Safety Management System Modules

Element 29 – Fatigue Risk Management

What and Why

Every operator must be able to demonstrate that they are managing the risks associated with fatigue.

Fatigue not only refers to people falling asleep, but as they become fatigued, they become more susceptible to making more errors.

Fatigue arises not just through a lack of sleep, although rest and sleep are the only way in which it can be overcome.

Like all aspects of an SMS, rail operators must assess the risks associated with rail safety worker fatigue and what the potential impacts are on the safety of the operations.

Fatigue management remains difficult for smaller less complex rail operators. This is primarily because a smaller workforce generally means more difficulty filling short notice absences. As well as this, workers may have other full-time jobs, be older in age, travel longer distances, and the strong team-work ethic of small and volunteer-based railways may deter reporting of fatigue for fear of letting people down.

The mix of fatigue risk factors can be unique to the level of task and the individual.

The aim of the fatigue risk management process is to identify and assess these factors and ensure that the organisation can demonstrate that everything that is reasonably practical is being done to effectively manage fatigue related risks. All rail operators are required to have a Fatigue Risk Management Program (FRMP) as part of their SMS. This is a program of risk management activities presented with relevant policies procedures and instructions which describe how the operator s the risks of rail safety worker fatigue.

The FRMP follows a very similar process to the health assessment standards where the tasks that the RSW do and what could go wrong determines the scope of medical assessments.

In the same way the scope and detail of the FRMP will depends on how likely it is that someone will be fatigued and what could go wrong if an error is made because of fatigue.

As a minimum, a FRMP must contain a clearly documented process that describes the following steps, which are effectively a risk assessment, to:

- determine scope and context of the work by group workers according to the tasks they do.
- identify any factors that would contribute to fatigue;
- analyse how likely it is that each group of RSW will be fatigued and what could happen if they are fatigued eg person struck by train, runaway, collision etc;
- evaluate options to improve existing controls to eliminate or reduce the fatigue factors or to better manage fatigue-related errors;
- establish if additional controls are reasonably practical;
- organise for the new or improved controls to be implemented.

The FRMP must be documented and each of these steps should be written down as part of the program. A risk assessment focused on fatigue risks will demonstrate that the operator has identified, analysed and evaluated relevant risk factors that could affect their operations.

How

The SMS contains a procedure /document that describes how the operator plans to identify and manage the risks associated with fatigue. The procedure should include several key areas as described below:

1. Scope and Context of the Program

Operators should group workers by the type of work that they do. This could be by:

- Work type;
- Role and responsibilities – rollingstock maintainers will have some different fatigue risks from train crew;
- Location – Station based, on board, train crew, maintenance sheds, on track;
- When they work – day/night shift, light-up shift, weekends and holidays, full time?
- Safety critical vs non-safety critical tasks

Appendix A has an example Rail Safety Worker Groupings.

A statement describing the scope and context of the program is a useful option to consolidate thought and focus when considering fatigue.

Such a statement could look like:

> *Operations are focused on Railmotor movements. The operations occur on track managed and maintained by Rail Track Company. There are three groupings of rail safety workers – Train Crew, Maintainers and the Stationmaster. All three groups have the following in common:*
>
> *Daylight operations except on special events (5 scheduled a year).*
>
> *Rail safety worker scheduling is carried out by the Maintenance Supervisor.*
>
> *Some workers travel for 1-2 hours to come to work.*
>
> ***Train crew***
>
> *Round trip cycle time is normally approximately 3 hours with additional rollingstock preparation and inspection routines.*
>
> *Railmotors operate twice weekly on Saturday and Sunday.*
>
> *All train crew are retired or unemployed volunteers.*
>
> *Two-man crewing is in place at all times.*
>
> ***Maintainers***
>
> *Maintenance occurs between Monday and Friday during daylight hours.*
>
> *All maintainers conduct rail safety work in the main shed and the humpy, are supervised on site.*
>
> *The maintenance supervisor is an employee, while all other maintainers are retired or unemployed volunteers.*

2. Identifying Risk factors

The operator must then identify the factors that may contribute to the fatigue of each grouping.

