Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

MOP 0106

SAFETY SPECIFICATIONS FOR SURFACE MOBILE EQUIPMENT

KEY CONTROLS

- All vehicles on site shall have an approved seat belt fitted for every driver and passenger carrying seat. The seat belt should be mounted directly to cab structure with the exception of non-rigid seats where the seat belt shall be mounted directly to the seat itself.
- ◆ All vehicles travelling anywhere on an Anglo American Metallurgical Coal mine site shall have adequate lighting (e.g. headlights, tail, turn, brake, strobe, flashing light) to ensure that the:
 - Vehicle is visible at all times in order for operators of other vehicles to see the vehicle from all directions, and
 - The operator is able to easily see in the direction of travel during the hours of darkness.
- All vehicles and equipment on site (company and contractor owned) shall be equipped with a clearly identified isolation/lockout point in accordance with the AFRS – Isolation.
- ♦ Battery isolators shall be fitted to all SME to allow the battery to be fully isolated. Isolators shall be capable of having locks fitted in accordance with the AFRS Isolation to prevent inadvertent re-energisation whilst work is being undertaken on the equipment.
- ♦ SME should be fitted with collision avoidance technology system in accordance with Anglo American Metallurgical Coal requirements.
- ♦ Adequate walkways, railings, steps/grab handle combinations and boarding facilities including an alternative path of disembarking in case of emergency must be fitted to all SME.
- All vehicles and equipment on site (company and contractor owned) shall be equipped with an audible reversing alarm that sounds whenever reverse gear is selected.

The purpose of this procedure is to provide for the safety of all coal mine workers at Dawson Mine by reducing the risks associated with Safety Specifications for Surface Mobile Equipment here to an acceptable level.

This procedure applies to all coal mine workers at Dawson Mine.

EDMS # 13551	ISSUE NUMBER: 2A	5TH DECEMBER 2018	PAGE 1 OF 12
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Mine Operating Procedure

MOP 0106 Safety Specifications for Surface Mobile Equipment

1. PROCEDURAL REQUIREMENTS

This procedure outlines the minimum safety requirements for Surface Mobile Equipment (SME), which are to be operated on an Anglo American Metallurgical Coal site.

It is written to provide guidance and clarity in respect of the requirements of the Anglo Fatal Risk Standards - Surface Mobile Equipment (AFRS for SME), which describes the minimum physical requirements for operating (SME).

The definition of surface mobile equipment (SME) is all vehicles that exceed a gross vehicle mass of 4500 kg and are not included in the AFRS definition of light vehicles. This includes all trucks, dozers, loaders, graders, excavator, forklifts, cranes, buses, and skid steer loader.

The definition of SME does not include draglines, shovels and drills; however, some elements of the AFRS do apply and hence have been included in this standard.

A risk-based approach has been used to determine the level of compliance for some of this equipment. These are referenced in Appendix 1.

Section 74 of the Coal Mining Safety and Health Regulations states:

- This section applies to mobile plant used at a coal mine if the plant is assessed as being at risk of overturning or being struck by a falling object.
- The site senior executive must ensure the plant is provided with a structure to protect a person using the plant from injury if it overturns or is struck by the object.

Seatbelts

All vehicles on site shall have an approved seat belt fitted for every driver and passenger carrying seat. The seat belt should be mounted directly to cab structure with the exception of non-rigid seats where the seat belt shall be mounted directly to the seat itself.

Where a seat belt is installed in a vehicle, it shall be worn at any time that the vehicle is in motion.

1.2 Visibility and Lighting

All vehicles travelling anywhere on an Anglo American Metallurgical Coal mine site shall have adequate lighting (e.g. headlights, tail, turn, brake, strobe, flashing light) to ensure that the:

- Vehicle is visible at all times in order for operators of other vehicles to see the vehicle from all directions, and
- The operator is able to easily see in the direction of travel during the hours of darkness.

