



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Resources Safety

Mining operations and mobile equipment selection audit – guide

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1 Adelaide Terrace, East Perth WA 6004
Postal address: Mineral House, 100 Plain Street, East Perth WA 6004
Telephone: (08) 9358 8002
ResourcesSafety@dmirs.wa.gov.au
www.dmirs.wa.gov.au

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Introduction

This document was reformatted in November 2015. At this time no material changes were made to the content of the guide, which was originally published in October 2014 under the title *Guide to mobile equipment on mines high impact function (HIF) audit 2014 Part 2 – Mining operations and equipment selection*.

Note: The Safety Regulation System (SRS) has replaced the AXTAT system and all reporting is done online through SRS.

This audit document is designed to include operating standards associated with the management of mobile equipment in mine operations.

The four 'mobile equipment' audit documents cover:

- traffic management (Part 1),
- mining operations and equipment selection (Part 2),
- surface and underground operations with site deliveries (Part 3), and
- management of mobile equipment maintenance (Part 4).

This document (Part 2) covers mining operations and equipment selection. This part has three elements with a total of 66 individual standards.

This audit includes a wide range of powered mobile equipment including haul trucks, water tankers, industrial lift trucks (forklifts), integrated tool carriers, elevating work platforms, mobile cranes, earthmoving machinery, aircraft tugs, trailers, light vehicles and other vehicles fitting the title. It includes anything that can be driven or ridden on but excludes rail mounted equipment (e.g. bridge and gantry cranes, stackers, reclaimers, ship loaders, locomotives and rolling stock), tethered mobile equipment (e.g. electric shovels, rope driven equipment).

This audit should be read and utilised in conjunction with the *Safe Work Australia's model code of practice for roads and other vehicle operator areas*.

This part contains a number of standards that may not be applicable to all mines. Standards that are not applicable should be ignored as they will not influence audit outcomes.

Where the term "verify" is used in the guideline intent, it implies there is a regulatory requirement for compliance with the standard. Where the term "ensure" is used, there is no mandatory requirement for compliance but the standard sets out a recommended practice, which, if followed, should minimise the risk of incidents.

Mobile equipment guidance material is available from the Department of Mines and Petroleum website, www.dmp.wa.gov.au.

Further traffic guidance material is provided at:

- <http://www.commerce.wa.gov.au/WorkSafe/Content/Publications/Index.htm>
- http://www.commerce.wa.gov.au/WorkSafe/PDF/Bulletin/Safe_movement_vehicle.pdf
- <http://www.dme.qld.gov.au>
- <http://dpi.nsw.gov.au>
- Personnel access to heavy mining machinery – guideline

Dangerous goods safety guidance notes on transport of explosives on roads and mines, and route restrictions for transport of explosives at:

- Transport of explosives on roads and at mines – guidance note
- Route restrictions for the transport of explosives – guidance note

Glossary

MSIA *Mines Safety and Inspection Act 1994*
MSIR Mines Safety and Inspection Regulations 1995

Fact sheets and Petroleum	Manual tasks in mining – fact sheet series issued by the Department of Mines
MSB	DMP Mines Safety Bulletin
SIR	DMP Mines Safety Significant Incident Report
NSW SA Wales	Safety alerts issued by the Department of Trade and Investment, New South
NSW SB Wales	Safety bulletins issued by the Department of Trade and Investment, New South
QLD SA Queensland	Safety alerts issued by the Department of Natural Resources and Mines,
MSH FS	DMP Manual tasks in mining fact sheet No 8: Machinery and vehicle cab design
Load Restraint Guide	National Road Transport Commission (http://ntc.gov.au/heavy-vehicles/safety/load-restraint-guide/)
Heavy Machinery	Personnel access to heavy mining machinery – guideline
OEM	Original Equipment Manufacturer
SOP	Standard Operating Procedure or Work Instruction

