

A handbook for earth resources

Fatigue in mines

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This guidance has been reviewed and updated for the sole purpose of amending year and regulation references relating to the Occupational Health and Safety Regulations, in line with amendments which came into effect on 18 June 2017.

Introduction

Fatigue is a condition that results from physical or mental exhaustion or inadequate or disturbed sleep. It is a recognised health and safety risk in many industries, including earth resources and can prevent people from functioning within normal boundaries.

By law, a mine operator must develop and implement strategies that control any risks to health and safety associated with employee fatigue. This handbook has advice about managing fatigue, including information about developing fatigue management plans.

This handbook is also designed to assist mine operators and workers in earth resources comply with the Occupational Health and Safety Act 2004 (OHS Act) and Occupational Health and Safety Regulations 2017 (OHS Regulations). However, it is not an exhaustive guide or substitute for the detailed advice in the OHS Act or Regulations.

It also outlines how employers may:

- conduct risk assessments that take into account the risk factors in the workplace commonly associated with fatigue and document details
- apply control measures as appropriate to adequately control risks
- consult with employees in relation to managing fatigue.

And how employees may:

- recognise what is meant by fatigue
- appreciate what factors – both work and non-work related – may contribute to the development of fatigue
- identify their role in the development of a fatigue management plan and procedures
- use strategies to manage their non-work activities to arrive at work in a non-fatigued state.

Legal requirements

The OHS Regulations place obligations on the operator of a mine in relation to the management of fatigue. The operator of a mine must develop and implement strategies that control risks to health and safety associated with employee fatigue, incorporating all the requirements outlined in the OHS Act and Regulations. Strategies must include work arrangements that eliminate employee fatigue so far as is reasonably practicable (regulation 410).

Risk control measures

The operator of a mine must implement risk control measures that, so far as is reasonably practicable, eliminate risks to health or safety associated with any mining hazards at the mine; or if it is not reasonably practicable to eliminate those risks, reduce those risks so far as is reasonably practicable (regulation 405(1)). These control measures must be reviewed and if necessary, revised when required (regulation 406).

The operator of a mine must use one or any combination of the following risk control measures to eliminate or reduce risks:

- a) substitute a new activity, procedure, plant, process or substance for that which is related to the relevant mining hazard
- b) isolate persons from the mining hazard
- c) use engineering controls.

If a risk to health and safety still remains after the above control measures have been implemented, the operator must, so far as is reasonably practicable, use administrative controls. If a risk still remains, the operator must provide appropriate personal protective equipment to persons at risk.

To ensure appropriate risk control measures are being used, the mine operator must review, and if necessary revise, the:

- identification of mining hazards
- assessment of risks to health and safety associated with mining hazards
- risk control measures adopted.

By law (regulation 406), the review must be done:

- before any mine modification is made
- after any incident involving a mining hazard occurs at the mine
- if the operator has removed or assigned a person alternative work after receiving a health surveillance report that indicates a person is suffering detrimental health effects

Note: the operator must notify WorkSafe in writing when this happens

- after receiving a request from a health and safety representative (HSR), and
- in any event, at least once every three years.

Employer responsibilities

The specific recognition of fatigue as a potential health and safety hazard means it must be managed as part of the OHS responsibilities of the employer. This means:

- ensuring employees are informed of the risks associated with fatigue and how to control the risks
- ensuring systems of work, including working hours, shift rosters and shift cycles, are structured and managed to minimise the risk of fatigue
- ensuring a mechanism through which an employee can inform their supervisor that they or someone else may be in a fatigued state
- increasing surveillance to ensure exposure to other workplace hazards, such as noise, vibration and other related environmental conditions, are controlled to within acceptable limits
- where site accommodation is provided, that employees are provided with a balanced diet and conditions that are conducive to sleep and rest.

Employee responsibilities

Employees must also cooperate with the measures an employer has in place to control fatigue hazards in the workplace (regulation 447). This means:

- following instructions given in controlling risks associated with fatigue
- informing their supervisor if they suspect they are in a fatigued condition
- informing their supervisor if they suspect or observe that a fellow employee is in a fatigued condition
- endeavouring to arrange their activities outside working hours to reduce fatigue from personal circumstances
- not entering or remaining in a mine if adversely affected by alcohol or drugs and not taking drugs or alcohol into a mine
- endeavouring to get adequate sleep so they are not in a fatigued state before starting a shift.

