What is a Health Risk Assessment?

The ***Health Risk Assessment*** process provides a systematic approach to evaluate the potential for individual harm in the workplace and to ensure that appropriate controls are in place to protect against adverse exposure. In practice, the Health Risk Assessment involves ***identifying health hazards, evaluating the risk to health, and effectively controlling exposure and monitoring the health of individuals*** involved in the work activities.

A ***hazard*** is defined as something with the potential to cause harm and a ***health hazard*** is something with the potential to adversely affect an individual's health. The difference between safety hazards and health hazards is that safety hazards have the potential to cause sudden injury, whereas ***health hazards have the potential to cause latent occupational illness***, varying degrees of disability and

Approach to Health Risk Assessment

This tool is based on the CRL Guideline: Health Risk Assessment and the guideline should be used in conjunction with this tool.
Below is an example of the HRA overview template. The Health Hazards are fixed; the exposure groups fields are **EXAMPLES ONLY**.
Each asset will need to determine the relevant exposure groups and whether exposure is a result of the normal duties, non-routine or periodic activities of the job (Y) or not expected (N).
It is then necessary to **create a tab for each exposure group** where the detailed health risk assessment is completed. In this tool the

The remainder of the tabs within this workbook provide detailed assessments of each exposure group. The process includes:
1) Identification of the hazard;
2) Identification of the potential consequence without controls in place and the associated inherent risk;
3) Details on the current controls ;
4) Assessment of the Residual Risk with the current controls in place

EXAMPLE HRA OVERVIEW — **Health Hazards (ALL MUST BE CONSIDERED)**

	Exposure Group	Noise	Vibration	Extremes of Temperature	Ionising Radiation	Non ionising radiation	Dust (e.g. sandstorm)	Pressure (e.g. altitude diving)	Liquids (e.g. production, maintenance, cleaning, machinery)	Gases (e.g.H2S, benzene, inert)	Mists/vapours (e.g. mineral oils)	Fumes (e.g. colophony, vehicle emissions)	Dusts (e.g. wood, asbestos)	Computer work	Visual display monitoring	Manual handling	Static/awkward postures	Food borne infections (e.g. Salmonella, Ecoli, norovirus)	Water borne infections (e.g. Legionella, Weils)	Blood borne pathogens (e.g. Hepatitis B, HIV)	Endemic disease (e.g. malaria, dengue)	Isolation	Stress (e.g. demands, control, support, relationships, role & change)	Fatigue (e.g. reduced quality or quantity of sleep e.g. shiftwork)	Violence
Staff	*Construction workers*	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N
	Construction specialists																								
	Site visitors	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	Y	Y	Y	N	N	N	N	N
Contractors	*Construction workers*	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N
	Construction specialists																								
	Site visitors																								
Visitors	*Visitors*																								
	Suppliers																								
Others	*Neighbours*																								
	Members of the public																								
Higher risk grou	*Young persons*																								
	Disabled																								
	Pregnant/Nursing mothers																								
	Migrant workers/Ethnic minorities																								
	Lone workers																								

Hazard Types
- Physical
- Chemical
- Ergonomic
- Biological
- Psychosocial

Legend
- **Y** Exposure in routine, non-routine or periodic activites of the job even if of short duration
- **N** Exposure is not expected in routine, non-routine or periodic activites of the job

Impact		Likelihood				
		1	2	3	4	5
		Never occurred in the industry	Occurred in industry before but never in Crossrail	Occurred more than once per year in the industry, but rarely in Crossrail	Occurred more than once a year in industry and in Crossrail	Common in the Industry and in Crossrail, occurring several time per year
		Highly unlikely	Unlikely	Possible	Likely	Highly likely
5	Multiple fatalities >5	L3	L3	L4	L5	L5
4	Few fatalities (1-5)	L3	L3	L3	L4	L5
3	Multiple LTIs, injury or illness resulting in permanent disability	L3	L3	L3	L3	L4
2	Single LTI, injury or illnesses resulting in temporary disability	L2	L3	L3	L3	L3
1	Medical treatment or restricted workday case	L1	L2	L3	L3	L3

High	Unacceptable risk: Exposure exceeds WELs. Not adequately controlled. Further risk reduction is urgently required. Focused HRA should be conducted.
Medium	Unacceptable risk: There is some degree of control, exposure could exceed the WELs. Further risk mitigation is required and must be implemented. Focused HRA should be conducted.
Low	Acceptable risk: Risk is controlled, ie. exposure is below the WELs but must be monitored for change
Inconclusive	Inconclusive risk: Insufficient information available to make a conclusion. A focused HRA should be conducted.

