

THE POWER OF COPPER

Pit Driving

Bagdad Mine Operations 2023

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Expectations

Before we start:

- Evacuations
- Breaks / Restrooms
- Phones on vibrate please
- Participation
- 92% to pass no exceptions

***“We start with looking after
our workers’ welfare.”***

~Richard C. Adkerson
President and CEO, Freeport-
McMoRan



Pit work locations

- Where is your work area within the pit?

Pit Driving Preliminary Questions

- You must receive OJT before taking the Pit Driving Class.
- Where are you working in the Pit?
- What is the name of the road from the crusher flat to the mill access road?
- What is the name of the road from the crusher flat to the Lucy Peak fuel rack?
- What are the radio call signs for the Pit Supervisors?
- What are the radio call signs for the Lead Blaster and Supervisor?
- What are the Blue and Yellow cones for?
- A ticket must have already been submitted for Pit Driving.
- If you can't answer these, you will not be allowed to attend.



Signatures for all 5 SOP'S



Pit Driving SOP Signature Page

SOP #	TITLE
HSS057	Lightning Procedures
MINE017	LOTOTO for Shovels
MINE103	LOTOTO for All Trucks and Support Equipment
MOP083	Passing Procedures for Haul Trucks
MOP137	Shot Blocking / Clearing Procedures

I certify that I have received a copy and fully understand the above mentioned SOP'S.

Name: _____

Employee #: _____

Signature: _____

Date: _____



Pit Driving Test Answer Sheet

PIT DRIVING TEST ANSWER SHEET KEY

NAME: _____ EMPLOYEE #: _____ SCORE: _____

DEPARTMENT: _____ DATE: _____

- Were you Pit Driving qualified last year? Circle one Yes or No
- How often after being Pit driving certified will you drive in the pit? Weekly or Monthly or Annually
- Do you feel you've had enough OJT in the pit? Circle one Yes or No

Mine Site – No Passing Rule – July 15th, 2023

- We've had numerous events in the company recently involving Haul Trucks and Light Vehicles – we need to reduce the risk of interaction
- Only under strict circumstances will passing moving large equipment be permitted, by a Shift Supervisor e.g. Maydays
- Passing of stationary equipment will be permitted using the existing procedure



RULE APPLIES TO:

- Vans, buses, contractors, service trucks, and other light vehicles

NO PASSING OF:

- Haul Trucks (777 and larger), Water Trucks, 992 Loaders and above, or the Lowboy

Pit Driving Safety CBT

https://fcx365.sharepoint.com/Sites/MTI/E_Learning_Courses/PitSafety_CompletionLogs1/story_html5.aspx



2015 Global Significant Risk Changes

Introduction to Pit Area Driving Procedures





2015 Global Significant Risk Changes

- Only mine operation employees, small vehicles transporting mine operation employees are allowed in the tie down areas at shift change.
- Any other departments that are in the pit at shift change need to wait in a safe location until shift change has been completed.

Truck crushes car with mechanics



2015 Global Significant Risk Changes



- Prior to passing equipment, radio contact must be made with the operators.
- The light vehicle operator must tell the equipment operator their equipment call number.
- Once direct contact is made, the equipment operator must respond with the same equipment call number and acknowledge it is clear to pass.
- Note that the light vehicle operator is responsible for making sure the road is clear of oncoming traffic and restate the intentions to pass.

Note – This means your call Number and the equipment number you wish to pass must be communicated

2015 Global Significant Risk Changes

- Only one vehicle at a time may pass a haul truck or other piece of large equipment.
- While passing, the light vehicle should remain far enough to the right to avoid hazards associated with spillage and tire blowouts.
- **If radio contact cannot be made, passing WILL NOT occur.**

2015 Global Significant Risk Changes

- Morenci June 11th 2023
- A light vehicle operator was leaving the dump and stopped behind a haul truck (A) that was stopped behind a piece of support equipment.
- The operator noticed another haul truck (B) was approaching from the rear at a high rate of speed.
- The operator was able to move the light vehicle far enough left toward the berm to keep the driver side out of the line of fire.
- Haul truck B proceeded to run over the light vehicle truck bed and passenger side cab, then into the back of haul truck A.
- The three operators received medical evaluations with no injuries. The ROPS system and High Performance (HP) truck bed was effective in protecting the operator of haul truck A.