Separate risk assessments may be needed for each grouping depending on how different the tasks are and risks of those tasks.

Factors which all RTOs need to consider in describing how they manage the risk of fatigue include:

- The scheduling of work, including time on task, the opportunity for rest during the shift, shift length, time of day/night;
- The opportunity for rest between shifts;
- Roster patterns including the sequence of shifts and consecutive days off for full recovery;
- Time actually at work taking into account call-ins, overtime and delays if things have gone wrong;
- Amount of notice given of work times that may impact on the ability to plan sleep and family time
- The nature of the rail safety work being – physically demanding, boring, monotonous, does it require intense concentration, is the environment comfortable (wind, heat, cold, humid, noise, vibration)? Is the worker isolated or is relief and assistance close at hand?
- The suitability of rest environments.

Factors outside the work environment which affect the opportunity for rest including:

- Full time work in addition to volunteer work;
- Home environment including (but not limited to):
    - Impacts from other family members;
    - Diet and lifestyle;
    - sleeping arrangements;
    - noise and environmental factors.
- Volunteering for several organisations at once;
- Travel time to and from work location; or even,
- Staying at unsuitable rest locations to reduce costs.

3. Analysis of Fatigue - Related Risk

Risk analysis involves combining the fatigue factors with the risks of the tasks to establish the overall impact fatigue could have on risk.

The task analyses that are done to determine worker category for the health assessment standards are a good starting point. These identify the tasks the performance requirements what could go wrong if people have health problems or become incapacitated. The fatigue risk management approach is almost the same.

The process should look at the fatigue factors identified in the first step, judge how fatigued they could be and whether fatigue could impact on the type of tasks they are likely to do. Things to consider are:

- How may fatigue factors be likely to impact on them - how fatigued are they likely to be?
- Could this level of fatigue impact on their ability to do their tasks?
- Could this level of fatigue impact on their memory or response times?
- Are the tasks susceptible to fatigue effects?
- Are workers are doing high risk tasks at times when they are likely to be fatigued?
- What are the current controls in place to reduce the fatigue factors and reviewing if they are effective?

The evaluation of likelihood and consequence after current controls is the assessment of those controls.

Example controls may include:

- A reference to the operators training commitment to widen the training of rail safety workers across several tasks, to increase the 'pool' when considering who to roster;
- Limits on the lengths of shifts that are to be worked by specific rail safety worker roles;
- In NSW and Queensland, the number of shifts and the length of them are limited by the law (for train drivers only);
- Prescribed limits or principles about how rosters should be developed;
- That rostering procedures must take into account fatigue, and consider:
    - The scheduling of work, including time on task, the opportunity for rest during the shift, shift length, time of day/night;
    - The opportunity for rest between shifts;
    - Roster patterns;
    - Monitoring the time actually at work compared to the planned time;
    - The nature of the rail safety work being carried out – is it physically demanding, boring, monotonous, does it require intense concentration, is the environment comfortable (wind, heat, cold, humid, noise, vibration)?
    - Is the worker isolated or is relief and assistance close at hand?
    - Other factors outside the operations that could impact on fatigue;
    - Accommodation standards for rest environments/ list of recommended accommodation providers.
- How the operator raises awareness of fatigue and its effects amongst its rail safety workers;
- Clearly limits the minimum amount of notice to call someone in for an additional or unexpected shift;
- A notation that rail safety workers are responsible for their own fatigue, and should consider fatigue when accepting additional or unplanned rail safety work;
- A requirement to roster equitably and to limit the number of consecutive shifts that are able to be worked – ie a reduced reliance on a single person;
- The types of risks that must be considered, and that rostering changes are to be made accordingly.
- Mechanisms for self-declaring impairment by fatigue;
- Encouragement for reporting fatigue to Authorised Health Professionals as part of the Health Assessment Process;
- Where members of the workforce are employed elsewhere, the operator may have to consider the effects of that work, when considering the factors that contribute to rail safety worker fatigue;
- Encouragement of a culture where safety is more important that operations.