Under the OHS Act, the definition of 'employee' includes an independent contractor engaged by the operator of a mine and any employees of the independent contractor. Duties of the operator extend to an independent contractor and independent contractor's employees in relation to matters over which the operator has control or would have had control (except for any agreement between the operator and the independent contractor to the contrary).

Consultation

The operator of a mine must consult with employees and HSRs, if any, in relation to developing and implementing strategies for the control of any risks to health and safety associated with employee fatigue (regulation 439).

In the case of a prescribed mine, the operator of a mine must consult in relation to:

- implementing a safety management system (regulation 418)
- conducting a safety assessment (regulation 421)
- developing a 'safety role for employees' (regulation 433)
- preparing, reviewing or revising an emergency plan (regulation 434).

To prevent fatigue employers should also consult with employees and HSRs:

- when fatigue is identified as a hazard or there are indications fatigue is affecting the health and safety of workers
- when carrying out risk assessments and taking steps to eliminate or control risks
- when developing and implementing educational programs for the control of any risks to health and safety associated with employee fatigue
- when changes are proposed to work schedules and allocation
- prior to new work procedures being introduced
- post-incident or after a 'near-miss' occurs.

When putting together a fatigue management plan, it is important to establish a common understanding of fatigue and how it is different from other physical hazards.

Using a risk management approach

Using a risk management approach is a key part of managing fatigue – the below table shows an example of such an approach.

Consultation should take place at every step of the process.

Risk management approach to fatigue

Getting started	1. Establish a joint approach to controlling the risk through consultative forums.	Consult the workforce throughout the process
Agreeing how to do it	2. Agree on a process that supports effective control, including an education and communication strategy and adequate resources.	
	3. Identify hazards that can cause fatigue.	
	4. Assess the risk factors.	
	5. Decide how to control the risks associated with fatigue, ensuring employees are closely involved.	
	6. Document the control measures in a fatigue management plan.	
	Setting it up	
Making it work	8. Evaluate the effectiveness of controls.	
Review	9. Monitor and review.	

Source: *An effective approach to managing fatigue* (DPI NSW, 2008).

Overview of fatigue

Before developing a fatigue management plan, it is critical to understand what fatigue means. Employers and employees may have different opinions about what fatigue is, how it is different from other physical hazards and how work and non-work related activities may contribute to it in the workplace.

When using a risk management approach to fatigue, look at how fatigue can interact with other workplace hazards. Some hazards that can be increased when working extended hours are manual tasks and exposure to hazardous chemicals, dust and noise.

What is fatigue?

Fatigue is a condition that can result following physical or mental exhaustion or inadequate or disturbed sleep. Physically and mentally demanding tasks combined with extended hours of work or work at night (particularly during the hours of 2am to 6am) can cause fatigue.

The health and safety risks associated with fatigue in the workplace include:

- impaired reaction times
- increased error rates
- reduced performance or reasoning ability.

Sleep debt

When individuals get less sleep than they need, they build up what is called a 'sleep debt'. Each additional day without enough sleep increases the debt and when it becomes large enough, individuals become fatigued and lose concentration. They then need to recover the debt to overcome these effects.

In general, sleep debt is recovered about one hour every night of adequate sleep thereafter. Therefore, sleep debt is rarely recovered in one night's sleep and it may take several days before a person recovers from an accumulated sleep debt.

Disruptions to normal sleep routines are common with night shift employees, where the major difficulty is getting adequate and undisturbed sleep during the day. The cumulative result of these disruptions is a lack of sufficient sleep, which may lead to a sleep debt.

The body clock

People are day orientated – we are designed to work in the daytime and sleep at night. The internal body clock (circadian rhythm) is responsible for this. It causes a regular variation through 24 hours in different body and mental functions, including body temperature variations, hormone production levels and natural periods of sleep and wakefulness.

Disruption to the body clock through work schedules, such as working at night, means people are expected to be awake and active at a time when the body is prepared for rest. Environmental factors (light and dark) that normally keep an individual's cycle on track will also be working against the adjustments the body needs to make.

