

**<Organisation name>**

**Fatigue Management System**

**DRAFT**

# Table of Contents

Introduction	4
Safety and Fatigue	4
Policy	4
Policy Statement	4
Definitions	5
Fatigue	6
Fatigue and the importance of sleep	6
Identifying and assessing fatigue	7
Causes of Fatigue	7
The effects of fatigue	9
Shiftwork and Social/Family commitments	9
Education And Training	11
Training Materials	11
Training Program	11
Refresher Training	11
Assessment	12
Rostering And Risk Management	13
Roster Development	13
Fatigue Risk Management	13
Application	13
Manager / Supervisor	13
Fatigue Monitoring Tool	13
FAID	13
Fatigue Score	14
Risk Assessment	14
Risk Zones	15
Default Values	15
Unit Specific Values	15
Risk Assessment	15
Aim	15
AS 4360	15
Participants	15
Process	16
Result	16
Application	16
Green Zone (D Risk)	16
Yellow Zone (C or B Risk)	16
Red Zone (A Risk)	16
Yellow Zone Approvals	17
Mutual Shift Swaps	17
Emergency Duty and Overtime	17
Contingency	17
Reporting Fatigue	18
Duty of Care	18
Reporting Fatigue	18
Fatigue Assessment	18
Reassignment of duties	18
Staff Replacement	19
Fatigue Incident Reporting	19
Fatigue Occurrence Report	19
Line Manager	19
Performance Management	20
Excessive Levels of Fatigue	20
Factors to be Considered	20
Accident / Incident Investigation	20
Investigation	20

Responsibility And Accountability _____	21
Organisational responsibilities _____	21
Principle Accountability _____	22
Line Supervisors _____	22
Employees _____	23
System Reporting and Review _____	24
Monitoring rosters and fatigue risks _____	24
Aggregated Reports _____	24
System Review _____	24

**DRAFT**

# Introduction

---

## Safety and Fatigue

Safety depends, among other things, on employees being fit for duty whilst at work. Sleepiness and fatigue can be attributed to a range of factors including lack of recovery sleep, time on task, and time of day and body clock (circadian rhythm). Sleepiness and fatigue can affect physical and mental capabilities to perform at safe levels. It should also be noted that individuals may be affected differently depending on, for example, their age, general well-being, etc.

Fatigue impairs judgement, hand-eye co-ordination, reaction times, concentration, problem solving abilities, moods, motivation levels, morale, communication skills, health and relationships with family, friends and work colleagues.

In some areas of <organisation name> fatigue impaired performance may have a catastrophic affect on employee and public safety and the general community. <organisation name> manages the risks associated with shiftwork and fatigue through the utilisation of risk assessments and fatigue management strategies (sensible rosters, education, etc). Risks are measured, monitored and mitigated to reduce the risk of endangering employees and the general public.

---

## Policy

### Policy Statement

<organisation name> Fatigue Management Policy articulates our commitment to proactively measure, mitigate and manage the risks associated with fatigue. Appropriate measures, supporting procedures and training ensure employees are not rostered to work shifts that will cause unacceptable levels of work related fatigue.

---

*Continued on next page*

## Definitions

---

### **Shiftwork**

Work outside the hours of 6am to 6pm, which may include early mornings, weekend, afternoon/evening, and night work.

### **Fatigue**

Is a subjective experience that includes performance decrements and psychological impairments such as decreased reaction time, poor communication, poor judgement and mood fluctuations.

### **Recovery Sleep**

Is restorative sleep that reverses the effects of fatigue and is required in different amounts by each individual.

### **Fatigue Audit InterDyne (FAID)**

A validated software program that determines, objectively, the work-related fatigue score associated with potential or actual hours of work.

### **Fatigue Score**

A value determined by FAID to objectively and quantitatively describe the work related fatigue within a roster.