Other things to consider when managing fatigue include:

- Sign on sheets may include a declaration that the rail safety worker is not suffering from fatigue prior to commencement of rail safety work;
- Self-reporting by rail safety workers is encouraged if they are fatigued or feel the effects of fatigue setting in during their shift;
- Rail safety workers are aware of the operator's requirements and are not affected by fatigue before they carry out rail safety work or have been given lower risk work for that day;
- Fatigue is discussed at volunteer briefings; tool box talks and other meetings;
- Records are kept for planned and actual rosters worked to assess actual hours worked;

- Audits of rosters may be included in audit schedules.

4. Evaluation of options to reduce the factors (risk controls)

As part of the process, the operator should also evaluate those controls that are in place to eliminate or minimise these factors.

The assessment of likelihood and consequence of current controls will indicate whether or not these factors are being managed sufficiently.

Operators should ask:

- Are the current controls enough?
- Is the level of risk after the controls sufficiently low?
- What can be done to further reduce the level of risk?
    - Is it possible reduce exposure to any of the fatigue factors?
    - Can something more be done to pick up and rectify mistakes and errors?
- Have we done everything reasonable so that the risk is SFAIRP?

Who

Managers and Supervisors need to consider fatigue when developing rosters and allocating work tasks. They should also review actual hours worked on rosters compared to planned.

Managers and Supervisors should make sure that all rail safety workers understand and apply the fatigue management components of the SMS.

Rail safety workers are responsible for managing their fatigue outside of performing rail safety work. They are also responsible for informing their Managers/Supervisor if they believe that they are suffering from fatigue.

When

Fatigue should be considered every time that a roster or work rota is developed.

Rail safety workers should understand:

- their obligations to 'self-declare' that they are fatigued every time that they perform rail safety work, and
– behaviours away from work can affect how they perform work tasks.

List of relevant documents (internal)

Element 27 – Health and Fitness

Element 28 - Drug and Alcohol Management

Master and Actual Rosters /Workplans

Links (external)

ONRSR – Guideline – Small isolated line heritage operations – Safety Management System (SMS)

ONRSR Website – Guideline - Safety Management System

ONRSR Website – Rail Safety National Law

ONRSR Safety Bulletin – Fatigue Management and EBAs

ONRSR Website – Scalability of Fatigue Management Program Requirements

ONRSR Website – Fatigue risk management requirements for NSW operations

ONRSR Website – Interpretation of Queensland Specific Fatigue Requirements

Appendices

A. Example Rail Safety Worker Grouping

Appendix A – Fatigue Risk Management (Rail Safety Worker Groupings)

Role	Location	Workforce Description	Work Type	When they work
Railmotor crew	Crew	Majority of volunteers	• Preparation and Inspection; • Driving; • Shunting; • Stabling.	Day shift Weekends & Public Holidays
Steam crew	Crew	All volunteers (mix of retired and employed)	• Light Up; • Preparation and Inspection; • Driving; • Shunting; • Turntable operations; • Stabling.	Light-up prior to daylight Mostly day work, with some evening work for special events.
Maintenance	Main Shed Humpy	Few PT employees Mostly volunteers (retired)	• Preparation and Inspection; • Light up (for steam); • Locomotive & Rollingstock Maintenance; • Modifications & Repairs; • Certification of rollingstock; • Movement within the shed; • Section Car operation.	Light-up prior to daylight Day work – Monday to Friday only. Maximum 7 hours shifts.
Track	Main Shed On Track	Private contractor with local trainees	• Track Inspection • Section car operation • Track mediation and repairs.	Non-operating days; Planned outages; Daylight hours. Maximum 7 hours shifts