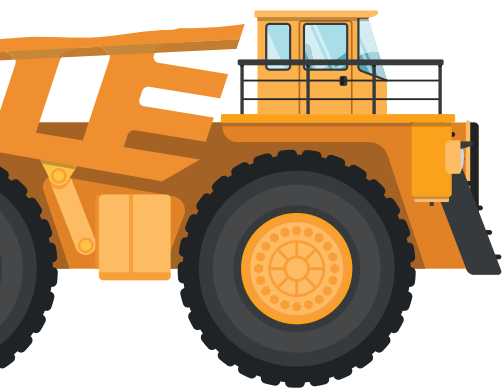




MINING INDUSTRY
OCCUPATIONAL
SAFETY & HEALTH



MINERALS COUNCIL
SOUTH AFRICA



TRAFFIC MANAGEMENT

LEADING PRACTICE

FOR OPEN CAST/PIT OPERATIONS IN SOUTH AFRICA



INTRODUCTION

At a MOSH Transport and Machinery planning workshop held in October 2014, the need for effective traffic management for open cast/pit mines was identified by industry representatives as a requirement for achieving significant progress towards the occupational safety targets. Traffic management deals exclusively with the safe movement of people and vehicles.

The MOSH Traffic Management Leading Practice that was consequently developed consists of the establishment of an effective traffic management system, the maintenance and improvement thereof as well as assuring adherence to all controls (management) used as part of it.

The unwanted events addressed by the Traffic Management Leading Practice include:

- Injury to persons through collision of mobile equipment
- Injury to persons on foot (pedestrians) by mobile machines (working)
- Injury to persons entering hazardous areas
- Injury to persons entering restricted areas

The MOSH Traffic Management Leading Practice consists of 18 elements that were identified by the MOSH Open Cast/Pit Industry Team as essential for effective traffic management.





TRAFFIC MANAGEMENT

LEADING PRACTICE ELEMENTS (1 TO 18)

FOR OPEN CAST/PIT OPERATIONS IN SOUTH AFRICA



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Traffic management has been identified as one of several factors that, if dealt with appropriately, could improve the safety performance of open cast/pit operations significantly.

By keeping the following **risks in mind, together**, we can **improve our safety** and **reduce injuries**.



IDENTIFIER	ELEMENT	DESCRIPTION	RISK AND UNWANTED EVENTS
1	TRAFFIC FLOW AND RISK ANALYSIS	The analysis will be based on the current operation and layout of the mine. The risk analysis does not need to consist of the entire mine baseline risk assessment, only the components related to vehicle and pedestrian movement. The risk analysis will identify all hazards related to vehicle and pedestrian movement for the specific mine.	
2	MINE ACCESS AND MINE ACCESS ROUTE(S)	The mine's Traffic Management System must deal with the flow of traffic from any provincial road to the controlled mine access point. It needs to provide for the safe movement of pedestrians, private vehicles, buses and taxis, delivery vehicles, trains as well as abnormal loads.	<ul style="list-style-type: none"> • Congestion of vehicles close to the provincial road • Pedestrians run over by vehicles while walking to or from the access point • Collision between heavy and light vehicles
3	MINE LAYOUT AND ROAD SYSTEMS (ROUTES)	Site design and layout is the most important factor for safe vehicle movement on the mine. It includes access/secondary roads, zoning and zone control, haul roads and benches.	<ul style="list-style-type: none"> • Unauthorised vehicle access • Interaction between heavy and light vehicles • Interaction between heavy vehicles • Congestion at loading and tipping areas
4	PEDESTRIAN MOVEMENT	Controlled pedestrian movement is the most important aspect in traffic management. Special attention must be given to the risks posed by operators leaving their vehicles.	<ul style="list-style-type: none"> • Pedestrians run over by vehicles
5	CONTRACTOR OPERATIONS	Any contractors that perform any operational work for or on behalf of the mine will be subject to exactly the same traffic management rules that the mine follows.	
6	CONTRACTOR HAULING VEHICLE MOVEMENT	Contractor hauling of product requires control related to all aspects of the operation.	<ul style="list-style-type: none"> • Unauthorised vehicle access • Interaction between heavy and light vehicles • Interaction between heavy vehicles • Interaction between contractor vehicles and mine vehicles • Congestion at loading and tipping areas



"Is there a risk?"

