



VULCAN MINE

Standard Operating Procedure

Work on or Near Product Stockpiles and Coal Waste Dumps





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1. PURPOSE

The purpose of this procedure is to describe requirements and to effectively manage hazards and risks associated with working in on product stockpiles and coal waste dumps at the Vulcan Mine.

This procedure has been developed to ensure compliance with sections 136 and 138 (1)(a) of the CSMHR.

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

AS	Australian Standards.
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).
CSMHR	Queensland Coal Mining Safety and Health Regulation (2017).
CMW	Coal Mine Worker.
Competent Person	Competence for a task at a coal mine is the demonstrated skill and knowledge required to carry out the task to a standard necessary for the safety and health of persons.
GET	Ground Engaging Tool.
HME	Heavy Mobile Equipment.
HSET	Health, Safety, Environment and Training.
JHA	Job Hazard Analysis.
OCE	Open Cut Examiner.
OEM	Original Equipment Manufacturer.
ROM	Run of Mine.
SHMS	Safety and Health Management System.
Take 5	Personal Risk Assessment.

4. PROCEDURE

4.1. Plant Requirements

Mobile plant working on coal stockpiles shall have an operational 'automatic' fire suppression unit fitted in accordance with AS 5062.2022. The automatic fire suppression system shall ensure immediate shutdown of the engine on activation. A fixed fire suppression system does not negate the requirement for the plant to have a portable fire extinguisher on-board.

Mobile plant engines shall be capable of being stopped, independently of the operator, e.g. external ground level emergency stop switch. All mobile plant working on coal stockpiles is to have a cab pressuriser installed and maintained, as per the machine's introduction assessment to site.

Disposable dust masks to manage airborne contaminants in the atmosphere, e.g. silica and coal dust, shall be provided to plant operators working on stockpiles. Dust masks shall be fit-tested as per VUL-SOP-065-PPE.

4.2. Safety Berms

Safety berms shall be constructed and maintained at the edge of stockpiles and dumps. Safety berms shall be constructed in accordance with VUL-SOP-128-Design and Construction of Mine Roads.



4.3. Stockpile and Dump Management

To ensure high coal quality levels, raw stockpiles are to be maintained at a single level (ie paddock stack and pushed up). This is to keep machines from traversing over the coal and crushing the coal.

To increase the height of the stockpile by adding another lift, requires the written permission of operation management.

Adequate drainage for rainfall events and flooding shall be provided and consideration shall be given to:

- Draining the water off dumps or stockpiles away from the active edge of the dump or stockpile, so the stability of the active dump or stockpile face is not compromised;
- Wet materials that have a risk of slumping, shall not to be dumped near or over the tip edge. Wet material shall be dumped as directed by the supervisor or OCE.

