

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 death

Approach to Health Risk Assessment

This tool is based on the BG 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 'Mech Eng & Technicians' tab is an **EXAMPLE ONLY** and cannot be used as part of a 'copy and paste' methodology.

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
- 5) Identification of additional controls required to reduce the risk to As Low as Reasonably Practicable (ALARP)

EXAMPLE HRA OVERVIEW	Health Hazards (ALL MUST BE CONSIDERED)	Hazard Types																						
		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, E.coli, norovirus)	Water borne infections (e.g. Legionella, Wells)	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)
Staff	Mechanical Engineer & Technicians	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N
	Office and Field																							
	Office Only	N	N	N	N	N	N	N	Y	N	N	N	N	Y	Y	N	N	Y	Y	Y	N	N	N	N
	Wellsite Supervisors																							
Contractors	Construction Supervisors																							
	Mechanical Engineer & Technicians	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N
Visitors	Wellsite Supervisors																							
	Construction Supervisors																							
Others	Visitors																							
	Suppliers																							
Higher risk groups	Neighbours																							
	Members of the public																							
	Young persons																							
	Disabled																							
	Pregnant/Nursing mothers																							
	Ethnic minorities																							
	Lone workers																							

Hazard Types

- Physical
- Chemical
- Ergonomic
- Biological
- Psychosocial

Legend

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

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

High	Unacceptable risk: Exposure exceeds OELs. 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 OELs. 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 OELs but must be monitored for change
Inconclusive	Inconclusive risk: Insufficient information available to make a conclusion. A focused HRA should be conducted.

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HRA Pre Requisites

Pre-requisites

The following pre-requisites are the good practices that any Site/Department would have in place before and during the HRA process, which are essential to monitor the hazards and protect health:

Core

- Training and competence e.g. First aid
- Monitoring and enforcing the use of PPE
- Medical emergency response plan
- Routine medicals e.g. drivers, catering, ERT, fit for travel
- Routine inspections e.g. catering, water, pests, housekeeping
- Audit protocols – internal
- Health promotion – toolbox talks
- Occupational illness and sickness absence reporting

Specific

- Physical
 - Internal environmental controls e.g. light, heating, ventilation, humidity, glare
- Chemical
 - Stock control – Limit/ Safety Data Sheets/Adequate storage
- Biological
 - HACCP
 - Legionella control
- Ergonomic
 - DSE – standard ergonomic office equipment
 - Manual handling – lifting aids, storage at appropriate heights
- Psychosocial
 - Mental health and wellbeing

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HRA (1 tab per exposure group)

Location: e.g. plant name	Similar Exposure Group: e.g. Production Operator	Activity/Task: e.g. sampling condensate	Assessment Conducted by: e.g. A Name	Title: e.g. Safety Advisor
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Detailed Health Risk Assessment (One of these sheets should be completed for each identified similar exposure group)

	Hazard	Potential Consequence	Current Risk Assessment						Additional Controls to Reduce Risk to ALARP							
			Inherent Risk			Current Controls	Residual Risk			Further Actions (Information should be transferred to the Health Risk Control)	Action Owner	Target Date	Status/Date	Health Surveillance Requirements (Detail transferred to the HRCP)		
			I	L	Risk		I	L	Risk							
PHYSICAL	Noise		0	0				0	0							
	Vibration (whole body &/or hand arm)		0	0				0	0							
	Extreme Temperatures		0	0				0	0							
	Lighting (e.g. glare, inadequate)		0	0				0	0							
	Ionising Radiation		0	0				0	0							
	Non-ionising Radiation		0	0				0	0							
	Dusts (e.g. tunnelling)		0	0				0	0							
	Pressure (e.g. pressurised containers/environments)		0	0				0	0							
CHEMICAL	Liquids		0	0				0	0							
	Gases		0	0				0	0							
	Vapours (e.g. DEEE)		0	0				0	0							
	Fumes (e.g. welding)		0	0				0	0							
	Asbestos or other fibres		0	0				0	0							
	Dusts/particulates (eg silica)		0	0				0	0							
	Mists (e.g. oil, acid)		0	0				0	0							
ERGONOMIC	Display screen equipment		0	0				0	0							
	Manual handling		0	0				0	0							
	Ergonomics e.g. static/awkward		0	0				0	0							
BIOLOGICAL	Food Borne Infections		0	0				0	0							
	Water Borne Infections		0	0				0	0							
	Blood borne pathogens		0	0				0	0							
	Endemic diseases		0	0				0	0							
PSYCHOSOCIAL	Isolation		0	0				0	0							
	Stress		0	0				0	0							
	Fatigue (sleepiness)		0	0				0	0							
	Violence		0	0				0	0							