HSxx_Fatigue Risk Assessment Tool.xlsx
HRA Pre Requisites

Considerations

The following considerations are the good practices that any Site/Department would have in place before and during the health risk assessment process, which are essential to manage and monitor the hazards and protect health:

Work-related

- Training and competence e.g. fatigue awareness, fatigue risk assessment and fatigue monitoring
- Monitoring and enforcing of control measures e.g. rest breaks,
- Medical emergency response planning
- Routine health assessments e.g. CBH health assessment, including sleep disorder assessment and night workers health assessments
- Routine inspections
- Audit protocols – internal
- Incident reporting and investigation
- Occupational illness and absence reporting

Non work related

- Training - Fatigue and sleep management
- Good sleep hygiene e.g. managing social interference, prepare bedroom, diet and exercise

Health Risk Assessment (*Example only) Fatigue*

Location:	Exposure Group:	Assessment Conducted by: Title: *Safety Advisor*		Title: *Safety Advisor*

			Current Risk Assessment							Additional Controls to Reduce Risk to ALARP				
			Inherent Risk				Residual Risk							
	Hazard	Potential Consequence	I	L	Risk	Current Controls	I	L	Risk	Further Actions (Information should be transferred to the	Action Owner	Target Date	Status/Date	Health Surveillance/Monitoring Requirements (Detail transferred to the Health improvement
FATIGUE	**WORKING HOURS** Overtime >2 hours, length of shift above target, hours working in seven day periods exceed 60, number of hours rest in 24/48 hours exceeds target, number of consecutive shifts (5 days or 3 nights), changes in shift start time (frequent), rest after block of nights or early shifts <2days	Excessive fatigue affecting performance and increasing risk of incident				Limit overtime to 2 hours Day shift 12 hours, night/early shift 10 hours Maximum 60 hours per week, 2 days rest after block of consecutive nights, Limit shifts to 5 consecutive 12 hour day shifts and 10 hour night shifts, forward rotating shift pattern,				First night shift limited to 8 hours				
	WORK ENVIRONMENT Temperature extremes, noise exposure, vibration exposure, light <6000 lux, workstation set up poor, welfare facilities limited access, work related driving, comfort too high	Excessive fatigue affecting performance and increasing risk of incident				Temperature, noise and vibration controlled, lighting assessment and plan in place, re-design of workstation, increased welfare facilities, driver risk assessment and monitoring				Supervision				
	WORK ACTIVITIES Workload demand and capacity extrmely demanding, continuous attention, few or nobreaks, safety /business critical work (1am - 3pm, 2pm - 4pm), monotonous, repetitive, physically or mental demanding work, unplanned work, unrealistic time constraints and lack of resources	Excessive fatigue affecting performance and increasing risk of incident				Review of work plans, rostered breaks				Supervision				
	WORK PRACTICES Overtime expectation, frequent roster changes, annual leave not taken, poor absence management, no training and supervision	Excessive fatigue affecting performance and increasing risk of incident				Limit overtime, Planning to reduce roster changes, monitor annual leave, agency cover for absences, fatigue awareness training				Fatigue awareness trainning for supervisors				
	FITNESS FOR WORK Health assessment night workers and shift workers, good diet and hydration, lifestyle risk management, experience of shift work, exercise, sedative and stimulants, sedentary, health conditions	Excessive fatigue affecting performance and increasing risk of incident				Health assessment procedure and schedule - night workers, shift workers, individual fatigue risk assessment questionnaire, fatigue training - employee responsibilities, D&A testing, referral to occupational health				Monitor outcome of health assessment				
	SLEEP - Quality & Quantity Number of hours sleep, inducing sleep, wakefulness, sleep before first night, total sleep in 24 hours, napping	Excessive fatigue affecting performance and increasing risk of incident				Awareness training and tracking, supervisor training in fatigue assessment								
	NON WORK RELATED FACTORS Family, friends and neghbours, social commitments, preparation for sleep - self and bedroom, commute, exercise and food, accommodation	Excessive fatigue affecting performance and increasing risk of incident				Monitor commute time, provide accommodation, awareness training				Review commute time				

Personnel Involved in Review: Enter **names** here….

