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## 1. Introduction

### 1.1 Purpose Statement

This document outlines Fitness for Work requirements for WesCEF Exploration.

### 1.2 Scope

This Fitness for Work Management Plan pertains to all aspects of the business for WesCEF Exploration.

Fitness for Work in this context describes the requirements of a person to be fit to perform their duties as they have been employed to do. This Policy will describe the control measures for the hazards of:

- Physical or mental fatigue
- Working in hot conditions
- Manual handling tasks
- Under the influence of drugs and alcohol

The FFW Policy applies whenever people are at a WesCEF workplace or are formally identified as a representative of WesCEF. WesCEF workplaces include operational sites, driving in any vehicles/trucks/plant, all sales offices and any Head Office locations.

Casual or social interactions with customers, suppliers or other employees outside work hours and outside the workplace are not covered by this policy, however all legal and reputational obligations remain.

WesCEF is committed to providing a safe working environment and setting clear standards that are consistent with the divisional values of integrity, working together, responsiveness and accountability. WesCEF can only achieve these objectives by setting clear standards which guide all employees and external personnel of the expectations for FFW. This will be achieved through:

- Treating employees deemed unfit for work fairly.
- Taking all reasonable steps to support FFW of employees whilst at work.
- Providing assistance where appropriate for management of FFW through education, counselling and support.

This policy covers any and all issues that may impact on FFW including, but not limited to, alcohol, drugs and other medication, fatigue, stress, physical fitness, mental wellbeing and other medical issues.

### 1.3 Roles and Responsibilities

#### 1.3.1 Employees

- Read, understand and comply with this policy at all times during work and should understand that any action or behaviour that is contrary to this policy may result in further medical assessment or disciplinary action up to and including dismissal.
- Take personal responsibility for his or her safety and health at work.
- Must notify their immediate supervisor of any concerns about, or potential impairment of, their own FFW from any cause (e.g. fatigue, stress, alcohol or other drugs, poor physical fitness or medical issues).
- Encourage and recognise the value of attending work in a condition in which they are able to carry out their normal range of duties without risk to themselves or others.
- Must cooperate with any and all testing and assessment regimes designed to support FFW across the Division.

- Take all reasonable steps to notify their immediate supervisor, in a timely manner, of any situation in which this policy may have been breached including;
  - Any situation in which other individuals may be unfit for work.
  - The unauthorised possession or consumption of alcohol or drugs at a normal place of work or during the normal work period by another individual.
- Ensure that any prescription or non-prescription medication is taken as directed. This requires individuals to:
  - Discuss with the prescribing doctor the nature of their work and any possible impact of the medication on their safety or performance.
  - Notify their supervisor of any medication they are taking which is likely to affect their safety or performance at work.
- To the extent that a person's role involves supervisory responsibilities, they shall:
  - Make employment decisions based on merit, taking into account the commitment to FFW testing results (physical, mental, drug & alcohol) that form part of the recruitment process.
  - Ensure communication of this policy to employees and external personnel.
  - Take prompt, confidential and appropriate action whenever they believe an individual is not capable of working in a safe and effective manner i.e. not fit for work.
  - Apply the Fitness for Work Policy and relevant procedures fairly and consistently. In particular they will ensure that employees who seek assistance with their FFW issue are treated fairly and lawfully at all times.
  - Monitor the potential for FFW issues arising from rosters, work design and the working environment (i.e. fatigue, heat stress, physical and/or psychological injury).

## 2. Assessment and Induction of New Employees

### 2.1 Pre-employment medical assessment

Pre-employment medical assessments are performed in line with the WesCEF Recruitment and Selection Policy (WCEF-PO-HRS-010-01). The purpose of the assessment is to match the applicant to specific physical requirements and establish if they meet the inherent requirements of the role for which they have applied.

WesCEF has an on-going process of assessment of the FFW of employees and contractors.

Methods which may be used to assess FFW may include:

- Medical assessment
- Alcohol and drug testing
- Individual self-assessment (including self-testing for alcohol and drugs)
- Supervisor, peer or other workers/customers observations

FFW assessments may be conducted in the following manner:

- Prior to employment,
- Periodic assessment,
- Randomly in the workplace (for drug and alcohol),
- Following specified workplace incidents, concerns or behaviour (known as 'For Cause'), such as mobile plant / vehicle incidents
- Employer, customer or peer concern about an employee being at risk, or
- Self-assessment for drug and alcohol can be initiated at any time other than when selected for assessment already) by purchase of a kit, use of a breathalyser (if available at the work site) or presenting to the WesCEF Medical Centre at Kwinana.

## 2.2 Standard for Assessment Testing for Drugs and Alcohol

WesCEF has adopted the impairment levels for drug screening set in AS/NZS 4308:2008 Procedures for Specimen Collection and the Detection & Quantities of Drugs of Abuse in Urine.

For alcohol, Blood Alcohol Content (BAC) is determined using a breathalyser and WesCEF Exploration has a policy of 0.00% BAC as the maximum allowed.

## 2.3 Return to Work following Injury or Illness

Following a period of two days (two consecutive rostered work days) absence from work (both work and non-work related) for the same injury or illness and where there is concern regarding the employee's fitness for work, the supervisor may request a Fitness For Work assessment by the nominated company medical provider, for guidance on the employee's safe Return To Work. This may include: medical examination, functional capacity evaluation, review of current treatment or medication regimes, and establishment of additional return to work requirements.

## 2.4 Management of Individuals with Fitness for Work Issues

Managers and supervisors will confidentially discuss any evident or suspected FFW issue with the employee concerned as soon as they become aware of it. Where a contractor is involved, the contractor's supervisor shall be contacted to initiate or support the discussion.

Managers and supervisors are to involve their safety advisor/manager in these cases and company medical personnel where possible.

Managers / supervisors will initiate this process following confirmation via testing – in the case of Drug and Alcohol issues, medical assessment or supervisor assessment in the case of physical, emotional or fatigue issues of an individual deemed unfit for work for any reason.

1. The individual will be immediately removed from the workplace. The Health and Safety Department and Human Resources (HR) personnel shall be confidentially notified.
2. The employee cannot return to work until such time as:
  - a. Fitness for work has been demonstrated (via appropriate medical assessment). The responsibility for demonstrating fitness rests with the employee,
  - b. Appropriate discussions have been had or are planned with their manager/ supervisor and wherever possible HR, and
  - c. Demonstration to their manager/supervisor/team leader's satisfaction that the cause of the FFW issue has been addressed.
3. Employees shall be encouraged to access assistance through the Employee Assistance Program (EAP).