It is important to recognise that individuals may vary in their response to disruptions to body clocks, normal work and sleep routines. Shift rosters and schedules need to be designed to meet the requirements of the general population and to reduce the disturbance of social and family life as much as possible.

Effects on work performance

Fluctuations in body clocks may contribute to fatigue. This affects performance and may increase safety risks.

Shiftwork and work schedules involving night work mean employees may be working when they would normally be sleeping, and sleeping when they would normally be working. These work patterns may disrupt the body's circadian rhythm and impact on the quantity and quality of sleep and task performance. They may also create a sense of personal dislocation and imbalance for an individual.

Work performance is generally less effective during night shifts, particularly during the early hours of the morning. When work schedules require employees to work when fatigued or in a sleep deprived state, it may place their and others health and safety at risk, particularly when operating machinery or performing critical tasks that require a high level of concentration.

Overview of fatigue

Longer term effects on health

Continued exposure to the disruptions and dislocations that result from some work rosters and schedules may have an adverse effect on the health of individuals. In the longer term these effects can include gastrointestinal disorders and cardiovascular disease.

Social and family life

Work scheduling will influence the time available for employees to participate in social and family activities. Employees on shift work may find it hard to maintain a social and family life. The risk is that some workers may compromise their rest and sleep in order to meet family and social commitments and become fatigued as a result.

Developing a fatigue management plan

A constructive step for employers to address health and safety issues resulting from fatigue is to develop a workplace management of fatigue plan with supporting procedures that address specific circumstances at the workplace.

It is important management engage with employees and HSRs in the early stages of developing a site-specific fatigue management plan for consistency.

See 'Consultation' on page 6.

The development of a written plan and supporting procedures provides an opportunity to develop a range of management strategies to deal with issues that could arise in the management of fatigue.

The fatigue management plan should outline the workplace's aims in relation to fatigue with the objective being to eliminate and reduce hazards and risks, so far as reasonably practicable. The supporting procedures should provide strategies and action plans to meet this objective.

There are a number of reasons why workplaces should develop a fatigue management plan. These include:

- the OHS Act and Regulations require strategies be implemented to control any risks to health and safety associated with employee fatigue
- preventing uncertainty when situations arise – without a clear plan and supporting procedures in place it may be difficult to deal with certain situations when they arise (eg dealing with a situation where employee fatigue is evident)
- demonstrating management commitment to a safe workplace and informing employees and others about acceptable behaviour – having a plan also provides a means of informing employees and other persons at the workplace about changed behaviours in relation to someone experiencing fatigue
- facilitating peer support – the workplace is an ideal place to run effective 'prevention of fatigue' programs because the peer support network at a workplace can be used to shape behaviour. Policies that facilitate some peer involvement may be useful as peers can pick up changes in behaviour and assist in cultural changes.

Steps to undertake to develop a workplace fatigue management plan

The following steps may assist in developing a plan:

1. Establish a specific, representative group to form and implement the plan

The group established to oversee development of the plan should include employees' representatives, HSRs and management representatives. The more diverse and encompassing the people involved, the more likely the plan will be viewed as relevant and appropriate.

An existing health and safety committee could be utilised to develop the plan or a specific working group could be formed. In some cases, it may be beneficial for larger companies to establish a steering committee to oversee the development of the plan and the associated implementation program. The group should clarify its task to ensure clear objectives. Adequate resources should be provided to enable the group's objective to be carried out.

2. Develop the plan through consultation with all employees

The plan should be developed through an open, participatory process. Consideration may also be given to consulting employee and employer organisations. Effective communication strategies that ensure regular consultation and feedback to employees should be adopted. This approach will give employees confidence they are an owner of the plan, hence making it more likely to be accepted and followed at the workplace.

Developing a fatigue management plan

The following table lists steps to consider when consulting employees.

Develop procedures and a timetable for implementation of the plan, starting with an education program.

Develop a preliminary draft plan and have it reviewed by the representative group overseeing its development.

Seek feedback on a draft plan from all at the workplace who may be affected by its operation. Where appropriate, feedback received should be incorporated into the document.

Present a draft plan to the health and safety committee for its consideration.

Distribute endorsed plan to all employees and people at the workplace.

Where practicable, ensure the plan is readily available (eg on the company noticeboard or intranet).