2015 Global Significant Risk Changes

- What is required for a haul truck to make a (blind) right hand turn?
- Radio communication announcing location, truck number and intention of making a blind right turn followed by clearance from anyone in the area to make turn.



2015 Global Significant Risk Changes

- Why can't you pass a rubber tire dozer or a grader when their blue light is on?
- They are cleaning roads from spillage off the trucks, and they have the right of way.

All of these procedures can be found in the final global risks policy for the Interaction with Heavy Mobile Equipment – Surface



2015 Global Significant Risk Changes

- What is the minimum distance to stay clear of highwalls?



A miner was fatally injured at a surface coal mine while operating a front-end loader to remove shot base of an approximate 65 ft. highwall.



A miner was severely injured while working near the base of a 63 ft. highwall. The miner was struck by loose, fractured and overhanging rocks.

Mine Site – No Passing Rule – July 15th, 2023

- Due to recent events and to ensure we mitigate any incidents going forward, starting July 15th, 2023, Bagdad will be implementing a **No Passing Policy for all heavy equipment**. Heavy equipment includes, Haul Trucks (777 and larger), Water Trucks, Loaders (992 and larger), or the Lowboy.
- This policy applies to vans, buses, pickups, contractors, or any other Light vehicles (LV) that do not have critical emergency needs.
- Critical Emergency needs are defined as:
 - Maydays
 - Response to mitigate and unsafe condition
 - Response to incidents
- **As always, emergency response vehicles are allowed to pass during an emergency.**

Mine Site – No Passing Rule – July 15th, 2023



- In limited instances for non-emergency, yet time sensitive situations;
 - A light vehicle may request permission from shift Sr Supervisor or Supervisor for permission to pass, and then follow passing procedures.
 - Exceptions and justifications shall be documented by dispatch.
- Without approved exception, heavy equipment passing will be allowed in the following circumstances:
 - Broken down or stopped/stationary equipment
 - Access areas blocked by haulage.
 - Heavy equipment must completely stop before beginning passing procedure.

Mine Site – No Passing Rule – July 15th, 2023

- Light vehicles are allowed to pass Auxiliary equipment with passing procedures:
 - Excavators
 - Track Dozers
 - Motor Grader
 - Rubber Tire Dozers
 - Compactors
- We will continue to enforce and hold each other accountable to following passing procedures.

Example of Communication:

- Requester: TRN002 Permission to pass grader 21
- Spotter: grader 21 to TRN002 you are clear to pass on the right
- Confirmation of passing: Thank you TRN002 coming around grader 21

Violations of this policy may face disciplinary actions, including loss of pit driving privileges, and up to termination.

Flags and what to look for before interacting

Operator Break

Down for Maintenance





Haul Truck Blind Spots (GSR)

The only way to be certain that the operator can see you and you can see them is eye to eye contact.



Emergency Procedures

- ALL CALL ALERT to all radios announcing MAYDAY and location
- Emergency Procedures
 - Mayday
 - Fire, Smoke, Explosions
 - RADIO SILENCE is required in that area only



JUL 26 2005



Blast Tone across all Channels



Blasting caps



Cast booster



Detonating cord



Mixed bulk material



- Never handle any explosive materials including boxes unless you are qualified and on the ATF license.

Channel Marker

- Radio Silence is in effect unless



- Information pertaining to emergency
- Information pertaining to blast
- Another MAYDAY
- The channel marker will be sounding about every 9 seconds to alert you on the radio channel that either has a blast or a MAYDAY in progress
- The responding emergency team will notify Security to lift Radio Silence when appropriate to do so.