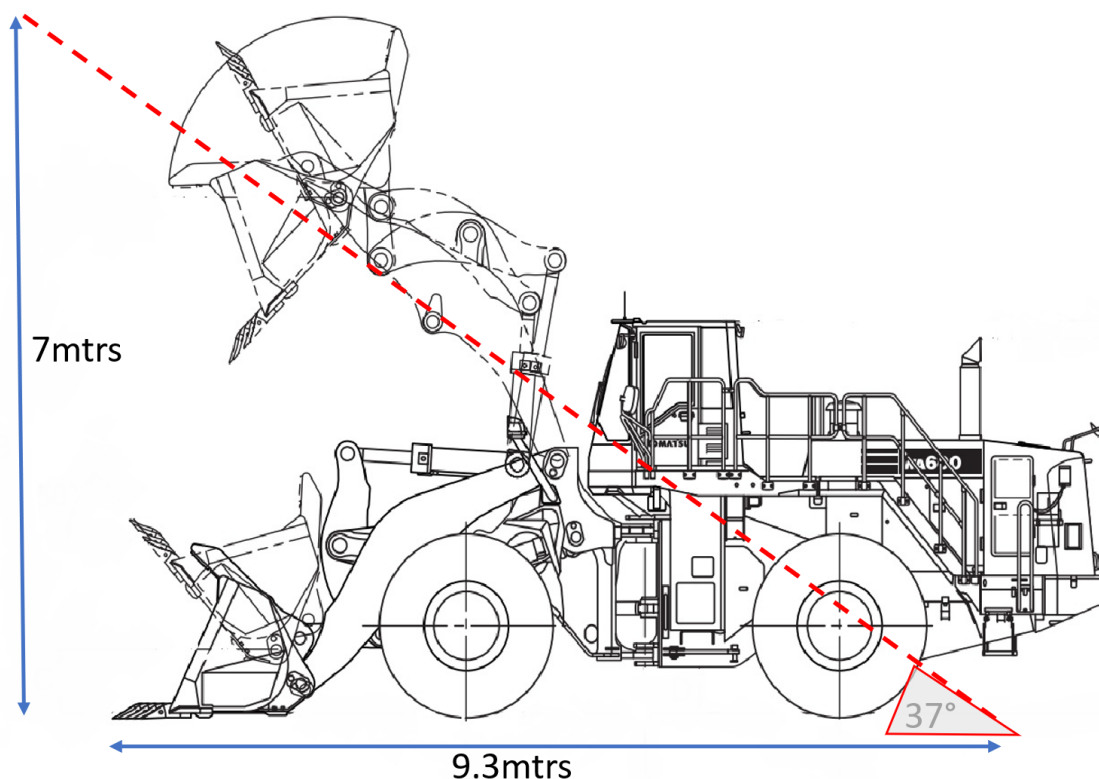
4.4. Overhangs and Pushing over Edges

Vertical faces shall be barricaded using safety berms. Alternatively, the access ramp to the top of the stockpile shall be barricaded or removed.

The removal of overhangs shall only be carried out with track dozers, operating from the top of the stockpile bench. Rubber tyred machines shall not be used to push material over vertical or overhung stockpile faces.

A blade or bucket full of material shall be left at the top of the stockpile or dump and then pushed off with the next blade or bucket full of material.

The maximum height of a raw coal stockpile face should not exceed 7 metres. (For reference - This height is the max hinge pin height of the WA900 and means in an absolute worst case scenario of a vertical stockpile face collapsing to repose , the stockpile cannot engulf the cab of a WA600.



Where the height of the raw stockpile face needs to exceed this height, a JHA shall be completed to assess the risk.

Due to the nature of which the processed radial stacker produces an even stockpile at angle of repose, this stockpile is permitted above the raw stockpile limit. When loading from this pile, an angle of repose must be maintained (no hang up or vertical face). If this can not be maintained, the stockpile is to be rectified to ensure there is no potential for uncontrolled collapse.



4.5. ROM and Product Stockpile Operations

4.5.1. Access to ROM and Product Stockpiles

Equipment collisions and traffic movement is managed through the use of Traffic Management Plans, these are controlled by the ROM supervisor.

ROM and coal stockpiles are designated as Restricted Access areas.

Permission via positive radio communication shall be obtained prior to accessing the ROM or coal stockpiles. Where permission for pedestrian access has been given, the plant operator shall maintain positive communications with the pedestrian.

Pedestrians shall:

- comply with warning signs in the area;
- be restricted access to product stockpiles as far as practicable;
- avoid access to coal stockpiles during hours of darkness;
- avoid access to stockpiles in wet weather;
- not walk along the sides of any undercut stockpile or a vertical face; and
- be alert to the presence of spontaneous combustion.

Plant operators shall not leave their mobile plant whilst the machine is parked on a stockpile.

Mobile plant shall be parked in designated areas.

Survey personnel shall contact plant operators for any survey related activities including drone use.

4.5.2. Dumping on ROM

When the opencut circuit/s are transporting coal to the ROM (Mining activities), the OCE is required to inspect the ROM as part of the OCE inspection.

Operators shall report hazards to their supervisor or OCE when carting coal to the ROM area.

4.5.3. General Requirements for the Operation of the ROM

Refuelling shall be undertaken in designated areas.

Safe work procedures such as SWP 001 – ROM Operations & SWP 003 – ROM watering, outline step by step processes for ROM operations.

Prior to working on stockpiles operators shall:

- inspect stockpiles for undercut edges, slumping, face heights, shadows etc. prior to accessing stockpile; and
- ensure there is adequate lighting to perform the task.

4.5.4. Lost GET on the ROM

In the event that GETs are lost in the ROM stockpile area:

- contact the supervisor and OCE;
- trucks from the load unit shall be stopped immediately; and
- the supervisor or OCE shall inspect the immediate area for the lost GET.

4.5.5. Traversing a Product Stockpile

Supervisors or OCE shall make mobile plant operators aware of any stockpile voids or undercut stockpiles that could create a risk of plant overturning whilst operating or traversing the dump or stockpile.

