responsibilities for safety and health and relevant health and lifestyle choices; and
- an example of a personal protective clothing and equipment control may be requiring workers wear hearing protectors when a risk assessment indicates they may be exposed to noise hazards.

The applicability of the control measures will depend on the particular situation and the hazards and risks. Recommendations for control measures are outlined in Section 2.5.1.

2.4 Holistic approach to risk management

The risk management process of identifying hazard factors, assessing the risks and implementing controls should be holistic. For example:

- interaction between a combination of hazard factors and its effect on the level of risk should be assessed;
- in some instances, it may be acceptable to have a higher risk rating for a hazard factor or hazard factors provided the implemented control measure(s) address the overall risk; and
- a potential hazard factor may not necessarily require a single matching control measure. A response could be to implement a control measure that addresses a number of potential hazard factors.

2.5 Risk management guidelines

PHOTOCOPY FOR USE AT THE WORKPLACE

The *Risk management guidelines* are provided below as a tool for use in considering potential hazard factors and risks from workplace/industry working hours arrangements. The guidelines show at which point action should be taken to introduce risk control measures. A holistic approach should be taken in assessing risks and implementing control measures (see Section 2.4 for more details).

Risk management guidelines – to start considering hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification
Identify potential hazard factors at the workplace/industry, such as those listed in the column below. Consider hazard factors in the context of specific workplace/industry circumstances.

Step 2. Risk assessment
To assist in carrying out a risk assessment, general level of risk for each hazard factor is indicated along arrow guides. Determine workplace/industry details and assess level of risk for the hazard factors identified in Step 1, using the General risk indicator. In assessing risk: 1) consider interaction between hazard factors that could influence level of risk; and 2) as level of risk for each hazard factor is only indicative, take into account specific workplace/industry circumstances that may influence it.

Medium/higher risk – when, after full consideration, risk is assessed for a particular hazard factor as medium/higher risk, implement control measures, such as those suggested in Section 2.5.1 of this code. Note: interaction between the hazard factors may influence the overall level of risk and the measures implemented.

Step 3. Risk control
Where a hazard factor is assessed as being above low/medium risk, consider implementing control measures, such as those outlined in Section 2.5.1 of this code.

Hazard factors	General risk indicator for hazard factors	
1. Working hours arrangements	**Lower risk**	**Higher risk**
1.1 Hours		
1.1.1 Average weekly hours (other than FIFO)	35-40 hours	48 hours 56 hours
1.1.2 Total hours over a three-month period (other than FIFO)	624 hours	
1.1.3 Daily work hours	9 hours	12 hours
1.1.4 Daily work hours and work-related travel	10 hours	13 hours
1.1.5 Scheduling of work	Regular and predictable hours	Irregular and unpredictable hours. Short notice of schedule. Extended overtime. On call across shift cycle.

Consider control measures – see those suggested for working hours in Section 2.5.1 of this code.

Step 1. Hazard identification	Step 2. Risk assessment *Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.*	Step 3. Risk control
Hazard factors (cont.)	**General risk indicator for hazard factors**	
1.2 Shiftwork, including fly in/fly out (FIFO)	**Lower risk** → **Higher risk**	
1.2.1 Length of shift (other than FIFO)	10 hours; 12 hours	
1.2.2 Time of shift	Day shifts; Afternoon shifts; Night shifts	
1.2.3 Speed and direction of shift	Forward rotation (morning/afternoon/night); Backward rotation (night/evening/morning). Slower rotation (eg weekly rotation/3-4 weekly rotation).	
1.2.4 Split shifts	13 hour period	Consider control measures – see those suggested for shift work in Section 2.5.1 of this code.
1.2.5 FIFO – total hours over a three month period	728 hour period	
1.2.6 FIFO – sequential night shifts	7 x 12 hour shifts; 7 x 8 hour shifts; 6 x 10 hour shifts; 6 x 12 hour shifts	
1.2.7 FIFO – period of non-work following a sequence of night shifts	48 hours; 24 hour minimum	
1.2.8 FIFO – return from rest and recreation to FIFO operations	Adequate sleep prior to first shift; Extended travel prior to shift start	
1.3 Night Work		
1.3.1 Shift end (for those working eight hours or more between 10.00pm and 6.00am)	After 10.00am Before 6.00am	Consider control measures – see those suggested for night work in Section 2.5.1 of this code.
1.3.2 Length of shift	8 hours; 10 hours; 12 hours	
1.3.3 Sequential night shifts (other than FIFO)	6 or more 8 hour shifts; 5 or more 10 hour shifts; 4 or more 12 hour shifts	