1 Selection of equipment

Selection of equipment

Point	Standard	Guideline
1.1	The mobile equipment is selected according to the limitations imposed by the site operating conditions.	<p>Intent: To ensure that new mobile equipment will be compatible with the site conditions.</p> <p>Personnel: Operations and engineering personnel.</p> <p>Method: View a selection of documents, consider road widths, gradients, curves, braking characteristics, compaction rates. Consider the configuration of primary haulage units, water trucks, service trucks and etc., which may not always be suitable to operating conditions. Interview operations and engineering management.</p>
1.2	The selected mobile equipment can be used within its design specifications.	<p>Intent: To ensure that the mobile equipment can be operated safely within the existing site layout.</p> <p>Personnel: Operations and engineering personnel.</p> <p>Method: Review equipment limitations against existing road widths, gradients, curves and etc. Road widths will dictate maximum haul truck size. Road gradients will limit water and service truck safe operating capabilities. Curve radii will influence vehicle speeds etc. Is plant designed for highway use or mine use?</p>
1.3	The employer has established a system to identify hazards associated with mobile equipment and assessed the exposure risk.	<p>Intent: To verify that hazards have been appropriately identified, assessed and controlled.</p> <p>Personnel: Operations and OSH staff, site/corporate management.</p> <p>Method: Review documentation to verify a system is in place to assess hazards e.g. foot and hand holds; safe means of access and egress from vehicles field of view. Refer to MSIR r. 6.17 and <i>DMIRS Personnel access to heavy mining machinery – guideline</i>.</p>

1.4	The suitability of the mobile equipment used by short and long term contractors is reviewed by the principal employer.	<p>Intent:</p> <p>To ensure that the mobile equipment used by contractors can be operated safely under the existing site conditions.</p> <p>Personnel:</p> <p>Site management.</p> <p>Method:</p> <p>Review documentation , inspect mobile equipment and interview operators and management.</p>
1.5	The employer has reviewed the risk rating of mobile equipment.	<p>Intent:</p> <p>To verify the employer has considered eliminating or reducing the level of risk posed by the use of each item of mobile equipment.</p> <p>Personnel:</p> <p>Operations and engineering staff, OHS department, management.</p> <p>Method:</p> <p>Review appropriate documentation, including any authorisations for capital expenditure and the site risk register. Confirm that the company has considered risk reduction treatment options; that the options follow the hierarchy of controls, and that the controls have been implemented. Controls should clearly reduce the risk of exposure. Examples may include controls such as the provision of a combination of operator protective devices, cameras and/or collision avoidance systems. Refer to MSIR r. 6.18.</p>
1.6	Vehicle cab design, layout, orientation and seating are suited to the expected conditions and use.	<p>Intent:</p> <p>To ensure that plant operators are not exposed to hazards due to inadequate or poorly designed plant.</p> <p>Personnel:</p> <p>Operations management, plant operators and OHS personnel.</p> <p>Method:</p> <p>View a range of vehicles, check seat adjustment and seat travel and interview operators. Refer to Manual tasks in mining fact sheet No 8: Machinery and vehicle cab design and SIR 152; <i>Haul truck light vehicle collision</i>.</p>

2 Equipment safety requirements

Equipment safety requirements

Point	Standard	Guideline
2.1	Effective reversing alarms are fitted to mobile equipment.	<p>Intent: To ensure that pedestrians and others in vehicles are warned when mobile equipment is about to be reversed.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to confirm that reversing alarms are fitted and effective.</p>
2.2	Items of mobile equipment are equipped with suitable and effective service and park brakes.	<p>Intent: To verify that all mobile equipment operators can bring the vehicle to a safe halt and hold it in place under all operational circumstances.</p> <p>Personnel: Equipment operators.</p> <p>Method: Interview equipment operators. Inspect OEM specification and a sample of mobile equipment to verify that the vehicles are equipped with the required braking systems. Refer to MSIR rr. 10.38 and 13.2, Mines Safety Bulletin No. 106 and NSW SA 06-12 and SA06-13.</p>
2.3	Motor vehicles are equipped with effective headlights, brake lights, reversing lights, tail lights and turn indicators.	<p>Intent: To verify that all mobile equipment can be clearly seen and can indicate the direction of travel to other equipment operators and/or pedestrians.</p> <p>Personnel: N/A</p> <p>Method: Inspect the pre-start booklet and a sample of mobile equipment to verify that effective lighting is being provided on mobile equipment at the mine. Refer to MSIR rr. 13.3(1)(a) and 10.38(2)(d).</p>