Mobile plant and light vehicles shall park in designated areas.

Protocols for taking emergency action if equipment falls into a void are outlined in VUL-PLN-035 – Emergency Planning and Response Plan - Guideline 10 - Recovery from Void/Engulfment.



4.5.6. Heated Areas and Areas of Spontaneous Combustion

To reduce the risk of spontaneous combustion occurring, all areas of coal susceptible to spontaneous combustion will be identified. The following practice shall be implemented as required:

- *Spoil* - accumulations of coal material, particularly if pyritic, should be buried under inert spoil.
- *Product coal* - both ROM and saleable product coal have been known elsewhere to be susceptible to spontaneous combustion. Caution should be taken where there is segregation of material sizes due to the stockpiling/dumping technique. A layer/fringe of coarser particles at the base and edges of stockpiles allows enhanced ventilation and an increased potential for spontaneous combustion.
- *Open cut coal faces* - coal spalling from the coal face should not be allowed to remain against the face. If the coal is liable to spontaneous combustion, loose coal should be cleared away. At the end of the mine life such coal faces should be effectively sealed with water, clay or thick blanket of inert spoil.

Spontaneous combustion fires may be detected fairly early in their development, i.e. before the obvious smoke or flame. Any of the following may assist in early detection, depending upon the particular circumstances:

- Heated areas are identified by: heat haze and 'steam' plumes (particularly on cold mornings and during times of high humidity); heat; puffs of smoke; smell (sulphur); and/or, flame (glow).
- The exact position of 'hot spots' may be detected by infrared monitoring instruments (heat gun) or thermal imaging camera.

A person discovering a heated area shall notify the OCE and any person working in the vicinity of the heated area.

4.5.7. Re-establishment of Stockpiles

If an area of the dump is deemed to have become unsafe by the OCE or other person, that area of the dump shall be marked as unsafe. Prior to this area of the dump being declared safe again, the following must be completed:

- the natural angle of the dump face is re-established by dozing or other means;
- the dump face is inspected by the supervisor or OCE;
- the physical barrier on top of the dump is pushed out and a new tip is established; and
- markers are placed on or near the windrow to indicate the safe tipping area.

4.5.8. Lighting

Adequate lighting shall be provided where personnel are required to work on stockpiles during hours of darkness as described in the VUL-MOP-144-Lighting.

Operators must ensure the area and equipment lighting provides adequate illumination of the work area and is located so shadows are minimised.



5. ROLES AND RESPONSIBILITIES

SSE	Shall review and approve this procedure.
HST Superintendent	Shall ensure that all provisions of this procedure are implemented, and that compliance is achieved.
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

- AS 5062 Fire protection for mobile and transportable equipment
- AS 60529-2004 (R2018) Degrees of protection provided by enclosures (IP Code)
- AS/NZS 4024 Series Safety of machinery
- AS/NZS 60079.10.1 Explosive atmospheres - Classification of areas - Explosive gas atmospheres
- AS/NZS 60079.10.2 Explosive atmospheres - Classification of areas - Explosive dust atmospheres
- Coal Mining Safety and Health Act 1999 (Qld)
- Coal Mining Safety and Health Regulation 2017 (Qld)
- RSHQ Safety Alert 77 Dumping over tip heads
- RSHQ Safety Alert 97 Restricting access to hazardous areas
- RSHQ Safety Alert 247 Trucks tipping over the edge
- RSHQ Safety Alert 424 Dozers entrapped in stockpile voids above feed valves
- RSHQ Safety Bulletin 35 Excavation edge protection
- RSHQ Significant Incident 17 Dump truck with unbalanced load becomes unstable
- RSHQ Significant incident 26 Dumping overburden near coal crew operations
- RSHQ Significant Incident 40 Truck falls backwards over tipping edge
- RSHQ Significant Incident 42 Rollover of rear dump truck
- RSHQ Significant Incident 46 Haul truck reverses over quarry bench
- VUL-PLN-035 – Emergency Planning and Response Plan
- VUL-MOP-144-Lighting
- VUL-SOP-065-Personal Protective Equipment
- VUL-SOP-128-Design and Construction of Mine Roads

7. REVIEW

This document shall be reviewed at a minimum every two years, 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
01	02/06/2020	Initial draft	Rachael Dacker
02	06/07/2020	Risk workshop	Shane Johnson
03	30/04/2021	Review and formatting	Nicole Davey
04	03/09/2021	Review and formatting	Rachael Dacker
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