Date Review Completed: Enter **date of review** here

L4-5	Unacceptable risk: Exposure exceeds OELs. Not adequately controlled. Further risk reduction is urgently required. Focused HRA should be conducted.
L3	Unacceptable risk: There is some degree of control, exposure could exceed the OELs. Further risk mitigation is required and must be implemented. Focused HRA should be conducted.
L1-2	Acceptable risk: Risk is controlled, i.e.. exposure is below the OELs but must be monitored for change
Inconclusive	Inconclusive risk: Insufficient information available to make a conclusion. A focused HRA should be conducted.

Hierarchy of controls

1. Elimination – remove the hazard entirely;
2. Substitution – replace the original substance or process with one less hazardous;
3. Technical or Engineering control
   - Containment and isolation – the hazard, though present is contained to reduce exposure e.g. e.g. contained sampling equipment
   - Local exhaust ventilation e.g. fume cupboard;
3. Administrative/management control
   - Modification –changing work patterns, reduce duration and frequency of exposure by job rotation
   - Working procedures and job instructions
   - Signage
   - Training –hazard and associated risks;
4. Personal protective equipment (PPE)

Health Risk Assessment (*Example only) Fatigue*

Location:	Exposure Group: Electricians	Assessment Conducted by:	Title: Safety Advisor	

Description of tasks:

			Current Risk Assessment							Additional Controls to Reduce Risk to ALARP				
			Inherent Risk				Residual Risk							
	Hazard	Potential Consequence	I	L	Risk	Current Controls	I	L	Risk	Further Actions (Information should be transferred to the	Action Owner	Target Date	Status/Date	Health Monitoring Requirements (Detail transferred to the Health improvement plan)
FATIGUE	**WORKING HOURS** Overtime >2 hours, length of shift above target, hours working in seven day periods exceed 60, number of hours rest in 24/48 hours exceeds target, number of consecutive shifts (5 days or 3 nights),	Excessive fatigue affecting performance and increasing risk of incident	4	4	L4	Limit overtime to 2 hours Day shift 12 hours, night/early shift 10 hours Maximum 70 hours per week, 1 days rest after block of consecutive nights, Forward rotating shift pattern, No young persons working on site	4	3	L3	Increased supervision, Increase sign off for work completed,				
	WORK ENVIRONMENT Temperature extremes, noise exposure, vibration exposure, light <6000 lux, workstation set up poor, welfare facilities limited access, work related driving, comfort	Excessive fatigue affecting performance and increasing risk of incident	2	4	L3	Work clothing and PPE to control temperative, noise, inclement weather and vibration, Job rotation, Well lit canteen	2	3	L3	Supervision				
	WORK ACTIVITIES Workload demand and capacity extrmely demanding, continuous attention, few or nobreaks, safety /business critical work (1am - 3am, 2pm - 4pm), monotonous, repetitive, physically or mental demanding work, unplanned work, unrealistic time constraints and lack of resources	Excessive fatigue affecting performance and increasing risk of incident	1	4	L3	Review of work plans, Hazards identified - *controls in place* , Control of work tasks - *to be deterimned* , Rostered breaks	1	3	L3	Supervision, No safety critical tasks between 1am - 3am and 2pm - 4pm, Increase electricians on duty, Task rotation				
	WORK PRACTICES Overtime expectation, frequent roster changes, annual leave not taken, poor absence management, no training and supervision	Excessive fatigue affecting performance and increasing risk of incident	3	4	L3	Liimt overtime and complete exceedance form, Planning to reduce roster changes, monitor annual leave, agency cover for absences, fatigue awareness training, Good communication,	3	3	L3	Fatigue awareness trainning for supervisors				
	FITNESS FOR WORK Health assessment night workers and shift workers, good diet and hydration, lifestyle risk management, experience of shift work, exercise, sedative and stimulants, sedentary, health conditions	Excessive fatigue affecting performance and increasing risk of incident	4	4	L4	Health assessment for all. Increase random D&A testing, individual fatigue risk assessment questionnaire at start of shift pattern and then 3 monthly - referral to occupational health if required, fatigue training - employee responsibilities,	4	3	L4	Monitor outcome of health assessment				Individual fatigue risk assessment questionnaire at start of shift pattern and then 3 monthly
	SLEEP - Quality & Quantity Number of hours sleep, inducing sleep, wakefulness, sleep before first night, total sleep in 24 hours, napping	Excessive fatigue affecting performance and increasing risk of incident	4	4	L4	Awareness training and tracking, supervisor training in fatigue assessment	4	3	L4	Increased supervision, Monitor quality of fatigue assessment				
	NON WORK RELATED FACTORS Family, friends and neighbours, social commitments, preparation for sleep - self and bedroom, commute, exercise and food, accommodation	Excessive fatigue affecting performance and increasing risk of incident	3	3	L3	Monitor commute time, provide accommodation, awareness training	3	2	L3	Review commute times				