Risk management guidelines – to start considering hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification	Step 2. Risk assessment *Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.*	Step 3. Risk control
Hazard factors (cont.)	**General risk indicator for hazard factors**	
	Lower risk → **Higher risk**	
1.3.4 Period of non-work following a sequence of night shifts (other than FIFO)	48 hours → Less than 48 hours	Consider control measures – see those suggested for night work in Section 2.5.1 of this code.
1.4 Breaks during work – frequency	Adequate and regular breaks → Infrequent or no breaks	
1.5 Breaks between work periods – recovery time	Adequate time for sleep, travel and meals etc → Inadequate time for sleep, travel and meals etc	Consider control measures – see those suggested for breaks between work period suggested in Section 2.5.1 of this code.
1.6 Seasonal work arrangements – hours worked	Regular hours over 12 months → Long hours during peak season	
2. Demands of the work tasks		
2.1 Repetitive work (physical and/or mental)	Varying task demands → Highly repetitive work and/or high concentration work, with high demands over an extended period of time	
2.2 Physically demanding work	Minimal physically demanding work → Highly physically demanding work that results in muscle fatigue	Consider control measures – see those suggested for breaks during work period and work task demands in Section 2.5.1 of this code.
2.3 High concentration and/or mentally demanding work	Minimal periods of high concentration and/or mentally demanding work → Long periods of high concentration and/or mentally demanding work	
3. Fatigue critical tasks where there are potentially increased risks of incidents, injury or harm should employees become fatigued.	Non-fatigued employees operating plant and/or making critical decisions → Fatigued employees operating certain plant and/or making critical decisions	Consider control measures – see those suggested for fatigue critical tasks in Section 2.5.1 of this code.

Step 1. Hazard identification	Step 2. Risk assessment *Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.*		Step 3. Risk control
Hazard factors (cont.)	**General risk indicator for hazard factors**		
	Lower risk	**Higher risk**	
4. Extended exposure to hazards			
4.1 Exposure to hazardous substances and atmospheric contaminants	For hazardous substances, low risk calculated using national exposure standard[1]	For hazardous substances, high risk calculated using national exposure standard	
4.2 Exposure to noise	Low risk calculated according to formulae in AS/NZS 1269.1[2]	High risk calculated according to formulae in AS/NZS 1269.1[2]	Consider control measures – see those suggested for exposure to hazards in Section 2.5.1 of this code.
4.3 Exposure to extreme temperatures	Minimal exposure	Long period of exposure	
4.4 Exposure to vibration	Minimal exposure	Long period of exposure	
5. Information and training			
5.1 Provision of information on fatigue management and health and lifestyle factors	Adequate information is provided	No information is provided	
5.2 Provision of training on fatigue management and health and lifestyle factors	Adequate training is provided	No training provided	Consider control measures – see types of training suggested in Section 2.5.1 of this code.
5.2 Training on job skills	Adequate training for job demands	Inadequate training for job demands	

[1] To access exposure standards, see the internet database, Hazardous Substances Information System, available at www.ascc.gov.au
[2] Risk should be calculated according to formulae in Australian/New Zealand Standard AS/NZS 1269.1 *Occupational noise management – measure and assessment*, published by Standards Australia (www.sai-global.com).

Risk management guidelines – to start considering hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification	Step 2. Risk assessment *Where risk is assessed as being above low/medium risk, undertake Step 3 in the next column.*	Step 3. Risk control
Hazard factors (cont.)	**General risk indicator for hazard factors** **Lower risk** → **Higher risk**	
6. Supervision **6.1 Adequacy of supervision**	Adequate supervision In some instances, working alone (refer to *Guidance note: Working alone*)	Consider control measures – see those suggested for supervision in Section 2.5.1 of this code.
7. Individual and lifestyle factors		
7.1 Individual factors **7.1.1** Sleep (amount and quality)	Night sleep: 8 hours night sleep (in 24hrs) Day sleep: 6 hours night sleep (in 24hrs)	
7.1.2 Health	Poor diet. Recent illness/injury. Sleep disorders.	Consider control measures – see those suggested for individual and lifestyle factors in Section 2.5.1 of this code.
7.1.3 Fitness for work	Influence of alcohol, drugs or amount of sleep	
7.2 Lifestyle factors	Activities/responsibilities that limit amount of sleep eg second job or long commuting distance	

2.5.1 Control measures

The control measures on the following pages are presented as examples. When considering which measures to implement:

- take a holistic view on the interaction of hazard factors in the assessment of their risks and implementation of control measures; and
- assess alternative control measures for their applicability.

Working hours arrangements

To consider level of risk, see the Risk management guidelines in Section 2.5.

For information on the body clock, sleep and fatigue see Appendix 3.

