

System Procedure

Shift Work and Rostering



Version control

Version	Change from previous	Date	Comment
1.0	First release	23 Feb 2010	
2.0	Page 6 – amendments to the rostering principles. Page 7 – FAID® diagram showing correlation between scores and risk levels, removed. Other wording amendments to achieve consistency with changes.	11 May 2010	Reflects discussions and changes agreed between GM, Train Crewing and GM, Safety Systems.

Contents

1. Purpose and scope	4
2. Background	4
3. Overview	5
4. Rostering	5
4.1 Rostering principles.....	6
4.2 Working hours for train drivers.....	7
4.3 Working hours for heavy vehicle drivers.....	7
5. Fatigue Audit InterDyne (FAID®)	7
5.1 Applying FAID® to rosters.....	7
5.2 Unforeseen events.....	7
6. Performance requirements	8
7. Records management	8
8. Training and instruction	9
9. References	9
10. Definitions	10

1. Purpose and scope

The purpose of this procedure is to explain how line managers must manage shift work arrangements and rostering practices to reduce the risk of fatigue.

This procedure applies to RailCorp employees who manage shift work and extended hours arrangements.

Contractor organisations must demonstrate compliance with this procedure through their own safe systems of work.

2. Background

RailCorp operates 24 hours a day, 7 days a week, providing rail services to customers, maintaining rail infrastructure and responding to unforeseen events. This involves rostering employees to meet operational requirements using shift work and extended hours arrangements. These work arrangements increase the risk of fatigue which increases the likelihood of human error, incidents and injuries.

Shift work and extended hours arrangements cause fatigue because they may require employees to be active when they would normally sleep and sleep when they would normally be active. This disrupts the body's circadian rhythms and affects a person's ability to obtain sufficient restorative sleep.

Sleep obtained during the day is generally not as restorative as night time sleep because:

- day time sleep cycles are usually shorter than night time sleep cycles
- the body's circadian rhythms are programmed for being alert and active during daylight hours, and
- day time sleep is often disrupted owing to family/social commitments or other factors.

Rostering practices that take into account circadian rhythms and provide sufficient time for restorative sleep reduce the risk of fatigue and produce better health and safety outcomes. Effective rostering practices also help employees achieve work-life balance and to better manage non-work commitments, reducing non work-related fatigue.

This procedure is part of RailCorp's Fatigue Management Program which applies a risk management approach to fatigue. This procedure must be implemented in business units where shift work and extended hours arrangements are used to meet operational requirements.

FAID[®] (Fatigue Audit InterDyne) is a tool that helps implement RailCorp's Fatigue Management Program. It is used to manage the risk of fatigue associated with roster patterns.

FAID[®] does not calculate an individual's fatigue level. It calculates the fatigue levels associated with roster patterns, only taking into account hours of work, time of day when work is undertaken and breaks within and between shifts. It does not take into account other work and non-work factors that contribute to fatigue as explained in [SMS-20-PR-1444 Applying Risk Management to Fatigue](#).

3. Overview

This procedure forms part of RailCorp's Fatigue Management Program.

This procedure supports [SMS-20-SR-1443 Managing Fatigue](#) and is in turn supported by training, awareness campaigns, health programs and health promotion activities, such as:

- fatigue awareness campaigns to assist employees manage non-work factors including how to improve sleep habits
- Health Fairs promoting good health and well-being
- health assessments for categories 1 and 2 rail safety workers which use the Epworth Sleepiness Scale to identify medical conditions that contribute to fatigue
- the Employee Assistance Program which provides professional assistance and support for employees
- training programs for employees responsible for managing or compiling rosters.

4. Rostering

Line managers must reduce the risk of fatigue resulting from roosting arrangements by:

- developing rosters consistent with the roosting principles in Table 1 for employees engaged in shift work and extended hours arrangements
- implementing train driver rosters in accordance with the [Rail Safety Act 2008 \(NSW\)](#) as a minimum requirement and applying the roosting principles in Table 1, where appropriate, as an extra fatigue control measure
- implementing rosters for drivers of heavy vehicles in accordance with the requirements of the [Road Transport \(General\) Regulation 2005 \(NSW\)](#) as a minimum requirement and applying the roosting principles in Table 1 where appropriate, as an extra control measure
- taking action to reduce the risk of fatigue when roster changes are made, for example, when covering unplanned absences or the need to work extra hours as a result of unforeseen circumstances
- where FAID[®] is used, implementing and documenting control measures to manage the risk of fatigue from rosters with elevated FAID[®] scores.