Final determination of fitness is based on the opinion of management, consistent with this Policy and with medical input where appropriate.

All disciplinary action arising due to FFW issues will be dealt with in line with the WesCEF Poor Performance and Misconduct Policy and Procedure and business specific FFW procedures where applicable.

## 3. Risk Management

As with all risks associated with WesCEF Exploration work, the high risk hazards contained within this Management Plan are listed in the Company Risk Register.

Standard operating procedures (SOPs) exist for tasks that are considered to have a heightened health and safety risk as it is important that a defined work method is required to control those risks.

At the job site JHAs are developed for high risk tasks without a procedure and TRACs, as detailed in the HSMP are performed by each worker before commencing each task.

## 3.1 Control Measures

General Control Measures for all of the hazards associated with this Management Plan include:

### 3.1.1 Training

All employees of WesCEF Exploration are required to undertake training specific to their role. Specifically related to this Management Plan includes:

1. Company induction - section on fatigue, drugs and alcohol, heat and hydration and manual handling
2. On the job training
3. Basic safety training in hazard identification, risk assessment and controls
4. TRAC and JHA training, review and sign off

### 3.1.2 Workplace inspections

All operational work areas are inspected daily or more frequently as required by supervisors.

Records of formal workplace inspections conducted on a monthly basis are maintained and any hazards or corrective actions required are tracked to completion using the Hazard Reporting and Corrective Action Log.

### 3.1.3 Consultation and communication

As with all hazards, workers are able to provide input on Fitness for Work issues at daily meetings, safety meetings, through their HSR or Site Safety Committee, or at any time to their Supervisor.

Workers are provided with information and awareness at the initial Company Induction, and ongoing through the site communication methods of toolbox talks, noticeboards and through their health and safety representative.

Annually a toolbox is presented on Fitness for Work including heat and hydration, manual handling, drugs and alcohol, fatigue and mental health.

### 3.1.4 Pre-employment medicals

It is a requirement prior to entry on WesCEF Exploration worksites that all workers are required to sit a pre-employment medical before starting work. This is to identify any fitness for work issues prior to them starting on site.

The medical includes:

- A drug and alcohol screen be performed
- A musculoskeletal assessment
- A sign off by the medical review officer stating good physical condition and fitness for proposed duties including working in hot areas (if applicable).

## 3.1.5 Incident Management

All incidents are to be reported verbally immediately to a WesCEF Supervisor. This includes reports of potentially under-the-influence or fatigued workers, and potential dehydration or near misses of musculoskeletal injury.

All incidents are to be reported using the Incident Report Form. These are to be submitted within the shift that the event occurred.

Incidents including near-misses are to be investigated. Work will be ceased in areas affected immediately whilst the Supervisors investigates and determines a course of action.

All corrective actions arising from incidents, and their completion status are tracked in the Hazard Report and Corrective Action Log.

## 3.1.6 Behaviour and Culture

As described in the Health and Safety Management Plan, unsatisfactory behaviour is addressed through the disciplinary policy. This process is a specific intervention used to highlight and correct inappropriate or unacceptable behaviour.

All personnel will be trained in the content and operation of this procedure.

## 3.1.7 Injury Management

WesCEF Exploration are committed to returning injured employees back to work as soon as is practical, as this is proven to provide better outcomes for both the employee and employer.

All injuries sustained at work are to be reported immediately, and actions put into place to return the injured worker to their work as soon as practical. Investigations will then review and assess the control measures for adequacy and whether further controls can be implemented.

## 4. Drugs and Alcohol Management

The Fitness for Work Policy and Fitness for Work Procedure provide for a more detailed description regarding the WesCEF Drugs and Alcohol program.

## 5. Fatigue Management

### 5.1 Fatigue

Fatigue can be caused by many issues including stress, family, financial burden, insomnia, anxiety, sleep apnoea, and other such medical conditions. Fatigue can have disastrous effects if not identified and fatigued workers removed from high risk early.

### 5.2 Control Measures

#### 5.2.1 Working Conditions

Working condition control measures on site for WesCEF include:

- Ensuring a minimum of 10 hours break between shifts
- Hours per shift limited to 14
- Scheduled breaks – smoko/ lunch
- Job rotation as required
- Appropriate levels of staffing for tasks

## 5.2.2 Speaking up

All workers have the right, and are required under Duty of Care Law, to speak up about fatigue and if they believe themselves or others in their work group are affected by fatigue. Reporting to a Supervisor that fatigue is a current hazard in the workplace will allow the Supervisor to investigate and ensure that appropriate control measures are put in place. All reports of fatigue will be taken seriously by WesCEF line managers.

## 5.2.3 Employee Assistance Program

Workers with longer term causes of fatigue e.g. ongoing stress at home or at work, or physical or mental illness, may be sent for medical review or referred to the EAP so that they can be assisted to manage their fatigue but dealing with the cause. Working conditions may be altered during this time to ensure the health and safety of all workers.

## 5.2.4 Heat and Fatigue

Working in hot and humid conditions such as those underground can cause workers to feel fatigued. As such, work breaks are scheduled and are required to be taken. Whenever possible, workers should return to a cool space, drink water to re-hydrate, and eat food to replenish. If the effects are ongoing, it should be determined whether hydration is also a fitness for work issues.

# 6. Heat Management

## 6.1 Working Conditions

The location of work conducted by WesCEF Exploration employees and contractors is such that they can be exposed to extremes of temperature and humidity causing a heat stress on the body. See Appendix IV.

Without control measures in place, dehydration can occur and may lead to the far greater illness of heat stroke. Prevention and early detection of dehydration is the best treatment.

## 6.2 Control Measures

### 6.2.1 Prevention

The following preventative techniques are required on site as per the Legislative requirements.