Potential control measures to implement include:

- reviewing whether the type of work and work schedule is suitable for the allocated time period and modifying them if they place employees at risk of developing fatigue or experiencing acute sleep deprivation;
- designing working hours to allow for good quality sleep and enough recovery time between work days or shifts for traveling, eating, washing and sleeping;
- with the scheduling of work, considering the necessity for it to be conducted outside of standard business hours and/or during extended hours. For non-essential work, consider rearranging the schedule so it is not carried out during these times;
- considering whether unscheduled, additional hours of work may increase the level of risk of fatigue;
- considering scheduling work for certain hours when the risks may be lower. For example, where practicable, scheduling potentially higher risk work for times when people are normally awake to align with the body clock and lower risk work for periods where there may be fatigue. See also the suggested control measures for fatigue critical tasks on the following pages;
- developing a working hours policy on daily work hours, maximum average weekly hours, total hours over a three-month period and daily work hours and work-related travel, as relevant to the workplace;
- developing procedures for long daily work hours and related travel, where there may be increased risk of injury or harm, for example requiring adequate breaks when total hours exceed a set limit;
- consulting with employees and safety and health representatives (where they exist) about levels of fatigue and any safety and health issues arising from them;
- avoiding overtime arrangements for extended periods and, for example:
  - reviewing overtime in the context of previous patterns and future scheduled work; and
  - considering the requirements for relief/standby/on call/additional staff;
- allowing trial periods for new working hours arrangements and evaluating them;
- endeavouring to provide regular and familiar hours of work. This should include giving reasonable notice if working hours or roster changes are planned;
- offering alternatives, where practicable, to employees who may have difficulties adjusting to working hours; and
- also considering the control measures suggested for work task demands on the following pages.

To consider level of risk, see the Risk management guidelines in Section 2.5.

Shiftwork and rosters

As well as the control measures suggested for working hours arrangements, potential control measures to implement for shiftwork and rosters include:

- reviewing roster design, that is:
  - choosing a shift system to suit the work required;
  - revising the length, time, speed and direction of shifts;
  - using a forward rotation shift system (ie morning/afternoon/night), where possible;

    Forward shift rotations

    A forward rotation means the direction of shifts is day to evening to night shift. A backward rotation is from day to night to evening shift. A forward (clockwise) rotation is generally considered to suit the body better, rather than a backward rotation.

  - designing shifts and rosters to allow for good quality sleep and enough recovery time between shifts for traveling, eating, washing and sleeping;
  - where possible, avoiding early starts of morning shifts, for example before 6.00 am;

    Early starts

    Early starts may lead to sleep restrictions from both the early start time and difficulties sleeping in the early evening when people (their body clocks) are normally awake.

  - considering the timing of split shifts, ie whether there could be sleep disruption because of the times employees are required to work;

    Split shifts

    Consideration should be given to split shifts that involve, for example, early morning and late night work because they can affect the amount of night sleep obtained, with any day sleep gained not being necessarily as efficient.

- setting shift rosters ahead of time and avoiding sudden changes of shifts to allow employees to plan leisure time;
- managing workload change arising from absenteeism; and
- considering measures to address the risks that may arise when employees either start a sequence of shifts, or travel home after a sequence of shifts, and could be experiencing acute sleep deprivation, for example where employees have an extended period of travel to or from the workplace after a period of extended working hours.

Night work

To consider level of risk, see the Risk management guidelines in Section 2.5.

As well as the control measures suggested above for working hours arrangements and shiftwork and rosters, potential control measures to implement include:

- considering whether night work is necessary and, where practicable, rearranging schedules so non-essential work is not carried out at night;
- where practicable, scheduling critical tasks at times when the assessed risk of employees experiencing sleep deprivation, fatigue or disruption to the body clock is low;
- keeping sequential night shifts to a minimum, where possible;
- ensuring there is an adequate period of non-work following a sequence of night shifts;
- allowing regular night workers periods of normal night sleep so they can catch up on their sleep debt;
- providing controls and clear procedures for hazardous work, particularly for work carried out between 2.00 am-6.00 am;
- ensuring shifts do not finish after 10.00 am so day sleep is not restricted;
- minimising night work when employees return from leave or an extended period away to allow them time to adapt; and
- excepting for emergencies, giving at least 24 hours notice before night work. Consider providing a longer period of notice so that employees have time to adjust their activities.

On call and call back work

In considering potential control measures for on call and call back work, refer to those recommended in other parts of this section, such as:

- designing shifts and rosters to allow for good quality sleep and enough recovery time. Consider the opportunities for sleep and recovery in instances where staff are required to work on call after a normal shift or on days off;
- developing a fitness for work policy; and
- training employees on relevant health and lifestyle choices.

Emergencies and unexpected events

For specific requirements for emergency planning, where applicable, see Regulation 4.30 of the MSI Regulations.

Where applicable, planning for emergencies and unexpected events, for example staff shortages, plant breakdowns and situations where staff are called back to work, should address control measures to prevent fatigue and other risks outlined in this code, such as those listed above for on call and call back work.

Breaks during work period

If work is organised so there are long work periods without breaks, then the risks of employees developing fatigue, as well as muscle and soft tissue injuries, may increase if it is uncomfortable or repetitive.

Potential control measures to implement include:

- ensuring there are adequate and regular breaks; and
- providing some flexibility and encouraging employees to take breaks as required.

See also the suggested control measures for work tasks demands and job design on the following page.

