



Standard Operating Procedure

Manual Handling Tasks and Ergonomics



Contents

1. PURPOSE.....	3
2. SCOPE.....	3
3. DEFINITIONS.....	3
4. PROCEDURE.....	3
4.1. Assessment.....	3
4.2. Work Planning	3
4.3. Training and Competency	4
4.4. Controlling the Risk of Injury	4
4.5. Manual Handling Factors to Reduce the Risk	4
4.6. Weights and Forces.....	4
4.7. PPE	5
4.8. Vibration	5
4.9. Safe Manual Lifting of Objects.....	5
4.10. Ergonomics.....	6
4.10.1. Seated Posture Principles (Office and Administration).....	6
4.10.2. Seated Posture Principles (Operators)	6
5. ROLES AND RESPONSIBILITIES.....	6
6. REFERENCES	7
7. REVIEW	7
8. DOCUMENT CONTROL	7



1. PURPOSE

The purpose of this procedure is to describe the requirements and to ensure the hazards and risks associated with ergonomics and carrying out manual handling tasks, are effectively managed at the Vulcan Mine.

2. SCOPE

This procedure is applicable to all persons at the Vulcan Mine including employees, contractors and visitors.

The controls within this procedure are mandatory.

3. DEFINITIONS

Authorised Person	A person who has the required competencies and who has been appointed by the Site Senior Executive to carry out a designated scope of duties.
CMSHA	Queensland Coal Mining Safety and Health Act (1999).
CMSHR	Queensland Coal Mining Safety and Health Regulation (2017).
CMW	Coal Mine Worker.
Competent Person	A person who has, through a combination of training, education and experience, acquired knowledge and skills enabling that person to perform correctly a specified task.
PPE	Personal Protective Equipment.
SHMS	Safety and Health Management System.
SOP	Standard Operating Procedure.
SSE	Site Senior Executive
Take 5	Personal Risk Assessment.

4. PROCEDURE

4.1. Assessment

A risk assessment is required to be conducted when potentially high-risk manual handling tasks are identified. Any such tasks shall be assessed for ways to minimise risk of injury.

High-risk manual handling may include any of the following characteristics:

- repetitive or sustained application of force;
- repetitive or sustained awkward posture;
- repetitive or sustained movement;
- application of high force;
- exposure to sustained vibration;
- manual handling of live persons or animals;
- manual handling of unstable or unbalanced loads or loads which are difficult to grasp or hold;
- or
- manual handling of containers of hazardous chemicals.

4.2. Work Planning

Work shall be planned to ensure:

- there are sufficient workers to undertake the task;
- path is planned and eyes on path at all times;
- task rotation where applicable;
- there is no pressure to take shortcuts; and
- the work environment e.g. lighting, housekeeping etc. is conducive to the completion of the task.



4.3. Training and Competency

All personnel shall undergo training in general manual task hazard awareness in the site induction.

Familiarisation and hazard awareness associated with performing manual tasks be provided via periodic toolbox talks.

4.4. Controlling the Risk of Injury

The hierarchy of control measures shall be applied to minimise the risk of harm or injury from manual handling. The following measures shall be considered:

- design the task to eliminate manual handling by eliminating a task altogether;
- consider the object being handled by making it lighter, or less bulky and easier to handle;
- consider the workplace or workstation layout;
- consider the way work is organised by incorporating job rotation;
- consider using different actions and movements where practicable, with or without workplace modifications;
- consider using mechanical assistance such as crowbars, rollers, platforms and trolleys;
- consider team lifting;
- coordinating the lift and ensuring sufficient training has been provided; and
- mechanical handling equipment e.g. cranes, hoists, forklifts, jacks etc.

It is important to consider that risk of injury comes not just from the weight of the object but from the way the object is handled, the work environment and the repetitiveness or frequency of the manual handling task. Musculoskeletal disorders can occur suddenly as a result of a single forceful action or develop over long periods if symptoms associated with minor tissue injuries are ignored.

4.5. Manual Handling Factors to Reduce the Risk

Actions and movements to reduce the risk of injury include:

- no sudden, jerky or hard-to-control movements;
- lifting evenly or with both hands;
- no extreme movement of joints;
- no prolonged bending, twisting, or over-reaching;
- limit repetitive movement;
- limit (frequent) forceful movement;
- ensure posture is not sustained in the same position for a long time;
- infrequent bending and twisting of the wrist; and
- using properly designed tools (tools and levers should allow the wrist to remain straight).

Layout of the work area should allow the person to work while:

- standing or sitting upright and facing forward;
- having adequate foot and knee space under the working surface;
- having tools and work items placed in between the waist to shoulder range;
- displays, documents and information are front on to the worker and in a comfortable viewing range;
- maintaining good lighting and visibility; and
- ensuring tasks or tools are at about waist height and within easy reach.

Consideration of the duration and frequency of the manual handling task being performed is required. Requirements to move loads that are located above shoulder or below mid-thigh height should be minimised as should the distance the load has to be moved.

4.6. Weights and Forces

The weight of the load, the force necessary to move it and the type of load will depend on:

- how heavy the object is;
- the distance of the load from the body;
- how much force is needed to lift, push, pull or hold it; and
- whether it is bulky, unstable, awkward or hard to grasp.



4.7. PPE

Some clothing or PPE can make manual handling difficult in some situations (e.g. loose clothing may get caught, jewellery, etc.). A JHA or Take 5 shall be used to determine appropriate PPE requirements as part of the hazard control process.

Shirts are to be tucked-in at all times to eliminate loose clothing exposure to rotating parts.

Gloves to be on belt clip or similar when outside and ensure they are used on all manual handling tasks.