- Adequate ventilation provided in work areas with monitoring by competent person (if the wet bulb temperature exceeds 25 degrees Celsius, an air velocity of not less than 0.5 metres per second is provided)
- Workers are required to come to work hydrated
- Adequate rest breaks in cool areas
- Scheduled smoko and lunch breaks
- Workers are provided with large water bottles as part of their PPE.
- Cool drinking water and ice machines are provided on site with ease of access for all workers.
- Training workers in early detection techniques and measures to be taken to avoid any harmful effects from hot conditions in induction and toolboxes
- Testing of wet bulb temperature by supervisors as required
- Acclimatisation periods for new workers
- PPE clothing is cotton based
- Work is scheduled around hot areas / hot times of the day wherever possible

## 6.2.2 Early Detection

- A “Look after your mates” campaign is continually reinforced with workers.
- Supervisors are required to check on their workers each day and at these times can ask questions around drinking water, how they are feeling, checking temps in the areas, ensuring adequate break etc
- The WesCEF Exploration Site induction provides information on signs and symptoms of dehydration, and immediate first aid techniques in the event of seeing someone in stages of heat stress.

## 7. Manual Tasks Management

### 7.1 Manual Handling

Workers compensation injury statistics often show us that manual handling creates the most common workplace injuries. While they may score a relatively low - moderate risk score, they can occur often if not appropriately controlled, and this can be debilitating to workers and their livelihood.

This section will assist in identifying hazardous manual tasks and determining and implementing control measures to minimise the risk of a musculoskeletal injury or disorder to workers.

#### 7.1.1 Musculoskeletal Injury

A musculoskeletal disorder is an injury to, or a disease of, the musculoskeletal system. It does not include an injury caused by crushing, entrapment (such as fractures and dislocations) or cutting resulting from the mechanical operation of plant.

MSDs may include conditions such as:

- sprains and strains of muscles, ligaments and tendons
- back injuries, including damage to the muscles, tendons, ligaments, spinal discs, nerves, joints and bones
- joint and bone injuries or degeneration, including injuries to the shoulder, elbow, wrist, hip, knee, ankle, hands and feet
- nerve injuries or compression (e.g. carpal tunnel syndrome)
- muscular and vascular disorders as a result of hand-arm vibration
- soft tissue hernias
- chronic pain.

MSDs have two mechanisms of injury:

1. chronic/ over time: gradual wear and tear to joints, ligaments, muscles and inter-vertebral discs caused by repeated or continuous use of the same body parts, including static body positions
2. immediate: sudden damage caused by strenuous activity, or unexpected movements such as when loads being handled move or change position suddenly.

A hazardous manual task, means a task that requires a person to lift, lower, push, pull, carry or otherwise move, hold or restrain any person, animal or thing involving one or more of the following:

- repetitive or sustained force
- high or sudden force
- repetitive movement
- sustained or awkward posture
- exposure to vibration.

## 7.2 Control Measures

### 7.2.1 Risk Assessment

All tasks that do not have a procedure, will have a Job Hazard Analysis (JHA) developed to detail the task steps, assess the risk to the workers, and determine and implement control measures.

In particular they will consider:

- the work tasks and how they are performed
- the tools, equipment and objects handled
- the physical work environment
- involvement of repetition, sustained or awkward postures, forces, duration, speed, intensity and vibration

### 7.2.2 Hierarchy of Controls for Manual Tasks

As with all control measures, the hierarchy of controls is to be utilised for Manual handling hazards. Suggestions are below

Hierarchy of control	Questions to ask	Examples of control measures
Elimination	<ul style="list-style-type: none"> <li>• Does the task need to be done at all?</li> </ul>	<p>Automate the manual task (such as using remote controls)</p> <p>Deliver goods directly to the point of use to eliminate multiple handling</p>
Substitution	<ul style="list-style-type: none"> <li>• Can the load be made lighter?</li> <li>• Can hand tools be substituted with power tools?</li> </ul>	<p>Replace heavy items with those that are lighter, smaller and/or easier to handle</p> <p>Replace hand tools with power tools to reduce the level of force required to do the task</p>
Engineering	<ul style="list-style-type: none"> <li>• How can we isolate the force from the worker?</li> <li>• What can we put between the worker and the force?</li> <li>• How can we design a work space better?</li> <li>• Can we purchase a piece of mechanical assistance e.g. trolley jack?</li> </ul>	<p>Isolate vibrating machinery from the user, for example by providing fully independent seating on mobile plant</p> <p>Use mechanical lifting aids</p> <p>Provide workstations that are height adjustable</p>
Administrative	<ul style="list-style-type: none"> <li>• Would a procedure about a set way to do something risky be helpful?</li> <li>• Can we train workers in manual handling techniques and strengthening</li> <li>• Do we need signage for uneven surfaces?</li> </ul>	<p>Rotate workers between different tasks</p> <p>Train workers to use control measures implemented when carrying out normal tasks</p> <p>Label loads with weight</p>

Personal protective equipment	<ul style="list-style-type: none"> <li>• What PPE is in the industry we can use?</li> <li>• Are there back support belts available?</li> </ul>	<p>Heat resistant gloves for handling hot items</p> <p>Shock absorbent shoes for work on hard concrete floors</p>
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Further information and detail on specific considerations when risk assessing and controlling a manual task can be found in the Safe Work Australia, "Hazardous Manual Tasks Code of Practice" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au). A summary of control measures is located in Appendix III.

## 8. Definitions

### 8.1 Fitness For Work

"Fit for work" means; an individual is in a state (physical, mental and emotional) which enables the employee to perform assigned tasks competently and in a manner which does not compromise or threaten the safety or health of themselves or others. Any team leader, supervisor or manager can make the assessment that an individual is not fit for work and take appropriate action. The Division's Occupation Physician can be called upon to make a medical assessment, if that is required.

### 8.2 External Personnel

Contractors, consultants, agents and visitors are expected to understand and observe WesCEF standards, and should be aware of this Policy.

### 8.3 Supervisor

Supervisor means the employee's manager, immediate supervisor or team leader.