---

*Continued on next page*

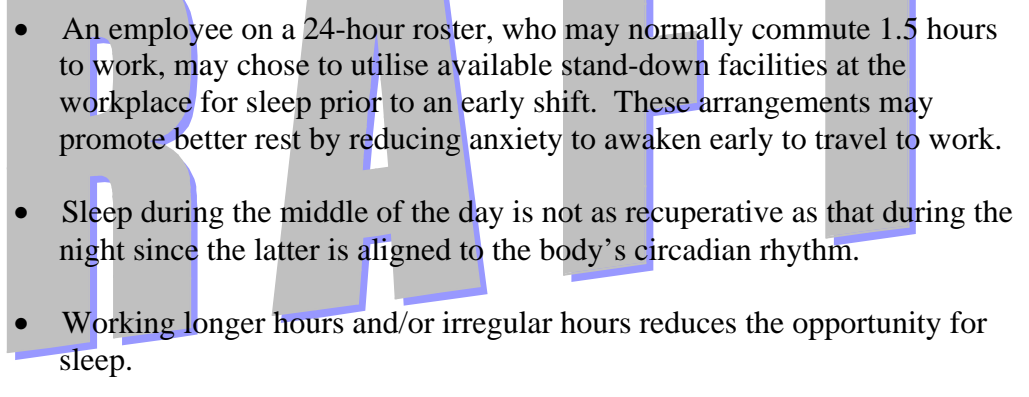
# Fatigue

---

## Fatigue and the importance of sleep

Fatigue is the physical and psychological condition that accumulates when an individual's optimal physical or mental limits are exceeded. It manifests as degradation in both physical and mental performance. Fatigue generally increases with time from an individual's last sleep and with physical or mental exertion.

Adequate recovery sleep reverses fatigue. The quantity and quality of sleep is dependent on when and where the sleep is obtained during a 24-hour day. For example,

- 
- An employee on a 24-hour roster, who may normally commute 1.5 hours to work, may choose to utilise available stand-down facilities at the workplace for sleep prior to an early shift. These arrangements may promote better rest by reducing anxiety to awaken early to travel to work.
  - Sleep during the middle of the day is not as recuperative as that during the night since the latter is aligned to the body's circadian rhythm.
  - Working longer hours and/or irregular hours reduces the opportunity for sleep.
  - Sleep can be further reduced as shift workers attempt to manage competing demands for sleep against social, family or personal commitments.

The most critical factor in managing fatigue is gaining adequate restorative sleep. In this regard both <organisation name> and employees have a shared responsibility. <organisation name> ensures employee rosters allow adequate breaks for necessary recovery between shifts. Individuals have a duty of care to ensure adequate recovery sleep is obtained between shifts so that they are fit for duty for the entire shift.

---

*Continued on next page*

## Fatigue, Continued

---

### Identifying and assessing fatigue

Shiftworkers can learn from experience, training and education to recognise the physical and psychological indicators of fatigue. These indicators include, involuntary napping or “micro-sleeps”, reduced vigilance, delayed reaction times, irritability and poor hand-eye coordination. As affected individuals may not necessarily be cognisant of these indicators, all shiftworkers need to monitor each other for the emergence of any fatigue signs and symptoms.

Both <organisation name> and employees will ensure all risks associated with shiftwork and extended working hours are identified and reported. Hazard identification, mitigation and audits of incidents will form part of this process.

---

### Causes of Fatigue

Fatigue can be caused by either work or non-work factors. Maintaining concentration for extended periods, being exposed to temperature extremes, working in safety critical and high-risk situations may cause or increase work-related fatigue. Non-work related fatigue may be associated with:

- An individual having a sleep disorder (eg sleep apnea)
- Family and social responsibilities/commitments (eg financial difficulties, domestic responsibilities or sleep disruption due to ill or needy family members)
- Physical activity (such as renovation work on your home or training for and participating in sport)
- Travelling long distances prior to commencing work
- Emotional stressors

All these factors can contribute to increased fatigue.

---

*Continued on next page*

## Fatigue, Continued

---

### Causes of Fatigue (Continued)

Unplanned overtime or irregular work hours can impact on both work related and non-work related fatigue. This occurs because of reductions in the opportunity to achieve quality restorative sleep. Shiftwork can reduce the opportunity for adequate restorative sleep by:

- Reducing the total time available for sleeping.
- Scheduling work and sleep at inappropriate biological times (ie misaligned with the body's circadian rhythm and hence its propensity to sleep), adversely affecting the quality and quantity of sleep.
- Increasing competition between sleep and other non-work activities.
- In addition to rostering arrangements, fatigue levels are also dependent on the effectiveness of an individual's managing/coping strategies, general health and well being.

Whilst <organisation name> has systems in place to ensure that rosters do not cause unacceptable levels of fatigue, each employee has a duty of care to actively manage their time away from work to ensure that they report for work fit for duty for the expected duration of their shift.