Pre-requisites
The following pre-requisites are required during the HRA process,

Core

- Training and con
- Monitoring and
- Medical emerge
- Routine medical
- Routine inspecti
- Audit protocols
- Health promotio
- Occupational illr

Specific

- Physical
 - Internal
- Chemical
 - Stock co
- Biological
 - HACCP
 - Pre trav
- Ergonomic
 - DSE – str
 - Manual l
- Psychosocial
 - Standar

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

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HRA (1 tab per exposure group)

re the good practices that any Asset/Department would have in place before and
, which are essential to monitor the hazards and protect health:

mpetence e.g. First aid
l enforcing the use of PPE
:ncy response plan
ls e.g. drivers, catering, ERT, fit for travel
ions e.g. catering, water, pests, housekeeping
– internal
on – toolbox talks
ness and sickness absence reporting

environmental controls e.g. light, heating, ventilation, humidity, glare

ontrol – Limit/ Safety Data Sheets/Adequate storage

el authorisation process – fitness for travel

andard ergonomic office equipment
handling – lifting aids, storage at appropriate heights

d BG contract working hours per week

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Health Risk Assessment Overview

Health Hazards (ALL MUST BE CONSIDERED)		Health Hazards																								
		Noise	Vibration (whole body &/or hand)	Extreme Temperatures	Lighting (e.g. glare, inadequate)	Ionising Radiation	Non-ionising Radiation	Dusts (e.g. Sands/slime)	Pressure (e.g. Altitude)	Liquids	Gases	Vapours (e.g. hydrocarbons)	Fumes (e.g. welding)	Asbestos or other fibres	Dusts/particulates	Mists (e.g. oil, acid)	Display screen equipment	Manual handling	Ergonomics e.g. static/awkward postures	Water borne infections	Blood borne infections	Endemic diseases	Isolation	Stress	Fatigue (sleepiness)	Violence
Similar Exposure Group																										
Employee	production operator																									
Employee	maintenance engineer	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N
Employee	laboratory technician																									
Employee	cleaner																									
Contractors	shut down - vessel cleaners																									
Visitors																										
Others																										
Higher risk groups																										

Hazard Types

Physical
Chemical
Ergonomic
Biological
Psychosocial

Legend

Y
N

Exposure in routine, non-routine or periodic activities of the job even if of short duration