Rotating Flashing Lights:

The following code will apply:

- Flashing Red Light
 - **Ambulance**

To be used in an emergency only

Fire/Rescue vehicles

To be used in an emergency only

- Flashing Green Light
 - **Graders**
 - Water tankers
- Flashing Amber Light
 - All SME to have flashing amber light visible from all directions

	EDMS # 13551	ISSUE NUMBER: 2A	5TH DECEMBER 2018	PAGE 2 OF 12
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Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

Remote Drill Perimeter Lights

- Red emergency stop
- Green when in manual mode
- Blue autonomous / remote mode

1.3 Isolation and Immobilisation Requirements

All vehicles and equipment on site (company and contractor owned) shall be equipped with a clearly identified isolation/lockout point in accordance with the AFRS – Isolation.

Battery isolators shall be fitted to all SME to allow the battery to be fully isolated. Isolators shall be capable of having locks fitted in accordance with the AFRS – Isolation to prevent inadvertent reenergisation whilst work is being undertaken on the equipment.

14 Access

Adequate walkways, railings, steps/grab handle combinations and boarding facilities including an alternative path of disembarking in case of emergency must be fitted to all SME.

The access systems must ensure the drivers are able to maintain three points of contact whilst mounting and disembarking equipment and including provision for transporting equipment or personal items to and from the operator cabin.

All access/egress systems are to be maintained in a good condition. When access/egress systems are damaged, it must be repaired within an appropriate timeframe. This may mean immediately for serious damage or at the next scheduled downtime for less serious damage.

1.5 Collision Avoidance Technology

SME should be fitted with collision avoidance technology system in accordance with Anglo American Metallurgical Coal requirements.

1.6 Reversing Alarms

All vehicles and equipment on site (company and contractor owned) shall be equipped with an audible reversing alarm that sounds whenever reverse gear is selected. The alarm shall be distinct and clearly audible above the background engine noise of the environment it is being operated in.

1.7 Chock Blocks

All rubber tyred SME must carry chock blocks suitable for the machine. The use of chock blocks is not required if the machine is fundamentally stable and parked in a trench or against a berm that will prevent movement. Tracked and some rubber tyred SME do not require chock blocks when fundamentally stable, e.g. parked with implements lowered to the ground.

The size of the chock blocks selected for the type of machine must in accordance with the recommendations from the manufacturer.

1.8 Horn

The horn should be capable of being heard over the general environment and other machines noise. The horn button should be located in a position that is readily accessible to the operator during normal operation and in the event of an emergency.

1.9 Effective Windscreen Wipers

The windscreen wipers should provide clear vision to the operator when the windscreen is dirty or in inclement weather.



Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

1.10 Effective Guarding

On some equipment moving parts are located behind engine covers and there is confusion over whether those moving parts, if accessible, should also be guarded. Reference should be made to AFRS Safe Guarding which states that "a risk based approach should be used to identify such areas".

1.11 SME Visibility and Identification Standards

SME must have signage on the equipment that allows clear and easy identification of a specific piece of SME from a distance with the intention to ensure positive communication between SME and other vehicles. Where practical, identification should be visible from all sides of the SME.

- **Colour -** Yellow reflective numbers on a black background. Note for road registrable equipment, rear numbers (if fitted) should be made from non-reflective material.
- **Size** Large SME A3 size or larger where possible, while for smaller equipment the numbering shall be no smaller than A4 size.
- Contractors shall adopt a unique numbering system that clearly identifies the SME.

1.12 Security Systems

All SME should be able to be locked to prevent unauthorised operation.

1.13 Rollover Protection

All SME shall be fitted with or have integral Roll-Over Protection Structures (ROPS) that complies with Anglo American specifications for ROPs and AS2294.2 Earth-moving machinery – Protective structures - General. A risk based approached can be conducted to exempt certain SME with sign off by the SSE. The following table describes the requirements for ROP's whilst working on an Anglo American Metallurgical Coal site:

EDMS # 13551 ISSUE NUMBER: 2A 5TH DECEMBER 2018 PAGE 4 OF 12





Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

Table 1: Roll Over Protective Structures Site Requirements

Vehicle Type	ROPS
Rear Dumpers, Water Trucks & converted Service Trucks	Standard feature comes with ROPs from the manufacturer
Coal Haulers	Standard feature comes with ROPs from the manufacturer
Tracked Dozers	Standard feature comes with ROPs from the manufacturer
Shovels, Drill and Excavators	Not Required, other controls in place
Wheeled Dozers & Loaders (includes modified loaders such as Cable Reelers)	Standard feature comes with ROPs from the manufacturer
Bob Cats	Standard feature comes with ROPs from the manufacturer
Forklifts	Standard feature comes with ROPs from the manufacturer
Backhoes	Standard feature comes with ROPs from the manufacturer
Tractors	Standard feature comes with ROPs from the manufacturer
Medium Trucks as per below:	
 Access to main car-park, warehouse, deliveries, bitumen road access and CHPP/workshop areas with low speed limits 	No ROPs required
Dawson Mine north/south Main Haul Road (excluding access to primary haul roads into ramps)- low exposure deliveries e.g. fuel trucks, low loaders and delivery trucks.	No ROPs required.
 Dawson Mine north/south Main Haul Road (excludes primary haul roads into ramps)- high exposure deliveries e.g. prill, potable water, coal haulage, multiple trips per day to varied locations. 	ROPs to Anglo specifications; or Engineered structure above the cab that performs the function of a ROPs e.g. garbage truck
Pit (all areas other than Dawson Mine north/south Main Haul Road)	ROPs to Anglo specifications



Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

1.14 Alternative Solutions to ROPS

This standard provides for the following alternative solutions to be used in lieu of fitting ROPS as per the above requirements.

- Where the SME is fitted with existing infra-structure on the chassis, and an engineer has assessed and certified that structure as providing sufficient protection to the operator's cabin, which meets the requirements of this standard.
- Medium trucks that have a cabin strength that complies with ADR59/00 or ECE R 66/00 standards or ECE Structural Standard Regulation 29. In all cases compliance is indicated on the compliance plate and can be used as part of a risk assessment for fitting ROPs or not.

Medium trucks that do not comply with ROPs specification requirements of this MOP can access site under an exemption by filling in form- FRM 0219 Medium Trucks ROPs Exemption Permit- that is signed off by the SSE prior to the trucks being driven onsite. Exemptions can be given for trucks with specialist equipment that cannot be easily transferred to another truck that complies with the Anglo ROPs specifications.

1.15 Fail Safe Brakes

The fail-safe braking function will cause automatic application of the foundation brakes upon a loss of energy in the braking system.

1.16 Fire Protection Equipment on Vehicles and Equipment

All vehicles and equipment on site (company and contractor owned) shall be equipped with a fire extinguisher or integrated fire detection / extinguisher systems.

All fixed fire suppression systems must comply with AS 5062-2006.

Based on risk assessment, it is not mandatory to fit fire suppression to the following equipment:

- Skid Steer Loader
- Blast loading vehicles
- Dragline cable tractor
- Medium trucks (not Heavy Earthmoving Equipment)
- Franna (or equivalent) cranes
- Forklifts
- Tyre handlers

All fire protection equipment shall be readily accessible, be fully charged and undergo regular certified checks.

1.17 Two-way Radio or Other Forms of Communication

Mine spec Two-way radios shall be fitted to all SME thus providing a positive means of communication between SME and people and other vehicles to reduce the risk of collision.

1.18 Exhaust System Requirements

Exhaust systems should be routed in order not to create potential hazards:

- Fire hazards from exhaust outlet (e.g. grass or other combustible materials)
- Heat shielding to be in place where personnel are exposed to a burn risk

EDMS # 13551	ISSUE NUMBER: 2A	5TH DECEMBER 2018	PAGE 6 OF 12
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Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

- Respiratory / inhalation of exhaust fume (e.g. exhaust system directed towards control stations / panels)
- Diesel Particulate Filter (DPF) exhaust systems can generate temperatures in excess of 600 degrees Celsius. Particular attention should be paid to the location of the DPF and exhaust outlet in relation to combustible materials (e.g. fuels tanks, hydraulic tanks/lines, grease lines). All OEM guarding / heat shielding shall remain in place.
- Where practical exhaust systems should be directed upwards and exit on the passenger side of the vehicle (e.g. light / medium trucks)