2.4	Operating controls are suitably and legibly identified.	<p>Intent: To ensure operators can readily identify controls and actions to safely operate the equipment.</p> <p>Personnel: N/A</p> <p>Method: View a sample of mobile equipment. Refer to AS 2359.5 – <i>Symbols for operator controls and other displays</i>.</p>
2.5	Light vehicles with an internal cargo space are equipped with cargo barriers.	<p>Intent: To ensure that personnel are protected from loose cargo in the event of a vehicle collision, loss of control or rollover.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of vehicles with an internal cargo space to confirm that an appropriate cargo barrier is installed. Refer to AS/NZS 4034 <i>Motor vehicles – Cargo barriers for occupant protection</i>.</p>
2.6	Audible warning devices which can be sounded prior to vehicle movement are provided on mobile equipment where required.	<p>Intent: To verify that appropriate motor vehicles have an effective audible warning signal (e.g. a horn) to warn other vehicles or personnel in the vicinity.</p> <p>Personnel: N/A</p> <p>Method: Inspect the pre-start booklet and a sample of mobile equipment to verify that an effective audible warning signal is being provided on mobile equipment at the mine. Refer to MSIR rr. 10.43 and 13.3(1)(b).</p>
2.7	Flashing lights are provided, are effective and operating on all light service vehicles, vehicles used to transport personnel and slow moving vehicles at the mine.	<p>Intent: To verify that relevant vehicles have an operational flashing light provided for identification and vehicle recognition.</p> <p>Personnel: N/A</p> <p>Method: Inspect the pre-start booklet and a sample of mobile equipment to verify that an operational flashing light is being provided on designated equipment at the mine. Refer to MSIR r. 13.3(1)(d).</p>

2.8	Motor vehicles are equipped with devices to improve vision in “blind spots”.	<p>Intent: To ensure that driver aids are provided to eliminate or minimise the hazards associated with “blind spots”.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to confirm that visual aid equipment (e.g. proximity detectors, camera technology and/or mirrors) are fitted to mobile equipment. Refer to Mines Safety Significant Incident Report No. 152: <i>Haul truck and light vehicle collision</i></p>
2.9	Adequate provision has been made to always allow three points of contact when accessing and egressing mobile equipment.	<p>Intent: To verify that employees are able to maintain three points of contact when moving around on mobile equipment.</p> <p>Personnel: Maintenance personnel, operators.</p> <p>Method: View a sample of mobile equipment. Refer to the DMIRS <i>Personnel access to heavy mining machinery – guideline</i>.</p>
2.10	Adequate provision is made for fall prevention measures to always be taken when carrying out cleaning or maintenance operations from a height on mobile equipment.	<p>Intent: To ensure that employees are not exposed to the hazard of falls from height while carrying out cleaning or maintenance tasks.</p> <p>Personnel: Maintenance personnel, operators.</p> <p>Method: View a sample of mobile equipment for the appropriate installation of fall prevention devices (e.g. handrails, anchor points and equipment guarding). Refer to Mines Safety Significant Incident Report No. 153.</p>
2.11	Mobile equipment is provided with identification markings of a suitable size that allows identification of the vehicle.	<p>Intent: To ensure that all mobile equipment is provided with a clear marking to aid in identification, warning and vehicle recognition procedures.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to confirm that vehicle identification markings are fitted on all mobile equipment. Ensure that the vehicle markings are displayed on all sides and can be readily seen.</p>