Exposure is not expected in routine or periodic activities of the job

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E.G. Mech Eng

Health Risk Assessment (Example only) Mechanical Engineers

Location: Workshop level1	Exposure Group: Maintenance Engineer	Activity/Task: daily checks, pump maintenance, welding	Assessment Conducted by: J Smith	Title: Safety Advisor
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	Hazard	Potential Consequence	Current Risk Assessment						Additional Controls to Reduce Risk to ALARP						
			Inherent Risk			Residual Risk			Further Actions (Information should be transferred to the Health Risk Control Plan)	Action Owner	Target Date	Status/Date	Health Surveillance Requirements (Detail transferred to the HRCP)		
			I	L	Risk	I	L	Risk							
PHYSICAL	Noise Mechanical Engineers and technicians exposed to noise during daily checks throughout all areas including workshops. Some areas noise > 80dBA	Noise Induced Hearing Loss	3	5	L4	Noise assessment incomplete: Noise mapping exists but no personal dosimetry Rota system minimises exposure to noisy areas Equipment purchased with reduced noise emissions Maintenance schedule for equipment ensures smooth running of equipment and reduces noise emissions Hearing protection worn in designated areas Ear protection zones demarcated	3	3	L3	Complete focused noise risk assessment and implement controls if necessary Implement audiometry programme Noise dampening of compressors Noise awareness training including use of hearing protection Supervision and enforcement of hearing protection	HSSE Manager & Supervision	Within 6 months	Open	Baseline audiometry should be conducted before personnel begin work and again within 12 months, thereafter every three years maximum or more frequently depending on results and prior to leaving (exit) BG Group	
	Vibration Mechanical Engineers and technicians exposed to vibration from work equipment	Whole Body Vibration or Hand-Arm Vibration injuries	3	3	L3	No vibration risk assessments completed for hand held power tools. Operator awareness and limited exposure time with vibrating equipment Any new equipment purchased as per the minimum vibration exposure policy	4	3	L3	Complete focused vibration risk assessments. Implement control measures, if required Annual vibration health surveillance for effect of hand arm vibration	HSSE Manager Logistics Purchasing Manager	Within 6 months	Open	Annual HAV/WBV Health Surveillance questionnaire & checks	
	Extreme Temperatures Thermal Exposure for Mechanical Engineers and technicians working outside	Risk of erythema, heat stress, cataracts, skin disease, hypothermia, frostbite and cold injuries.	4	4	L3	Thermal environment risk assessments in place for hot weather. Operator Awareness, limit exposure time, PPE and provision of adequate hydration and shelter	5	2	L2	Ensure operator awareness and provision of suitable hydration and PPE. Ref to HSE doc GEIS1. Complete focused thermal environment risk assessment with regard to strenuous or extended work periods in extremes of temperature	HSSE Manager & Supervision	Ongoing	Open		
	Lighting	No inadequate or excessive exposure													
	Ionizing Radiation	No exposure													
	Non-ionising Radiation UV Exposure for Mechanical Engineers and technicians working outside	Risk of erythema, heat stress, cataracts and skin disease including cancer	2	2	L3	Exposure time is 1 hour max per shift Operator Awareness, PPE and Sun block	5	2	L2	Ensure operator awareness and provision of suitable eye/skin protection. Ref to HSE doc INDG147 and INDG337	Supervisor	Ongoing	Open	Self skin checks	
	Dusts (e.g. Sandstorms)	No exposure													
	Pressure (e.g. Altitude)	No exposure													
CHEMICAL	Liquids Potential exposure of Mechanical Engineers and technicians to lubricating oils and greases during the maintenance and service of pumps and connection equipment.	Irritant contact dermatitis	5	3	L3	Chemical exposure assessment completed. Use of products with minimal skin irritant effects Gloves worn to prevent exposure If there is skin contact, technicians wash area Education of operators	5	2	L2	Skin surveillance programme Improved access to washing facilities Review focused chemical exposure risk assessment every 3 years	HSSE Manager & Supervision	Within 6 months		Self skin checks	
	Gases Potential exposure of Mechanical Engineers and technicians through contact with hydrogen sulphide leak or system failure	Respiratory irritation, unconsciousness and death.	1	4	L5	Chemical exposure risk assessments complete Closed system and gas detection alarms Operator awareness Emergency PPE provided	4	2	L3	Issue all personnel with personal monitors when entering H2S area Review focused chemical exposure risk assessment annually	HSSE Manager & Supervision	Within 3 months	Closed		
	Vapours Potential exposure of Mechanical Engineers and technicians to hydrocarbon vapours including benzene during maintenance and operation of pumps.	Short term effects: Respiratory irritation, headache, nausea, unconsciousness & death Long term effects: Cancer i.e. leukaemia and other serious blood disorders such as myelodysplastic syndromes and anaemia	2	5	L5	No chemical exposure risk assessment completed No personal exposure monitoring completed Use of products with minimal respiratory and skin irritant effects LEV where appropriate Operator awareness Limit exposure through PPE	4	4	L4	Complete focused chemical exposure risk assessments & personal monitoring. Review annually. Establish routine monitoring programme Implement control measures e.g. closed handling systems, purging etc. Health surveillance Skin surveillance programme Formal benzene awareness training Access to washing facilities	HSSE Manager & Supervision	Within 3 months	Open	Urine testing	
	Fume Exposure to welding fume from metal fabrication. MIG welding stainless steel (causes lung cancer)	Lung cancer Metal fume fever	2	4	L4	Chemical exposure assessment conducted Local exhaust ventilation in place which is well designed and maintained LEV examined and tested annually & records kept Operators use LEV correctly Operator awareness of health hazards and precautions to take Welders use PPE including gloves and eye protection Area Shielded for other personnel	4	1	L2	Conduct personal monitoring during MIG welding to confirm low exposures Review focused chemical exposure risk assessment annually	HSSE Manager & Supervision	Within 6 months	Open		
	Asbestos and other fibres	No exposure													
	Dusts/particulates Potential exposure of Mechanical Engineers and technicians through fabricating activities.	No exposure													
	Mists (e.g. oil, acid)	No exposure													
ERGONOMIC	Display screen equipment e.g. computers Mechanical Engineers and technicians use laptops and computers during the course of their work	Computer workstations or equipment can be associated with neck, shoulder, back or arm pain (upper limb disorders - ULDs), as well as with fatigue and eyestrain.	3	4	L3	DSE risk assessment completed DSE users trained on a regular basis Mechanics do not use computers for extended periods in day Sickness absence reporting includes Upper Limb Disorder categorisation	5	2	L2	Ensure physio/ergonomist support is available for those who develop ULDs Ensure a supplier is identified to provide alternative DSE equipment where necessary	HSSE Manager & Supervision	Within 3 months	Closed		
	Manual handling Mechanical engineers and technicians may have to complete work that requires manual handling	Neck, shoulder or arm pain and injuries	3	5	L4	No manual handling risk assessments have been completed Hazardous manual handling operations are avoided where possible (re-designing the task to avoid moving the load; automating or mechanising the process) Risk of injury is reduced by using mechanical assistance (a sack trolley or hoist). Where this is not reasonably practicable, look at ways of changing the task, the load and working environment.	3	4	L3	Complete focused manual handling risk assessments & complete any required actions Complete manual handling awareness training	HSSE Manager & Supervision	Within 6 months	Open		
	Ergonomics e.g. static/awkward postures Mechanical engineers and technicians may have to undertake work in areas of the plant where access is difficult	Neck, shoulder or arm pain and injuries	3	3	L3	Currently no ergonomic assessments have been completed	3	3	L3	Complete a study of the plant to identify areas of reduced access Identify risk to health as part of the task risk assessment Educate operators on the risks Design alternatives to access to areas where possible (e.g. automating valve turning where located at height or in reduced access areas)	HSSE Manager & Supervision	Within 6 months	Open		

