VULCAN MINE

Mine Operating Procedure

WEATHER

Contents

1. PURPOSE & SCOPE

The purpose of this Mine Operating Procedure (**MOP**) is to describe the requirements, and to effectively manage the hazards and risks associated with weather at the Vulcan Mine

This MOP has been developed from the risk assessment VUL-RSK-293-Weather.

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 with the required competencies and who has been appointed by the Site Senior Executive, or their appointed representative to carry out a designated scope of duties.
CMSHA	Coal Mining Safety and Health Act.
CMSHR	Coal Mining Safety and Health Regulation.
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.
HST	Health, Safety & Training
JHA	Job Hazard Analysis.
RSHQ	Resources Safety and Health Queensland.
SHMS	Safety and Health Management System.
SOP	Standard Operating Procedure.
SSE	Site Senior Executive
SWP	Safe Work Procedure
TARP	Trigger Action Response Plan.

4. RISK MANAGEMENT

The effects of weather are variable and depend on the total risk. These accumulated risks include:

- Lightning strikes directly or on the ground near structures and conductive electrical service lines
- Damage to electrical and electronic components from the magnetic fields
- Step and touch potentials increasing the shock risk to people in the area
- Flooding of infrastructure and mobile plant; and
- Mechanical and thermal effects of the lightning current resulting in fire, explosion, mechanical and chemical effects within the structure.

Risk Management processes shall be conducted in accordance with ***VUL-MOP-049-Risk Management***.

5. PREPARATION OF THE MINE

5.1. General

The Vulcan Mine operates to minimise the risks associated with regards to significant weather as they arise.

Site design, management and maintenance shall be conducted, such as: the design of mine roads to facilitate drainage of water; maintenance of mine road and drainage systems; and, infrastructure is stored and secured to avoid risks associated with flooding.

Supervisors, Managers and the OCE shall monitor for potential weather events such as cyclones, strong winds , hailstorms, flooding, and electrical storms (lightning strikes).

The OCE should utilise the following to monitor for weather events:

- Online weather forecasts from Bureau of Meteorology (BOM), WeatherZone, My Lightning Tracker Pro and Queensland Emergency Services.

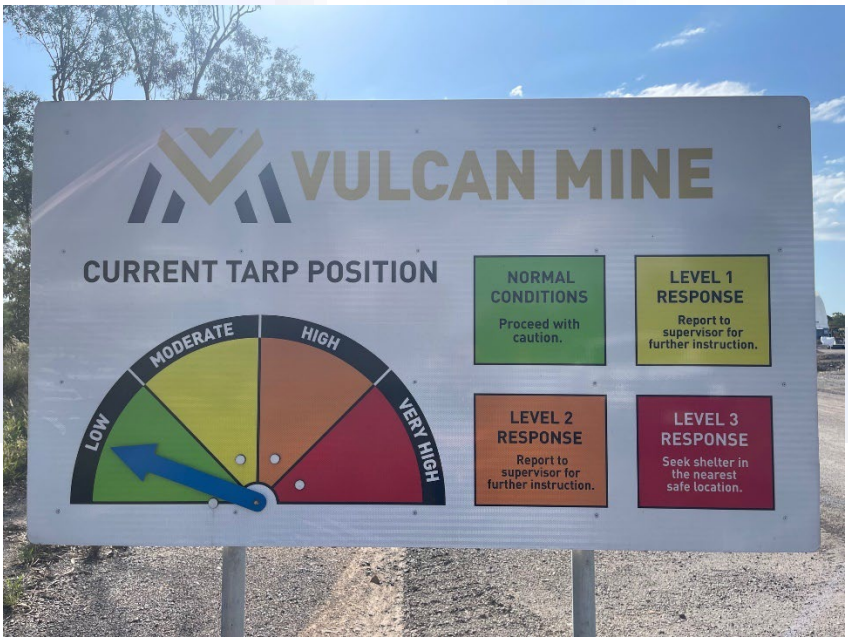
Lightning tracker apps such as My Lightning Tracker or WeatherZone When a potential weather event is forecasted, the OCE shall coordinate an appropriate response including measures such as preparation and evacuation of persons to designated places of refuge such as the VMO, In-pit crib huts and Boar's Nest.