Lightning Procedures

- Clear the Area
- Treat loaded pattern as if it will detonate.
- Block it for a shot
- Restart work as per SOP
- Stop outdoor work and seek safety inside or stay in equipment



When you are traveling in the mining area, you can pass a rubber tire dozer or a grader when their blue light is on.

A. True

B. ☒ False

When Dust is an issue, reduce speed and call for a water truck.

- A. ☒ True
- B. ☐ False

If hazardous lightening is present (overhead) you should

- A. Find a tree to use as cover
- B. Continue working outdoors until told to seek shelter
- C. Stop outdoor work and seek safety inside or stay in equipment
- D. Pay attention to changing weather conditions

In case of a vehicle fire Stop and attempt to fight the fire yourself.

A. True

B. False

What is the name of the ramp that goes from the crusher to the mill access road?

- A. West 2
- B. 1800
- C. Buttress ramp
- D. South Ramp

What is the name of the ramp that runs from the crusher flat to the Lucy Peak fuel rack and connects to the Plan 9 Ramp?

- A.
- B. 1800
- C. South ramp
- D. Kimberley ramp

Call signs for Pit Supervisors are?

A. 70,75

B. 71,75

C. 72,73

D. 71,72

What does an orange flag represent when displayed on a haul truck?

- A.** Down for maintenance and do not approach
- B.** Shift change
- C.** Operator break
- D.** None of the above

When driving on the haul roads, if you come across rock spillage in the road, what are the hazards to you?

- A. Haul trucks coming into your path of travel.
- B. The rocks may have landed on a power cable.
- C. There are no hazards associated with spillage.

Required equipment to enter the pit consists of what?

- A. Working mine radio tuned to channel one
- B. A lighted buggy whip displayed a minimum height of 12ft.
- C. Proper PPE
- D. All the above

Proper procedure for mounting or dismounting any piece of equipment is to keep eyes on path, always use proper steps, handrails and always maintain three points of contact.

- A. ☒ True
- B. ☐ False

I only need to have a light working on my buggy whip when it is dark.

A. True

B. False

Do you need to wear a vest when out of a vehicle in the pit?

A. Yes

B. No

We drive with “headlights on for safety” throughout the pit during all hours of the day or night to aid in the visibility of equipment.

- A. True
- B. False

A Vehicle inspection should be completed when?

- A. Once during the shift
- B. At the end of the shift
- C. Once during a 24-hour period
- D. Prior to operation

One honk indicates _____, Two honk indicates _____, and three honks indicate _____.

- A. Backward motion, forward motion, starting engine
- B. Forward motion, starting engine, backward motion
- C. Starting engine, forward motion, backward motion

During a May-Day (emergency) situation, unless assisting in the emergency response, all traffic in the pit must _____.

- A. Drive to the shop
- B. Decrease speed
- C. Stop

Identify this equipment

- A. Flatbed 18
- B. Motor grader
- C. Low boy 39
- D. Scraper 18

Can we pass?



Identify this equipment

- A. Water truck
- B. Water Wagon
- C. Water pull
- D. Scraper

Can we pass?



Even if a person has received Pit Driver Safety Training, if they are unsure of a procedure, not sure of a destination, or feel uncomfortable traveling in the pit, they should always request an escort.

- A. ☒ True
- B. False

Identify this equipment

- A. Track Dozer
- B. Motor grader
- C. Track loader
- D. Scraper

Can we pass?





Power Cables



■ proper technique if is required
that you cross any power cables

■ Proper place
to cross power
cables.





Rabbit Boxes, Power Cables & Bridge Poles

- Never touch a rabbit box, pothead stands, bridge towers or power cables due to 7200 volts of electricity running through them. You must be properly trained.



- Contact Pit Supervisors (71 or 72) if you need any assistance.



