

FCX Department of Safety, Health and Technical Training		SOP #	FCX-23
		Revision #	Rev. 2
		Supersedes	Rev. 1
Interaction with Heavy Mobile Equipment – Surface Road Design, Light Vehicles & Ground Personnel		Task Risk	X High
			Medium
			Low
			NA
Approval Date: December 2025		Original Date: August 2015	

References: COHE, Maintenance Standards

Contents

1.0	Policy Purpose and Scope.....	2
2.0	Policy Requirements.....	3
2.1	Light Vehicle and Heavy Equipment Requirements	3
2.2	Separation of Heavy Equipment and Light Vehicles	6
2.3	Separation of Heavy Equipment and Pedestrians	8
2.4	Tie Downs (Q-Points)	9
2.5	Roads and Intersections	10
2.6	Passing Procedures for Pit Driving	13
2.7	Perimeter Security and Lockout Tagout Tryout of Equipment.....	16
3.0	Records	17
4.0	Equipment and Software	18
5.0	Training	18
6.0	Audits	19
7.0	References.....	19
8.0	Definitions	20
9.0	Revision History	20

1.0 Policy Purpose and Scope

This document establishes the minimum requirements and procedures for the health and safety of Freeport-McMoRan employees and contract personnel where there could be interaction between heavy equipment and light vehicles or people.

Scope All Freeport-McMoRan (FCX) locations where heavy equipment is utilized will, at a minimum, adopt this policy and ensure that all site Standard Operating Procedures are aligned.

Heavy mobile equipment shall include:

- Haul trucks / water trucks
- Articulating trucks
- Loaders
- Track dozers / bull dozers
- Motor grader / blades
- Rubber tire dozers (RTD)
- Track hoes / backhoes
- Mobile cranes
- Shovels
- Scrapers
- Drills
- Compactors
- Slag haulers
- Forklifts
- Other heavy mobile equipment that interacts with smaller equipment and pedestrians

2.0 Policy Requirements

2.1 Light Vehicle and Heavy Equipment Requirements

Light vehicles traveling into the mine and mine shop areas shall meet the following minimum requirements.

Periodic Maintenance and Inspection Requirements

All light vehicles and heavy equipment will follow equipment reliability standards and / or manufacturer (OEM) guidance for routine and maintenance activities. This is to help ensure equipment is kept in good working condition.

Before operating any piece of equipment, a preoperational inspection and checklist must be completed. Any critical safety items marked in Bad Order (BO) or not functional will be tagged / flagged and repaired before the equipment is operated.

Minimum Requirements for Entering Active Mining Area

All vehicles entering the active mining area must be equipped with:

- **Two-way radio** with required channels for the mining area
- **Lighted buggy whip** if the vehicle is under 12 feet tall:
 - Must be a minimum of 12 feet tall measured from ground level to the top of the light
 - Must have a brightly colored flag at the top
 - Areas requiring buggy whips will be identified with signage
- **Functional lights**, such as headlights, taillights, turn signals, reverse lights and brake lights
- **Wheel chocks**
- **Required PPE** for all occupants (i.e., hard hat, reflective clothing, safety glasses, hard toe boots)

If your vehicle **does not** meet these requirements, an escort will be required per site standards.

Additional Lights for Light Vehicles and Support Equipment

Lights shall be used to indicate types of equipment and enhance visibility:

Situation	Non-Autonomous Sites	Autonomous Sites
Emergency	Red & Blue Strobe	Red & Blue Strobe
General Visibility, Caution	Amber	Amber
Blasting - Do Not Pass	Red	Red
Support Equipment & HDPE - Do Not Pass	Blue	Red
Support Equipment - Pass*	Green	Green
Haulage - Pass*	Green	N/A

*Sites that have adopted the green-light passing policy. Otherwise no passing allowed.

Autonomous Mode	Non-Autonomous Sites	Autonomous Sites
Autonomous Truck - Manned Mode	N/A	Green
Autonomous Truck - Auto Mode	N/A	Blue

Light Vehicles Identification

Light vehicles identification shall be:

- A minimum size of **10 inches** and visible from the rear and sides.
- Of a **distinguishable color** compared to the vehicle's color.
- **Simple and well organized** for easy identification.

Light vehicle identification examples.



Large Equipment Identification

- **Haul trucks** – must have numbering with LED lights that are large enough to be seen by other drivers from the front, sides and back of the truck. Must have a park brake light indicator on the front and rear.
- **Graders, dozers, drills, rubber tire dozers, loaders and water trucks** – must have visible LED lights at a minimum in the rear, with other visible methods for the front and sides.
- **Other small mining equipment** – must have visible numbering methods on the back and front to ensure visibility to other vehicles.

LED light numbering on the front and sides of a haul truck.



Park brake indicator light and LED light numbering on back of a haul truck.



Numbering on support equipment.



Forklifts and ATVs

Forklifts in the shop and working areas must have mirrors, back-up alarms, and other applicable safety devices or technology (such as proximity detection or in-cab monitoring systems) as they become available and are proven viable. All-terrain Vehicles (ATVs), Utility Terrain Vehicles (UTVs) and slow-moving small equipment must be escorted or hauled on a trailer.

Reversing on Auxiliary Ramps

Large wheeled mobile equipment – haul trucks, water trucks, lube trucks, low boys – shall not be allowed to back up (reverse) on auxiliary ramps, such as those used for drill access. If an operator is in a situation where they need to back up or down a ramp, a supervisor will determine the best course of action. This may include using a dozer to widen the ramp or assigning a spotter to guide the driver.

2.2 Separation of Heavy Equipment and Light Vehicles

Light Vehicle Access Roads

As much as possible, sites will use light vehicle access (LVA) roads to maintenance shops and office areas that are physically separated from haul trucks and heavy equipment traffic. Additional LVA roads will be established, when possible, in other areas where heavy equipment is operating. Where LVA roads are required to cross haul roads, tunnels or bridges shall be used when feasible. The number of LVA accesses into haul roads should be kept to a minimum. Haul trucks shall sound their horns when approaching vendor routes or designated LVA intersections on main haulage roads. Clear signage must be in place, such as “Haul Road Crossing” on the LVA prior to crossing or entering a haul road, and “LVA Crossing, Honk” on the haul road before it crosses the LVA.

Light Vehicle Access (LVA) road crossing haul road in tunnel and on same level.