The trigger response plan for lightning is outlined in ***VUL-TAR-005-Lightening.***

The intent of this weather response system allows an escalation and de-escalation process through the various stages as weather events approach and pass. The trigger response plan VUL-TAR-004- Weather is to be utilised for events such as wet weather, destructive winds, cyclones, flooding and events affecting visibility such as fog/rain and smoke.

For bushfire events which have the potential to threaten areas within the mine, processes within VUL-SOP-037-Action to be Taken on Discovery of Fire are to be followed.

To ensure the current weather conditions are communicated effectively to all CMWs entering Vulcan Mine, the OCE for the shift shall ensure the TARP board is updated to reflect the current conditions.



To ensure the safety and health of persons, places throughout the mine shall be designated as a “Place of Refuge” shall any CMW need to evacuate to a safe area.

6. PROTECTION OF ASSETS

6.1. Infrastructure

Major fixed infrastructure includes but not limited to:

- Vulcan Mine workshop/s
- VMO Administration Complex
- In-pit cribbing facilities.
- In-pit Supervisor’s office
- Fuel farms.

A risk assessment for all major infrastructure shall be undertaken:

- Every five years, or
- After a significant change, or
- Addition of new infrastructure

The risk assessments shall be conducted in accordance with lightning protection as described in *AS/NZS 1768 Lightning Protection*.

7. TYPES OF WEATHER EVENTS & PREPARTAION

Preparation is critical to safeguarding assets and personnel from weather events.

The SSE is responsible for ensuring appropriate action is taken to prepare Vulcan Mine for weather events. ***VUL-FRM-04-04-Wet Weather Preparation Checklist*** and they shall be conducted prior to forecasted wet or dry seasons to ensure adequate risk management is achieved.

Good housekeeping practices shall be followed including the requirements of VUL-MOP-094.1(b) – Housekeeping. Prior to predicted weather event, each Supervisor shall ensure their work area is adequately prepared to ensure loose items are restrained and items that may be flooded are moved to higher ground.

7.1. Hailstorms

Hailstorms are potentially hazardous weather events. They typically last for no more than 15 minutes and can cause damage and injury. In preparation for hailstorms, the following actions should be considered:

- All personnel shall be relocated to a place of refuge.
- Locating light vehicles in covered areas that will provide protection from hail.
- Placing tarpaulins over windscreens or sensitive equipment to reduce the extent or impact of damage; and
- Covering windows and glass with tape to reduce the likelihood of the glass breaking.

7.2. Flooding

Flash flooding is a potentially hazardous weather event. Floods can threaten lives, inundate properties and businesses, damage or destroy assets and prevent access to safe ground. In preparation for flooding events, the following actions shall be undertaken:

- OCE and/or supervisor to monitor current weather predictions prior to each shift by using (http://www.bom.gov.au/) and on site weather station.
- If the potential for a significant rain event is identified, the following shall take place:
    - Complete **VUL-FRM-04-04-Weather Preparedness Checklist**
    - Refer to **VUL-TAR-004-Weather**
    - Ensure that plant and equipment that may be damaged by flood waters are relocated to suitable areas above the flood waters; and
    - Inspecting stormwater, erosion control measures and sediment dams to ensure that they are functional and suitable.
- If the flood level indicators show that the safe egress of person from their respective works areas is in any way compromised, the Open Cut Examiner (OCE), in consultation with the SSE shall evacuate all mine workers and, if possible, all equipment from the area and relocate to a place of refuge.
- The decision to evacuate all site personal back to the township of Dysart or Moranbah must be made and executed by the OCE in consultation with the SSE only.

7.3. Lightning

Lightning poses a threat to both persons and plant on site. The following actions shall be taken to reduce the risk to persons to as low as reasonably achievable.