## 9. References

W.A. Mines Safety and Inspection Act (1994) and Regulations (1995) [www.dmp.wa.gov.au](http://www.dmp.wa.gov.au)

Safe Work Australia, "Hazardous Manual Tasks Code of Practice" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

Safe Work Australia, "Guide for Managing the Risk of Fatigue" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

Dept of Mines and Petroleum, "Management and Prevention of Heat Stress Guideline" [www.dmp.wa.gov.au](http://www.dmp.wa.gov.au)

Dept of Mines and Petroleum, "Working Hours Risk Management Guideline" [www.dmp.wa.gov.au](http://www.dmp.wa.gov.au)

Dept of Mines and Petroleum, "Working Hours Code of Practice" [www.dmp.wa.gov.au](http://www.dmp.wa.gov.au)

Dept of Mines and Petroleum, "Fatigue Factsheet" [www.dmp.wa.gov.au](http://www.dmp.wa.gov.au)

## 10. Appendices

### 10.1 Appendix I – Manual Handling Hazard considerations when performing Risk Assessment

Source: Safe Work Australia, "Hazardous Manual Tasks Code of Practice" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

When developing a JHA or reviewing a task, consider the following manual handling issues.

#### 1. Vibration

Some examples of sources of vibration are:

- a. driving, particularly on rough roads
- b. frequent or prolonged use of hand powered tools
- c. use of machines or tools where the manufacturer's handbook warns of vibration
- d. workers being jolted or continuously shaken
- e. use of a vehicle or tool not suitable for the environment or task.

#### 2. Work area design and layout

Includes: Work benches, conveyors, furniture and fittings and the equipment used by workers

Consider the positioning of the different elements in a work area to each other and to the worker

#### 3. Loads

Includes:

- a. size, shape and weight of load – loads that are large, bulky, or heavy and cannot be held close to the body or are asymmetric and put uneven forces on the spine
- b. loads that are difficult to grip through unsuitable handles, handholds or surface textures
- c. unstable or unwieldy loads can create sudden high muscle forces and result in overloading of muscles, tendons or discs

#### 4. Tools

Includes:

- a. Weight – heavy hand tools increase the force and effort required
- b. Balance – if the heaviest part of the tool is in front of the wrist, the force required to grip the tool and stop it tilting forward is increased.
- c. Handle design – handle diameter determines the grip span of the hand and can create awkward postures and greater force to control the tool. A handle that is too short or has prominent edges, can result in damaging compression of the palm.
- d. Handle orientation – if the handle design does not place the wrist in a handshake position, the worker will need to use an awkward posture to operate the tool. Tools that cannot be adapted for use by both hands or are designed for right-handed use only can result in awkward postures and increased force.
- e. Shock loading and impact – tools that deliver impacts such as hammers, hammer drills, and nail guns transmit impact forces to various ligaments and can require the use of a firmer grip to maintain control. They are a particular source of risk if used repetitively and for long periods.

- f. Prolonged use – continued use of any hand tool without adequate rest time will increase risk of injury due to the sustained force to support it. In particular, vibrating tools increase risk.
  - g. Maintenance – poorly maintained or irregular service of tools and equipment may increase the effort needed to use them.
5. Consider the systems of work

Systems of work, or the way work is organised, can influence the physical and mental demands that a manual task places on a worker.

The sources of risk include:

- a. time constraints
  - b. pace and flow of work across the working day or shift
  - c. ability for workers to influence workload or work methods and changes
  - d. the level of resources and guidance
  - e. consultation processes
  - f. work roles and performance requirements or processes for dealing with conflicts
  - g. staffing levels, skill mix and shift arrangements.
6. Workers' job fitness

Workers have different physical and psychological characteristics and these individual factors may increase the risk, for example:




- a. *Skills and experience* – being inexperienced in a job may increase the risk
  - b. *Physical characteristics* – an overload situation may result from a mismatch between the worker and the task
  - c. *Unaccustomed work* – workers who are new, have transferred from another job or are returning from extended leave and whose muscles are not conditioned to the work.
7. Consider the workplace environment



The sources of risk in the work environment include:

- a. **Cold environments** can lower body and hand temperature and make handling and gripping objects more difficult.
- b. **High temperatures** - (including radiant heat), for example, working in hot weather can make handling and gripping objects more difficult due to perspiration on the hands or there may be sudden or unexpected forces due to loads slipping.
- c. **Humid environments** - Handling wet or damp objects may require increased force. Humidity may also increase discomfort and fatigue.
- d. **Slippery and uneven floor surfaces** - may increase the exertion required to perform manual tasks due to difficulty maintaining stability.
- e. **Obstructions** – caused by poor housekeeping can lead to awkward postures such as reaching or bending over obstacles
- f. **Lighting** - low or high levels of lighting, as well as glare and reflection, may lead to awkward or sustained postures to either improve vision or to avoid glare.




## 10.2 Appendix II – Examples of work causing Musculoskeletal Injury

Source: Safe Work Australia, "Hazardous Manual Tasks Code of Practice" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)



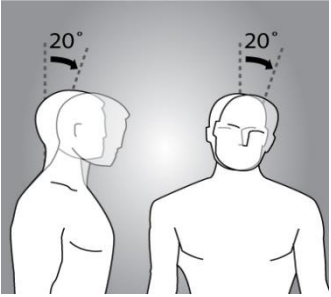
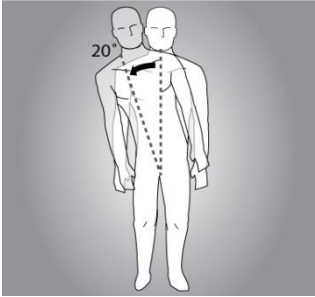