2.12	All motor vehicles are equipped with adequate seating for all personnel.	<p>Intent: To verify that adequate seating is provided for the driver and all passengers.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to verify that adequate seating is being provided on mobile equipment at the mine. Refer to MSIR rr. 4.16 and 13.3(1)(c).</p>
2.13	Seats are fitted with head restraints where appropriate or required by the Australian Design Rules (ADR).	<p>Intent: To ensure that head restraints are installed to prevent whiplash injury in the event of a vehicle collision or rollover.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to verify that head restraints are being provided on mobile equipment at the mine. Refer to MSIR s. 9(1)(a) and relevant ADR standard.</p>
2.14	Motor vehicles are equipped with seat belts for all personnel seating positions.	<p>Intent: To verify that seat belts are installed to minimise injury in the event of a vehicle collision or rollover.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment to verify that seat belts are being provided on mobile equipment at the mine. Refer to MSIR r. 4.16, Mines Safety Bulletins No. 20 and 33.</p>
2.15	Elevated flag indicators are installed on light vehicles which operate in the vicinity of large mobile equipment.	<p>Intent: To ensure that drivers of large mobile equipment can readily identify the presence of the smaller mobile equipment.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of light vehicles to confirm that elevated flag indicators are provided on all light vehicles at the mine. It is recommended that these “flags” be elevated higher than the windrow height.</p>

2.16	Enhanced visibility reflectors or devices (e.g. high mounted tail, brake and turn indicator lights) are fitted on all appropriate light vehicles.	<p>Intent:</p> <p>To ensure that all vehicles are provided with high visibility reflectors or lighting to aid in the avoidance of traffic collisions</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>Inspect the pre start booklet and a sample of vehicles to confirm that high visibility reflectors or lights are fitted to all vehicles including on the side of large mobile equipment.</p>
2.17	Earth moving machinery, modified earthmoving machinery (including water carts and service vehicles) and agricultural tractors are equipped with a roll-over protection structure (ROPS/FOPS) conforming to the applicable Australian Standards or equivalent standards.	<p>Intent:</p> <p>To verify that relevant vehicle cabins are designed to withstand damage in the event of a vehicle rollover.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>Inspect a sample of relevant earthmoving equipment to verify that roll over protection is installed. Refer to MSIR rr. 4.15, AS 2294 <i>Earth-moving machinery – Protective structures – General</i>, AS 1636 <i>Tractors – Roll-over protective structures – Criteria and tests - Mid-mounted for narrow-track tractors</i>, Mines Safety Significant Incident Reports No. 45 and 74, Mines Safety Bulletins No. 28 and 34.</p>
2.18	Collision avoidance technology has been investigated for relevant mobile equipment and a risk assessment undertaken.	<p>Intent:</p> <p>To ensure that employers are aware of and have considered the provision of driver aids to avoid colliding with other vehicles or personnel on foot.</p> <p>Personnel:</p> <p>Management, mechanical and operations personnel.</p> <p>Method:</p> <p>Sight the documentation associated with the Employer's review of a collision avoidance system. Refer to NSW Guideline MDG 2007: <i>Guideline for the selection and implementation of collision management systems for mining</i>.</p>
2.19	Driver monitoring for fatigue is undertaken.	<p>Intent:</p> <p>To ensure that a system is in place to monitor the fatigue of personnel operating mobile plant.</p> <p>Personnel:</p> <p>Operational management and OHS staff.</p> <p>Method:</p> <p>Review the monitoring system and the results of this monitoring.</p>

2.20	Regular monitoring of driver performance is undertaken.	<p>Intent: To ensure that a system is in place to monitor the performance and techniques applied by personnel operating mobile plant</p> <p>Personnel: Operational management and OHS staff.</p> <p>Method: Review the monitoring system and the results of this monitoring.</p>
2.21	Two-way communication is available for use in all mobile equipment.	<p>Intent: To ensure that operators can send and receive emergency alerts, important or urgent information and/or instructions to all operating equipment and operating areas of the mine.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of vehicles to confirm that two-way communications are fitted to all vehicles. Where the vehicle two-way radio is inoperative, operators arrange for a temporary portable communication device to be provided and utilised until the vehicle's communication equipment is available for use. Confirm an adequate supply of hand held units is available.</p>
2.22	Overhead protective devices are installed on all mining equipment that is fitted with operator controls on the machine, including drills, trucks, loaders, bulldozers and excavators; and all service units which are operated in stopes and in the mining of development headings.	<p>Intent: To ensure that all vehicle operators and passengers are protected from injury by falling objects.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of equipment. Confirm that overhead protection is fitted and properly secured. Refer to MSIR r. 10.46 for regulations on underground mining equipment. Refer to AS 2294 <i>Earth-moving machinery - Protective structures</i> for standards regarding underground and surface mining equipment.</p>