4.1 Rostering principles

The rostering principles in Table 1 provide guidance on working hours arrangements so that the risk of fatigue is reduced. Where there is departure from these rostering principles owing to operational requirements, managers must demonstrate they have implemented control measures as part of a risk management approach. This includes consulting with affected employees.



Note – The rostering principles are not intended to replace provisions relating to working hours in industrial agreements or legislation. They are intended to establish optimal work arrangements for managing fatigue within a risk management approach.

Line managers responsible for managing employees engaged in shift work and extended hours arrangements must develop rosters that consider the following principles:

Table 1 Rostering principles

<i>Rostering principles</i>
1. Acclimatisation – as a minimum, employees new to shift work and those returning after an extended period of annual or sick leave should not be rostered on night work or an early morning start for their first shift.
2. Shift length – the length of a shift should not exceed 12 hours including overtime, especially if it involves a night shift.
3. Total hours worked – aim for no more than 48 hours per week including overtime which can be averaged over the roster cycle.
4. Limit night shifts and early morning starts – aim for no more than: <ul style="list-style-type: none">• four consecutive shifts where 12 hour shifts are worked• five consecutive shifts where 10 hour shifts are worked• six consecutive shifts where 8 hour shifts are worked
5. Breaks during a shift – schedule frequent breaks (eg crib or other breaks depending on local arrangements) during a night shift or if the work involves sustained mental or physical activity, if the work activity allows.
6. Breaks between shifts – aim for at least twelve hours from the end of a shift and the start of the next shift. Industrial agreements may allow for less than 12 hours between shifts, however to reduce the risk of fatigue a 12 hour break or more between shifts is optimal.
7. Breaks between shift cycles – aim for at least four days off work in fourteen day roster cycle. Where possible days off should be consecutive.
8. Shift cycles – schedule consistent start times where possible or if rotating rosters are used, shift start times should move in a forward rotation (ie morning-afternoon-night).

4.2 Working hours for train drivers

Line managers are responsible for implementing master rosters that comply with working hours provisions in the [Rail Safety Act 2008 \(NSW\)](#).

Line managers may apply the rostering principles in Table 1, as an extra control measure, to the extent that rostering principles are consistent with legislative requirements. When rostering train drivers, line managers must consider:

- variations in working hours resulting from different or changing routes (for example, trackwork requiring a detour or slower track speed which may increase shift length)
- effects of long distances and journey time and the impact these may have on alertness and fatigue levels, independent of shift length
- shift swapping and its impact on implementing rosters that meet legislative requirements.

4.3 Working hours for heavy vehicle drivers

Line managers are responsible for implementing working hours arrangements for drivers of heavy vehicles, that comply with provisions in the [Road Transport \(General\) Regulation 2005 \(NSW\)](#). Further information about working hours and rest breaks for drivers of heavy vehicles is available from the [NSW Roads and Traffic Authority](#).

Line managers must apply the rostering principles in Table 1, as an extra control measure, to the extent that rostering principles are consistent with legislative requirements.

5. Fatigue Audit InterDyne (FAID[®])

5.1 Applying FAID[®] to rosters

FAID[®] is a computerised tool that calculates the predicted fatigue associated with roster patterns. FAID[®] is only able to take account of hours of work, time of day that work is undertaken and breaks within and between shifts. It does not, and can not, take account of other work and non-work causes of fatigue.

For this reason, line managers must not use FAID[®] alone to reduce the risk of fatigue. They must apply control measures as part of a risk management approach, explained in [SMS-20-PR-1444 Applying Risk Management to Fatigue](#).

Generally rosters with FAID[®] scores between 80 and 100 are associated with potentially elevated fatigue risks. Line managers when designing rosters in consultation with employees must consider the potential impacts of increased fatigue risks.

5.2 Unforeseen events

There may be occasions when unforeseen events occur such as serious incidents, extreme weather conditions and equipment failure. Employees may need to work extended hours to reduce risks to the travelling public and/or manage service disruption.

Under these exceptional circumstances, line managers may authorise employees to work according to daily rosters that depart from the rostering principles in Table 1. If this happens, managers must comply with the following:

- consult affected employees on the process for monitoring their fitness-for-work during the extended work period
- take all reasonable steps to limit the extended work period
- make sure that employees who have undertaken shift work or extended hours arrangements are provided sufficient time to obtain restorative sleep before their next shift starts.