Consultation and input from all people at the workplace may assist with the acceptance of a plan as there may be some disagreement about the significance of the effects of employee fatigue on safety. Remedial approaches such as education programs may also help.

3. Ensure there is clear communication and provision of information throughout the development stage

To introduce a new plan successfully, it may be necessary to take steps to overcome anxiety among employees.

Employers should point out that, while not responsible for the private lives of their employees, it is the employer who carries the primary responsibility for maintaining a healthy and safe working environment. The impact of unsafe behaviour caused by not maximising periods of rest outside of work should be emphasised when communicating the plan.

Risk factors associated with fatigue

Risk factors associated with work-related fatigue include:

- work shifts and schedules
- extended work schedules
- night shifts
- type of work
- commuting
- cumulative effect of exposure to other related hazards.

Work shifts and schedule

The way work is scheduled (eg when workers are next required to work night shifts or extended shifts) can increase the risk of fatigue. The length of the shifts and roster design needs to be considered to ensure the risk of fatigue is controlled.

Extended work schedules

Rostered working hours may need to be extended due to additional work requirements or on-call arrangements to deal with emergency situations. Other demands on employees can come from the requirements of shift handover at the start or end of shifts or the need to cover staff shortages with little or no notice. Working extended hours in any one period is likely to exacerbate disruptions to body clocks or sleep debt. Incentives to perform long or extended shifts should be avoided.

Where additional work hours are required, considering the risks associated with fatigue is essential. Employees should be given a sufficient break to recover from the effects of fatigue before commencing the next period of work.

Night shift

Disruptions to normal sleep routines are common with night shift employees, where the major difficulty is getting adequate undisturbed sleep during the day. Extended hours combined with night work increases the risks from fatigue.

Performance levels often vary with the body's circadian rhythm. Many aspects of human performance are at their lowest level at night. However, performance at any time of the day can be reduced if sleep deprivation occurs due to disturbances to the circadian rhythm. Sleep deprivation is most likely to accumulate when working night shifts as daytime sleep is generally of lower quality and quantity than night sleep.

The NSW Mine Safety Advisory Council and Victorian Department of Primary Industries report, *Digging Deeper* (2008), found that night shift was reported to cause significantly worse effects on work performance and fatigue levels than either afternoon or day shift, and that afternoon shift was worse than day shift. This confirms the intuitive notion that night and afternoon shift affects work performance, alertness and the ability to concentrate. A further conclusion drawn in this report is that fatigue and other problems arise primarily from the time of day that work is being done, not the number of hours involved.

Type of work

Fatigue can develop following certain types of work, particularly if it:

- is physically demanding
- is monotonous
- involves mentally demanding tasks.

The physically demanding nature of some tasks, such as air-leg mining, can lead to fatigue and therefore require careful assessment to ensure the risks associated with this type of work are adequately controlled.

Tedious or monotonous work, such as some tasks involved with truck driving, can lead to mental fatigue and may result in an individual falling asleep on the job.

In addition, the time of day when activities are carried out also impacts on an individual's ability to remain alert. For example, monitoring tasks are generally performed better during the day than at night. The risks associated with such tasks can be minimised by rotating activities to vary the demands of the work performed.

When taking a risk management approach to fatigue, it is important to assess how fatigue can interact with other workplace hazards. Some hazards that can be increased when working extended hours are manual tasks and exposure to hazardous chemicals, dust and noise.

Risk factors associated with fatigue

Commuting

Driving can significantly increase the risk of fatigue for some employees. Travel time to and from work on a daily basis can substantially erode the off-work time available to employees to meet personal, family and community responsibilities. Adequate sleep may be compromised to meet these demands.

This risk is increased when employees live some distance from the mine or when a worker commutes by aircraft and the journey to the flight departure point from their place of residence is also significant. The time available for adequate sleep is even less if extended working hours are required.

At long distance commute operations, employees are normally accommodated onsite and employers have a greater opportunity to ensure adequate sleep arrangements between shifts. However, there may be increased risk before or after the roster where employees work and commute times combine to be very significant.

Employers need to take into account commuting hours, both in relation to the start or end of a roster and on a daily basis. Where employees travel substantial distances or for long periods of time (such as in fly-in/fly-out operations), the following should be considered:

- suitable travel arrangements
- adjustment of shift length
- variation of the work undertaken in the first and last shifts of the work cycle.