2.23	Hand held fire extinguishers appropriate to the fire risk for the vehicle are installed, easily accessible and properly maintained on all mobile equipment.	<p>Intent:</p> <p>To ensure that suitably suitable capacity portable fire extinguisher(s) have been pre-determined and enough units are readily available to deal with fires.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>Inspect a sample of vehicles to confirm that adequate portable firefighting equipment is installed. Refer to AS 5062 <i>Fire protection for mobile and transportable equipment</i>.</p>
2.24	There is a formal system in place to review all fire hazards to large mobile equipment with the associated risks of fire having been assessed on mobile equipment >125 kW.	<p>Intent:</p> <p>To ensure a system of risk assessment for fire on large mobile equipment is provided and that automatic fire suppression systems to minimise the risk of fire escalation are specified for installation at a given level of risk.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>Inspect the system of mobile equipment to confirm that an automatic fire suppression system is selected and fitted in accordance with AS 5062 <i>Fire protection for mobile and transportable equipment</i>. Refer to MSIR rr. 6.17, 6.18 and 10.59. In order to meet the requirements of this standard the system must specify the risk level required for the installation of a suitable automatic fire suppression system and the AS 5062 compliant equipment has been installed.</p>
2.25	The automatic fire suppression system installed has been inspected and/or tested according to the OEM requirements.	<p>Intent:</p> <p>To verify that relevant mobile equipment provided with an automatic fire suppression system has been regularly inspected and/or tested to the specifications of the original fire suppression system supplier's requirements.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>Inspect the test records of the automatic fire suppression system. <i>Note: If the OEM specifications are not strictly followed and documentation cannot display this conformance, then the standard is not met.</i></p>

2.26	Where mobile equipment poses a risk of entrapment a second means of safe egress is provided.	<p>Intent: To verify that personnel are not trapped in the vehicle by a fire on mobile equipment.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment for the means of secondary egress. Examine the location of the mobile equipment secondary egress and determine whether it would be usable in the event of a fire. The secondary egress should be located away from the engine and other fire sources as far as practicable. Refer to MSIR r. 6.2(c) and Mines Safety Significant Incident Report No. 147.</p>
2.27	Safety fittings (e.g. double safety chain attachments and brake light connections) are fitted on all vehicles used to tow trailers.	<p>Intent: To ensure that trailers that are towed by mobile equipment have the appropriate safety devices.</p> <p>Personnel: N/A</p> <p>Method: Inspect a selection of light vehicle tow hitches and trailers for the provision of safety chains and brake light connections.</p>
2.28	Mobile cranes are equipped with a pre-warning bumper and taglines.	<p>Intent: To ensure that dogman or riggers are not run over when accompanying loads.</p> <p>Personnel: N/A</p> <p>Method: Inspect mobile cranes for the provision of a pre-warning bumper and a minimum of two non-conductive taglines (one to guide the load and one to secure the load). Refer to <i>Tractor Cranes Safe handling of loads – frequently asked questions</i> published by WorkSafe.</p>