To consider level of risk, see the Risk management guidelines in Section 2.5.

Breaks between work periods

Where the recovery time between work periods is insufficient, fatigue may arise. See Appendix 3 for information on fatigue.

Potential control measures to implement include:

- ensuring breaks allow adequate time for recovery;
- with night shifts, allowing a rest break of at least 24 hours after each set of shifts;
- considering whether the recovery time between shifts or schedules may be affected by employees working overtime in addition to normal hours;
- allowing consecutive days off, including some weekends;
- where practicable, allowing flexibility for employees to change shifts; and
- where relevant, developing an education and awareness program on the impact of second shifts or jobs on performance at work and safety and health.

Seasonal work

Where long hours are necessary during seasonal work, in addition to the control measures listed above for working hours, shift work, rosters and night work, potential control measures to implement include:

- developing a working hours policy (see suggestions for policies later in this section);
- developing procedures for long daily work hours and work-related travel, for example requiring adequate breaks when total hours exceed a set limit;
- providing on site accommodation, meals and other facilities so employees do not have to drive after extended hours;
- avoiding situations where employees drive when tired or fatigued due to extended working hours; and
- considering requirements for relief, on call or additional staff.

Work task demands

As well as the control measures suggested for working hours, shiftwork and rosters, potential control measures to implement include:

- minimising extended work periods of uncomfortable, repetitive or demanding mental or physical work without breaks to reduce the risks of muscle and soft tissue injuries and other health effects – see also the suggested control measures for breaks during work period;
- where practicable, redesigning jobs to include variation of physical and/or mental tasks; and
- arranging contingency plans for potentially unavoidable situations where there is a risk workers could become fatigued while carrying out work activities with considerable risk to safety and health.

Job design to address the risks of muscle and soft tissue injuries

Job design should include variety and flexibility, where possible, to address safety and health risks of muscle and soft tissue injury, as well as fatigue. When reviewing jobs, consider:

- the required output and/or the urgency of deadlines; and
- the duration and limited variation of tasks.

For further information, see the Commission's *Code of practice: Manual handling*.

Fatigue critical tasks

To consider level of risk, see the Risk management guidelines in Section 2.5.

Fatigue critical tasks are tasks where there are potentially increased risks of incidents, injury or harm should employees become fatigued. For example, during operation of certain plant and/or making critical decisions where there may be significant consequences if errors occur.

Should fatigue critical tasks be identified, potential control measures to implement include:

- scheduling critical work for certain hours when the risks may be lower, for example, where practicable, scheduling potentially higher risk work for times when people are normally awake to align with the body clock;
- scheduling lower risk work during periods where employees may be potentially fatigued, for example between 2.00 am and 6.00 am when people are normally asleep;
- in some situations, controlling the level of risk by avoiding the need for people to work alone; and
- ensuring there are adequate breaks between shifts/schedules so that staff are not potentially at risk of becoming too affected by acute sleep deprivation or fatigue to carry out work in a safe manner.

Exposure to hazards

Potential exposure to hazards, such as hazardous substances, noise, extreme temperature and vibration, are further considerations with the working hours arrangements.

Potential control measures to implement include:

- providing adequate information, instruction, training and supervision to ensure exposure is minimised;
- obtaining advice from a competent person who can advise on the specific risks, appropriate work period and control measures;
- for potential exposure to **hazardous substances and atmospheric contaminants**, such as dusts:
    - consulting the national exposure standards for each hazardous substance used to assess risk and determining an appropriate work period. To access the national exposure standards, see the internet database, Hazardous Substances Information System (HSIS), available at www.ascc.gov.au
      There will need to be adjustments to the work period if an employee is working long hours, as exposure standards are determined on an eight hour day. For extended hours work involving hazardous substances, advice should be sought from a competent person on adjusting exposure levels;
    - arranging for a competent person to design and install adequate ventilation;
    - where appropriate, suppressing atmospheric contaminants with, for example dust suppression and/or removal of employees from the hazardous area; and
    - where there is potential unsafe exposure to atmospheric contaminants, implementing appropriate testing and monitoring by a competent person.

See also specific requirements regarding exposure standards, under Regulation 5.19 of the OSH Regulations and Regulation 9.11 of the MSI Regulations.

Where applicable, see the requirements for ventilation and control of dust and atmospheric contaminants in Part 9 of the MSI Regulations.

See the requirements to assess and reduce the risks from exposure to hazardous substances and instances where health surveillance programs must be provided in Part 5 of the OSH Regulations and Part 7 of the MSI Regulations.

To consider level of risk, see the Risk management guidelines in Section 2.5.

- for potential exposure to **noise hazards:**
  - ensuring exposure is low level and a short exposure time. Calculate risk according to formulae in Australian/New Zealand Standard, AS/NZS 1269.1 *Occupational noise management – Measure and assessment*; and
  - considering noise control and hearing protection measures outlined in the Commission's *Code of practice: Managing noise at workplaces*;

See Regulations 3.46 and 3.47 of the OSH Regulations and Regulations 7.4, 7.5 and 7.6 of the MSI Regulations for requirements for noise reduction and personal hearing protectors.