Personnel Involved in Review: Enter **names** here….

Date Review Completed: Enter **date of review** here

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   - Local exhaust ventilation e.g. fume cupboard;
3. Administrative/management control
   - Modification –changing work patterns, reduce duration and frequency of exposure by job rotation
   - Working procedures and job instructions
   - Signage
   - Training –hazard and associated risks;
4. Personal protective equipment (PPE)

* Based on HRA Risk Matrix (March 2001) S = Severity L = Likelihood Risk = Severity X Likelihood

Individual fatigue risk assessment

Location:	**Assessment Conducted by:**
Date:	**Title:**
Time:	**Name of employee:**
Assessment type:	**Self** **Random** **Reasonable Suspicion** **For Cause**
Work schedule:	**Planned** **Call out** **Extended hours**

FATIGUE ASSESSMENT

Step 1 Observation		
Is there a significant change in the persons behaviour:		Yes No
Physical symptoms	Bloodshot eyes	Yes No
	Slower movements	Yes No
	Poor co-ordination	Yes No
	Slower than normal responses	Yes No
Cognitive function	Distracted from task	Yes No
	Poor concentration/lapses in concentration	Yes No
	Doesn't complete tasks	Yes No
	Short term memory loss (forgets instruction)	Yes No
	Nodding off occasionally	Yes No
	Fixed gaze and/or reports blurred vision	Yes No
Emotion/Motivation	Seems depressed	Yes No
	Irritable	Yes No
	Doesn't care anymore	Yes No
	Easily frustrated with tasks	Yes No
If 3 or more indicators are present, proceed to step 2		
Step 2 Risk		
Has a fatigue related incident occurred?		Yes No
Has the person (self report/by another person) been identified as a fatigue risk?		Yes No
Is there a risk associated with the person's functioning/behaviour? (i.e. risk to self, others or		Yes No
If yes, what is the level of risk? (your best estimate)		High Moderate Low
If you form the view that the risk is unacceptable, proceed to Step 3		
Step 3 Conversation		
Insight/Understanding	What is the person's explanation of what you have observed?	
Sleep	How many hours since they last slept?	hours
	How long did they sleep?	hours
	Have they experienced a recent change in their sleeping habits?	Yes No
	Is there a reason/s for not enough sleep or poor sleep?	Yes No
Work	What tasks have they been working on this shift?	
	Are those tasks "high risk" for fatigue? E.g. repetitious or in hot conditions?	Yes No
	If Yes, how long have they been working on that task?	
Breaks	When did they last have a break in shift?	
	How long was the break?	
Personal responsibility	When did they last drink water or eat something?	
	What do they usually do to prevent fatigue?	
A decision is now required on whether intervention is needed or not		
Step 4 Supervisor action	What is the level of risk associated with this person's continuing without intervention?	
	If that risk is unacceptable, what steps need to be taken to minimise the immediate risk? a. Task rotation option b. Short break option c. Go home option	Yes No
	Has this person been associated with previous fatigue issues?	Yes No
	Follow up procedures:	
	First occasion – deal with it informally, but record incident	Yes No
	Incident report completed	Yes No
	Disciplinary procedures	Yes No
	Training in fatigue management recommended	Yes No
	Referral to occupational health	Yes No