Potential increased exposure to hazards

Working hours of longer duration than eight hours may require re-assessment of exposure to other workplace hazards such as noise. The type, duration and scheduling of rest breaks used to reduce those risks will require re-evaluation when work hours are extended.

Further information on long-term health effects and the need for adjustment of exposure standards to other hazards can be found in:

- Western Australian Department of Minerals and Energy Guidelines (ongoing series)
- WorkSafe handbook, Fatigue – Prevention in the Workplace (2008)
- Mineral Council of Australia guide, Work design, fatigue and sleep (2004).

Assessing fatigue risks

In assessing fatigue hazard factors, it is important to recognise that many of them will be interrelated and should therefore not be considered in isolation. The risk assessment should place the hazards in order of priority for the implementation of risk control measures.

As an initial step to considering the health and safety risks associated with fatigue, a review of the operating requirement at the mine should be carried out to determine:

- required staffing levels, work schedules and shift rosters to produce the required outputs with an adequate margin of safety

– accounting for all identified risks, including those arising from employee fatigue

- a process for monitoring safe and efficient performance.

The below table shows some factors that may need to be considered when assessing fatigue risk.

A generic risk assessment may be completed for homogeneous work groups where the risk factors are the same. However, employers should further consider individual circumstances so the assessment is valid for all employees within each group.

Fatigue risk	Factors to consider
Scheduling of work	<ul style="list-style-type: none"> ▪ the structure of the work schedules and rosters ▪ irregular and unplanned work schedules ▪ potential for call-out of shiftwork employees for breakdown or absences ▪ shift length in relation to the physical, mental and other demands of the work.
Commuting	<ul style="list-style-type: none"> ▪ commuting arrangements ▪ proximity of residence or accommodation ▪ method of travel to and from work available to employees and the risk of commuting incidents.
Environmental conditions	<ul style="list-style-type: none"> ▪ exposure to heat and humidity ▪ noise levels ▪ vibration ▪ lighting.
Individual factors	<ul style="list-style-type: none"> ▪ lifestyle (eg having more than one job, diet, fitness level) ▪ home environment (eg noisy neighbours, bedroom that is too hot or cold) ▪ health conditions (eg insomnia, alcohol or drug dependence).

See Appendix A for a checklist that highlights factors that may contribute to fatigue.

Controlling fatigue risks

Each workplace should conduct a risk assessment on factors that have the potential to create fatigue. Implementing and maintaining the control strategies to minimise health and safety risks relating to fatigue can then follow.

Employer and employee responsibilities should be taken into account when assessing the suggested risk factors and any other factors identified during the risk assessment process.

These responsibilities should also be taken into account when implementing control measures.

Control measures

The following table shows examples of risk controls that focus on the source of the risk and measures they rely on to work effectively.

Fatigue risk	Factors to consider
Mental and physical demands	<ul style="list-style-type: none">eliminating excessive physical demands from the type of activityconsidering job rotation for repetitive or monotonous work and work that involves heavy physical demandredesigning the activity to include a variety of mental and physical tasksutilising rest periods in addition to scheduled meal breaks to reduce the physiological demands of the activity.
Environmental conditions	<ul style="list-style-type: none">installing adjustable, vibration-free seats in appropriate machinery and vehiclesinstalling ventilation and mechanical cooling devices in hot, confined work environments (eg truck cabins)installing cooling devices in hot work environmentsensuring the workplace and surroundings are well litwhere on-site accommodation and facilities are required, ensuring there are on-site camp rules and arrangements in place that contribute to providing an environment conducive to getting adequate sleep and rest. Educating employees on maintaining good health through a balanced diet, regular exercise and adequate rest and ensuring access to such facilities will help manage the physical demands associated with work schedules.
Working time	<ul style="list-style-type: none">planning and provision should be made to cover emergency or breakdown call-outs and absences of rostered personneldeveloping a working hours plan on daily work hours, maximum average weekly hours, total hours over a three-month periodeliminating or reducing the need to work extended hours or overtimeeliminating the need to work long shifts or too many consecutive days without a day offscheduling work for hours when the risks may be lower (eg complex and safety critical tasks are best undertaken when employees are less likely to be fatigued, ie normal day shifts).