Parking Heavy Equipment

Mobile equipment shall not be left unattended unless the controls are placed in the park position, and the parking brake, if provided, is set. Vehicles rated at one ton and above will have the wheels chocked and the park brake set any time they are parked. (This is in alignment with the DOHS Property Entry Policy, FCX-07). When parked on a grade, the wheels or tracks of mobile equipment shall be either chocked or turned into a bank. Ditches, windrows or ground engagement tools (GET) may be used in lieu of wheel chocks. When used, chocks must be rated and designed appropriately for the size of equipment. Small equipment and light vehicles shall not park in the blind spot of a haul truck or other large equipment without additional controls being in place.

Haul truck and rubber tire dozer parked in parking ditches.



Light vehicle parked on blind side of a haul truck. This is not permitted.



Public Road Crossings

Where haulage traffic crosses public roads, use a tunnel, bridge or other controls – such as flaggers, signal lights and crossing guards – to manage the intersection for all public roadways. Ensure that the Department of Transportation or other regulatory agencies are involved in the evaluation and planning, and proper permits are acquired.

2.3 Separation of Heavy Equipment and Pedestrians

Pedestrian Walkways or Paths

As much as possible, sites will provide designated pedestrian walkways or paths where there is regular interaction between heavy equipment and pedestrians. Pedestrian crossings will be provided where pedestrians need to regularly cross vehicle roads. Crossings must be clearly signed for both pedestrians and equipment operators. Adequate lighting will be provided where pedestrian walkways or paths exist. Where necessary, a pedestrian crossing light (traffic signal) should be provided.

Signage for pedestrian crossings.



Ground Crews (leaching, surveyors, cable crew, mechanics, etc.)

When ground personnel will be working on or near mine roads, a pre-task risk evaluation must be conducted to identify controls that will be implemented to separate them from interaction with heavy mobile equipment. Controls may include the use of berms, safe distance requirements and speed reductions. Ground personnel must have radio tuned to the area in which they are working. Warning devices – such as signs, lights, radio announcements by employee, Dispatch or Control Room – shall be utilized to communicate the presence of ground crews.

Flaggers or Spotters

Flaggers or spotters shall be provided with a vehicle or shack. A radio must be provided for communications. High-visibility and reflective vests or clothing are also required.

Shops

When moving large equipment in and out of an enclosed shop facility, spotters will be utilized.

Emergency Protocol

Each site shall establish emergency procedures for heavy equipment incidents. These procedures must include safe retrieval of personnel and traffic management protocols.

2.4 Tie-Downs (Q-Points)

Minimum Requirements for Tie-Downs

These minimum requirements will be applied to all tie-down areas:

- Physical separation between haul trucks, light vehicles and pedestrians.
- Support equipment and water trucks smaller than CAT789 shall be separated from haul trucks in designated areas. *Note: Loading equipment may be parked with matched haul trucks.*
- Wheel ditches for equipment.
- Forward travel only for exiting equipment. *Note: Backing into the parking ditch is permitted.*
- Restricted from small equipment not involved in shift change.
 - Supervisor vehicles are allowed in this area during shift change, when necessary, using light vehicle access only.
 - Maintenance activities must wait until after shift change.
 - If maintenance activities are required in the tie-down area, then the tie down or a section of it must be closed to other haul trucks until work is complete. The closure must be announced to haul truck drivers.
 - A separate tie-down area shall be established for regular field maintenance work.
- There shall be a minimum of 15 feet between haul trucks when parked side-by-side. Additional clearance will be needed for “in-line” parking based on equipment size.
- In permanent tie-downs, a separation berm will exist (behind the trucks) to outline the pedestrian walkway. This berm needs to have slots to allow personnel to enter and exit.
- Equipment shall go to the forwardmost parking position, or from right to left as facing the equipment – whichever applies.
- Spare trucks left on a tie-down will be moved to the right (as facing the equipment) after shift change is over, properly secured and shutdown.

2.5 Roads and Intersections

All roads and intersections will be constructed, maintained and periodically evaluated for proper controls to ensure that all authorized equipment can travel safely. Where conditions do not allow safe operation, additional controls shall be applied, or roads shall be closed until maintenance occurs.

Construction and Design

Surface haul roads will be 3.5 times as wide as the largest vehicle on the road. This is 85 feet between the berms for a CAT 793; 96 feet for Komatsu 930Es; and 106 feet for CAT 797/798 and Komatsu 980 trucks. For autonomous sites, the road width will be the same as manned sites or wider, depending on the site's decision based on available technology. Roads shall be checked regularly to ensure no less than 3 times the width. If it becomes less than 3 times the width for any reason, a mitigation strategy must be put in place to take corrective action. Sites with ultra-class trucks may maintain a width of 3 times the largest truck (91 ft) as a minimum provided the site implements a comprehensive auditable program for maintaining the width to no less than 3 times.

Haul roads should be constructed at a 10% grade or lower where specific safety considerations determine lower grade design requirements. Grades steeper than 10% should be minimized and should not exceed 15%. Utilize the equipment manufacturer's recommendations for the maximum grades of articulating trucks used on site.

At switchbacks, the road shall be widened to 4-4.5 truck widths. Super elevations shall be employed to help the trucks turn.

Berms shall be constructed to a minimum of mid-axle height of the largest vehicle to travel on that road. Wider – rather than taller – berms are preferred to maximize visibility. At the base of continuous ramps and where significant drop-offs exist, consider the use of larger berms or other structures such as runaway ramps, straddle berms, etc., to prevent equipment from going through the berm.

Roads should be adequately watered to control dust and ensure proper visibility. Water truck operators need to spot-water and not over-water to ensure adequate traction for all vehicles.

Intersections

An intersection refers to any location where multiple heavy equipment roads intersect or where light vehicle roads meet a road used by heavy equipment. Intersections need to be carefully located and constructed to ensure adequate visibility. For intersections on grades, 300 feet of sight distance is needed to allow a fully loaded haul truck to come to a stop. For intersections on flat ground, 175 feet of sight distance is needed to allow a fully loaded haul truck to come to a stop. Intersections with poor visibility (inside of curves, crests of hills) should be avoided. If adequate sight distance is not available, additional controls must be applied.

Right-angle (“T”) intersections are preferred, while “Y” intersections should be avoided. Where a T-intersection is not possible, the use of a roundabout or lane separation berms should be considered.

Intersections shall be regularly audited to ensure there are no objects that restrict visibility. These objects include but are not limited to vegetation, signs, utilities, power poles, buildings and berms. Berm height can be lowered at intersections to prioritize visibility of smaller equipment.

Traffic control berms or other separating traffic control devices should be utilized at intersections to separate two-way traffic and manage traffic flow.

If possible, intersections should be illuminated at night, and the lights should be directed so they do not obscure the vision of light vehicle or haul truck operators.