1.19 Falling Object Protection

Mobile equipment that is operated where there is a risk of being struck by falling objects shall be fitted with a Falling Object Protection Structure (FOPS) that complies with AS2294.3. It is mandatory for the following equipment to have FOP's installed while working on an Anglo Coal Australia site:

Vehicle Type	FOPS
Rear Dumpers, Water Trucks & converted Service Trucks	Standard feature that comes with FOP's from the manufacturer
Coal Haulers	Standard feature that comes with FOP's from the manufacturer
Tracked Dozers	Standard feature that comes with FOP's from the manufacturer
Excavators and Drills	Required if operating close to face, high wall, etc
Wheeled Dozers & Loaders	Standard feature that comes with FOP's from the manufacturer
Forklifts	Standard feature that comes with FOP's from the manufacturer
Skid Steer Loaders	Standard feature that comes with FOP's from the manufacturer
Dragline cable handling tractors	Not a standard feature and FOP's shall be fitted

Based on risk based approach it is not mandatory for the following equipment to have FOPs fitted:

Backhoes	Not Required
Semi-Tippers, including Water Cart	Not Required
Mobile Cranes – Franna, etc	Not Required
Medium Vehicles and Service Trucks	Not Required

1.20 Sealed Operator Cabs

All operator cabins should be tightly sealed air-conditioned with consideration of requirements for noise and dust and be fitted out with suitable protective glass.

EDMS # 13551	ISSUE NUMBER: 2A	5TH DECEMBER 2018	PAGE 7 OF 12



Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

1.21 Transport of Personnel

No person shall be transported in vehicles not fitted with properly constructed seats.

Each seating position shall be fitted with seat belts that have been fitted in accordance with relevant Australian Standards.

All persons being transported shall wear seat belts provided.

The driver of the vehicle transporting shall be authorised to drive on site and is responsible for ensuring all personnel being transported are authorised to be on site.

1.22 Exceptions

Initial Familiarisation Training

Where a second seat is not fitted and equipment is operating on a flat level surface out of production cycle, a trainer / trainee may position himself / herself to give / receive instruction.

Personal restraining equipment shall be used if a trainer or trainee is positioned out of the cab whilst the equipment is moving.

Maintenance Testing

Where a second seat is not fitted and equipment is operating on a flat level surface out of production cycle, a maintenance person may position himself for the purpose of testing and diagnosis.

Personal restraining equipment shall be used if a maintenance person is positioned out of the cab whilst the equipment is moving.

Tracked Drills

The only exception to this rule is for tracked drills, where, for visibility reasons, the operator must stand when tramming the machine. Seatbelts are not required in drills when the machine is stationary and levelling jacks are down.

1.23 Safety Checks

Pre-start checks should be conducted on all SME in accordance with *Standard Operating Procedure* 0021 Checking Mobile Plant.

Contractor equipment shall carry a copy of the current completed inspection forms at all times.

1.24 Vehicle Loading Cranes

All vehicle loading cranes fitted to SME shall comply with the Australian Standard 1418.11 Vehicle Loading Cranes that allow the operator under the boom whilst in operation shall not be allowed onsite.

1.3 Performance Indicators

- The Contract Holder shall ensure that any contract SME required to operate on site comply with AFRS SME and MOP 0106
- The Maintenance Department will conduct SME inspections prior to the SME going to work onsite.
- Number of reported and recorded non-compliances to this procedure.
- Random audits of contractor and company owned SME.



Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

1.4 Monitoring and Measurement

The Dawson SHEC audit program shall provide for regular auditing to examine understanding, adequacy of and compliance with this procedure.

1.4.1 Monitoring

- Routine scheduled external and internal audits.
- Random inspection.
- Site safe documented Incidents

1.4.2 Measurement

- Review mine standards against industry standards.
- Evaluate and review SME identification standards.
- Evaluate external audits.

1.4.3 Records

- Audit safety inspection and checklists.
- Audit defect and maintenance repair records.
- Site safe incidents for non-compliance.

1.5 Competencies and/or Authorisations required

All personnel on site that are required to operate SME shall be assessed as competent for the particular SME and authorised by the SSE or delegate prior to operating SME.