Controlling fatigue risks

Fatigue risk	Factors to consider
Shift work	<ul style="list-style-type: none"> ▪ controlling overtime, shift swapping and on-call duties ▪ avoiding quick shift changeovers such as finishing at 11pm and starting again at 7am ▪ limiting shifts to 12 hours including overtime ▪ allocating consecutive days off, including some weekends ▪ using a forward rotation shift system (ie morning to afternoon, afternoon to night) ▪ allowing time for communication at the shift handovers ▪ providing alternative transport at the end of overtime or long shifts ▪ offering alternatives to employees who may have difficulties adjusting to work hours.
Work scheduling and planning	<ul style="list-style-type: none"> ▪ reducing the amount of time employees need to spend performing physically and mentally demanding activities. Shift length and roster design should not unduly place employees (including contractors and subcontractors) at risk of fatigue or sleep deprivation ▪ scheduling breaks appropriately for the type of work, the demands of the work and the environmental conditions ▪ ensuring there are adequate resources (such as staff, work tools) to do the activity without placing excessive demands on other employees ▪ managing workload caused by unplanned events (eg machine breakdown) ▪ scheduling safety critical activities for day shift (ie outside of low circadian rhythm periods such as night shift) when concentration and performance are at a peak.
Work scheduling and planning for night work	<ul style="list-style-type: none"> ▪ considering rearranging schedules so that non-essential work is not carried out at night ▪ keeping sequential night shifts to a minimum ▪ providing an adequate period of non-work following a sequence of night shifts ▪ except for emergencies, giving at least 24 hours notice before night work to allow employees sufficient time to adjust their activities.
Commuting arrangements	<ul style="list-style-type: none"> ▪ taking into account potential for fatigue where employees on long distance commuting operations are required to commence work on the day of arrival after an extended journey. Also give consideration to shift commencement time, shift duration or the selection of tasks that involve lower risk of fatigue ▪ factoring in alterations to sleep patterns while on leave/rostered days off and returning to work. This can result in a condition of sleep debt over the initial period of change and the same consideration should be applied to travel at the end of a work roster cycle, particularly any travel in addition to the employee's commute arrangements. Employees should be consulted when determining a risk control strategy when lifestyle choices contribute to the overall risk (ie living in an area outside a reasonable distance of the commute departure) ▪ considering utilising the initial shift after a period of leave or rostered days off to carry out classroom style training or site change awareness programs instead of returning employees immediately to their usual workplaces ▪ giving consideration to employees who return to work after extended absences (such as leave or extended rostered days off) to ensure they are reintegrated into their usual jobs without the risk of fatigue.
Individual factors outside of work	<ul style="list-style-type: none"> ▪ for employers: informing employees who are required to work compressed, extended schedules or shiftwork of the potential for increased levels of fatigue and educating them on ways they can help to control these risks ▪ for employees: managing out-of-work activities to ensure they are available for work in a non-fatigued state.

Monitoring and review

To best manage work-related fatigue, procedures must be monitored, evaluated and reviewed. Answering the following questions will assist in driving the monitoring and review activity:

- have control measures been implemented as planned
- are the control measures working
- are there any new problems?

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

- the level of risk
- 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
- reviewing incidents, near-misses, injuries and any other appropriate data (including staff turnover and absenteeism) to establish if these could be attributable to fatigue
- further reviewing control measures when methods, tasks, equipment, hazards, operations, procedures, rosters or schedules are introduced or the environment changes or there is any indication that risks are not being controlled.

A program that monitors and reviews the management of fatigue plan and procedures should be established to ensure control strategies are applied and remain valid. Reviews or changes to the fatigue management strategy should be done in consultation with employees and documented in the health and safety management plan.

Appendix A – Fatigue hazards checklist

This checklist highlights factors that may contribute to fatigue.

