

# FATIGUE RISK MANAGEMENT CHART

# FATIGUE PART 1



## HAZARD IDENTIFICATION

## RISK ASSESSMENT

## RISK CONTROL

| HAZARD IDENTIFICATION   | Lower Risk   | Moderate Risk   | Higher Risk  | POSSIBLE OPTIONS  |
|---|--|---|--|---|
| <b>MENTAL &amp; PHYSICAL DEMANDS OF WORK</b><br>1. Daily work hours<br>2. Daily work hours and work related travel<br>3. Consecutive days worked<br>4. Average weekly hours<br>5. Total hours over three month period<br>6. Scheduling of work<br>7. Time continuously awake<br>8. Rest reductions<br>9. Work hour extensions   | 1. 9 working hours<br>2.<br>3. 5<br>4. 35-40 hours (working week)<br>5.<br>6. Regular and predictable hours<br>7. 12 hours<br>8. 12-10<br>9. 10-12 | 12 working hours<br>10 working hours<br>6-7<br>48 hours (working week)<br>624 working hours<br>Irregular and unpredictable hours, short notice of schedule, extended overtime on call across shift cycle<br>16 hours<br>10-8<br>12-14 | 11-12<br>56 hours (working week)<br>18 hours<br>8-0<br>14-24 | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li>Develop a working hours policy on daily work hours, maximum average weekly hours, total hours over a three month period and work related travel</li> <li>Reduce working hours cognisant of physical and mental characteristics of duties or implement additional controls</li> <li>Eliminate or reduce the need to work long shifts for more than four consecutive days</li> <li>Allocate shift personnel consecutive days off, including some weekends, depending on their fatigue risk level</li> <li>Avoid working arrangements that provide incentives to work excessive hours</li> <li>Offer alternatives to personnel who may have difficulty adjusting to changing working hours</li> </ul> <ul style="list-style-type: none"> <li>Avoid commencing morning shift before 0700</li> <li>Shift of 12-14 hour maximum may be acceptable on deployment so long as a 10-hour minimum sleep/rest period can be guaranteed</li> </ul> <b>On call duties</b> <ul style="list-style-type: none"> <li>No on-call duties during rest periods</li> <li>Limit use of standby and on-call duties</li> <li>Ensure that responding to emergencies does not result in excessive hours</li> </ul> <b>Breaks between work shifts</b> <ul style="list-style-type: none"> <li>Allow for recovery between work periods</li> <li>Provide opportunity to obtain not less than eight hours of consecutive sleep</li> <li>Defer non-urgent work to allow appropriate rest</li> <li>Rest taken during transit is not equivalent to rest taken in a bedroom</li> </ul> <ul style="list-style-type: none"> <li>Provide adequate breaks to allow for recovery within work periods</li> <li>Provide adequate resources to cover breaks</li> <li>Provide adequate rest and toilet facilities</li> </ul> <b>Changes to rosters</b> <ul style="list-style-type: none"> <li>Reduce irregular and unpredictable work schedules</li> </ul> <b>Travelling across time zones</b> <ul style="list-style-type: none"> <li>The fatigue resulting from eastward flight is greater than that associated with westward flight. Unless personnel return from trans-meridian travel within 48 hours, an extended rest period at destination is recommended.</li> </ul> |
| <b>WORK SCHEDULING &amp; PLANNING – SHIFT WORK</b><br>1. Length of shift<br>2. Time of shift<br>3. Speed and direction of shift<br>4. Split shifts/variable shifts  | 1.<br>2. Day shifts<br>3. Forward rotation (morn/afternoon/night)<br>4.  | 10 hours<br>Afternoon shifts<br>Backward rotation (night/evening/morn) Slower rotation (weekly/3-4 week)<br>13 hour period  | 14 hours<br>Night shifts                                     | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li>Hours of work in a single shift; consider travel time to and from work</li> <li>Reduce working hours or implement additional controls</li> <li>Increase resourcing</li> <li>Eliminate the use of extended hours for safety-critical jobs or activities</li> <li>Control the length of shifts</li> <li>Limit the use of duty extensions</li> <li>Monitor hours of work</li> <li>Offer alternative accommodation or transport at the end of overtime/long shift</li> </ul> <ul style="list-style-type: none"> <li>Allow for naps during shifts</li> <li>Allow at least a week on each shift before rotation</li> <li>Use forward-rotating shifts</li> <li>Provide rest days; (opportunity for two consecutive night sleeps)</li> <li>Improve the timing of shifts</li> <li>Ensure exchange of shifts does not result in excessive hours</li> <li>Eliminate use of split shifts</li> <li>Avoid start or finish times between 2200 and 0700</li> </ul> <ul style="list-style-type: none"> <li>Where split shifts are used, arrange timing so sleep is not disrupted due to the times they are required to work</li> <li>Ensure time for adequate communication at shift handovers</li> <li>Set shift rosters ahead of time and avoid sudden changes of shifts to allow personnel to plan leisure time</li> <li>Control shift swapping</li> <li>Avoid any schedule not tied to the 24-hour circadian cycle</li> </ul>   |
| <b>WORK SCHEDULING &amp; PLANNING – NIGHT WORK</b><br>1. Shift end (for those working eight hours or more between 10.00pm and 6.00am)<br>2. Length of shift<br>3. Sequential night shifts<br>4. Period of non-work following a sequence of night shifts<br>5. Breaks during work – frequency<br>6. Breaks between work periods – recovery time<br><br>NOTE: Night shift in this chart refers to 12 hours (1900 to 0700)<br><br>An example of a rotating defence roster <ul style="list-style-type: none"> <li>0700 to 1600</li> <li>1600 to 2359</li> <li>2359 to 0700</li> </ul> | 1.<br>2. 8 Hours<br>3.<br>4. 48 Hours<br>5. Adequate and regular breaks<br>6. Adequate time for sleep, travel, meals, etc                          | After 10.00pm<br>10 Hours<br>6 or more 8 hour shifts<br>4 or more 8-10 hour shifts<br>2 or more 10+ hour shifts<br>Less than 48 hours<br>Infrequent or no breaks<br>Inadequate time for sleep, travel, meals, etc                     | Before 6.00am<br>12 Hours                                    | <b>POSSIBLE OPTIONS</b> <p><b>Night shifts, including the number of consecutive night shifts</b></p> <ul style="list-style-type: none"> <li>Limit the use of nightshifts for particular jobs or activities</li> <li>Schedule complex tasks for daytime</li> <li>Schedule work for hours when the risks may be lower – for example, complex and safety-critical tasks (ie don't schedule tasks between 2am and 6am and, to a lesser degree, between 2pm and 4pm)</li> <li>Avoid scheduling higher risk tasks on the first night of a night shift cycle. If unavoidable, when planning the task consider additional controls such as job rotation or additional rest breaks</li> <li>Minimise routine administrative tasks to ensure personnel can focus on core duties during their shift</li> </ul> <ul style="list-style-type: none"> <li>Allow for naps during shifts</li> <li>Limit the number of consecutive night shifts worked – no more than four night shifts in a row refer note</li> <li>Ensure that rosters allow for at least two full nights' sleep after the last night shift</li> <li>Arrange shifts so that day sleep is adequate</li> <li>Use a forward-rotation shift system (ie morning to afternoon, afternoon to night)</li> <li>Improve the order, speed, direction and length of rotation of the shift cycle</li> </ul> <ul style="list-style-type: none"> <li>Except for emergencies, give at least 24 hours notice before night work.</li> <li>Provide a longer period of notice so that personnel have time to adjust their activities</li> </ul>   |