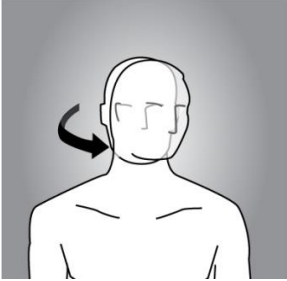

<p><b>Force</b> is the amount of muscular effort required to perform a movement or task. Forceful muscular exertions overload muscles, tendons, joints and discs and are associated with most MSDs.</p>		
<p><i>Repetitive force</i> - using force repeatedly over a period of time to move or support an object</p>	<p>Examples of repetitive force include:</p> <ul style="list-style-type: none"> <li>• lifting and stacking goods onto a pallet</li> <li>• gripping and handling bricks when bricklaying</li> <li>• repetitively pressing components with the thumbs or other part of the hand to assemble an item</li> </ul>	
<p><i>Sustained force</i> - occurs when force is applied continually over a period of time.</p>	<p>Examples of sustained force include:</p> <ul style="list-style-type: none"> <li>• holding down a trigger to operate a power tool</li> <li>• supporting a plaster sheet while fixing it to a ceiling</li> <li>• carrying objects over long distances</li> </ul>	
<p><i>High force</i> – may be exerted by the back, arm or leg muscles or by the hands and fingers.</p> <p>High force occurs in any tasks that:</p> <ul style="list-style-type: none"> <li>• a worker describes as very demanding physically</li> <li>• a worker needs help to do because of the effort it requires</li> <li>• require a stronger person or two persons to do the task.</li> </ul>	<p>Examples of high force include:</p> <ul style="list-style-type: none"> <li>• Lifting, lowering or carrying a heavy object</li> <li>• Lifting, lowering or carrying an object that cannot be positioned close to the body</li> <li>• pushing or pulling an object that is hard to move or stop</li> </ul> <p>Examples of high force using the hands and fingers include:</p> <ul style="list-style-type: none"> <li>• using a finger-grip, a pinch-grip or an open-handed grip to handle a heavy or large load</li> <li>• operating hand tools with tight squeeze grips</li> <li>• gripping small instruments with high force</li> </ul>	

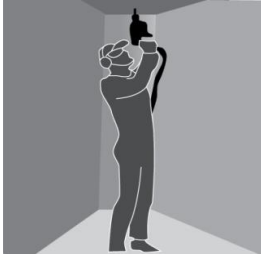



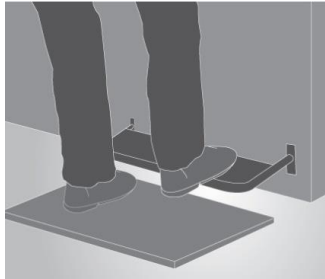
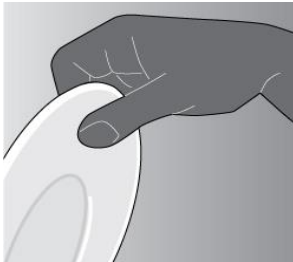
<p><i>Sudden force</i> – jerky or unexpected movements while handling an item or load are particularly hazardous because the body must suddenly adapt to the changing force.</p> <p>Tasks where force is applied suddenly and with speed also generates high force.</p>	<p>Examples of sudden force include:</p> <ul style="list-style-type: none"> <li>• throwing or catching objects</li> <li>• cutting reinforcement steel with large bolt cutters</li> <li>• carrying an unbalanced or unstable load</li> <li>• impact recoil of a large nail gun</li> </ul>	
<b>Movement</b>		
<p><i>Repetitive movement</i> – using the same parts of the body to repeat similar movements over a period of time.</p>	<p>Examples of repetitive movement include:</p> <ul style="list-style-type: none"> <li>• lifting goods from a conveyor belt and packing them in a carton</li> <li>• typing and other keyboard tasks</li> <li>• using a socket and ratchet or spanner to unscrew bolts.</li> </ul>	

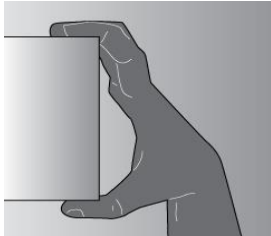
<p><b>Posture</b></p> <p>Ideal posture is where the trunk and head are upright and forward facing, the arms are by the side of the body, forearms are either hanging straight or at right angles to the upper arm, and the hand is in the handshake position. Postures that are awkward and sustained are particularly hazardous.</p>		
<p><i>Sustained posture</i> – where part of or the whole body is kept in the same position for a prolonged period.</p>	<p>Examples of sustained posture include:</p> <ul style="list-style-type: none"> <li>• hanging services</li> <li>• continually standing with weight mainly on one leg while operating a power press with foot pedal controls.</li> </ul>	

<p><i>Awkward posture</i> – where any part of the body is in an unnatural or uncomfortable position, such as:</p> <ul style="list-style-type: none"> <li>• postures that are unbalanced or asymmetrical</li> <li>• postures that require extreme joint angles or bending and twisting.</li> </ul>	<p>Examples of awkward posture include:</p> <ul style="list-style-type: none"> <li>• squatting while servicing plant or a vehicle</li> <li>• working with arms overhead</li> <li>• using a hand tool that causes the wrist to be bent to the side</li> <li>• bending the neck or back to the side to see around bulky items pushed on a trolley.</li> </ul>	
<p><b>Vibration</b> There are two common forms of vibration</p>		
<p><i>Whole body vibration</i> occurs when vibration is transmitted through the whole body, usually via a supporting surface, such as a seat or the floor in heavy vehicles or machinery. This may result in lower back pain, degeneration of the lumbar vertebrae and disc herniation.</p>	<p>Examples of whole body vibration include:</p> <ul style="list-style-type: none"> <li>• operating mobile plant such as heavy earth moving machinery</li> <li>• driving a vehicle over rough terrain.(Figure 7)</li> </ul>	
<p><i>Hand-arm vibration</i> is when vibration is transferred from a vibrating tool, steering wheel or controls in heavy machinery to the hand /arm. This can disrupt blood flow in the hand / forearm and damage nerves and tendons. Localised vibration contributes to 'vibration-induced white finger' and 'carpal tunnel syndrome' through the gripping force needed to hold the vibrating tools (the tighter the grip, the more vibration is absorbed) and the repetitive shock loads of some tools.</p>	<p>Examples of hand-arm vibration include:</p> <ul style="list-style-type: none"> <li>• using impact wrenches, chainsaws, jackhammers, grinders, drills or vibrating compacting plates</li> <li>• using needle guns in de-rusting metal.</li> <li>• Using rattle guns in tyre changing</li> </ul>	

Examples of postures and movements that pose a risk if they are repetitive or sustained are:

<p>Squatting, kneeling, crawling, lying, semi-lying or jumping.</p>		
<p>Very fast movements, for example packing bottles from a fast moving process line.</p>		
<p>Bending the back or head forwards or sideways more than 20 degrees</p>		
<p>Bending the back or head backwards more than 5 degrees or looking up</p>		
<p>Twisting the back or neck more than 20 degrees</p>		

<p>Working with one or both hands above shoulder height</p>		
<p>Reaching forward or sideways more than 30cm from the body</p>		
<p>Reaching behind the body</p>		
<p>Standing with most of the body's weight on one leg</p>		
<p>Twisting, turning, grabbing, picking or wringing actions with the fingers, hands or arms that includes excessive bending of the wrist</p>		

<p>Working with the fingers close together or wide apart</p>	
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## 10.3 Appendix III – Suggested Control Measures for Manual Tasks

Source: Safe Work Australia, "Hazardous Manual Tasks Code of Practice" [www.safeworkaustralia.gov.au](http://www.safeworkaustralia.gov.au)

### 1. Working heights

Tasks with high visual demands should be performed above elbow height and work surfaces may need to be tilted, for example, for tasks involving delicate or precise manipulation.

