

Mine Name	MineID	Operator	Activity Type	Activity Date
Jupiter Bulk Sample Pit	MI04148	Vulcan Mine Management Pty Ltd	Subject Audit or Specific System Audit	10/08/2021

Our Vision: **Zero Serious Harm**

Mine Record Entry

Note that inspection or audit activities conducted by the Mines Inspectorate are based upon sample techniques. It remains the primary responsibility of Mine Personnel to identify hazards, and risks associated with Operations and ensure those risks are at an acceptable level.

On the 10 August 2021, I attended Jupiter Bulk Sample Pit opencut operations to conduct a Structured Audit of Mobile Equipment Interaction. On arrival at the Site Access Centre (SAC) I participated in the site's process for alcohol testing and COVID disclosure process.

I was met at site access by Michael Cavanagh, Site Senior Executive.

The opening meeting was held with the Michael Cavanagh, Site Senior Executive. I informed the SSE that my purpose was to execute an audit of selected elements of Mobile Equipment Interaction management at the operation.

The audit constituted aspects of the Structured Audit Guide (outlined below) and occasioned feedback provided to the SSE.

All documents referenced within this were accessible and sighted during the Audit.

Principal Hazard Management Plan:

Is there a documented PHMP for equipment interaction?

Yes.

Vulcan Mine Principal Hazard Management Plan
VUL-PHMP-002-Vehicle Interaction.
August 2020

Is there a documented risk assessment underpinning the PHMP?

Yes.

VUL-RSK-002-Vehicle Interaction PHMP.
August 2020

Is there documented evidence that the initial development of, and every review of the PHMP, has been conducted in consultation with those CMWs affected by the PHMP?

Underpinning Risk Assessment/s identifies cross section of CMW participants representative of operation.

Has the PHMP been reviewed in accordance with the timing or circumstance requirements of the SHMS?

As operations commenced last quarter of 2020, observed documentation was formulated within two years.

Does the PHMP identify the Standard Operating Procedures relevant to CMWs?

VUL-PHMP-002-Vehicle Interaction.

- Section 5 Hazard Management

Standard Operating Procedures, and SHMS provisions

Does the SHMS contain the following SOP's:

- **Carrying persons in mobile plant**
- **Checking mobile plant**

VUL-SOP-073-Checking Mobile Plant

September 2020

- **Using mobile plant**

VUL-SOP-076-Using Mobile Plant

April 2021

- **Checking and examining work areas**

VUL-SOP-094-Check, Examine & Restrict Work Areas

April 2021

- **Working on spoil dumps and near excavated faces**

VUL-SOP-117-Spoil Dumps, Excavated Faces and Discharge of Loads

September 20

- **Maintaining and watering mine roads**

VUL-SOP-129-Maintaining and Watering Mine Roads

April 2021

- **Discharging loads**

VUL-SOP-133-Discharging Loads from Fixed and Mobile Plant

April 2021

- **Using fixed and mobile plant near electrical installations**

VUL-SOP-135-Using Plant near Electrical Conduct or Equipment

April 2021

- **Operating equipment on stockpiles and coal waste dumps**

VUL-SOP-138(a)(b) - Operating Equipment on Stockpiles and Coal Waste Dumps

April 2021

Is there a documented risk assessment underpinning the above SOPs?

VUL-RSK-073-Checking Mobile Plant

VUL-RSK-076-Using Mobile Plant

VUL-RSK-094-Checking and Examining Work Areas

VUL-RSK-117-Working on Spoil Dumps and Near Excavated Faces

VUL-RSK-129-Maintaining and Watering Mine Roads

VUL-RSK-133-Discharging Loads from Fixed and Mobile Plant

VUL-RSK-135-Using Plant near Electrical Conduct or Equipment

VUL-RSK-138(a)(b) - Operating Equipment on Stockpiles and Coal Waste Dumps

A random selection of risk assessments were accessed during audit to validate cross sectional participation relevant to the operation.

Is there documented evidence that the initial development, and every review of the above SOPs, has been conducted in consultation with those CMWs involved in carrying out a task under the SOP?