The rights-of-way should be clearly trained to and understood by operators. The following vehicles have right-of-way in order of precedence:

- Emergency vehicles
- Trucks to the blind side of larger equipment
- Loaded haul trucks
- Larger equipment
- Vehicles carrying explosives
- Light vehicles

When signage is used at an intersection, the signs will take precedence over the right of way. When in doubt, stop and communicate.

Haul Road Operations (Open-pit Operations)

All surface mines will utilize left-hand traffic within the active pit area. Adequate signage must be provided where traffic changes from right-hand to left-hand.

Haul trucks and large water trucks will not make U- turns without confirmation that it is safe to do so. The driver will request to make a U-turn via radio communication and wait for another employee with visibility to provide clearance to give the verbal all clear before the U-turn happens.

When haul trucks are hauling loaded downhill, additional controls shall be implemented to minimize the risk (e.g., straddle berms, run-away ramps, signage for lower gear / speeds, RAMP Tech monitoring).

Haul Road Restrictions	Permanently closed roadways shall be bermed off with rock material. Haul truck tires may be used to temporarily restrict haul truck and water truck access to areas such as stockpiles, crushers and access roads. A minimum of two tires, and as many as needed, shall be used to adequately control access. Where a road has been reduced to a single lane, the appropriate signage shall be installed to inform drivers of the right of way as well as any communication required for using the road.
Signage	Appropriate signage placed at appropriate locations shall be used on all roadways to warn of hazardous conditions. Examples of signs that may be needed: intersection, narrow roadway, obstructed view, one way, road damage, indication of right of way, personnel working, etc. Signs shall be readable and regularly maintained.
Speed Limit	Speed limits on haul roads will be 35 mph. Shop area speed limits will be 5-15 mph depending on pedestrian and light vehicle traffic in the area. At sites where haul trucks that are capable of higher speeds have been implemented (such as ultra-class trucks), the speed limit may be increased as deemed appropriate. The necessary change management, communication, training and signage shall be implemented to ensure the safety of all haul road users. Speeds should be temporarily reduced based on the physical conditions of the road – such as width, surface conditions, intersections, visibility and presence of ground crews, as well as for weather conditions. During adverse weather conditions, speed limits will be reduced, and traffic should be limited to only necessary travel. If weather conditions prevent safe operation, traffic shall be stopped until the weather clears. In areas where fog or snow are frequent, guideposts shall be used to delineate edge of road.

2.6 Passing Procedures for Pit Driving

All sites will follow the safe passing procedures for equipment and light vehicles outlined in this section. Two methods of passing are permitted in open-pit operations: passing with radio communication and passing with a green light. No other form of passing is allowed. The passing of haul trucks, water trucks and lowboys while in motion is subject to strict controls. Each site shall either implement a no-passing policy for this equipment or incorporate it into the site's approved green light passing procedure.

Passing with Radio Communication

When passing with radio communication, radio contact must be made on the appropriate channel between the operators. Example communication:

- LV requesting to pass: "LV# to Equipment#, do I have permission to pass on the right?"
- Equipment Operator: "Equipment# to LV#, you are clear to pass Equipment# on the right."
- LV requesting to pass: "LV# to Equipment#, Thank you Equipment#, passing on your right."

The passing vehicle operator is responsible for making sure the road is clear of oncoming traffic.

If radio contact cannot be made, passing will not occur.

Only one vehicle at a time may pass another piece of equipment. While passing, the equipment should remain far enough to the right to avoid hazards associated with spillage and tire blowouts.

Support equipment, such as rubber tire dozers, that have the blue strobe light (red strobe light at autonomous haulage sites) shall not be passed under any circumstances when the strobe light is on – whether they are in the same or opposite side of the road as the equipment that wants to pass.

Passing with Green Light

The green light passing procedure requires that the equipment being passed has a green light that is visible from the back specifically installed for giving permission to pass. When the equipment sees another equipment behind them, they will assess the situation to make sure it is safe for them to be passed and then press the green light switch to grant permission to pass. Once green light permission is granted, no radio communication is required.

Sites that choose to establish the use of green lights for passing will ensure they have a robust procedure for this method of passing.

**Passing with
Green Light**
(continued)

As a minimum, the following shall be accomplished:

- A management of change (MOC) process will be completed to make sure all employees and contractors are informed of the change and trained on the new procedures.
- Drivers will still be trained to use radio communication for passing as a backup for equipment that does not have the green light or in case the green light is not working on some equipment.
- The green light will be activated by a momentary switch – a spring-loaded switch that only turns on when the operator has a finger on it.
- The green passing light will be used exclusively for giving permission to pass and nothing else.
- No other light shall be used to give permission to pass.
- Only one vehicle may pass per green light – no convoy passing will be allowed.
- It should be very clear to differentiate between when the green light is on versus when it is off. Reflection from the sun or artificial lights should not make it look like it is on when it is off.
- It is still the responsibility of the passing driver to make sure it is safe to do so before they proceed.

*Passing green light
installed on haul
truck and rubber
tire dozer.*



*Motor grader 91
passing green light –
off (left) versus on
(right).*



Emergency Vehicles	If there is an emergency in the pit and a mayday is called, all traffic must be stopped. This allows emergency responders to travel unimpeded to the emergency location. Emergency responders have full right of way when the siren and flashing lights are on and can pass any and all stopped equipment without radio communication. If an emergency vehicle is in the mine, but without a siren and flashing red and blue lights, it is not on an emergency response. White or clear lights are working lights, so all traffic will continue as normal – no need to stop.
Passing of Moving Equipment	Haul trucks, large water trucks (CAT 777 and above) and lowboys will not be passed while they are moving. At sites that have implemented the green light passing procedure, moving haul trucks, large water trucks (CAT 777 and above) and lowboys may be passed only if they have the green light and give permission to pass with the green light. In accordance with site policy, passing other equipment while traveling is permitted using either radio communication or the green light passing procedure.
Passing Queued Trucks at Shovels, Stockpiles, Dumps and Crushers	LVs and other equipment can pass queued up trucks and other equipment. The permitted passing procedure must be followed using radio communication on the correct channel or green light passing where this method has been implemented.
Passing B.O. Heavy Equipment	B.O. equipment must be stopped on the road, with the flashers and park brake light on. Haul trucks must have an orange B.O. flag displayed on the handrail in front of the cab to visibly indicate the truck is down. Operator on board: LVs and heavy equipment can pass with radio or green light permission from the equipment operator. Operator not on board: Orange cones (blue cones in autonomous operating zones) will be placed on the ground in the front and back of B.O. equipment to signify there is no operator on board. Before passing, all traffic must make an announcement on the radio that includes the location and number of the B.O. equipment as well as the number of the passing equipment. It is the responsibility of the passing operator to ensure it is safe to do so. In high-traffic areas or in areas where visibility is an issue, a flagger will be required. If it is not clear whether the B.O. equipment has an operator on board, the passing equipment will attempt three (3) times to call the equipment. If there is no response, the passing equipment will ensure that it is safe to pass and then announce on the radio that they are passing, indicating the equipment numbers and location before they pass with extra caution.
Passing Stationary Working Equipment	This applies to track hoes, backhoes, vac trucks, lowboys loading equipment, etc. Orange cones (blue cones in autonomous operating zones) will be placed on the ground in the front, back and outside the swing radius of the equipment. Vehicles wishing to pass the stationary equipment will announce it on the radio, indicating the equipment numbers and location, but the stationary equipment will not be required to respond on the radio. In high-traffic areas or in areas where visibility is an issue, a flagger will be required. The situation will be announced on the radio for all users to know there is equipment in the road.