---

*Continued on next page*

## Fatigue, Continued

---

### The effects of fatigue

The effects of insufficient sleep, on an individual's well being, are profound and affect a variety of areas, including:

- **Psychological:** Cognitive performance impairment leading to decreased ability to process information and make timely, appropriate decisions and take timely and appropriate actions. Such impairment may result in the increased risk of incidents and/or accidents.
- **Physiological:** A decreased ability to maintain alertness may slow reaction times thereby increasing the likelihood incidents and/or accidents.
- **Social:** Mood changes such as increased irritability, decreased motivation and morale, leading to difficulty in personal relationships, poor communication and feelings of isolation.

Any one of these conditions could distract an employee from their primary operational responsibility.

---

### Shiftwork and Social/Family commitments

Shiftwork affects an employee's personal, domestic and social life. Without appropriate coping strategies, employees may find that shiftwork has an adverse influence on their relationships, domestic workloads and/or community commitments.

Some shiftworkers may find it difficult to maintain a satisfactory social and family life due to the negative effect shiftwork and/or fatigue can have on mood, motivation and common free time. This can also affect work performance, health and safety, morale, absenteeism, productivity and employee attrition rates.

In addition shiftworkers may struggle to balance domestic, family and social commitments causing increased fatigue as sleep is sacrificed to meet other demands.

---

*Continued on next page*

## Fatigue, Continued

---

### **Shiftwork and Social/Family commitments** (Continued)

These issues are addressed and discussed within training materials, which are available to employees and their families to assist all parties in gaining an understanding of the effects and consequences of shiftwork and how to manage them.

Commitment by management to support employees who work shiftwork is demonstrated by managers and supervisors:

- Ensuring all employees participate in fatigue management training.
- Ensuring scheduled rosters and roster changes do not result in unacceptable peak fatigue scores – both for the immediate shift and also as a compounding effect on subsequent shifts – for all those involved.
- Addressing work related fatigue issues.
- Consulting with and supporting employees who are suffering from non-work related fatigue.
- Addressing non-work related fatigue issues that are not being adequately addressed by individuals.

---

*Continued on next page*

# Education And Training

---

Training and education resources relating to shiftwork, fatigue and relevant implications for employees and their families has been developed to ensure the effects of fatigue on health and safety are understood and managed.

---

## Training Materials

Training materials and resources are available via the intranet. The intranet site provides information and contact details to ensure employees' questions can be addressed. Training materials are available in hard copy from the relevant manager/supervisor.

---

## Training Program

All employees must undertake training in the principles and practices of the fatigue management system. Training and education includes and/or reinforces:

- <Organisation name> and an employee's duty of care for health and safety in the workplace.
  - Induction training for new employees.
  - Individual coping strategies to minimise the adverse affects of shiftwork.
  - Strategies to assist managers in understanding their responsibilities to manage fatigue and related hazards.
  - Strategies to minimise the risks associated with shiftwork.
  - Resources and services available to assist individuals to better manage shiftwork.
  - Access to resources and material for family members.
- 

## Refresher Training

Fatigue training is a module of the <Organisation name> refresher training program.

---

*Continued on next page*

## Education And Training, Continued

---

### Assessment

Assessment only applies to <Organisation name> employees.

Fatigue education and training will be formally assessed via the assessment module of the online training module.

The following pass standards shall apply:

- The overall pass standard is X%.
- The minimum acceptable *initial* response is Y%.
- Failure to obtain at least Y% shall necessitate complete re-examination.
- Where less than X% was attained, the examinee must demonstrate their understanding of the questions answered incorrectly, by way of oral examination, to attain the required X%.

---

*Continued on next page*

# Rostering And Risk Management

---

## Roster Development

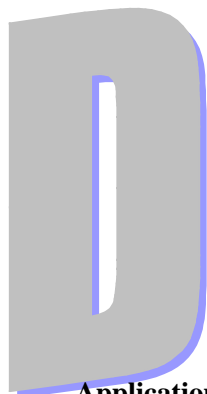
Rosters are not only planned to meet business needs, they are also developed to minimise the risks associated with fatigue. The proactive management of fatigue benefits employees, their families and business operations.

---

## Fatigue Risk Management

The risks associated with shift schedules and fatigue are managed by:

- Involving employees in the development and design of work schedules and decisions regarding changes or adjustments to their shift system.
  - Examining rosters prior to their implementation using fatigue monitoring software.
  - Monitoring fatigue levels associated with actual work schedules using fatigue monitoring software, and
  - Adopting a risk management approach based on the Australian Standard for risk management AS4360.
- 



## Application

The consistent and correct application of fatigue software analysis ensures the careful monitoring of potential and actual work related fatigue levels.