Let us put an effective control in place, manage it and ensure that accidents do not happen."



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7	 COLLECTION/ DELIVERY VEHICLE MOVEMENT	Contractor hauling of product requires control related to all aspects of the operation.	<ul style="list-style-type: none"> • Unauthorised vehicle access • Interaction between heavy and light vehicles • Interaction between heavy vehicles • Interaction between contractor vehicles and mine vehicles • Congestion at loading and tipping areas
8	 TRAFFIC MANAGEMENT RULES	The mine must establish rules that govern the safe movement of ore during different operational activities.	<ul style="list-style-type: none"> • Collision between loaders and trucks • Vehicle falling off the edge • Congestion at loading/stockpile areas • Collision of vehicles on haul roads • Interaction of vehicles and persons during recovery operations
9	 ROAD DESIGN	Road design incorporates controls related to vehicle movement on haul roads.	<ul style="list-style-type: none"> • Proximity of vehicles when passing each other • Vehicles falling off edges • Water accumulation on haul roads • Vehicles running out of control • Overturning of vehicles travelling at high speeds • Vehicles driving too close to each other • Incorrect interpretation of signage
10	 ROAD MAINTENANCE AND REPAIR	Road maintenance must be conducted consistently to ensure the sustainability of the controls on the roads.	
11	 GENERAL RULES FOR BREAKDOWN AND RECOVERY	Relates to the risks associated with activities relating to breakdown and recovery of vehicles.	<ul style="list-style-type: none"> • Interaction of vehicles and persons • Collision of vehicles with stationary vehicle • Congestion of vehicles around the breakdown area • Injury of persons during recovery tasks



“Go beyond compliance! Treat standards and procedures as essential tools to enable safe production. Ensure that standards and procedures are 100% executable.”



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IDENTIFIER	ELEMENT	DESCRIPTION	RISK AND UNWANTED EVENTS
12	 BRAKE TEST RAMP AND TESTING POINTS	Relates to the reliability of vehicles' braking systems.	<ul style="list-style-type: none"> • Vehicle runaway • Uncontrolled vehicle movement
13	 MINE SITE DESIGN/PRE PLANNING	Addresses a proactive traffic management design approach.	
14	 PARKING AREAS	Relates to the control of vehicle and pedestrian movement in a congested area.	<ul style="list-style-type: none"> • Interaction between vehicles • Interaction between vehicles and persons



“Spending time to uncover major issues and opportunities is not a waste of time – it ensures that the road ahead is not full of potholes.”



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IDENTIFIER	ELEMENT	DESCRIPTION	RISK AND UNWANTED EVENTS
15	VISIBILITY AND AWARENESS	Covers controls to ensure that operators and pedestrians have full visibility of each other, vehicles, road surfaces and signage.	<ul style="list-style-type: none"> Interaction between vehicles and vehicles, pedestrians, structures or voids.
16	TRAFFIC MANAGEMENT AND SUPERVISION	Oversight by leadership to ensure that the traffic management system always functions as intended.	
17	RE-FUELING AREAS	The unique risks associated with large amounts of fuel require specific focus and controls.	<ul style="list-style-type: none"> Unauthorised access to refuelling areas Interaction between vehicles and structures and pedestrians
18	MAINTENANCE ACTIVITIES	Maintenance activities form an integral part of traffic management both in workshops and in the field.	<ul style="list-style-type: none"> Unauthorised access to maintenance areas Unexpected movement of vehicles Interaction between vehicles and vehicles/pedestrians Uncontrolled movement of pedestrians



“Time dedicated to risk analysis will be well rewarded with good safety performance. Spend extra time on the risk analysis to prevent any incidents from occurring.”

JOIN THE INITIATIVE AND REGISTER TO ADOPT

Registration for the adoption journey has the benefit of a guided change management process that will assist the mine to analyse the risk of vehicle-to-vehicle and vehicle-to-person interactions as well as to apply controls as recommended by the leading practice.

All open cast/pit and surface operations are encouraged to register to adopt the MOSH Traffic Management Leading Practice on the MOSH website at:

<https://www.mosh.co.za/transport-and-machinery/leading-practices/tmlp-summary>

Registration and participation is free.





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