- for potential exposure to **extreme temperature:**
  - where practicable, scheduling work for times when temperatures are moderate;
  - ensuring exposure time is minimised. This could include rotating workers' tasks, where possible; and
  - providing adequate personal protective clothing and equipment and, where applicable, sunscreen complying with the relevant Australian Standard; and

See also Section 3.5.10 Vibration in the Commission's, Codes of practice: First aid facilities and services, workplace amenities and facilities, personal protective clothing and equipment.

- for potential exposure to **vibration hazards:**
  - ensuring exposure time is minimised. This could include rotating workers' tasks, where possible;
  - where practicable, redesigning the job or substituting equipment to eliminate or reduce the risk of whole body and/or hand vibration; and
  - for hand vibration, requiring workers use anti-vibration protective gloves.

Information

Types of information that could be provided include:

- the identified hazards and risks from the working hours arrangements and the control measures;
- workplace fatigue and alertness management strategies tailored for the type of work and workplace;
- a working hours policy statement (see the following suggestions for policies);
- beneficial sleep and health management advice, for example information on good sleeping environments – see information for employees in Appendix 3;
- information on the consultative mechanisms for raising safety and health matters at the workplace and the joint responsibilities for safety and health management; and
- other relevant workplace policies, such as a fitness for work policy (see the following suggestions for policies).

Consider a range of formats and forums to provide information

For example, incorporate fatigue, sleep and other beneficial health management information in:

- staff newsletters;
- workplace functions involving employees' families; and
- any health, fitness or 'wellness' programs.

Training

To consider level of risk, see the Risk management guidelines in Section 2.5.

The OSH Act, MSI Act and MSI Regulations require training on safe work procedures to be provided.

Potential control measures to implement include:

See Section 19(1)(b) of the OSH Act, Section 9(1)(b) of the MSI Act and Regulations 3.6 and 4.13 of the MSI Regulations, where applicable.

- training managers and supervisors to:
  - understand the unique demands of work schedules;
  - recognise fatigue indicators; and
  - understand the safety and health hazards and risks arising from the working hours arrangements and their control measures;
- training employees on:
  - hazards and risks that may be associated with the working hours arrangements and their control measures. For example, where applicable, providing training on fatigue and its control measures, including fatigue management skills, such as alertness strategies and safe practices for work involving hazardous substances, manual handling and plant use;
  - their responsibilities for safety and health at the workplace;
  - relevant health and lifestyle choices including, for example, beneficial sleep and health management and fatigue indicators;
  - general job skills to promote understanding of the demands of the job; and
  - other relevant information, such as policies on working hours, fatigue management, drugs and alcohol and 'fitness for work' (see the following suggestions for policies);
- providing further training to refresh understanding of fatigue, health management and the working hours control measures, when new methods, tasks, equipment, hazards, operations, procedures or schedules are introduced or the environment changes; and
- where appropriate, training managers and supervisors on the preparation of suitable rosters.

Supervision

Employers must provide an appropriate level of supervision relevant to the assessed level of risk.

Potential control measures to implement include:

See Regulation 10.5 of the MSI Regulations and Regulation 3.3 of the OSH Regulations and the Commission's Guidance note: Working alone.

- monitoring work to ensure safe work practices are followed;
- ensuring employees new to the job or unfamiliar with the work environment are adequately supervised;
- where appropriate, training supervisors and managers on fatigue indicators and the control measures to implement to eliminate or reduce the risks;
- where appropriate and practicable, ensuring employees do not work alone; and
- for those working alone, providing a means of communication and a procedure for regular contact.

Where applicable, see Regulation 3.3 of the OSH Regulations.

To consider level of risk, see the Risk management guidelines in Section 2.5.

Individual and lifestyle factors

To address the effect non-work factors may have on fatigue levels and other risks, potential control measures to implement include:

- where appropriate, implementing health and fitness promotional initiatives, such as providing information on beneficial sleep and health management to both employees and their families – see information for employees in Appendix 3;
- developing and implementing, in consultation with employees and safety and health representatives (where they exist), the following polices and programs:
  - a drugs and alcohol policy;
  - a fitness for work policy;
  - for extended hours or night work, strategies to enhance employees' alertness; and
  - self-assessment checklists;
- providing training on the above policies and programs;
- providing adequate supervision for employees starting night shifts or extended hours for the first time to ensure they will not be exposed to increased risk of injury or harm; and
- assessing the work and the work environment in the context of individual factors and safety and health issues that may arise from the working hours arrangements.