Tasks where the hands make a narrow range of movements and can rest on the work surface should be performed at, or just above, elbow height. A sloping surface may reduce the amount of neck flexion required to perform desk-based tasks, such as drafting.

Where possible, place items used in manual tasks so they are:

- a. in front of the worker
- b. between waist and shoulder height
- c. close to the midline of workers and orientated towards the worker
- d. on the worker's preferred side
- e. positioned within comfortable reaching distance
- f. positioned to avoid double handling and to avoid moving loads manually over long distances.
- g. Displays and controls should be positioned to encourage comfortable head and neck postures, comfortable hand and arm reach and efficient use. You should:
  - h. place frequently used displays and controls, including keyboards and other input devices, directly in front of the worker
  - i. position controls at comfortable elbow height
  - j. select electronic or foot controls rather than hand controls if high force is required
  - k. place pedals so that workers can operate them from a comfortable seated position.

Light manipulative tasks or tasks involving the use of a keyboard should be performed at just below elbow height.

Tasks incorporating a range of arm movements using the shoulder should be performed at between hip and shoulder height, for example taking items from a stack and placing them on a conveyor.

Tasks requiring considerable muscular effort or use of the body for leverage, for example, drilling at a workbench, should be performed at hip height and no higher.

### 2. Working position

Workers should not remain in a seated, standing or otherwise static posture for prolonged periods. Design the workstation to provide opportunities for workers performing seated or standing tasks to vary their postures and movements

For seated tasks, seating should have the following features:

- a. adjustable seat height and angle
  - b. a contoured backrest with a lumbar curve except those where the backrest would interfere with the actions to be performed
  - c. a swivel action to prevent the worker from twisting to reach workstation components
  - d. rounded seat edges
  - e. a five-point base with casters to allow movement on carpet, and gliders fitted to the base for low-resistance flooring, where access to work items located beyond normal reach is required
  - f. a footrest or foot ring fitted on drafting or higher chairs to support the feet.
  - g. A seated work position is best for:
    - h. work that requires fine manipulation, accurate control or placement of small objects
    - i. close visual work that requires prolonged attention
    - j. work that involves operating a foot pedal.
  - k. Workers carrying out standing tasks should be provided with:
    - l. a chair, stool or support so that the worker can alternate between sitting and standing
    - m. a footrest (large enough for the whole foot) to allow the worker to stand with either foot raised
    - n. where possible, suitable floor covering to cushion concrete and other hard floors.
  - o. A standing work position is best when:
    - p. large, heavy or bulky loads are handled
    - q. forceful movements are required
    - r. reaching is required
    - s. movements away from the working position are frequent
    - t. there is no knee room
    - u. there is limited space.
3. Work space

Work areas should have enough space to accommodate the number of workers and other people involved in the task, any equipment that might be required and space to operate the equipment safely. For example, when observing workers of an aged care facility assisting an infirm person to bathe, the bathroom may need to accommodate two workers, the client and a mobile hoist with space to manoeuvre a person in the hoist over the toilet and bath or into a shower area.

#### 4. Handling loads

Examples of control measures that should be considered when handling loads include:

- a. purchasing products in smaller loads for manual handling or larger loads to be shifted mechanically
- b. reducing the size or capacity of containers
- c. using handheld hooks or suction pads to move loads such as sheet materials
- d. using grip devices adapted to the particular object to be carried.

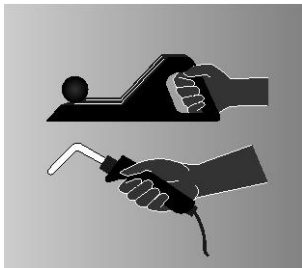
## 5. Tools and equipment

Hand tools should be designed to:

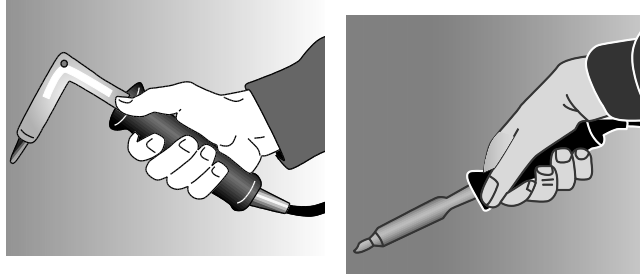
- a. be held in a neutral wrist or handshake position
- b. allow the hand to retain a comfortable grip span
- c. be well-balanced (the heaviest part of the tool needs to be behind the wrist)
- d. be suitable for use by either hand
- e. provide a good grip surface
- f. prevent a worker from adopting a pinch grip with high force or for prolonged periods.
- g. Minimise the level of muscular effort, particularly of the shoulder and wrist, needed to use hand tools by:
  - h. using power tools where possible
  - i. suspending or supporting heavy tools where they are used repetitively and in the same place
  - j. counterbalancing heavy tools that are used repetitively and need to be kept away from the body
  - k. using trigger locks where the grip has to be sustained for more than 30 seconds
  - l. holding the work piece in place with either jigs or fixtures selecting tools that produce the least amount of vibration
  - m. reducing impact shocks
  - n. limiting torque or 'kick back' reactions.

## 6. Maintenance

Tools and equipment should be well maintained by carrying out regular inspections and servicing in accordance with the manufacturer's specifications.



Select tools that can be held with a neutral wrist or in a handshake position with the hand adopting a comfortable (not too open or too closed) grip. Orient jigs and fixtures holding the workpiece so that the wrist does not have to bend.