Physical and mental demands of work	Circle	
Does anyone undertake work that is physically demanding (eg manually handling bags of explosives)?	Yes	No
Does anyone undertake work that is mentally demanding (eg producing mine plans, editing technical documents)?	Yes	No
Does anyone undertake work that requires long periods of constant vigilance (eg control room operator)?	Yes	No
Does anyone undertake repetitive work (eg blast hole drilling, installing ground support)?	Yes	No
Does anyone undertake work that may require continuous concentration and minimal stimulation (eg driving long distances at low speeds)?	Yes	No
Does anyone undertake work that involves conditions or tasks they find especially tiring (eg installing ventilation ducting)?	Yes	No

Work scheduling and planning	Circle	
Does anyone undertake work under pressure (eg emergency call outs, work to tight deadlines such as blasting time windows)?	Yes	No
Do planned work schedules vary from those actually worked?	Yes	No
Does the work schedule make it difficult for workers to consistently have at least two consecutive nights sleep per week?	Yes	No
Do shifts rotate?	Yes	No

Work scheduling and planning for night work	Circle	
Is any non-essential work routinely scheduled for the afternoon or night shifts?	Yes	No
Are there more than four consecutive night shifts in the schedule?	Yes	No

Commuting arrangements	Circle	
Does anyone travel more than one hour to the workplace?	Yes	No
On return from periods of leave or rostered days off, do employees return to their usual workplaces and usual work?	Yes	No

Environmental factors	Circle	
Does anyone encounter extreme conditions (eg hot, humid, cold) in the course of the work?	Yes	No
Does anyone work with plant or machinery that vibrates?	Yes	No
Is anyone consistently exposed to loud noise?	Yes	No
Is anyone exposed to hazardous substances?	Yes	No

Appendix A – Fatigue hazards checklist

Working time	Circle	
Is the break between shifts less than 10 hours?	Yes	No
Does anyone work more than four hours without a rest break?	Yes	No
Is work performed between 2am and 6am?	Yes	No

Shift work	Circle	
Are shifts limited to 12 hours, including overtime?	Yes	No
Is a forward rotation shift system in place (ie morning to afternoon, afternoon to night)?	Yes	No
Is shift swapping allowed at your workplace?	Yes	No
Do scheduled days off include consecutive days off and include some weekends?	Yes	No
Do you monitor how employees are adjusting to work hours and offer alternatives to those whose adjustments are taking longer than expected?	Yes	No

Individual factors outside of work	Circle	
Are employees educated on the relationship between adjusting to shiftwork and fatigue?	Yes	No
Are employees educated on how to manage their out-of-work activities to be available for work in a non-fatigued state?	Yes	No

Definitions

Extended working hours

Any working hours in excess of established rostered hours, including overtime.

Reasonably practicable

All of the following matters must be taken into account when deciding what is 'reasonably practicable' in relation to ensuring health and safety:

- the likelihood of the hazard or risk concerned eventuating
- the degree of harm that would result if the hazard or risk eventuated
- what the person concerned knows, or ought reasonably to know, about the hazard or risk and any ways of eliminating or reducing the hazard or risk
- the availability and suitability of ways to eliminate or reduce the hazard or risk
- the cost of eliminating or reducing the hazard or risk.

Refer to The WorkSafe Position on *How WorkSafe applies the law in relation to reasonably practicable*.

Rostered hours

The hours an employee is rostered to work.

Work cycles/rosters

The working period scheduled between any significant break away from work and that break. Examples include:

- two weeks on, one week off
- two days, two nights on followed by four days off
- four weeks on, one week off.

Work schedules

The hours to be worked each day, shift, week, month or year as scheduled by the employer.

Work shifts

The hours worked between the start and finish of a shift, excluding any overtime or shift changeover period worked.

References

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NSW Mine Safety Advisory Council (MSAC) and Department of Primary Industries NSW, 2008, *Digging deeper*.

Further reading

The following are recommended as sources of general information that may be useful in addition to the information provided in this handbook. However, it is important to note these documents have not been written specifically on how to comply with the duties under OHS Regulations.

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Further reading

Australian Standards

AS 4360:1999 – *Risk management.*

AS 4801-2000 – *Occupational health and safety management systems – Specifications with guidance for use.*

Useful websites

Worksafe Victoria – worksafe.vic.gov.au

OHS Reps at Work – ohsrep.org.au
(More information about fatigue, impairment and shift work).

WorkSafe Victoria

WorkSafe Agents

Agent contact details are all available at worksafe.vic.gov.au/agents

Advisory Service

Phone.....(03) 9641 1444

Toll-free.....1800 136 089

Email.....info@worksafe.vic.gov.au

Website.....worksafe.vic.gov.au

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