Policies

Relevant policies, plans and programs to consider developing and implementing in consultation with employees and safety and health representatives (where they exist) include:

- a working hours policy statement that demonstrates a commitment to reasonable working hours, taking into consideration specific workplace circumstances. For possible issues to address in it, see control measures for working hours arrangements suggested at the beginning of this section;
- where applicable, a fatigue management plan/strategy that addresses specific workplace issues associated with different tasks, jobs and operations.
  Consider including in the fatigue management plan/strategy:
  - job, task and operations-specific fatigue management plans;
  - definition and communication of the roles and responsibilities of supervisors and employees;
  - fatigue management guidelines based on current knowledge, with information and training tailored for the workplace and range of occupations and tasks;
  - self assessment checklists; and
  - a means for checking information and training is provided to employees on fatigue management and other control measures;
- procedures for employees to alert supervisors of potential hazard factors;
- procedures for the management of fatigued employees;
- a drugs and alcohol policy;
- a fitness for work policy;
- where relevant, 'working in heat' guidelines; and
- health and fitness programs.

Working environment

Provision of safe and suitable workplace conditions helps to reduce fatigue and may assist with reducing exposure to other hazards. This involves designing the workplace to ensure there is adequate lighting and ventilation and the correct equipment to perform tasks.

For guidance on workplace amenities, air quality, lighting, workspace, air temperature and air conditioning, see the Commission's *Codes of practice: First aid facilities and services, workplace amenities and facilities, personal protective clothing and equipment*.

For guidance on office workstations, see the Commission's *Code of practice: Occupational safety and health in call centres*.

Security issues

Potential exposure to threatening behaviours is a consideration where the working hours arrangements require staff to work non-standard business hours or alone.

Measures must be implemented to ensure the protection and security of workers against physical violence.

See the Commission's *Violence, aggression and bullying at work: Code of practice for prevention and management* and *Guidance note: Preparing for emergency evacuations at the workplace*, which outlines the minimum requirements for emergency preparations at workplaces.

Consultation

To address safety and health risks associated with working hours, consult employees and safety and health representatives (where they exist) on:

- work schedules, rosters and shift design;
- working hours and possible effects;
- the control measures to be implemented;
- procedures for notifying supervisors of any hazard factors; and
- changes in working hours, shifts and rosters.

Employers are required to consult with employees on safety and health matters at the workplace. See Section 19(1)(c) of the OSH Act and Section 9(1)(c) of the MSI Act.

Incident management

Consideration could be given to investigating fatigue, acute sleep loss and cumulative sleep debt (over past months) as contributors to incidents.

See Appendix 3 for information on fatigue indicators.

Work-related travel

As relevant, consideration could be given to the risks of drivers driving when tired or fatigued due to extended working hours.

Potential control measures include:

- when taking into account hours that will be worked, considering the travel time;
- developing procedures for long daily work hours and work-related travel, where there may be increased risk of injury or harm, for example requiring adequate breaks when total hours exceed a set limit;
- in certain circumstances, where there is the potential risk that drivers may be affected by fatigue, providing alternative transport arrangements; and
- considering alternative options to face-to-face meetings, such as teleconferencing and connection via computer for shared presentations.

With other travel, consider avoiding situations where employees drive when tired or fatigued due to extended working hours.

Health assessment/monitoring

See specific requirements for health surveillance in Subdivision B of the MSI Regulations and Part 5 – Hazardous substances of the OSH Regulations.

As appropriate, consideration could be given to health assessment and/or monitoring of employees' health.

2.6 Monitoring and review of control measures

Constantly monitor and review the working hours control measures to ensure they continue to prevent or control exposure to hazards or hazardous work practices.

In determining the frequency of the monitoring and review processes, consider:

- the level of risk – high-risk hazards need more frequent assessments;
- the type of work practice, schedule or plant involved;
- a regular review of the process for hazard identification, risk assessment and risk control to ensure the risks are effectively managed; and
- further review of control measures when methods, tasks, equipment, hazards, operations, procedures, rosters or schedules are introduced or the environment changes, or there is any indication risks are not being controlled.

Appendix 1 Relevant sections of acts and regulations

Sections of acts and regulations referenced in this code of practice include:

The *Occupational Safety and Health Act 1984*

- Section 19 Duties of employers
- Section 19A Breaches of Section 19(1)
- Section 20 Duties of employees
- Section 20A Breaches of Section 20(1) or (3)
- Section 23D Contract work arrangements

The Occupational Safety and Health Regulations 1996

- Regulation 1.16 Penalty for breaches by employers and others
- Regulation 3.1 Identification of hazards, and assessing and addressing risks, at workplaces
- Regulation 3.3 Communication with isolated employees
- Regulation 3.46 Avoidance of noise above exposure standard
- Regulation 3.47 Standard of personal hearing protectors
- Regulation 5.19 Exposure standards not to be exceeded

The *Mines Safety and Inspection Act 1994*

- Section 9 Duties of employers
- Section 9A Breaches of Section 9(1)
- Section 10 Duties of employees
- Section 10A Breaches of Section 10(1) or (3)
- Section 15A Contract work arrangements