2.7 Perimeter Security and Lockout Tagout Tryout of Equipment

Lockout, tagout, and tryout of equipment will be in accordance with the FCX-CoHE Policy. Perimeter security shall be utilized when LOTOTO/CoHE is not required but there is a need to communicate that the equipment is in control of an operator.

Pre-use Inspections and Ground Breaks

When an employee leaves the cab of the truck – and the truck must remain running (during pre-shift inspections and ground breaks, for example) – the operator must signify that the equipment is in use and ensure that control of the energy source is maintained. Perimeter security must be utilized to communicate to others that the truck is under control of an operator currently on the ground. Examples include, but are not limited to, locks and tags on ladder gates and other main entry points.

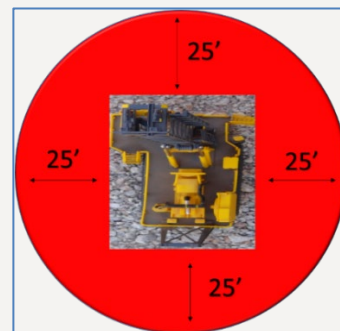
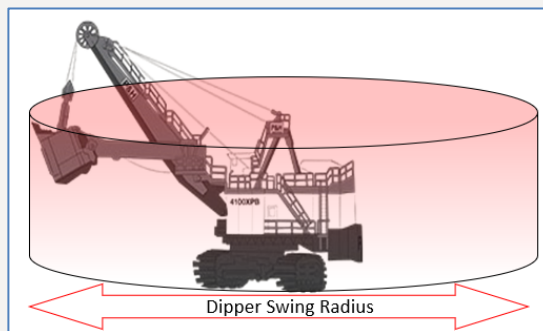
Use of park brake light indication is required on haul trucks for additional communication that the truck park brake is set.

Large loading equipment and drills shall have a perimeter security procedure established.

Perimeter security board used to secure access to large equipment such as shovels and drills.



Restricted area about a shovel and a drill.



Approaching Heavy Equipment

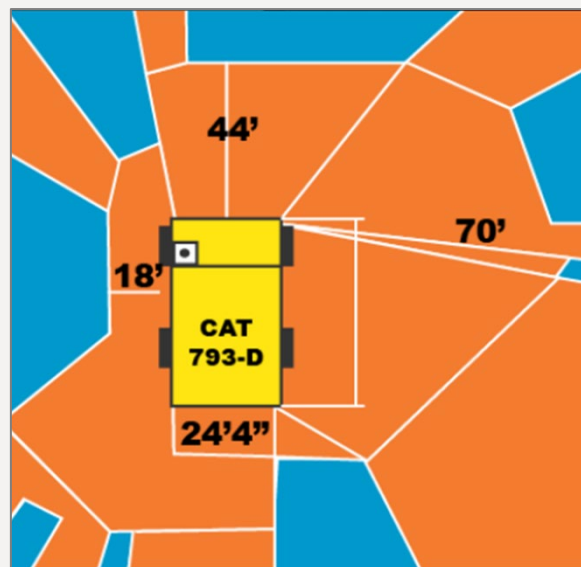
Heavy equipment shall never be approached from their blind area. Positive radio contact shall be made before approaching heavy mobile equipment.

When radio contact cannot be established, visual contact with the operator must be made prior to approaching. Operators of haul trucks, loading units, water trucks, dozers, drills and other equipment (as determined by site) are required to secure the vehicle and be out of the operator's cab before others approach the equipment. Visual contact is to be maintained with those approaching.

If light vehicles, such as maintenance trucks, need to park close to the equipment, then proper energy control procedures must be followed prior to light vehicle parking within working area. These vehicles must be moved away to a safe area prior to removing locks or energy control measures.

Sites will establish procedures for non-routine situations (i.e., emergency, non-responsive operator).

Blind spots around a CAT 793-D haul truck. The orange zone is all blind to the driver in the cab.



3.0 Records

The following records must be retained according to the FCX Records Retention Policy.

- Employee training records
- Annual program review
- Equipment inspection records
- Variance documents
- Management of Change Forms
- Others as described in FCX Records Retention Policy

4.0 Equipment and Software

As various forms of technology become available and introduce improved controls to reduce risk, each site will install these technologies as feasible or as required. Sites should work with the FCX Operational Improvement Team to evaluate new and existing equipment technologies.

In-cab Fatigue Monitoring System

All sites will install and maintain the in-cab fatigue monitoring systems for surface haul trucks and other equipment where feasible. Maintenance programs will be established to keep units operational.

Each site is required to maintain a fatigue management program that includes communication, training, fit-for-duty checks and supervisor interaction. In addition, there should be a program that identifies operators with a high frequency of fatigue and applies concrete actions to reduce their fatigue rate.

5.0 Training

All training will be documented, and records will be maintained.

Visitor Awareness Training (Hazard Awareness)

This training must be provided to all visitors who have or may have the potential to be present in areas where heavy equipment will be operated. It shall include an overview of the hazards of the area.

In-pit Driver Training

All employees and contractors who will drive in the pit, as specifically defined by each property, will receive in-pit driving safety training prior to being allowed to drive on mine haul roads. This training shall include a review of this policy. A certificate, driving permit, sticker or some sort of identification will be issued to drivers who have completed the training and shall be required to enter the active mine areas. This driver training only will be provided to those who request and receive mine area management approval for the training. If an individual does not have in-pit driver certification, they will need to be escorted into the pit. Driving in the pit at night introduces additional hazards and should be addressed in the training materials and practice.

Note: In-pit driving training is not the left-hand driving training done in the annual MSHA refresher. It is a specific task training requirement to authorize drivers for pit access.