A random selection of risk assessments were accessed during audit to validate cross sectional participation relevant to the operation. As operations commenced last quarter of 2020, observed documentation was formulated within two years.

Have the SOP / SOPs been reviewed in accordance with the timing or circumstance requirements of the SHMS?

As operations commenced last quarter of 2020, observed documentation was formulated within two years.

Does the mine's SHMS provide for the following:

- **Braking systems and testing**

VUL-SOP-066-Braking Systems

- Section 4 Procedure
 - Subsection 4.3 Managing Braking Systems
 - Subsection 4.4 Inspection and Testing

- **Safety checks by competent person**

VUL-SOP-094-Check, Examine & Restrict Work Areas

- Section 4 Procedure
 - Subsection 4.1 OCE Inspections
 - Subsection 4.2 Supervisor Inspections
 - Subsection 4.3 Workplace Inspections
 - Subsection 4.4 Area Inspections
 - Subsection 4.5 Closed and Restricted Areas

- **Seat belts**

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
 - Subsection 4.2 Pre-Starts

As a minimum the operator shall check the following:

- Seatbelts are fitted, easily in good condition and worn by all passengers;

- **Reporting and rectifying defects**

VUL-SOP-073-Checking Mobile Plant

- Section 4 Procedure
 - Subsection 4.3 Critical Components and Defects

Defects shall be managed in accordance with VUL-MOP-098-Reporting and Rectifying Defects

- **Restricting access to parts of mine**

- **Restricting access to hazardous areas**

VUL-SOP-094-Check, Examine & Restrict Work Areas

- Section 4 Procedure
 - Subsection 4.4 Area Inspections
 - Subsection 4.5 Closed and Restricted Areas

- **Specification for design and construction of mine roads**

- **Safety berms**

VUL-SOP-128-Design and Construction of Mine Roads

- Section 4 Procedure
 - Subsection 4.3 Road Design Criteria
 - 4.3.8. Safety Berms

Does the SOP required by Section 76 of the Regulation include ways of minimising risks from the following:

- **Light and heavy vehicle interaction**

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
 - Subsection 4.13 Vehicle Entry into Restricted Areas
 - Subsection 4.14 Light Vehicles Accessing Heavy Equipment Work Area

- **Overtaking and parking vehicles**

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
 - Subsection 4.9 Overtaking and U-Turns
 - Subsection 4.10 Parking and Standing
 - Subsection 4.11 Parking Area Design
 - Subsection 4.11.1 Light Vehicle Parking in Restricted Areas

Risk Management and Design

Is there a documented traffic management plan for the site?

No centralised documented Traffic Management Plan.

- **Are there traffic rules for the mine?**

- **What documents are available showing the traffic rules and/or traffic management plan?**

- **Who has copies of these documents?**

The requirements of CMSHR Section 76 and 77 are executed within

- VUL-SOP-076-Using Mobile Plant.
- VUL-SOP-128-Design and Construction of Mine Roads

How does the SHMS consider and manage the following and what documentation is available?

- **The nature, type and specification of vehicles operating on the mine roads**
- **Operational flow of mobile equipment**
- **The mines work methods**
- **Are road curvature, grade, width considered**
- **The coefficient of friction on road surfaces**
- **Potential or actual collision hazards**
- **Locations of buildings and structures so that the hazards from uncontrolled movement of vehicles is minimised**
- **Location of overhead power lines**
- **The types of materials used for road construction**
- **Minimising interaction between light and heavy vehicles by having separate roads**
- **Having intersections at right angles**
- **Provision of barriers, centre dividers, safety berms, signs, guide posts**
- **The management of operational changes to roads and equipment fleet**
- **Pedestrians**
- **Public interaction**
- **Proximity detection and collision avoidance technology.**
- **Preventing falls over edges**
- **Road width being 3.5 times width of largest vehicle**
- **Fitment of proximity detection systems to vehicles**
- **Intersection design and visibility**
- **Lighting where required**

VUL-SOP-128-Design and Construction of Mine Roads, references CMSHR Section 128, Recognised Standard 19 and Australian Standards 1743 and incorporates, but not limited to, the following elements:

- The nature, type and specification of vehicles operating on the mine roads
- Operational flow of mobile equipment
- Road curvature, grade, width considered
- The coefficient of friction on road surfaces
- The types of materials used for road construction
- Having intersections at right angles
- Provision of barriers, centre dividers, safety berms, signs, guide posts
- The management of operational changes to roads and equipment fleet
- Preventing falls over edges
- Road width being 3.5 times width of largest vehicle
- Intersection design and visibility

Confirmed that Proximity detection and collision avoidance technology not currently utilised at the operation.