4.8. Vibration

Exposure to vibration can be a significant hazard when using certain tools, particularly vibrating, rotating and impact tools. Exposure can be minimised by:

- observing OEM manual;
- correct use of PPE;
- measuring vibration;
- regular breaks and job rotation;
- right tool for the job; and
- maintaining tools and equipment.

The extent of vibration including whole body vibration exposure of mobile plant operators can be reduced by consideration to the following factors:

- road construction and maintenance;
- surface mobile equipment selection including vehicle suspension;
- maintenance;
- seat design and suspension;
- ensuring workers adjust their seats appropriately;
- speed suggested by the manufacturer;
- cabin layout, design and orientation;
- vehicle speed, operator skills and awareness;
- lighting (VUL-MOP-144-Lighting); and
- roads design to the VUL-SOP-128-Design and Construction of Mine Roads.

4.9. Safe Manual Lifting of Objects

The following 11 Step Guide contains general principles for the safe manual lifting of objects:

1. **Assess the Load and Plan the Lift**
To do this, assess what you are lifting, deciding where and how you are going to move it. Ideally, lifting should occur at mid-thigh to shoulder height. Avoid unnecessary bending, twisting or reaching. Ensure there is a clear path to your destination and a suitable place to put the load down.
2. **Size up the load**
Should you not be able to lift the load comfortably on your own, either use a mechanical aid or the assistance of another person for a two-person lift.
3. **Get Close to the Load**
Position yourself as close to the centre of the load as possible. If the load is on a bench, pull it closer towards you. This will minimise strain on the back while lifting and enable you to use your strongest arm muscles to hold the load.
4. **Place Feet Apart for Balance**
Place your feet apart to make sure your body posture is evenly balanced. If the load is positioned below waist height, straddle it if possible before lifting.
5. **Relax the Knees**
To begin the lift, gently relax your knees to get down close to the load.
6. **Lower Your Body and Bend Your Knees**
Lower your body, bending at your knees. Preferably, your knees should not be bent beyond right angles. Bend your back slightly, if necessary.
7. **Lower Your Head**
Lower your head to look at the load you are lifting.



8. ***Get a Firm Grip on the Load***
Grip the load securely and comfortably with both hands. Use your whole hand, rather than just your fingers. A firm grip should help pull the load closer, as well as support its weight. Pull the load as close to your body as possible.
9. ***Raise Your Head***
Gently raise your head upwards (look forward). This will help you position your back correctly and ensure your arm and leg muscles take most of the load.
10. ***Straighten Your Legs***
Straighten your legs and lift slowly and smoothly, minimising the use of your lower back. Keep the load close to your body while lifting.
11. ***Lift and Turn Your Feet***
After lifting the load, turn your feet, then your body in the direction you wish to walk. Avoid twisting your body while carrying out the lift.

4.10. Ergonomics

4.10.1. Seated Posture Principles (Office and Administration)

- Adjust chair to a comfortable height so elbows are level or just above desk height.
- Adjust the chair back-rest so the lumbar support is in your lower back.
- Support feet flat on the ground. Use a footrest if feet are not properly supported given seat height.
- Ensure seat is set such that hips, knees and ankles are between 90 to 100 degrees.
- When keyboarding, keep elbow by your side and keep wrists flat. Drop legs on keyboard to promote better wrist position.
- Situate the monitor with eye line approximately top third of the screen. Monitor should be arm's length away.
- Place often used items within easy reach.
- Alter the position of the monitor to avoid any glare or reflection on the screen.
- Avoid sitting in a static position for long periods of time. Change posture regularly either through a short walk, office stretches or non-sedentary duties.

4.10.2. Seated Posture Principles (Operators)

- Adjust the seat for your weight and work conditions.
- Adjust the seat for your height to ensure access to all controls and instruments with shoulder/arm in a relaxed position by the side.
- Ensure your back maintains contact with the seat whilst operating mobile plant.
- Adjust lumbar support to maintain natural curves of back. If seat does not have lumbar support, create one by folding up a small towel and placing behind back.
- Perform stretches and shift positions regularly.

5. ROLES AND RESPONSIBILITIES

SSE	Shall review and approve this procedure.
HSET Superintendent	Shall ensure that all provisions of this procedure are implemented, and that compliance is achieved.
Managers/Superintendents	Shall be responsible for their area of operations and the implementation and application of this procedure; Provide adequate training, information, structure and supervision to ensure that this procedure is implemented; Carry-out a periodic review of activities to ensure the appropriate application and understanding of this procedure; and Ensure immediate and appropriate steps are taken to investigate and rectify any risks to health and safety arising from these activities.
Supervisors	Ensure all CMWs are familiar with, have access to and comply with the requirements set out in this procedure.
All CMWs (including visitors and contactor)	Shall comply with the requirements of this procedure.



6. REFERENCES

- Coal Mining Safety and Health Act 1999 (Qld)
- Coal Mining Safety and Health Regulation 2017 (Qld)
- DNRME Significant Incident 60 Injury due to sudden fracture of spanner
- DNRME Safety Bulletin 133 Preventing serious hand injuries
- DNRME Safety Alert 165 Stored Energy While Manual Handling
- Hazardous Manual Tasks Code of Practice 2011
- VUL-SOP-128-Design and Construction of Mine Roads
- VUL-MOP-144-Lighting

7. REVIEW

This document shall be reviewed minimum two yearly, or as follows:

- when there is a change of method and/or technology and/or legal or other requirement that may affect the accuracy of this document;
- when operational changes occur that effect the currency of the document;
- when there has been a significant event to which this document was relevant; and
- as a result of relevant audit findings.

8. DOCUMENT CONTROL

Version	Date	Description	Document Controller
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