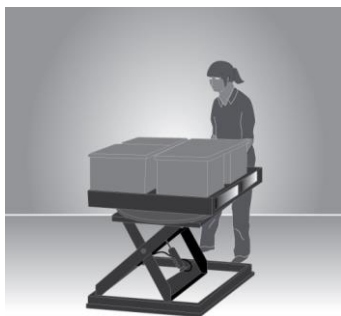


Excessive bending of the wrist is required to use this tool. Modifying the tool eliminates the awkward wrist posture

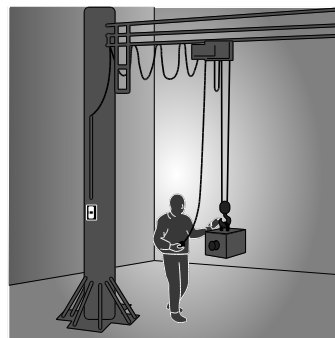
## 7. Using mechanical aids

Mechanical equipment may eliminate or reduce the need for workers to lift, carry or support items, animals or people. A wide range of mechanical aids is available for various industries, for example:

- a. conveyors such as roller conveyors, elevating conveyors, belt conveyors, screw conveyors, chutes, monorails or trolley conveyors
- b. cranes such as overhead travelling cranes, gantry cranes or jib cranes, stacker cranes, industrial manipulators and articulating arms
- c. lifting hoists
- d. loading dock levellers
- e. turntables
- f. springs or gas struts, mechanical devices such as hand winches, hydraulic pumps, and battery powered motors
- g. forklifts, platform trucks, tractor-trailer trains, tugs and pallet trucks
- h. lift tables, mechanical and hand stackers, lift trolleys, two-wheel elevating hand trucks, and vacuum or magnet assisted lifters
- i. glass panel, duct and plaster lifters.
- j.



Example of lift table



Mechanical aids should be:

- k. designed to suit the load and the work being done

- l. as light as their function will allow
  - m. adjustable to accommodate a range of users
  - n. easy to use
  - o. suited to the environment in which the task is performed
  - p. located close to the work area so they are readily available but do not cause an obstruction
  - q. supported by a maintenance program to ensure they are safe and that the required effort to use them is kept at the lowest possible level
  - r. introduced with suitable instruction and training in their use.
8. Pushing and pulling loads

Pushing loads is preferable to pulling because it involves less work by the muscles of the lower back, allows maximum use of body weight, less awkward postures and generally allows workers to adopt a forward facing posture, providing better vision in the direction of travel.

Reduce the effort required to start the load in motion by:

- a. using motorised push/pull equipment such as tugs or electric pallet jacks
- b. using slide sheets to reduce friction when moving patients
- c. positioning trolleys with wheels in the direction of travel
- d. using large power muscles of the legs and whole body momentum to initiate the push or pull of a load.
- e. Reduce the effort to keep the load moving by:
- f. using motorised hand trucks and trolleys that are as lightly constructed as possible and have large wheels or castors that are sized correctly and roll freely
- g. using hand trucks or trolleys that have vertical handles, or handles at a height of approximately one metre
- h. ensuring that hand trucks and trolleys are well maintained
- i. treating surfaces to reduce resistance when sliding loads
- j. for pushing, ensuring handles allow the hands to be positioned above waist height and with elbows bent close to the body
- k. for pulling, ensuring handles allow the hands to be positioned below waist height allowing workers to adopt a standing position rather than being seated so the whole body can be used.
- l. Reduce the effort needed to stop the load by:
- m. indicating the place where loads need to be delivered
- n. planning the flow of work
- o. encouraging workers to slow down gradually
- p. fitting brakes and speed limiters so speed can be controlled, particularly if there is a need to stop quickly so as to avoid other traffic.



A trolley can eliminate many of the risks involved in manual handling, however, the load will still need to be manoeuvred onto the trolley and through the workplace.

## 9. Workload and pace of work

The workload and pace should accommodate the physical demands of the manual task. Where possible, work should be organised to minimise multiple handling and improve the flow of work by:

- a. having raw materials delivered, located or transferred mechanically to the location or work area where they will be used. For example, building supplies can be delivered by truck or crane to the on-site location where they will be used or to the external lift, rather than being delivered to the front gate
- b. delivering materials, tools and items on mobile systems, for example, on roller pallets
- c. processing and packaging items in the same location or on the same workbench
- d. locating storage areas close to distribution areas
- e. changing the distribution of work across the work day or week to avoid high peak workloads
- f. using systems that minimise the need for storage and additional handling
- g. asking suppliers to deliver products, items or tools in a way that allows them to be used without the need for additional handling, for example, flat packs delivered on a vertical frame or table tops facing the right way up for use.
- h. Workers should not have to work at a rate that is at the limit of their ability. When you establish a work rate, you should consult with the workers affected and their health and safety representatives. Set realistic work rates by:
  - i. allowing workers to control the pace for critical or physically demanding tasks
  - j. providing adjustability in the line speed, for example, reduce the speed when conditions are altered, such as when new products are introduced or poor quality materials are used
  - k. providing buffers to allow material to be taken off-line, for example, 'holding' bins or benches off the main processing conveyor.

## 10. Design tasks for the working population

Task design should take account of the range of human dimensions and capabilities such as height, reach and weight. Adapt work systems to accommodate the health/fitness status of a worker. If this is not reasonably practicable, allocate the worker to other tasks. In designing work systems, considerations also include:

- a. the capacity of workers who have not reached physical maturity for physically demanding work

- b. the possibility that older workers may have a decreased physical capacity for physically demanding or fast work
- c. the need for gradual adjustment to physically demanding work activities during recovery from injury or illness
- d. pregnancy which affects the risk of back pain because of the changing shape of the body.
- e. Provide transition arrangements for workers undertaking unaccustomed work by:
- f. reducing the pace of work or workloads
- g. providing more frequent breaks
- h. job rotation.

## 11. Resources and support

When introducing risk control measures that involve plant, tools or equipment, ensure that:

- a. it is the right equipment for the task
- b. there is sufficient, available equipment
- c. plant, tools and equipment are checked and maintained on a regular basis.
- d. To allow for adequate recovery time and to reduce exposure to risks of MSD, arrange to have the right staffing levels, skill mix and shift arrangements considering:
- e. shift lengths
- f. the levels of overtime
- g. placement of rostered days off
- h. the numbers of workers during peak periods

## 12. Vibration

- a. *Whole-body vibration* – the design of vibration damped equipment and engine mountings are the most effective methods of controlling vibration exposure. Other strategies to reduce exposure include:
  - (i) improving vehicle suspension and installation of operator seats mounted on suspension systems which incorporate spring and damper elements
  - (ii) ensuring that equipment and control measures implemented to reduce vibration are well maintained
  - (iii) ensuring workers adjust their seats appropriately and equipment is operated within the speed suggested by the manufacturer or to a speed that reduces vibration levels
  - (iv) training workers about the risks associated with whole-body vibration, the controls that have been implemented and how they should be used.
- b. *Hand-arm vibration* – substitute alternative manufacturing methods or processes to eliminate the need for vibrating equipment. Where this is not possible, the best strategy is to purchase tools and equipment that produce less vibration.