Light Vehicle Access (LVA) Only Training

Employees and contractors who will only utilize Light Vehicle Access routes will receive training in safe operation on these routes. Having this training will not qualify a driver to drive on mine haul roads.

Annual Refresher Training

All the training mentioned above shall be accompanied by an annual refresher course that employees and contractors will have to take at least once every 12 months to maintain their authorization to enter the mine area.

6.0 Audits

Periodic unannounced audits and scheduled audits are expected to ensure compliance with the policy and safety of personnel. All audits are to be documented, an action plan developed to address any identified gaps, and actions assigned and tracked to completion. Documents will be retained per the FCX Record Retention Policy. Digital Fatal Risk Management (FRM) forms may be used for audits and gap analysis.

Monthly Audits	Each site will develop an audit schedule for area leaders and employees to audit selected elements of this policy at a frequency appropriate to the frequency of light vehicle and personnel exposure to heavy mobile equipment.
-----------------------	--

Annual Gap Analysis	Quarterly Gap Analysis will be performed by a site cross-functional team such that by the end of a 12-month period, the entire Gap Analysis has been completed internally. Action items will be generated, as needed, and tracked to completion.
----------------------------	--

Audits will include review of compliance with FCX policies, training, site SOPs and field practices. Follow-up audits may be conducted more frequently depending on site performance. A standard format will be used for the annual site audits.

7.0 References

Throughout this policy other policies and procedures are referenced.

- | | |
|---|---|
| <ul style="list-style-type: none">• Lockout Tagout Tryout Policy• Records and Retention Policy• Haulage Fatigue Management Standard | <ul style="list-style-type: none">• Bus Policy• Variance Process |
|---|---|

8.0 Definitions

Definitions	
Blind Area or Blind Spot	A blind area, or blind spot, is the area around a vehicle or piece of heavy equipment that is not visible to the operator, either by direct line-of-site or indirectly by use of internal and external mirrors.
Critical Controls	A device, system, or process implemented to eliminate or reduce the risk for a task/job, but if missing or overlooked has the potential to lead to catastrophic outcomes such as serious injury or death.
Critical Risks	A risk that if not controlled has the potential to lead to catastrophic outcomes such as serious injury or death.
Grade (Gradient)	The degree of inclination or rate of descent or ascent in a roadway.
Heavy Mobile Equipment	Large equipment used in mining and construction as defined in Section 1.0 of this document.
Intersection	A place where two or more roadways meet, especially when one is a major road.
Light Vehicle	Smaller single or multi-passenger vehicles and equipment typically less than one ton. This can include cars, pick-up trucks, vans, buses, UTVs and ATVs, and small equipment such as forklifts or bobcats.
Positive Radio Contact	The radio communication between two persons identifying themselves and responding to one another to establish an understanding of the action each is about to take with relation to approaching or passing heavy mobile equipment.
RAMP Tech	Remote Access Monitoring Process Technician.
Right of Way	The right to proceed with precedence over other vehicles in a particular situation. For this document – at an intersection or along a road.
Tie-downs (Q-point)	The place where heavy mobile equipment is parked or staged, such as a ready line.
Turnouts (Orejas)	An area provided along a mining road for light vehicle drivers to turn in and square up with road to allow better sight of other vehicles before turning.

9.0 Revision History

2015 NEW	Initial Release
Dec 2016	Roles & Responsibilities - Supervisors: Expanded risk review requirements to include changes impacting safe interaction of heavy equipment with light vehicles or pedestrians. - Employees: Shifted language to emphasize correcting or reporting hazardous conditions and performing pre-task risk assessments using appropriate tools. Separation & Interaction Controls - Strengthened requirements for heavy equipment, light vehicles, and pedestrian separation. - Updated PPE standards require high-visibility and reflective clothing for day and night. - Revised procedures for equipment approach, flaggers, and spotters. Roads, Intersections & Tie-down Areas - Modified haul road grade requirements and removed outdated construction details. - Clarified intersection definitions and right-of-way rules. - Updated tie-down (Q-point) procedures for parking, shift changes, and stray equipment. Vehicle & Equipment Requirements - Adjusted light vehicle numbering and escort requirements. - Added perimeter security procedures for large equipment. - Updated lockout/tagout requirements for maintenance and fueling. Training Enhancements - Added visitor hazard awareness training. - Expanded in-pit driver training and clarified approval process. - Introduced annual GSR refresher training for employees and contractors. Audit Requirements - Added monthly, quarterly, and annual audit requirements.
Dec 2025	Roles & Responsibilities - Clarified perimeter security and LOTOTO procedures, including park brake indicators and responsibilities for equipment control. - Mandated installation of in-cab fatigue monitoring systems and supporting fatigue management programs. - Included requirements and controls for autonomous sites. Separation & Interaction Controls - Added physical separation guidance covering LVA roads, tunnels, bridges, and clear signage at crossings. - Enhanced tie-down controls: berms, parking procedures, supervisor access, and maintenance timing. Roads, Intersections & Tie-down Areas - Specified road width standards, including minimums for ultra class trucks and autonomous operations. - Added green light passing procedure for equipment, with management

of change (MOC) requirement.

- Updated intersection controls: signage, sight distances, and lighting requirements.

Vehicle & Equipment Requirements

- Updated equipment light color requirements for visibility and identification, specified strobe and LED usage.
- Aligned maintenance and inspection protocols with OEM standards, mandated pre-operational checklists.

Training Enhancements

- Expanded training for all visitors, in-pit drivers, and LVA-only drivers.
- Added annual refresher requirement for continued authorization.

Audit Requirements

- Enhanced audit process: periodic unannounced and scheduled audits, digital FRM forms, and action plans.

Health and Safety Policy Update

FCX-23 Interaction with Heavy Mobile Equipment-Surface

Published: 2/15/2026

Below is an overview of key updates to the FCX-23 Interaction with Heavy Mobile Equipment-Surface policy. Use this summary to review changes, expectations and alignment to site procedures with employees. For full details, refer to the complete documents on the DOHS SharePoint Site.

- Updated Policy Document [ENG](#) | [ESP](#)
- New Haulage Fatigue Management Standard [ENG](#) | [ESP](#)

Background

In order to better control risks related to Vehicle Collision or Rollover and Vehicle Impact on Person, the Mine Community of Practice, in coordination with DOHS, is releasing the first revision of this policy since 2017. Changes to the policy support:

- Action Items from incident investigations
- Updates to issues previously explained in a Policy Interpretation letter
- New language to support autonomous operations
- General clarification of policy language
- MSHA Mobile Equipment Program

Overview of Significant Changes

This section highlights the most significant policy changes. Please refer to the full policy for all changes in this revision.