# FATIGUE RISK MANAGEMENT CHART

# FATIGUE PART 2



## HAZARD IDENTIFICATION

## RISK ASSESSMENT

## RISK CONTROL

| HAZARD IDENTIFICATION  | Lower Risk   | Moderate Risk   | Higher Risk   | POSSIBLE OPTIONS   |
|--|--|---|---|--|
| <b>MENTAL &amp; PHYSICAL DEMANDS OF WORK</b><br>These include, for example:<br>1. Repetitive or monotonous work<br>2. Sustained physical or mental effort<br>3. Sustained and/or complex physical or mental tasks    | 1. Varying tasks demand<br>2. Minimal physically demanding work<br>3. Minimal periods of high concentration and/or mentally demanding work   | Highly repetitive work and/or high concentration work, with high demands over an extended period of time<br>Highly physically demanding work that results in muscle fatigue<br>Long periods of high concentration and/or mentally demanding work            | Highly repetitive work and/or high concentration work, with high demands over an extended period of time<br>Highly physically demanding work that results in muscle fatigue<br>Long periods of high concentration and/or mentally demanding work            | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li>Effective rotation of jobs to eliminate boring, repetitive tasks</li> <li>Improve communication</li> <li>Provide training to allow multi-skilling</li> <li>Use plant, machinery and equipment to eliminate or reduce the excessive physical demands of the job</li> <li>Reduce the amount of time personnel need to spend performing sustained physically and mentally demanding work</li> <li>Ensure there are adequate personnel and other resources</li> <li>Increase inspections and supervision</li> <li>Employ other personnel for non-technical tasks</li> <li>Ensure adequate breaks during shifts to allow recovery</li> <li>Allow supervisors and personnel to reschedule tasks if fatigue becomes a problem</li> <li>Ensure work demands gradually increase towards the middle of the shift and decrease towards the end</li> <li>Eliminate sources of risks that might exacerbate fatigue (eg lack of job control, manual handling, extremes of temperature)</li> <li>Improve the duration and timing of work</li> <li>Ensure safe and efficient shift hand-over</li> </ul> |
| <b>EXCESSIVE COMMUTING TIMES NECESSARY</b>   | 1. Minimal commuting time 30 minutes   | 60 minutes  | Long commuting time 90 minutes  | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li>Start work at long distance commute sites on the day after arrival and start travel home on the day after the shift cycle is finished</li> <li>Assist with travel arrangements, eg provide transport</li> <li>Reduce active working time to account for long commuting time or distance</li> </ul>  |
| <b>WORK ENVIRONMENT CONDITIONS</b><br>1. Exposure to hazardous substances<br>2. Exposure to noise<br>3. Exposure to extreme temperatures<br>4. Exposure to vibration<br>5. Effect of exposure during extended shifts | 1. For hazardous substances, low risk calculated using national exposure<br>2. Low risk calculated according to formulae in AS/NZS 1269.1<br>3. Minimal exposure<br>4. Minimal exposure<br>5. Minimal exposure | For hazardous substances high risk calculated using national exposure<br>High risk calculated according to formulae in AS/NZS 1269.1<br>Long period exposure<br>Long period exposure<br>Long period exposure  | For hazardous substances high risk calculated using national exposure<br>High risk calculated according to formulae in AS/NZS 1269.1<br>Long period exposure<br>Long period exposure<br>Long period exposure  | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li><b>Stress</b> <ul style="list-style-type: none"> <li>Improve job control and the other risk factors associated with stress</li> <li>Ensure opportunities to clarify stress-related issues</li> </ul> </li> <li><b>Physical conditions</b> <ul style="list-style-type: none"> <li>Avoid working during periods of extreme temperature</li> <li>Control exposure to hazardous substances</li> </ul> </li> <li>Provide effective suitable protective clothing and equipment for environment</li> <li>Use heating and cooling to control ambient temperatures to support alertness during shift</li> <li>Provide adequate facilities for rest, sleep, meal breaks, onsite accommodation (if appropriate) and other essential requirements, such as bathroom facilities</li> <li>Ensure the workplace and surroundings are well lit, safe and secure</li> <li>Personnel who perform repetitive manual tasks should have regular rest breaks</li> </ul>   |
| <b>INDIVIDUAL &amp; NON-WORK FACTORS</b><br>1. Sleep (amount and quality)<br>2. Health<br>3. Fitness for work<br>4. Lifestyle factors<br>5. Time continuously awake  | 1. Night sleep 8 hours night sleep (in 24 hours)<br>2.<br>3.<br>4.<br>5. 12 hours  | Day sleep 6 hours night sleep (in 24 hours)<br>Poor diet<br>Recent illness/injury<br>Sleep disorders<br>Influence of alcohol, drugs or amount of sleep<br>Activities/responsibilities that limit amount of sleep, eg second job or long commute<br>16 hours | Day sleep 6 hours night sleep (in 24 hours)<br>Poor diet<br>Recent illness/injury<br>Sleep disorders<br>Influence of alcohol, drugs or amount of sleep<br>Activities/responsibilities that limit amount of sleep, eg second job or long commute<br>18 hours | <b>POSSIBLE OPTIONS</b> <ul style="list-style-type: none"> <li>Maintain vigilance in identifying non-work related factors</li> <li>Provide information and education about how non-work related factors can increase the risks of fatigue</li> <li>Provide a mechanism to encourage personnel to report non-work factors that might affect fatigue management</li> <li>Individuals to take responsibility for managing their fatigue during off-duty periods</li> <li>Communicate fatigue related safety concerns</li> <li>Report fatigue related safety incidents</li> </ul>  |