Operating plant near electrical installations

- **What are the heights of power line crossings and where are they recorded?**
- **Where is the register of vehicle heights?**
- **Is there are plan of authorised travel routes for all vehicles?**
- **What is in place for travel along non-standard routes?**
- **How are nonstandard routes inspected and reported on?**
- **How is contact with electrical installations prevented when vehicle are required to travel in the vicinity?**
- **Where are vehicle clearance distances recorded?**

VUL-SOP-128-Design and Construction of Mine Roads

- Section 4 Procedure
- Subsection 4.5 Overhead Powerlines and Structures

What are the site speed limits;

- **How were these determined?**
- **How are they clearly identified (signage, maps and plans, training)?**
- **Is gear restriction / change signage used?**

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
- Subsection 4.7. Speed Limits

Is there a designated responder for entry into haul circuits?

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
- Subsection 4.14. Light Vehicles Accessing Heavy Equipment Work Area

Documentation stipulates that light vehicles must wait at a designated safe distance, minimum of 50 m from Heavy Equipment Work Area, and attain positive communication from HME operator for conditional entry. A subsequent escalation process is in place if positive communication is not achieved.

Are there rules on overtaking and what are they?

- **Positive communications**
- **Correct identification (person and equipment)**
- **Visibility**

VUL-SOP-076-Using Mobile Plant

- Section 4 Procedure
- Subsection 4.9 Overtaking and U-Turns

The identified section references control considerations, positive communications, identification (person and equipment), visibility and prevailing environmental conditions.

What road inspection and maintenance process is in place?

- **Road conditions**
- **Intersection design**
- **Visibility**
- **Signage**
- **Safety berms**

Vulcan Mine Principal Hazard Management Plan

VUL-PHMP-002-Vehicle Interaction

- Section 7 Implementing and Maintaining the Plan
- Subsection 7.4 Inspections and Monitoring
 - Subsection 7.4.1. Inspections
 - Subsection 7.4.2. Inspections of Active Circuits
 - Subsection 7.4.3. Monitoring

VUL-SOP-094-Check, Examine & Restrict Work Areas

- Section 4 Procedure
- Subsection 4.1 OCE Inspections
- Subsection 4.2 Supervisor Inspections
- Subsection 4.3 Workplace Inspections
- Subsection 4.4 Area Inspections
- Subsection 4.5 Closed and Restricted Areas

How is watering of roads managed;

- **Training**
- **Equipment maintenance (sprays, jets, sprinklers)**
- **Procedures (dosage, spray pattern)**

- **Communications with other road users**
- **Monitoring**

VUL-SOP-129-Maintaining and Watering Mine Roads

- Section 4 Procedure
 - Subsection 4.1 Road Maintenance
 - Subsection 4.2 Maintenance Requirements
 - Subsection 4.3 Water Truck Operation
 - Subsection 4.3.2. Watering Procedure
 - Subsection 4.3.3. Road Users/All Circuit Users

Management Structure

Is a senior person within the management structure assigned the responsibility to manage the principal hazard of Equipment Interaction?

Yes. Operations Manager Matt McGregor.

Does the person have suitable competencies to manage Equipment Interaction?

Yes. Competencies of Operations Manager made available for review.

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A close out meeting was held with the Site Senior Executive. I provided a summary of the audit findings as they were identified on the day of the audit.

I advised the Site Senior Executive to consider periodically and systematically reviewing the application of the documentation referenced in the audit as the operation expands. The SSE undertook to consider the advice.



Nathan Parsons

Lead Auditor

Inspector of Mines