1. Reversing on Auxiliary Ramps

- Large wheeled mobile equipment – including haul trucks, water trucks, lube trucks and lowboys – are no longer permitted to reverse on auxiliary ramps.
- Supervisors must identify and implement alternative controls when situations arise that previously required reversing, such as ramp widening or use of spotters.

2. New Passing Procedures for Pit Driving

A green light passing option is now available for sites to adopt. Sites without green light passing will continue to use radio communication for passing when allowed.

- The green light passing option allows haul trucks, water trucks and other heavy equipment to signal it's safe to pass. This requires the installation of a spring-loaded switch that activates a green light only while continuously pressed by the operator. A thorough MOC, training and communication plan is required at any site planning to implement this option.
- Passing moving haul trucks, large water trucks (CAT 777 and above) and lowboys is prohibited unless a green light passing procedure is in place.
- New requirements for passing out of service Heavy Equipment include:
 - If an operator is on board – passing is permitted only with defined radio communication or green light authorization.

- If an operator is not on board – cones must indicate no operator present, and radio calls must be made before passing. A flagger is required in high-traffic areas or in areas where visibility is an issue.
- New requirements for passing stationary working equipment include the use of cones to define the swing radius. Vehicles intending to pass must make a radio announcement identifying the stationary equipment number(s) and location. A response from the stationary equipment is not required. In high traffic or limited visibility areas, a flagger will be required.

3. Roads and Intersections

- Minimum road width requirements have been updated to account for larger ultra-class equipment and autonomous operations.
- Right-of-way precedence at intersections has been revised to the following order:
 - Emergency vehicles
 - Trucks to the blind side of larger equipment
 - Loaded haul trucks
 - Larger equipment
 - Vehicles transporting explosives
 - Light vehicles
- Speed limits for ultra-class trucks may exceed the previous 35-mph limit when the necessary change management, communication and training are implemented.
- Haul trucks making U-turns must request clearance via radio communication and wait for confirmation from another employee with visibility before proceeding.

4. Vehicle Requirements

- New table defines light colors at autonomous and non-autonomous sites.
- Minimum light vehicle numbering size has increased from 4 inches to 10 inches.
- Specific placement requirements for light vehicle numbering have been removed. Numbers must now be visible from the vehicle sides and rear.
- All light vehicles and heavy equipment must follow applicable equipment reliability standards and/or manufacturer (OEM) maintenance guidance.
- Haul trucks must have park brake indicator lights visible from both the front and rear.
- ATVs, UTVs and other slow moving small equipment must be escorted or transported on trailers. Amber strobe lights are no longer allowed as an alternative control.

5. Separation and Interaction Controls

- New signage requirements have been added where light vehicle access roads intersect or cross haulage roads.

6. New Haulage Fatigue Management Standard

- The standard defines how fatigue events identified by DSS will be reviewed and followed up by dispatch and supervision.
- The standard establishes a process for identifying operators with the highest number of verified fatigue events (“frequent flyers”) and outlines defined improvement periods.
- It includes escalating restrictions for operators who remain on the frequent flyers list for multiple consecutive months.

7. Training

- The policy adds a requirement for annual refresher for the In-Pit Driver training course.

8. Audits

- Quarterly and annual audits are now combined to help ensure a full gap analysis of the policy, training, standard operating procedures (SOPs) and field practices is completed across four quarterly segments.

Haulage Fatigue Management Standard		Task Risk	X	High
				Medium
				Low
				NA
Approval Date: December 2025		Original Date: December 2025		

1.0 Policy Purpose and Scope

This document establishes the minimum requirements and procedures for the health and safety of Freeport-McMoRan employees and contract personnel.

Scope All Freeport-McMoRan Americas (FMA) locations where haulage equipment is utilized will, at a minimum, adopt this guidance and ensure that all site Standard Operating Procedures are aligned.

Policy In accordance with FCX-23 Interaction with Heavy Equipment and SMCV Mine Dispatch Procedure

2.0 Policy Requirements

2.1 Immediate Intervention Protocols

For any verified fatigue event classified as Drowsiness or Microsleep, the following steps apply:

- | | |
|--------------------------|---|
| Fatigue Event 1-2 | <ul style="list-style-type: none"> The dispatcher will contact the operator and have them park in a safe area, if the operator is confident they can drive to the tie-down point. The dispatcher will then notify a supervisor and have them meet the operator at the tie-down location in a timely manner. Operator will code time as “Fatigue Monitor Coaching” on their dispatch panel. The Supervisor will have the operator get off of the truck and evaluate the employee via the Supervisor Fatigue Checklist or the SMCV Fatigue Event Conversation Form. At this time, the supervisor will make one of the following determinations <ul style="list-style-type: none"> Fit for Duty – If the Supervisor determines that the operator is fit for duty, they will release the operator to continue operating and give them instruction to notify them if they experience further fatigue. Unfit for Duty – If the Supervisor determines that the operator is not fit for duty, the operator will be removed from their truck, sent home, and their time will be coded in accordance with the attendance policy. Breaks should be administered when requested and as required by site, union, and/or law requirements. |
| Fatigue Event 3 | <ul style="list-style-type: none"> The dispatcher will contact the operator and have them park in a safe area if the operator feels confident they can drive to the tie-down point. The dispatcher will then notify a supervisor and have them meet the operator at the tie-down location in a timely manner. The operator will be removed from the truck, sent home, and their time will be coded in accordance with the attendance policy. |

Fatigue Event Misclassification	If both the operator and supervisor agree that a fatigue event was misclassified (i.e., not a true fatigue event), the supervisor has the authority to exclude that fatigue event from counting toward the operator. This decision must be documented in the Supervisor Fatigue Checklist, and the supervisor must email the Site DSS Administrator with the details so the event can be officially reclassified by CAT.
--	--

2.2 High Frequency Intervention Protocols (Frequent Flyer Process)

Each site must implement a fatigue intervention process to address drivers who experience repeated fatigue-related events. The program should be structured to provide employees with timely feedback and appropriate support aimed at reducing fatigue occurrences.

The “Frequent Flyer Program” outlined in this section serves as an example of a comprehensive approach designed to manage drivers with recurring fatigue incidents who are at elevated risk of a serious safety event.