---

## Manager / Supervisor

The responsible manager/supervisor in each area must have access to and must utilise FAID to ensure all rostering arrangements meet <Organisation name> requirements.

---

# Fatigue Monitoring Tool

---

## FAID

<Organisation name> rostering system incorporates the fatigue monitoring tool FAID (Fatigue Audit InterDyne). All proposed and actual work hours entered into the rostering system are assessed by FAID to determine the work-related fatigue associated with hours of work.

The result is reported as a fatigue 'score' that is assessed against predetermined values.

---

*Continued on next page*

## Fatigue Monitoring Tool, Continued

---

### Fatigue Score

A fatigue score represents the work-related fatigue within a roster. This score is determined using the FAID software, developed by the Centre for Sleep Research, University of South Australia and the company InterDynamics. The algorithm used by FAID uses work history during the preceding 7 days.

The fatigue score is calculated using:

- The length of all shifts and breaks
- The time-of-day of all shifts and breaks
- The prior seven-day work history
- Biological limitations on human recovery

Scores can be categorised as follows:

- Scores from 0 to 40 are considered low and are consistent with those associated with a standard work pattern of 9am to 5pm, Monday to Friday.
- Scores between 40 and 80 are considered moderate and are typically encountered within shift, irregular and extended hours schedules.
- Scores between 80 and 100 are considered high. This is based on the validation research that has been undertaken using the model. This research has indicated that the impairment observed in an individual who has a fatigue score between 80 and 100 points will show equivalent impairment, on neuro-behavioural tests, of an individual with a blood alcohol concentration of 0.05% (the legal driving limit) or greater.
- Scores above 100 are considered to be very high. Unless the individual working at scores above 100 is working on a low risk task, such scores would be considered an indication that the rules for management of hours of work should be reassessed.

---

### Risk Assessment

In addition to calculating the levels of work-related fatigue associated with a work period, the software can account for the level of risk associated with the activities being undertaken during that time.

Risk assessments are conducted for shiftwork activities adopting the approach outlined in Australian Standard for Risk Management (AS4360). These assessments help to identify the risks associated with each task.

---

*Continued on next page*

## Fatigue Monitoring Tool, Continued

**Risk Zones** The fatigue scores are measured against these predetermined risk assessments to determine risk levels. The Risk levels are divided into 3 zones to differentiate risks.

Risk zones are:

- Green Acceptable risk.
- Yellow Moderate risk.
- Red High risk.

**Default Values** The default fatigue score values established for the Risk Zones are:

	Green	Yellow	Red
Tower	0 - x	81 - y	Over z
TMA	0 - x	81 - y	Over z
Enroute	0 - x	81 - y	Over z

**Unit Specific Values**

Unit managers may conduct further risk assessments to determine specific risk zone values at the unit / function / task level. These assessments must be recorded and approved by <relevant manager/department> before the values may be entered into FAID.

## Risk Assessment

**Aim** The aim of the risk assessment process is to determine acceptable fatigue scores by taking into account all of the work tasks and factors that might impact on a person's capacity to do a job safely.

**AS 4360** Risk assessments are conducted using the framework of the Australian Standard AS 4360.

**Participants** Risk assessment should be undertaken by a group including management, operational level employees and a facilitator appropriately trained in risk management.

*Continued on next page*

## Risk Assessment, Continued

---

### Process

Relevant factors are considered by determining their relative importance using a step-by-step procedure. This procedure involves a group of employees assigning a score from one to five to:

- 1) the likelihood, and
- 2) the consequence of all incidents and accidents.

The one-to-five scale must be developed to be domain-specific, for the particular environment applicable, and in accordance with the provisions of AS4360.

---

### Result

At the end of the risk management assessment, each task or job that an employee may be required to do will have been determined as being either 'low', 'moderate', 'high' or 'extreme'. (The analogy is a risk category of either D, C, B, or A)

These findings are incorporated into the reporting of data from FAID software to ensure fatigue related hazards are identified and appropriately managed or mitigated.

---

## Application

---

The primary indicator is the peak fatigue score of the roster.

---

### Green Zone (D Risk)

Green Zone scores are acceptable and present minimal risk. It is <Organisation name> policy to ensure, where practicable, that the peak fatigue score falls within the established Green Zone for a particular function.