Pre-requisites
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- Core
 - Training and competence e.g. DSE, Manual Handling, Pressure & Stress, First Aid
 - Monitoring the use of PPE
 - Medical emergency response plan
 - Routine medicals e.g. drivers, catering, ERT, fit for travel
 - Routine inspections e.g. catering, water, pests, housekeeping
 - Audit protocols – internal
 - Health promotion – toolbox talks
 - Occupational illness and sickness absence reporting
- Specific
 - Physical
 - Internal environmental controls e.g. light, heating, ventilation, humidity, glare
 - Chemical
 - Stock control – Limit/Material Safety Data Sheet/Storage
 - Biological
 - HACCP
 - Pre travel authorisation process – fitness for travel
 - Ergonomic
 - DSE – self assessment
 - Manual handling – lifting aids, storage at height
 - Psychosocial
 - Stress risk assessment

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E.G. Mech Eng

	Hazard	Potential Consequence	Current Risk Assessment					Additional Controls to Reduce Risk to ALARP						
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			I	L	Risk	I	L						Risk	
BIOLOGICAL	Food borne infections Lunch delivered from external catering supplier on daily basis	Food borne illness including vomiting & diarrhoea	4	3	L3	Supplier fulfills HACCP principles Holding time of food is within time period and held at correct temperature Operators aware to return food that is not hot	5	2	L2	Audit of catering supplier on 6 monthly basis	HSSE Manager	Mid year	Open	
	Water borne infections Mechanical engineers and technicians work in the area of the condensing cooling tower	Legionnaires disease	1	3	L4	Currently no controls in place	1	3	L4	Determine and implement site Legionella Management programme including focused risk assessment, dosing & water testing	HSSE Manager & Supervision	Within a month/3 months	Open	
	Blood borne pathogens	No exposure												
	Endemic diseases	No exposure												
PSYCHOSOCIAL	Isolation	No exposure												
	Work conditions & organisation potentially leading to mental ill health	Psychological ill-health (anxiety, depression)	3	3	L3	Line Manager awareness course Resilience measurements undertaken for group of workers and action plan produced Access to Employee Assistance Programme and counselling	3	2	L3	Discuss action plan at monthly team meeting to ensure actions are completed Review focused risk assessment	HSSE Manager & Supervision	Monthly	Ongoing	
	Fatigue (sleepiness) Mechanical engineers and technicians have to work shifts. Pattern is 12 hours, 2 days, 2 nights, 4 nights off	During short term health effects include headaches, gastrointestinal disturbances, deterioration in executive functions (Communication, memory, lateral thinking, response to emergency situations) Potential to fall asleep at the wheel whilst driving	2	4	L4	Currently no controls in place	2	4	L4	Education of personnel into the risks of lack of sleep (sufficient quantity and quality) and advise how best to manage shift patterns to maximise sleep Education of personnel's family re importance of sleep Complete an analysis of current shift pattern to determine level of risk and recommend a shift pattern that reduces risk of accidents or fatalities as a result of sleepiness Provide napping facilities Provide safe transport home after night shift	HSSE Manager & Supervision	Within 3 months	Open	
	Violence	No exposure												

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Date Review Completed: Enter date of review here

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

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