Monthly Review & Risk Classifications	- At the end of each month, supervisors assess operator fatigue performance by reviewing verified DSS events and total operating hours. - Operators with the highest fatigue rates or event counts are added to the Frequent Flyer (FF) list for that month, based on site-defined criteria such as the number of verified events, fatigue rate thresholds, or ranking (e.g., top ten individuals). - The FF list is used to trigger appropriate interventions, which may include coaching, scheduling adjustments, or other fatigue mitigation strategies.
Fatigue Improvement Period (First Month on FF List)	Operators newly placed on the FF list enter a Fatigue Improvement Period with the following measures: - No overtime (voluntary or mandatory). - If the operator has a fatigue event during any given shift, the operator is sent home for the remainder of the shift. - Attendance may be impacted per company policy. - Required participation in a company-provided Fatigue Management class. - Reminder of available Employee Assistance Program (EAP) resources. - Coaching includes notice of potential future restrictions if fatigue persists.
Fatigue Counseling Period (Second Month or More on FF List)	If an operator remains on the FF list for a second month or more, the following additional restrictions and measures will be applied: - May be removed from night shift eligibility (affecting shift differential pay). - May receive progressive counseling. - May lose the safety portion of the quarterly bonus. - Restrictions remain until the operator is no longer on the FF list. - For each additional consecutive month that the operator remains on the FF list, further progressive counseling will be applied up to and including termination.
Resetting	Operators newly placed on the FF list enter a Fatigue Improvement Period with

Restrictions	the following measures: • If an operator drops off the FF list, all the restrictions will be lifted the following month. • Counseling records remain active per company policy. • If an operator gets on the FF list again after being off for a month or more, the first month Fatigue Improvement Period restrictions will be applied, and counseling will progress from there on.
---------------------	---

3.0 Equipment and Software

All sites will install and maintain the DSS in-cab fatigue monitoring systems for surface haul trucks and other equipment where feasible. Maintenance programs will be established to keep units operational.

DSS Health	If the DSS System is non-functional, the haul truck is still operational with additional safety controls: • If the system is down for more than one hour, an operator who is not on the frequent flyer list will be placed on the truck. Dispatcher will communicate with the operator hourly to confirm operator alertness. • Sites will work to ensure all DSS Systems are repaired within 24 hours.
System Alternatives	The CAT DSS system is the current standard; however, equivalent or superior technologies may be adopted in the future, subject to approval by MIS and Health & Safety.

4.0 Roles and Responsibilities

Mine Superintendent	Ensure full implementation and enforcement of the Fatigue Management Standard across the site. Assign responsibilities to site leaders and confirm they are trained and equipped to manage fatigue-related protocols.
Mine Sr. Supervisor	Oversee consistency in how fatigue events are managed across all crews. Support supervisors in following the correct intervention process, applying coaching, restrictions, and documentation.
Mine Supervisors	Take appropriate action when dispatch notifies of a fatigue or tampering event. Use the Supervisor Fatigue Checklist to assess the operator and follow the required intervention steps. Ensure all related communication and documentation is completed. Apply scheduling restrictions as needed and work closely with Safety and HR to document each step, confirm policy compliance, and maintain consistent handling across all cases.
Mine Dispatchers	Receive communications from the CAT DSS Monitoring Center and take the necessary actions. Document all fatigue, distraction, field of view exceptions, cell phone use, and tampering events. Submit tickets to MIS for any DSS systems that are not functioning properly.
Mine Quality Analyst / Ops Engineer	Provide monthly reports detailing the trends of fatigue, distraction, field of view exceptions, cell phone use, and tampering events. Conduct periodic audits on dispatchers and crews to ensure that the guidelines are followed consistently. Provide monthly reports detailing the trends of availability along with underlying

	reasons for unavailable and poor performing units.
Mine Safety	Understand the fatigue management requirements and reporting tools. Audit the process and provide coaching. Identify training needs and support consistent application of fatigue management procedures.
Equipment Operator	Manage personal fatigue outside of work and report to duty fit to operate equipment safely. Comply with fatigue protocols, attend required training and participate in coaching as needed.

5.0 References and Resources

Throughout this policy other policies and procedures are referenced.

- [CAT Driver Safety System](#)
- [DSS - CAT Driver Safety System SharePoint](#)
- [DSS How it Works](#)
- [DSS Summary - Power BI](#)
- [FCX-23 Interaction with Heavy Equipment](#)
- [SMCV Mine Dispatch Procedure](#)
- [EWS Form - Supervisor Fatigue Checklist](#)
- SMCV Fatigue Event Conversation Form

6.0 Records

The following records must be retained according to the FCX Records Retention Policy.

- Employee Training records
- Documented Coaching
- Monthly Frequent Flyer List
- Others as described in FCX Records Retention Policy

7.0 Definitions

Cat Fatigue Definitions	CAT Fatigue Subclassification Definitions 8.2.2.2 V1.0
DSS System	Cat® Driver Safety System (DSS) is an in-cab detection technology that can help identify and address fatigue and distraction events, enhancing operator safety.

8.0 Revision History

2025 NEW	Initial Release
-----------------	-----------------

Interaction with Heavy Mobile Equipment Policy Changes Supervisor Talking Points February 2017

As part of the fatality prevention process small teams of subject matter experts from across FCX are formed to review the global significant risks. The purpose is to evaluate existing guidelines and policies (or create new ones where one does not already exist) to update as needed as well as identify areas of potential concern with existing practices.

These talking points will serve as a supplement to the training previously received to inform you of any changes to current practice. Issues or concerns brought up by SMEs will also be listed so that you can review your procedures and ensure proper practices are being followed.

Areas of Change to Interaction with Heavy Mobile Equipment Policy

- This is Revision 1 (Rev. 1) of the Interaction with Heavy Mobile Equipment Policy.
- This 2016 annual review by site subject matter experts was intended to address concerns raised by the sites and to clarify certain sections where Gap Analysis indicated variability site to site.
- Areas of focus: 3.1 – Separation of Heavy Equipment and Light Vehicles, 3.2 – Separation of Heavy Equipment and Pedestrians, 3.3 Tie Downs – Q-Points, Shift Change, 3.4 Roads & Intersections, 3.5 Passing Procedures, and others sections to a lesser extent.
- Detailed descriptions of text modifications and additions or deletions is documented within the policy document.

Areas of Potential Concern with Interaction with Heavy Mobile Equipment

All sites must ensure that training materials are addressed to update and reflect the changes of this Revision 1 document.

All area leadership must review and determine which sections of Interaction with Heavy Mobile Equipment applies to the employees of their area.

Methods to verify understanding of the changes and of the policy in general are expected, see the section on Audits within the policy. The Gap Analysis tool for this policy has been updated and should be used, as a minimum, for identification of gaps against the policy. Actions to address the gaps are expected and will be reviewed annually by a Corporate/cross site team which will visit all sites to assess and communicate results to sites and Executive leaders.