2. ROLES & RESPONSIBILITIES

All persons operating equipment or undertaking other designed tasks shall be authorised by the SSE (or representative) unless undertaking training in accordance with the site Training Scheme.

2.1 Management

The Dawson Mines Management shall be responsible for ensuring that this MOP is implemented.

2.2 Supervision

The Dawson Mines supervision is responsible to ensure all personnel are aware of, understand and follow this procedure.

Contract Holders must arrange with service bay SME inspections prior to any SME entering site.

2.3 Individual

It is the responsibility of every individual to comply with this procedure and to report non-compliances.

2.4 Contractors

It is the responsibility of all contractors to comply with this procedure and to report non-compliances to their contract holder.

EDMS # 13551 ISSUE NUMBER: 2A 5TH DEC	EMBER 2018 PAGE 9 OF 12	!
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Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

3. RECORD OF CONSULTATION

NAME	POSITION	SIGNATURE
A.Nolan	Health & Safety Officer	Mysical
W.Semple	Ancillary Supervisor	WILLO
C.Michael	Reliability Engineer	Charles of the contract of the
J.Pianta	Vacation Student (mech.eng)	2 Mil

4. AUTHORISATION

DEPARTMENT MANAGER	SIGNATURE	DATE
ADAM ROSTIEDES		14-12-18
SHE MANAGER	SIGNATURE	DATE
S. Thomson	8.11	20/12/18
SSE	SIGNATURE	DATE
CROBERTSUN	Melan	20/12/18

5. REVIEW CRITERIA

This document shall be reviewed as follows:

- When there is a change of method and/or technology that may affect the accuracy of this document;
- When there has been a significant event to which this document was relevant;
- As a result of audit findings.

6. AMENDMENTS

ISSUE No.	ISSUE DATE	DESCRIPTION	INITIAL
1B	13 th May 2010		
2	16 th July 2018	Review and update	AN
2A	5 th December 2018	Inclusion of exhaust system requirements and update SHE Manager	AN

EDMS # 13551 ISSUE NU	IMBER: 2A 5TH DEC	EMBER 2018 PAGE 10	OF 12
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Mine Operating Procedure Safety Specifications for Surface Mobile Equipment

MOP 0106

7. REFERENCES

Legislation:

CMSH Regulation 2017 Section 74

Coal Mining Safety and Health Act 1999.

Coal Mining Safety and Health Regulation 2017.

Recognised Standard 02 - Control of Risk Management Practices.

AS/NZS ISO 31000:2009 Risk Management.

MetCoal 2-3 STD Management SHE Risk

DNRME Industry Hazard Database

8. **DEFINITIONS**

CMSHA: Coal Mining Safety and Health Act

CMSHR: Coal Mining Safety and Health Regulation

Shall: Indicates that a statement is mandatory

Should: Indicates a recommendation

AFRS: Anglo Fatal Risk Standards

AS: Australian Standards

FOPS: Falling Object Protective Structure

Medium Truck: A vehicle over 4.5 tonnes that can be registered to drive on public roads

MOP: Mine Operating Procedures

ROPS: Roll Over Protection Structure

SME: Surface Mobile Equipment

APPENDIX 1 SAFETY SPECIFICATIONS FOR SURFACE MOBILE EQUIPMENT

	SME shall have the following specifications							SME should have the following specifications													
	Seat belts	Adequate lighting	dentified isolation point	Adequate access	Collision avoidance	Reversing alarm	Chock blocks	Horn	Windscreen wipers	Guarding on moving parts	.D. signage	Security systems	ROP's	ail to safe brakes	Fire suppression	Fire extinguishers	Hands free two-way	FOP's	Sealed a/c cabins with protective glass	A method for transporting supplies	Safety checks, interlocks, supports
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Backhoes		3	Ď.	31	TE	E	10	0	3	I	ľ.	T,	П	n	13	E	1		L	na	
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Note: Medium trucks refer to Table 1 for detailed ROPs requirements

Note:	For full definitions of requirements consult AFRS
	Required
	Not Required

EDMS # 13551 ISSUE NUMBER: 2A	5TH DECEMBER 2018	PAGE 12 OF 12
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