2.29	Mobile equipment cabins are provided to protect drivers from hazardous working environments including cold, heat, dust, fumes and excessive noise and vibration.	<p>Intent: To ensure a hazard free working environment for the vehicle operators.</p> <p>Personnel: Registered Manager.</p> <p>Method: View a sample of mobile equipment. Check that vehicles are fitted with enclosed cabin windows, noise attenuation, air-conditioning, and that air intakes are located away from vehicle exhausts. Confirm that the refrigerant used in air conditioners poses no additional risk to operator safety. Refer to Mines Safety Bulletin No. 100.</p>
2.30	Appropriate guarding is fitted to mobile equipment to prevent injury.	<p>Intent: To verify the risk of injury through entanglement or contact with dangerous parts (e.g. such as power take offs, exposed exhaust pipes, pulley and chain drives) has been minimised.</p> <p>Personnel: N/A</p> <p>Method: Inspect a sample of mobile equipment. Confirm that guarding is fitted and properly secured. Refer to MSIR rr. 4.4(3), 6.2(f) and 6.28(3).</p>

3 Procedures and training

Procedures and training

Point	Standard	Guideline
3.1	The designer, manufacturer, importer or supplier of mobile equipment has provided the employer with current operating manuals.	<p>Intent: To verify that the mobile equipment's safe operating recommendations have been provided to the mine.</p> <p>Personnel: N/A</p> <p>Method: View samples of vehicle operating manuals. Refer to MSIA ss. 9(1)(b) and 14 and MSIR rr. 6.5, 6.11 and 6.13.</p>
3.2	The operating manual provided to the mine is readily available to all operators of that equipment.	<p>Intent: To verify that the mobile equipment's safe operating manual is readily available for reference by equipment operators and trainers.</p> <p>Personnel: Operations management, OHS personnel, trainers and operators.</p> <p>Method: Investigate the availability of the vehicle operating manual to operators and trainers. Refer to MSIA s. 14(c).</p>
3.3	There is a standard operating procedure (SOP) and/or training manual developed for each type of mobile equipment in use.	<p>Intent: To ensure that mobile equipment operations are carried out in a safe consistent manner.</p> <p>Personnel: N/A</p> <p>Method: Sight procedures and/or the training manual for each category of mobile equipment against those specified by the manufacturer's recommendations.</p>
3.4	Defensive driving training is provided for all operators of mobile plant and light vehicles where required.	<p>Intent: To ensure that operators are trained in defensive driving techniques and are aware of vehicle characteristics and limitations of the mobile equipment that they operate.</p> <p>Personnel: Training section, records.</p> <p>Method: View program requirements.</p>

3.5	The SOP specifies and documents the safe use of communication equipment, including two-way radios and mobile phones.	<p>Intent:</p> <p>To ensure that operators are trained and aware of the actions to avoid distraction when operating mobile equipment.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures. If there is a separate document on the use of communications equipment, particularly mobile telephones referenced in the SOP then this standard is met.</p>
3.6	The SOP covers any site-limiting conditions (e.g. ramp angles and turning radius)	<p>Intent:</p> <p>To ensure that any site limiting conditions are brought to the attention of all operators.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures.</p>
3.7	The SOP requires that machinery pre-start checks are carried out on all mobile equipment prior to use.	<p>Intent:</p> <p>To ensure operators examine and confirm the mobile machinery is safe to use prior to operation.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures. The standard is not met if the checking process does not include a means of reporting defects to management.</p>
3.8	The SOP and machinery pre-start check prohibits the use of mobile equipment in a mine where defective equipment presents an unacceptable risk (i.e. brakes, steering, warning signal, lights and seat belts are not in working order).	<p>Intent:</p> <p>To verify that operators are instructed when not to drive defective mobile equipment.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures. Refer to MSIR rr. 4.16 and 13.3(4).</p>
3.9	The SOP includes a method of reporting operational faults on mobile equipment that occurs during shift.	<p>Intent:</p> <p>To ensure operational faults on mobile equipment are identified and acted upon in a timely manner.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures; confirm utilisation of the system by checking maintenance reports.</p>