6. Performance requirements

Position or role	Performance requirements
Group general managers	Group general managers must direct and lead the implementation of this procedure within their area of control.
General Manager, Safety Systems	The General Manager, Safety Systems must develop, promote and review RailCorp's Fatigue Management Program.
General Manager, RailCorp Training	The General Manager, RailCorp Training must develop and manage training to support RailCorp's Fatigue Management Program.
General managers	General managers must manage the risk of fatigue within their area of responsibility, consistent with the requirements of RailCorp's Fatigue Management Program.
Line managers	Line managers must manage the risk of fatigue, at local level, consistent with the requirements of RailCorp's Fatigue Management Program.

7. Records management

Records must be maintained according to [SMS-05-SR-0027 Records Management](#).
Records produced when implementing this procedure include:

- SMS audit reports
- SMS risk management documentation including fatigue risk profiles
- Rosters and associated FAID
- fatigue management training records
- work diaries for heavy vehicle drivers.

8. Training and instruction

General managers of workgroups engaged in shift work and extended hours arrangements must ensure that line managers and employees receive fatigue management training. Fatigue management training includes:

Category of employee	Training outcomes
Line managers/team leaders	<ul style="list-style-type: none">• understanding what fatigue is, how it affects health and safety and the importance of sufficient restorative sleep• understanding factors that contribute to fatigue• applying risk management processes to fatigue• implementing rostering practices to reduce the risk of fatigue• using FAID[®] to identify fatigue associated with roster patterns.
Rosterers and schedulers	<ul style="list-style-type: none">• understanding what fatigue is, how it affects health and safety and the importance of sufficient restorative sleep• understanding factors that contribute to fatigue• implementing rostering practices to reduce the risk of fatigue• using FAID[®] to identify fatigue associated with roster patterns.
Employees (who undertake shift work or extended hours arrangements).	<ul style="list-style-type: none">• understanding what fatigue is, how it affects health and safety and the importance of sufficient restorative sleep• understanding factors that contribute to fatigue• being aware of their responsibility to report to work fit-for-duty and their role in managing non-work causes of fatigue.
Incident investigators	<ul style="list-style-type: none">• what fatigue is, how it affects health and safety and the importance of sufficient restorative sleep• understanding factors that contribute to fatigue• identifying and assessing fatigue-related causes when conducting incident investigations.

9. References

- [Rail Safety Act 2008 \(NSW\)](#)
- [Rail Safety \(General\) Regulation, 2008 \(NSW\)](#)
- [Occupational Health and Safety Act, 2000 \(NSW\)](#)
- [Occupational Health and Safety Regulation 2001 \(NSW\)](#)
- [Road Transport \(General\) Regulation 2005 \(NSW\)](#)
- [Guidelines Relating to the Management of Fatigue, ITSSR](#)
- [Fatigue Prevention in the Workplace](#), Workcover NSW & WorkSafe Victoria
- [Waterfall Rail Safety Investigation – Final Report](#)

10. Definitions

Term	Means
Circadian rhythms	<p>Circadian rhythms are the body's internal clock. These body rhythms are repeated approximately every 24 hours and control a number of body functions such as:</p> <ul style="list-style-type: none">• body temperature• digestion• hormone levels• sleeping patterns <p>Humans are programmed to be active during the day and sleep at night. Circadian rhythms are responsible for this.</p>
Extended hours	<p>Work hours that that are an extension of standard shift hours as a result of overtime or on-call arrangements.</p>
FAID [®]	<p>Fatigue Audit InterDyne – a mathematical tool that calculates the predicted fatigue associated with roster patterns. It only takes account of hours of work, time of day when work is undertaken and breaks within and between shifts. It does not take into account other work and non-work factors.</p>
Fatigue	<p>Fatigue is acute and/or ongoing tiredness that leads to mental or physical exhaustion and which prevents people from functioning within normal boundaries.</p>
Heavy vehicle	<p>Trucks with a Gross Vehicle Mass (GMV) of more than 12 tonnes or a truck and trailer combination with a combined GMV over 12 tonnes.</p>
Restorative sleep	<p>Involves cycles of deep sleep that allow a person to recuperate and wake up refreshed. Restorative sleep is the process by which the human body overcomes the effects of fatigue.</p>
Rotating roster	<p>Is a roster where the shifts have varying start and finish times and may include morning, afternoon and/or night shifts.</p>
Shift work	<p>For the purposes of managing fatigue, shift work involves working outside normal daylight hours (7am – 6pm).</p>