---

### Yellow Zone (C or B Risk)

The Yellow Zone is a higher risk level, but still acceptable. However, Managers should take steps to reduce the risk level of rosters that fall within the Yellow Zone to a risk *As Low As Reasonably Practicable*.

---

### Red Zone (A Risk)

The Red Zone is dangerous and fatigue risks in this zone would not normally be accepted.

---

*Continued on next page*

## Application, Continued

---

### Yellow Zone Approvals

A Manager may approve a roster with a fatigue score in the yellow zone. In so doing, the Manager must be satisfied that:

- The peak fatigue score does not exceed the red zone threshold; and
- Potential hazards have been identified; and
- Appropriate mitigators have been put in place; and
- The effectiveness of such mitigators is being monitored to verify their adequacy.

### Mutual Shift Swaps

Rosters are dynamic and subject to continual change to meet business and personal needs.

When mutual shift swaps are requested the supervisor will enter the proposed roster times into the rostering software to obtain a fatigue score.

The change will not be approved if it initiates operations in the red zone either on the day of the swap or on subsequent days. Nor will the change be approved where any fatigue score, which enters or is already in the yellow range prior to the swap, increases by more than 10% for any day.

### Emergency Duty and Overtime

When overtime or emergency duty is required the supervisor will use the rostering software to determine the fatigue scores which will be generated by the extra duty in relation to the available staff. Extra duty will be offered in order of the lowest fatigue score first. Operations in the red zone will not normally be considered.

### Contingency

If no suitable staff are available, the approval of operations in the red zone may present a lower risk than the implementation of contingency procedures.

In these circumstances the line manager may approve red zone operations to the minimum extent necessary provided that additional mitigating strategies are adopted and appropriate monitoring is in place.

---

*Continued on next page*

# Reporting Fatigue

---

## Duty of Care

All employees have a duty of care to report to work fit for duty. This responsibility includes taking measures to ensure that adequate recovery sleep is obtained between shifts and out of hours activities do not result in fatigue that impairs workplace performance at any time during a rostered shift (ie you must arrive refreshed enough to not be likely to be fatigued before the end of a shift).

---

## Reporting Fatigue

On occasions, circumstances outside an individual's control (eg a sick child, relationship problems, bereavement, etc) will result in inadequate recovery sleep that may contribute to fatigue.

When these circumstances arise, and an individual recognises, or a colleague advises that they are exhibiting signs of fatigue, they should report to their manager/supervisor rather than put themselves or others at risk.

---

## Fatigue Assessment

The manager/supervisor must discuss the situation with the employee and assess their suitability for continued operational duties. When making this assessment managers/supervisors should refer to the psychological, physiological and social effects of insufficient sleep detailed in the previous section 'Fatigue'.

As a guide, an individual who has had less than 5 hours recovery sleep in the last 24 hours or less than 12 hours recovery sleep during the past 48 hours should be deemed unfit for operational tasks that are regarded as High risk activities (refer to risk categorisation at <relevant section>.)

---

## Reassignment of duties

The manager / supervisor may consider the following options:

- Reassign the affected employee to a lower risk activity.
- Allow the employee to obtain sleep at work before resuming the shift (where facilities exist).

If reporting from home, allow the employee to obtain further sleep before attending for the shift.

---

*Continued on next page*

## Reporting Fatigue, Continued

---

### Staff Replacement

The supervisor must take necessary action to maintain the safe provision of services during the period that an employee is unfit for duty due to fatigue. This may include:

- Consolidation of operating positions.
- Use of other suitably trained staff (project, team day, training etc).
- Staff replacement using overtime / emergency duty.
- Implementation of contingency procedures.

### Fatigue Incident Reporting

### Fatigue Occurrence Report

The Fatigue Occurrence Report <or relevant investigation tool> will be used to report:

- All occurrences where an employee is unfit for duty due to fatigue;
- All instances of staff operations infringing the 'red zone';
- Any concerns by staff regarding fatigue issues.

### Line Manager

The line manager will keep a record of these reports and action them via an electronic incident report database <would need to be developed>.

---

*Continued on next page*

# Performance Management

---

## Excessive Levels of Fatigue

If an individual accumulates unacceptable levels of non-work related fatigue <Organisation name> management may adopt a performance management approach to address the situation.

This approach will offer appropriate support and assistance to employees with difficulties in gaining recovery sleep.