3.10	The SOP identifies a method for removing defective mobile equipment from service until rectified, e.g. an out of service tag.	<p>Intent:</p> <p>To ensure that defective mobile equipment is not operated until it is in a condition which allows safe operation.</p> <p>Personnel:</p> <p>Plant operators and mechanical staff.</p> <p>Method:</p> <p>View procedures. Inspect a sample of the pre-start checks for mobile equipment. Confirm whether the defects reported have been repaired.</p>
3.11	The SOP provides for the cleaning of mobile equipment.	<p>Intent:</p> <p>To ensure that all mobile equipment is maintained in a satisfactory state of cleanliness to allow safe operation.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures. Inspect a sample of the mobile equipment in operation. Confirm whether the mobile equipment is being cleaned as appropriate for safe operation.</p>
3.12	The SOP documents the safe methods for dealing with adverse weather conditions.	<p>Intent:</p> <p>To ensure that operators are trained and aware of the actions to take when encountering rain, wind or other adverse weather conditions which can affect the safe operation of mobile equipment.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures and training records.</p>
3.13	The SOP covers emergency driving conditions and what to do in the event of a vehicle breakdown (e.g. brake failure, steering failure and tyre blow out).	<p>Intent:</p> <p>To ensure that instructions and training for dealing with emergency conditions are included.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures and training records.</p>
3.14	The SOP documents the safe methods for dealing with fires, including tyre fires on or about mobile equipment.	<p>Intent:</p> <p>To ensure that instructions and training for dealing with fires are included.</p> <p>Personnel:</p> <p>N/A</p> <p>Method:</p> <p>View procedures and training records.</p>

3.15	The SOP documents the safe methods for dealing with overhead powerline contacts.	<p>Intent: To ensure that instructions and training for dealing with overhead powerline contact are included.</p> <p>Personnel: N/A</p> <p>Method: Review documentation to ensure procedure addresses park up and the safe evacuation of the vehicle, with segregation of personnel from the hazardous area for a suitable period. Refer to Mines Safety Bulletin No. 85.</p>
3.16	The SOP documents the safe method of work to be followed for fully loaded downhill haulage of materials.	<p>Intent: To ensure that instructions in how to avoid the loss of vehicle control when hauling materials downhill.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Confirm that loader operators and truck operators are aware of the restrictions in place where hauling materials downhill. This may include reducing the load of material being transported to maintain control of the vehicle. Where water carts are utilised, consider restrictions on the amount of water being carried downhill and/or providing water standpipes and filling equipment at the bottom of the pit to eliminate the hazard.</p>
3.17	An standard procedure has been developed where the presence of voids or holes, due to underground workings or known rock characteristics, pose a risk to mobile equipment and operators.	<p>Intent: To ensure that roads, benches and other operating areas are safe where voids or old mine workings pose a risk.</p> <p>Personnel: Registered Manager, Quarry Manager, Geologist, management.</p> <p>Method: Review the procedure. It should include underground stope over break survey monitoring, mine historic plan review, probe drilling and area isolation practices to prevent mobile equipment falling into a hole. Refer to Mines Safety Significant Reports No. 71 and 121.</p>

3.18	The SOP documents the safe method and locations for parking equipment on slopes.	<p>Intent: To verify that instructions for parking on slopes which prevent equipment from rolling away are included.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Confirm that equipment operators are required to turn their vehicle towards a windrow, pit wall, kerb and etc. Ascertain what rules are in place to manage breakdowns on slopes. The use of wheel chocks may form a secondary means but should not be the primary stopping mechanism. Refer to MSIR r. 13.2(4) and Mines Safety Bulletin No. 81</p>
3.19	The SOP does not permit unattended vehicles underground to be left running and requires parked mobile equipment to be electrically isolated.	<p>Intent: To verify that instructions on safe parking of unattended vehicles underground are provided to minimise the risk of fires.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Confirm that equipment operators are required to shut down and isolate underground vehicles. Refer to MSIR r. 10.41.</p>
3.20	The SOP documents the safe methods and locations for driver exchanges and/or hot seat changes.	<p>Intent: To verify that clear instructions for driver exchanges are included.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Establish that the procedure requires the driver exchange to occur at a designated parking area where parking safeguards are provided. Refer to MSIR r. 13.2(4).</p>
3.21	The SOP documents a vehicle hierarchy where the basic WA road rules do not apply.	<p>Intent: To verify that clear instructions for vehicle interactions are included.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Confirm that the procedure has established a vehicle hierarchy. Refer to MSIR r. 13.2(4).</p>