## 13. Heat and humidity

For workers in hot and humid conditions, reduce temperature and humidity during manual tasks where possible by:

- a. relocating work away from sources of heat

- b. providing fans or air-conditioning
- c. using screens, awnings and clothing to shield workers from radiant heat sources such as ovens, furnaces and the sun
- d. enclosing hot processes and increasing ventilation
- e. altering work schedules so that work is done at cooler times
- f. providing a cool, well-ventilated area where workers can take rest breaks
- g. ensuring that workers work at a sensible pace
- h. providing a supply of cool drinking water.

## 14. Floors and surfaces

Keeping work areas clean, tidy and free of clutter or obstacles prevents workers from adopting awkward postures and reduces the level of exertion that may be required to reach over or around obstacles. Clean, smooth and flat surfaces can also reduce forces required to push and pull objects and prevent slips, trips and falls.

## 15. Lighting

Select lighting to suit the task performed. To prevent awkward or sustained postures that may arise from low or excessive levels of lighting, glare or reflection:

- a. provide additional lighting, such as a lamp on a movable arm, where required
- b. improve the layout of existing lights by lowering or raising them or changing their position in the work area
- c. increase or decrease the number of lights
- d. change the diffusers or reflectors on existing lights
- e. change the lights to improve light levels or improve colour perception
- f. change the orientation or position of the item to avoid shadows, glare or reflections
- g. clean lights and light fittings regularly
- h. use screens, visors, shields, hoods, curtains, blinds or external louvers to reduce reflections, shadows and glare
- i. control natural light sources (particularly bright sunshine) on work pieces, screens and work surfaces by orientation and placement at 90 degrees to the source and/or by providing screening and louvers.

## 16. Job rotation

The risk of MSDs may be minimised by rotating staff between different tasks to increase task variety. Job rotation requires the tasks to be sufficiently different to ensure that different muscle groups are used in different ways so they have a chance to recover. To increase task variety, you should consider:

- a. combining two or more tasks so both are done by one worker and alter the workstation and items used accordingly
- b. providing breaks doing another task when the job is monotonous.

## 17. Rest breaks

Regular rest breaks provide opportunities for workers to prevent the build-up of, or recover from the effects of, fatigue in muscle groups used during hazardous manual tasks that involve:

- a. repetitive awkward postures or sustained postures

- b. application of high force
- c. vibration
- d. long duration
- e. high levels of mental demand combined with hazardous manual tasks, for example inspection work.

The frequency and duration of rest breaks will be dependent on the nature of the task. Generally, the greater the force required, or the longer a posture is sustained, the greater the recovery time.

More frequent and shorter rest breaks are better for rest and recovery than fewer, longer breaks. Build short breaks into task rotation arrangements where work is of a similar nature, for example process production or hand tool use. Micro-pauses (very short intermittent breaks) in physical activity are also beneficial. Build these into the design of tasks and methods of work, for example:

- workers put down hand tools or release them (suspension) between operations
- keyboard operators remove hands from keyboards during natural keying breaks
- stagger manual tasks over the full work shift.

## 18. Team handling

Team handling is manual handling of a load by two or more workers. Team handling brings its own risks and requires coordination. It should only be used as an interim control measure. You should redesign manual tasks to allow the use of mechanical equipment, or eliminate the need to lift, if there is a regular need for team handling. Team lifting can increase the risk of MSD if:

- a. the load is not shared equally
- b. workers do not exert force simultaneously
- c. individual workers need to make foot or hand adjustments to accommodate other team members, reducing the force each can exert
- d. performed on steps or on a slope where most of the weight will be borne by handlers at the lower end
- e. individual workers unexpectedly lose their grip, increasing or changing the balance of the load on other team members.
- f. Whenever team handling is used it is essential to match workers, co-ordinate and carefully plan the lift. You should ensure that:
- g. the number of workers in the team is in proportion to the weight of the load and the difficulty of the lift
- h. one person is appointed to plan and take charge of the operation
- i. enough space is available for the handlers to manoeuvre as a group
- j. team members are of similar height and capability, where possible
- k. team members know their responsibilities during the lift
- l. training in team lifting has been provided and the lift rehearsed, including what to do in case of an emergency
- m. aids to assist with handling (a stretcher, slings, straps, lifting bars, lifting tongs, trolleys, hoists) are used where possible and training is provided in their use.

## 10.4 Appendix IV – Stages of Heat Stress

Source: Dept of Mines and Petroleum “*Management and Prevention of Heat Stress Guideline*”  
www.dmp.wa.gov.au

A description of the symptoms of the various effects is tabulated below.

Adverse Effect	Description
Skin problems (e.g. prickly heat)	Caused by blockage of sweat ducts and associated inflammation of the skin.
Heat strain	This is the change in pulse, body temperature and sweating. It may lead to heat illness if the heat load continues.
Heat illness	This is a feeling of weakness, dizziness and nausea. The person loses concentration. Safety awareness and performance may deteriorate.
Heat exhaustion	<p>If there is insufficient replacement of water loss from sweating, progressive dehydration occurs. These can be pallor, profuse sweating, hypotension, rapid heart rate, alteration of consciousness, thirst and increase in body temperature. Blood pooling may cause fainting.</p> <p>Salt deficiency, especially following long periods of sweating may also produce a form of heat exhaustion and can cause muscle cramps.</p>
Heat stroke	This is more severe and may be life threatening. A person may become irritable, confused and apathetic before a life threatening stage is reached. The person may also have fits. The body temperature is high (over 40°C) and the skin may be hot and dry. Heat stroke can occur if treatment is not given immediately. Any increase in body core temperature beyond that point is life threatening and must be treated accordingly.
Chronic heat disorders	These are not well documented and there is little available information.