---

## Factors to be Considered

When considering fatigue related issues supervisors must consider:

- Personal circumstances such as sick household or family members, relationship difficulties, family tragedy or bereavement (friend or relative);
  - Non work related activities. (eg excessive social activities, non-work commitments that limit sufficient rest prior to work);
  - Behavioural inconsistencies demonstrating signs of fatigue (such as delayed response time, irritability, reduced concentration); and
  - Recent sleep/wake history.
- 

# Accident / Incident Investigation

---

## Investigation

In the event of an accident or incident the investigator will examine FAID and rostering data leading up to the occurrence to determine if work-related fatigue may have been a contributing factor.

This information forms part of the accident/incident investigation process thereby ensuring any work related contributing fatigue issues are identified and, if necessary, addressed.

---

*Continued on next page*

## Responsibility And Accountability

---

As with all matters relating to Occupational Health and Safety, there is a shared responsibility between <Organisation name> managers and employees for managing the risks associated with fatigue.

---

### Organisational responsibilities

As an employer, <Organisation name> has a range of OH&S responsibilities, which are stated in the Occupational Health and Safety Policy <this needs to be checked and/or updated>. With regard to managing fatigue, <Organisation name> responsibilities include:

- The provision and maintenance of safe systems of work (eg appropriate rosters).
- Information, training, instruction and supervision on safe work practices and how to manage the impact of shiftwork (sleep patterns, diet, etc)
- Consulting employees and elected representatives regarding fatigue issues – including the implementation of new rosters.
- Monitoring working conditions.
- Providing welfare facilities for employees (eg adequate toilets, sick rooms, etc).

---

*Continued on next page*

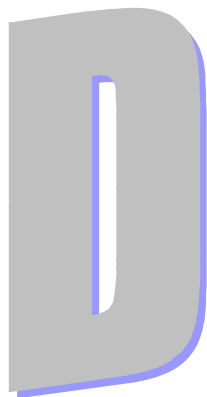
## Responsibility And Accountability, Continued

---

### **Principle Accountability**

The CEO and all delegated managers/supervisors are responsible for ensuring shiftwork arrangements in <Organisation name> are managed responsibly to minimise risks associated with non-standard working hours. This includes:

- Reviewing shiftwork data.
- Analysing accident and incident reports, if work-related fatigue has been a contributing factor.
- Reviewing the Fatigue Management policy.
- Reviewing fatigue management systems.
- Implementing improvements that promote the reduction of fatigue related risks below reasonable limits.
- Ensuring fatigue management training and induction is provided and recorded for all employees and managers.
- Identifying and mitigating hazards associated with fatigue.



---

**Line Supervisors / Team Leaders**

At the local level, line supervisors or managers monitor planned and actual rosters, ensuring individuals are not placed at risk of being exposed to unacceptable levels of fatigue. In addition, local supervisors will use their discretion to monitor, and as appropriate, discuss with individuals' work performance, which is perceived to be affected by fatigue.

---

*Continued on next page*

## Responsibility And Accountability, Continued

---

### Employees

All employees are required to assist <Organisation name> to maintain a safe and healthy working environment and to take all reasonable care not to put themselves, or others at risk.

These responsibilities include:

- Participating in education and training to gain an understanding of the risks associated with shiftwork and how to minimise them;
- Utilising breaks within and between shifts to rest and recuperate;
- Reporting incidents and accidents;
- Recognising the symptoms of sleep deprivation and/or fatigue and ensure rest is taken to minimise risks;
- Reporting to line supervisors any perceived fatigue issues;
- Advising a line manager/supervisor when fatigued; and, importantly...
- At no time should an employee put themselves or others at risk.

---

*Continued on next page*

# System Reporting and Review

---

## Monitoring rosters and fatigue risks

Each month FAID reports will be generated for each roster providing summarised data on fatigue scores. This information will be provided to the relevant Line Manager and/or supervisor to examine and address any arising issues. Adverse findings and preventative actions are to be tracked in the incident report database.

---

## Aggregated Reports

Fatigue management reporting will occur regularly to ensure risks are identified and managed. Management reports shall include aggregated data relating to incidents that have identified fatigue as a contributing factor.

---

## System Review

Management will review the fatigue management system approximately once every three years to ensure that it continues to meet OH&S and any other legislative requirements. The review is to include an audit of fatigue management reports, risk analysis and preventative strategies.

Such reviews may also provide opportunities for improving:

- The fatigue management system;
  - Rostering arrangements;
  - Workplace safety; and
  - Employee health and well being.
-