Mines Safety and Inspection Regulations 1995

- Regulation 3.6 Training of persons
- Regulation 4.13 Induction and training of employees
- Regulation 4.30 Preparation of emergency plan
- Regulation 7.4 Noise to be reduced as far as practicable
- Regulation 7.5 Reduction of noise
- Regulation 7.6 Personal hearing protectors
- Regulation 7.7 Duty to inform, instruct and train persons about hearing risks
- Regulation 9.11 Exposure standards
- Regulation 10.5 Persons working alone
- Regulation 17.1 General penalty

Appendix 2 Other sources of information

Legislation

The *Occupational Safety and Health Act 1984*

Occupational Safety and Health Regulations 1996

The above can be purchased from WorkSafe and are available on the internet at www.worksafe.wa.gov.au

The *Mines Safety and Inspection Act 1994*

Mines Safety and Inspection Regulations 1995

All of the above can be purchased from the State Law Publisher. Refer to the internet site at www.slp.wa.gov.au or telephone (08) 9321 7688.

Codes of practice, guidance material and other documents

Australian Building Codes Board

The Building Code of Australia. Refer to the internet site at www.abcb.gov.au

Australian Safety and Compensation Council

Hazardous Substances Information System, available at www.ascc.gov.au

Commission for Occupational Safety and Health

Code of practice: Managing noise at workplaces

Code of practice: Manual handling

Guidance note: Working alone

Codes of practice: First aid facilities and services, workplace amenities and facilities, personal protective clothing and equipment

Violence, aggression and bullying at work: Code of practice for prevention and management

Guidance note: Alcohol and drugs at the workplace

Guidance note: General duty of care in Western Australian workplaces

Guidance note: Preparing for emergency evacuations at the workplace

Guidance note: Provision of information on hazardous substances: Material Safety Data Sheets

Guidelines for the development of industry codes of practice

Department of Consumer and Employment Protection, Resources Safety

Adjustment of exposure standards for extended workshifts: Guideline

Biological monitoring: Guideline

General duty of care in Western Australian mines: Guideline

Management of hazardous substances on minesites: Guideline

Minerals industry safety handbook

Noise control in mines: Guideline

Safety and health risk management: Guideline

Underground ventilation (metalliferrous mines): Guideline

Department of Consumer and Employment Protection, WorkSafe Division

Safety and health in shiftwork, available on the internet at www.worksafe.wa.gov.au

Standards Australia

Australian/New Zealand Standard AS/NZS 1269.1 *Occupational noise management – measure and assessment*

Contacts for further information

The relevant employer association or union.

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Chamber of Minerals and Energy Western Australia Inc

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Office of Road Safety

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Drug and Alcohol Office

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MOUNT LAWLEY WA 6050

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Email: DAO@health.wa.gov.au

Internet site: www.dao.health.wa.gov.au

Appendix 3 Fatigue

Fatigue can result from long hours or arduous work (mental or physical), little or poor sleep, and the time of day when work is performed. It can be influenced by health and emotional issues, or by several of these factors in combination. Fatigue can accumulate over a period of time.

'Fatigue' is a general term used to describe the feeling of being tired, drained or exhausted. Fatigue is accompanied by poor judgment, slower reactions to events, and decreased skills.

Work practices, such as long hours, prolonged night work, split shifts, irregular hours, early starts and/or those limiting quality sleep, may increase the risk of fatigue.

Repetitive movements, standing for long periods, frequent manual handling and monotony, when accompanied by long working hours, may also contribute to fatigue.

Work schedules that require people to be awake and active at night or early morning or working for extended periods cause disruptions to the body's natural rhythms (the body clock). This will affect the quality and quantity of sleep and lead to a build up of sleep debt and a drop in alertness and performance.

The risk of incidents may increase when employees are working at times when they would normally be asleep, particularly in the pre-dawn hours. There is also an increased risk of incidents during the mid-afternoon 'siesta hours'.

Where fatigue may affect a person's ability to work safely, it must be identified, assessed and controlled like other risks at the workplace.

Importantly, fatigue impairs a person's judgement of their own fatigue. This means the effective management of fatigue should not be the responsibility of employees alone.

Controlling fatigue requires cooperation between employers and employees. Both employers and employees have a role to play in making sure any risks associated with it are minimised.

The body clock

Most people are day-orientated, designed to work in the daytime and sleep at night. The circadian rhythms (the body clock) are the body's natural rhythms that are repeated approximately every 24 hours. These rhythms regulate sleeping patterns, body temperature, hormone levels, digestion and many other functions.

The need for sleep

All people have an irresistible need to sleep, with the urge greatest during the night and early morning when most people would normally be asleep.

The most beneficial sleep is a good night's sleep taken in a single continuous period. The restorative effects are less if it is split between day and night time. However, people differ in the amount they need and their tolerance levels may also vary if they do not get enough.