Work activities

Normal - demands	Increase demands	Abnormal demands	Excessive demands
Workload - extremely undemanding, lots of spare capacity	· Workload - Moderately undemanding, some spare capacity	· Workload – moderately demanding – little spare capacity	· Workload – extremely demanding, no spare capacity
· Continuous attention – rarely, nearly none of the time	· Continuous attention – some of the time	· Continuous attention – most of the time	· Continuous attention – all or nearly all of the time
· Ability to take regular breaks in well-lit area with access to water.	· Rest breaks (20 minutes uninterrupted if working over 6 hours)	· Safety critical/business critical work between 2pm -4pm or 1am-3am	· Unrealistic time constraints
	· Safety critical/business critical	· Monotonous, repetitive, physically and mentally demanding	· Lack of resources
		· Unplanned work	

Working practices - controls

Normal – Usual Working hours	Moderate control	Limited control	Poor control
· Limited overtime	· Occasional overtime, under 2 hours per shift to cover increased workload and unplanned leave Absence managed with short term increase in demand	· Regular overtime, under 2 hours per shift	· Regular overtime, exceeding 2 hour per shift for workload demands and emergencies
· Absence managed and workload reviewed	· Excessive hours monitored with minimal consequences	· Absence not managed and demand increased	· Leave not taken
· Monitor excessive hours	· Leave taken on block	· Excessive hours monitored with no consequences	· No supervision or training
· Leave taken regularly	· Roster changes made infrequently	· Roster changes made regularly	
· Protocol in place and followed for roster changes	· One-off training	· Limited training and supervision	
· Regular training and supervision	· Supervision for high risk activities		

Fitness for work

Normal – health management	Moderate impact	Increasing impact	High impact
· Regular health assessment for night workers and shift workers to monitor for sleep related disorders i.e. shiftwork sleep disorder, insomnia, sleep apnoea	· Health assessment for night workers only with general health assessment for shift workers	· Previous health assessment – not shift work specific	· Sedentary role and lifestyle
· Health assessment includes monitoring of potential long term health effects ie digestive problems, heart disease, stress and mental illness	· Sleep related health condition, well managed	· Newly diagnosed health condition	· No health assessment
· Balanced diet and good hydration by staff	· Limited access to healthy eating options and fluids	· Poor diet and occasional dehydration	· Undiagnosed sleep related health condition
· Lifestyle risk management by staff ie drugs, alcohol, smoking and exercise	· Occasional use of stimulants (caffeine, smoking) or sedatives (sleeping tablets)	· Regular use of stimulants or sedatives	· Long term health condition not managed
	· New to shiftwork	· No regular exercise	

Sleep – quality and quantity

Healthy sleep	Moderate sleep	Unhealthy sleep	Poor sleep
· Regularly sleep 7 or more hours a night	· Sleep 4-7 hours a night	· Sleep 4-7 hours a night	· Sleep less than 4 hours a night
· Fall asleep within 10 minutes	· Less than 6 hours in previous 24 hour period	· Less than 12 hours sleep in previous 48 hours	· No napping
· No extended periods of wakefulness	· Take more than 30 minutes to fall asleep	· Awake for over 16 hours	
· Slept 2-3 hours before night shift	· Occasional periods of wakefulness	· Difficulty falling and staying asleep, waking tired	
· Total sleep in 24 hours of 7-9 hours	· Had a rest before work	· Stress affecting quality of sleep most nights	
	· Healthy naps of 20-30 minutes	· Unhealthy napping of 2-3 hours on day shift or days off	

Non work related factors

Normal	Moderate impact	Increasing impact	High impact
· Minimal disturbance from family, friends and neighbours · No social commitments impacting on sleep opportunity · Relax ready for sleep · Bedroom prepared for good sleep	· Occasional disturbance from family, friends and neighbours · Occasional social commitments impacting on sleep opportunity · No bedtime routine · Bedroom too light, noisy or hot/cold and bed not comfortable · Long commute to work – public transport	· Living in multiple occupancy accommodation · Numerous family and social commitments · Strenuous exercise or large meal within 2 hours of sleep · Driving home at end of shift patterns (lodgings during shift patterns)	· Poor relationship with neighbour · Driving home after shifts/night work