3.22	The procedures document the safety rules for ensuring fitness for work.	<p>Intent: To verify that management has established controls regarding fitness for work.</p> <p>Personnel: N/A</p> <p>Method: View procedures. Confirm whether operators are checked or tested for fitness for work prior to operating mobile equipment e.g. breathalyser tests. Refer to MSIR r. 4.7.</p>
3.23	The procedure documents the safe methods for identifying and dealing with operator fatigue.	<p>Intent: To ensure that operators are trained and aware of actions to be taken when fatigued.</p> <p>Personnel: Operators, Quarry Manager, trainers, supervisors.</p> <p>Method: Inspect procedures, fatigue management procedures and fatigue management training materials.</p>
3.24	The procedure documents safe methods for identifying and dealing with operator distractions.	<p>Intent: To ensure that distractions which can affect the safe operation of mobile equipment are controlled.</p> <p>Personnel: Operators, Quarry Manager, trainers, supervisors.</p> <p>Method: Check to see if hands free communication is installed on mobile equipment. Inspect procedures. Confirm that instructions are issued with respect to the safe methods to be employed when transporting passengers, dealing with personal emotional issues or with the use of mobile phones, media and video games, music devices, radios, food, drink, reading equipment etc.</p>
3.25	The SOP is reviewed and updated whenever new equipment is supplied.	<p>Intent: To ensure new mobile equipment continues to be operated in a safe manner after a change.</p> <p>Personnel: N/A</p> <p>Method: View traffic management plan and/or change management procedures</p>

3.26	All personnel are inducted, receive site familiarisation, and are trained and assessed as competent for mobile equipment operations.	<p>Intent: To verify that operators are assessed as competent in the safe operation of mobile equipment.</p> <p>Personnel: Mobile equipment operators.</p> <p>Method: View a sample of site induction, site familiarisation, vehicle training and assessment records. Confirm that each operator has completed a written questionnaire and a practical assessment on the job. Confirm that a site re-familiarisation also occurs before vehicle training at the start of a new swing. Refer to MSIR r. 4.13.</p>
3.27	Only operators with a pit permit are authorised to operate mobile equipment in the open pit area.	<p>Intent: To ensure that operators receive special training in pit operations.</p> <p>Personnel: Mobile equipment operators.</p> <p>Method: View pit permit documents and pit entry signage. Interview vehicle operators.</p>
3.28	Compliance with procedures is regularly checked by management.	<p>Intent: To ensure that the operator competency and capability are regularly assessed.</p> <p>Personnel: Area Managers, supervisors.</p> <p>Method: Inspect Quarry Manager's and/or supervisor's notebooks or shift reports. Confirm by interview of line managers and supervisors. View a sample of site task observations to confirm that vehicle operator compliance checks are being undertaken. Inspect any vehicle data which provides feedback on the operator performance. Confirm if mobile equipment speed is being monitored. (First Watch 11 article on vehicle monitor technology contained in www.cmewa.com.au)</p>

3.29	Periodic re-assessments of driver skills and behaviour occur.	<p>Intent: To ensure expected driver behaviour is continually being exhibited and maintained.</p> <p>Personnel: Operators and supervisors.</p> <p>Method: View written procedures and observe arrangements. Sight examples of completed re-assessment documentation. Confirm that rules are being followed, speed limits are checked and being observed, safe working procedures for reversing are in place and being followed, segregated pedestrian routes are being used properly, lift trucks are being driven and operated safely etc.</p>
3.30	The training, assessment and periodic re-assessment records are documented and retained	<p>Intent: To ensure that the employer has provided the operators with the required training in the safe operation of mobile equipment.</p> <p>Personnel: Training Officer.</p> <p>Method: View training records and observe dates of entries.</p>