- OCE and Supervisors are to monitor the distance of approaching lightning storms to the mine using the My Lightning Tracker Pro App. A 60km radius shall be set from Vulcan Mine Complex to alert of ground strikes within the area.
- Follow the controls as prescribed by ***VUL-TARP-004-Weather.***

7.4. Strong Winds

Strong winds pose a threat to both persons and plant on site. The following actions shall be taken to reduce the risk to persons to as low as reasonably achievable.

- OCE and/or supervisor to monitor current weather predictions prior to each shift. (http://www.bom.gov.au/).
- If the potential for a significant wind event is identified, the following shall take place:
    - Complete ***VUL-FRM-04-04-Weather Preparedness Checklist***
- Site will maintain minimum safety standards for the construction and maintenance of buildings. All Offices, Crib Rooms, ablution facilities (toilets) and other structures shall be anchored down using an anchoring system that will prevent those structures from lifting during periods of extreme wind conditions.

- Loose items that have the potential to be caught in strong winds and become a projectile capable of putting the safety and health of persons at risk (ie, building materials) shall be secured either by tethering the items to the ground or storing the items in a secure location.

7.5. Bushfires

Bushfires occur through natural causes (such as lightning) or by people (accidently or on purpose) and are hazardous weather events. In preparation for bushfires, the following actions may be undertaken:

- Installing and maintaining fire breaks to prevent bushfires from approaching the pit and/or coal stockpiles
- Inspecting the Mine for potential fire sources
- Arranging for CMW's, plant and equipment to be relocated to more suitable locations that are not in the approaching line of fire or smoke
- Arranging for water carts and/or fire truck to be prepared to fight spot fires that may occur; and
- Ensuring water sources for filling the water cart and/or fire truck are made available and functional during the bushfire event.

7.6. Fog

Heavy fog and the associated reduced visibility that accompanies it poses a threat to both persons and plant on site. The following actions shall be taken to reduce the risk to persons to as low as reasonably achievable:

OCE to monitor the fog bank as it enters the mine. If the potential for reduced visibility due to heavy/thick fog is identified the OCE shall refer to ***VUL-TAR-004-Weather***

8. ROLES AND RESPONSIBILITIES

ROLE	RESPONSIBILITY
SSE	• Review and approve this procedure. • Ensure appropriate action is taken to prepare the Vulcan Mine for weather events
HST Manager	• Ensure that CMWs are familiar with and have access to procedure. • Provide training for this Mine Operating Procedure.
Supervisors	• 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.
OCE	• Monitors WeatherZone • Activates Lightning TARP • Updates TARP board to reflect current mine conditions.
All CMWs (including visitors and contactor)	• Shall comply with the requirements of this procedure.

9. RELATED DOCUMENTS

- VUL-MOP-049-Risk Management
- VUL-MOP-144-Lighting
- VUL-FRM-04-04-Weather Preparedness Checklist

10. REFERENCES

- AS/NZS 1768:2007 Lightning protection
- AS/NZS 3007:2013 Electrical installations – Surface mines and associated processing plant
- Coal Mining Safety and Health Act 1999 (Qld)
- Coal Mining Safety and Health Regulation 2017 (Qld)
- Electricity Act 2002
- Electricity Regulations 2006
- ISHR Safety Alert: Severe Weather 16/11/2020

11. REVIEW

This document shall be reviewed at a minimum every three years, or, when triggered by one of the following events:

a) A site or external accident or incident directly related to the document contents;

b) A legislated change directly related to the document contents;

c) Requirements from directives issued orally or as Mine Record Entry by ae Resources Safety and Health Queensland (RSHQ) Mines Inspector or Industry Safety and Heath Representatives or Site Safety and Health Representatives directly related to the document contents;

d) Outcomes from inspections, audits, hazard identification, safety observations, risk assessments or other processes where the actions recommended are directly related to the document contents;

e) A change required by the Vulcan Mine SSE;

f) The passing of a review date on the document, set at 3 years for this document.

12. DOCUMENT CONTROL

Version	Date	Description	Document Controller
01	31/10/2024	Document Development	Clayton McLeod
02	11/11/2024	Review & Formatting	Kelly Jensen