Poor sleep, such as having a small amount of sleep over several days, leads to severe sleep debt and the irresistible urge to sleep.

Sleep indicators include:

- a drowsy feeling;
- blurred vision;
- difficulty keeping eyes open;
- head nodding;
- excessive yawning; and
- repeatedly drifting out of lane if driving.

Some people experience excessive sleepiness during the day, despite an apparently adequate length of sleep. This suggests the presence of a sleep-related disorder that may require medical attention.

Fatigue indicators include:

- not feeling refreshed after sleep;
- a greater tendency to fall asleep while at work;
- more frequent naps during leisure hours;
- feelings of sleepiness;
- extended sleep during days off; and
- increased errors and loss of concentration at work.

Using the working environment, for example radio, airconditioning or bright lights, to stimulate alertness has limited effect and will not overcome tiredness. Substances, such as stimulant drugs, will provide a boost but do not reduce the need for sleep. Sleep that is delayed will need to be made up later.

Working at night elevates the risk of fatigue because it combines the daily low point of alertness with the increased likelihood of reduced amounts of sleep.

There are also difficulties adjusting the body clock with night work. No matter how much sleep a person has beforehand, he or she will feel sleepy between 1.00 am and 6.00 am.

Regular night workers can make some adjustments to their body clock to enable them to sleep during the day. However, this is rarely a complete readjustment and, on average, night workers get around two hours less daily sleep than day workers.

Night workers' sleep is also more prone to disturbance. When they go back to being 'day people' on their days off, their body clocks reset to the normal day-night schedule. With both the quality and duration of sleep being affected, sleep deficit and fatigue can accumulate.

Information for employees

Everybody at the workplace has responsibilities for safety and health. Employees have responsibilities to take reasonable care to ensure their own safety and health, and that of others affected by their work.

Individual factors and lifestyle choices may result in insufficient sleep and can adversely impact on an individual's work performance the next day.

Employees can help address fatigue at the workplace by:

- planning social activities so adequate time for sleep is scheduled;
- being aware of its signs – see information on fatigue indicators earlier in this appendice;
- helping to identify the problem at the workplace;
- cooperating with employers and being supportive of employees trying to control it;
- seeking confidential help with emotional and family problems that may be contributing to it;
- employing simple strategies (see below) that can help a fatigued person be refreshed; and
- seeking professional advice if health matters, such as a poor diet, recent illness, injury or sleep disorders, may be contributing to it.

In considering general fitness for work, non-work factors, for example lifestyle and individual factors, may play a role.

Tips for sleeping

Work outside of normal hours, generally means the body's circadian rhythms will cause:

- more trouble getting sufficient sleep; and
- poorer quality sleep.

It is important for shift workers to get as close to the average amount of required daily sleep (or rest in bed) as possible. The quality of day sleep will not be the same as night sleep. It is lighter than night sleep, and is more likely to be disturbed by noise. This is why planning is required to ensure conditions for day sleep are as favourable as possible.

The following tips may help avoid unwanted disruptions while trying to sleep during the day:

- blinds or curtains with backing will reduce the light level in bedrooms during the day – consider using heavy curtains and sound insulation on doors and windows to also reduce noise levels;
- cool conditions can help in getting to sleep and staying asleep;
- inform relatives and friends of work schedules and sleep times to avoid unwanted disruptions;
- use an answering machine or turn the phone down to help minimise disturbances;
- try ear plugs and an eye cover such as those supplied by airlines;
- develop ways of 'unwinding' after the afternoon or night shift, for example take a walk or watch some television;
- take a shower or relaxing bath before going to bed; and
- go through all of the normal rituals of going to bed the same as before a normal sleeping night.

Tips for eating and drinking

Food and drink consumed before going to bed can affect sleep quality. This is because the digestive system is controlled by circadian rhythms and has its own regular rhythm of activity and rest.

Digestion slows down at night irrespective of bodily activity. The timing of meals and the quality of foods eaten can affect sleep, and may lead to digestive complaints such as heartburn, constipation and indigestion. As a result, heavy or fatty food eaten at night is difficult to digest.

Shift workers should be aware of the following tips.

When to eat and drink:

- wherever possible, keep to daytime eating patterns;
- when working a night shift, try having two meals at regular times and light meals in the middle of the night shift;
- consider having the largest daily meal during the day;
- do not have a big meal or drink too much liquid before sleeping; and
- eat a meal before 1.00am as the effects of digesting a meal can decrease alertness in the second part of the night shift. It is better to eat before becoming fatigued at night.

What to eat and drink:

- alcohol lowers the quality of sleep and overloads the bladder. It is recommended that alcohol is not consumed in the last few hours prior to sleeping;
- avoid drinks which contain caffeine in the last few hours prior to sleeping; and
- eat light, healthy food that is easy to digest.

Tips for health and physical fitness

As health and fitness may be contributing factors to fatigue, it is important to maintain a good level of physical fitness.

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