 FREEPORT-McMoRAN	Policy No. FCX - 23	Revision Date: Dec. 2016	Rev #: 1
Global Significant Risk Interaction with Heavy Mobile Equipment - Surface <i>Road Design, Light Vehicles & Ground Personnel</i> Gap Analysis			
Date:			
Location:			Comments/Recommendation
A. Policy	Yes	No	
1. Has the site implemented the FCX – 23 policy Interaction with Heavy Mobile Equipment? Do site procedures align with this policy?			
2. Have site procedures to ensure equipment is in good working order been audited to ensure effective? List date of last audit in Comments section.			
3. Are engineering reviews conducted on mine roads, intersections, light vehicle access, tie-downs (haul truck staging areas), and heavy traffic areas such as shops, initially and periodically? List an example of this evidence of engineering review.			
4. Are contractor requirements and expectations set and monitored?			
B. Program Elements & Requirements	Yes	No	Comments/Recommendation
1. Have risk assessments been completed for roadways where heavy mobile equipment operates – intersection design, light vehicle access and pedestrian walkways?			
2. Have the significant risks been identified?			
3. Have critical controls been identified to minimize or eliminate the risks?			
4. Is information on the significant risks and critical controls communicated to employees? Explain how.			
5. Does the site have a cell phone policy prohibiting use of cell phones while operating equipment and vehicles? Note: Sites shall comply with the FCX – Communication Policy.			
6. Does the site have a light vehicle access (LVA) road to main shops and office areas that physically separate from haul trucks and heavy equipment traffic?			
7. Do haul trucks honk when approaching LVA intersections?			
8. Where haul truck traffic must cross a public road, are crossing guards or flaggers used at the intersection?			
9. If a light vehicle must park in the blind spot of a haul truck, such as a mechanical truck, is			

the lockout procedure followed prior to the LV parking?			
10. Are windrows, chocks or other means utilized to keep heavy equipment from movement?			
11. Has the site established procedures for approaching heavy equipment – making positive contact with the operator?			
12. Have procedures been identified for emergency situations where personnel must approach the equipment but positive contact cannot be made with the operator?			
13. Are designated pedestrian walkways or paths in place where there is regular interaction with heavy mobile equipment?			
14. Where pedestrians must cross roads, are cross overs or crosswalks designated? Note: Where possible, pedestrian crossing lights shall be provided.			
15. Do all ground personnel wear PPE required for the area as well as high visibility reflective vests/clothing? Is this clothing highly visible both in day and night conditions?			
16. Are pre-task risk assessments done where there are ground personnel working on or near mine roads that identify and implement critical controls to separate these individuals from interaction with heavy mobile equipment?			
17. Are flaggers and spotters provided with a vehicle or shack and a radio for communications?			
18. Are spotters utilized when moving large equipment into or out of maintenance shops?			
19. Are all tie-down areas designed to provide a physical barrier between haul trucks and light vehicles?			
20. Does the site meet all of the minimum requirements for tie-down (Q-points) areas as listed in Section 3.3?			
21. Does the employee transport vehicle contact mine dispatch on the radio prior to entering the pit and after exiting the tie-down areas?			
22. Are haul roads constructed and maintained for safe operation per Section 3.4 of the Policy?			
23. Does the site have a procedure for non-routine shift change to manage the stray haul truck or other heavy equipment operator not at the designated Q-point prior to the arrival of the employee transport vehicle?			
24. Are intersections designed according to the specifications in Section 3.4?			
25. Has the site established speed limits on haul roads and shop areas based on the max limits for the equipment as well as the road conditions?			
26. Is left hand traffic utilized within the mine areas or wherever there may be interaction with haul trucks?			

27. Are permanently closed roadways physically bermed off?			
28. When loaded haul trucks are traveling downhill, are additional controls implemented such as straddle berms, run-a-way ramps, and lower gears/speeds?			
29. Are haul truck passing procedures established per Section 3.5 of the Policy?			
30. Does the site regularly maintain light vehicles at intervals of every 3 month or 3000 miles with items included in Section 3.6?			
31. Does the site require the minimum requirements of a two-way radio and 12 foot buggy whip with some form of working light at all times to enter the mine?			
32. Are the correct color of lights being utilized at the site to indicate different types of equipment per the Policy?			
33. Are haul truck numbers visible with LED lighting (preferred) or with reflective tape (minimum standard)?			
34. Are light vehicles numbered with a minimum size of 4 inch lettering on each side and on the rear when possible?			
35. Does the site utilize perimeter security to communicate to others that a haul truck, or other heavy mobile equipment, is in control of the operator during pre-use inspections and ground breaks?			
36. When maintenance is performed, are FCX lockout tagout tryout procedures followed according to FCX policy?			
37. During fueling of heavy mobile equipment are the following minimum standards followed? • Equipment is secured • Pedestrian walkways defined at fuel docks • LOTOTO and/or perimeter procedures followed by all in the area			
38. Has the use of a park brake light indicator for haul trucks been evaluated by the site?			
C. Equipment - Technology			
1. Has the site installed and maintained the in-cab fatigue monitoring systems for surface haul trucks?			
2. Are the Fatigue Monitoring procedures well established, understood, and enforced? What is the date of last internal review of site haulage Fatigue Monitoring Practices?			
D. Training	Yes	No	Comments/Recommendation
1. Do all employees that drive in the pit have in-pit specialized driver safety training and do they receive identification in order to limit access into the pit? Does training include emphasis on in-pit night driving hazards?			
2. Is the training only provided to those that request and receive management permission for the training?			

3. If an individual does not have the necessary in-pit driving training, are escorts provided?			
4. Have employees that operate a light vehicle on LVAs received training for safe operation of the routes? (LVA only or left-hand instruction)			
5. Are hazards related to interaction of pedestrians and light vehicles with heavy equipment provided in general visitor and new employee safety training?			
6. Do employees receive annual refreshers who have been trained and certified to drive in-pit?			
7. Are annual refreshers of the Interaction with Heavy Mobile Equipment conducted with affected employees?			
8. Do all drivers of personnel carriers (vans) required to have a minimum of two years in their respective environment before permitted to drive occupied personnel carriers (shift change)? Is documentation available to verify these drivers against the stated requirements?			
E. Audits/Recordkeeping	Yes	No	Comments/Recommendation
1. Has the site conducted any internal audits of the aspects of this Policy? What is date of last monthly, quarterly, and annual audit?			
2. Were action items established and addressed appropriately?			
3. Are records maintained according to the FCX Records Retention Policy?			
F. Variances	Yes	No	Comments/Recommendation
1. Does the site have active variances in place with respect to this policy? Please list in comment section.			