Blasting Materials

- Caps
 - Most sensitive
 - I-Kons
 - Non-EI (Non-Electric Shock Tube)
- Lead in lines and tubing not consumed in blast.
- Ammonium nitrate acts as an explosive when cast boosters detonate
- No smoking or vaping within 50 feet from explosives.
- Call Lead Blaster (760 or 761) if you ever find any of this material Laying around on roadways.





Shot Blocking Area

Shot block location
cones set up 1500 feet
away from the blast
zone.





Shot Blocking Truck

No-One is
allowed past
these cones.





Blasting Perimeter



Today we will be shooting the 228 pattern on the 3950 level of E3. This shot will have approx. 280 holes and we will be shooting 2-3pm. Today we will be clearing HHH, upper east ramp, power line road, supervisor lookout, shovels 23 and 10, and the airport. We will need 7 blockers.

Blast Notice: 04/24/2023

Bench and pushback: 3950East3228 & 291

Burden and spacing: 17x19, 15x17

Red circle is 400 ft. clearing radius

-all equipment will be cleared

Black circle is 1500 ft. clearing radius

-all personnel will be cleared

Total Holes: 257 holes

Tonnage: 426 ktons

Areas impacted outside normal pit traffic

Triple H, Upper East Ramp, power line road, Supervisor lookout

Contacts:

Lead blaster: 761 on channel 1

Sr. supervisor:

Supervisor: Matt Mocalby: 928-713-6602



Horiz. Drill Rig



Power Poles



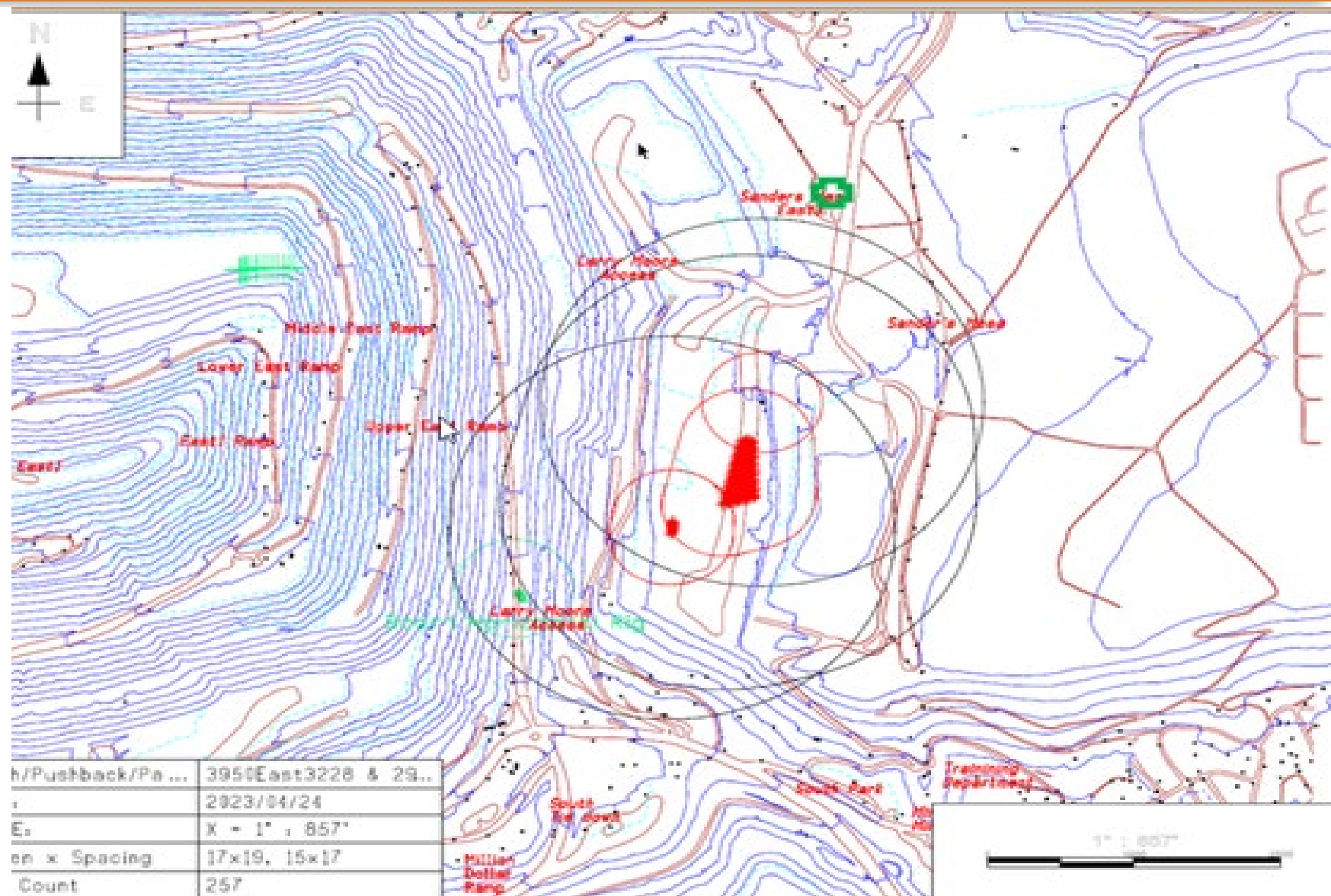
Dewatering



Wells



Subs





Shovel perimeter security

- Swing radius of shovel
- Perimeter security
- LOTOTO Procedures
- Passing through perimeter





Perimeters and Barricades





Drill Pattern procedures

- You must call the operator of the drill for access to the drill pattern.
- If the drill is unoccupied let dispatch know you are there due to possible ground failure
- Drills have limited visibility, Do NOT park near drills.





Drills are located on benches or elevations

Everything in the
pit is based upon
elevations



Can we pass?

If necessary, to perform work inside the perimeter of a shovel it is necessary to lock out on the sign before entering the perimeter?

- A. True
- B. False

If necessary, to pass through the perimeter of a shovel that is down for maintenance

- A. Lock must be placed before passing through
- B. Verify key is in box and contact dispatch before passing through
- C. No call is needed, just pass through
- D. Must contact maintenance for authorization prior to passing through

If necessary, to pass through the perimeter of a shovel that is not in production with no operator....

- A. Lock must be placed before passing through
- B. Verify key is in box and contact dispatch before passing through
- C. No call is needed, just pass through
- D. Must contact maintenance for authorization prior to passing through.

When entering a drill pattern that is occupied you must ...

- A. Notify dispatch before entering
- B. Notify the drill operator working in the area
- C. Notify the supervisor before entering the area
- D. None of the above
- E. All of the above

No one can enter a blast zone area unless directly involved in the blast.
These areas are identified using _____.

- A. Tires
- B. Yellow cones
- C. Blue cones

For all our Roadways where drop-off hazards exists that could endanger someone, there is a _____.

- A. Yellow cone
- B. Warning sign
- C.

Identify this equipment

How many models of loaders do we have on property?

924, 926, 930, 950, 966, 980, 988, **992, 994**

- A. Rubber tire dozer
- B. Motor grader
- C. Loader
- D. Scraper

Can we pass?



Identify this equipment

- A. Rubber tire dozer
- B. Motor grader
- C. 980 loader
- D. Scraper

Can we pass?





Escorting Procedures

- Interaction with Heavy Mobile Equipment -Surface Road Design, Light Vehicles&Ground Personnel FCX-23
- All vehicles entering the mine must have a two-way radio, buggy whip with a light that works at all times. Areas where buggy whips are required will be identified with signage and must be a minimum of 12 feet from the ground to the top of the light.
- If you are escorting traffic into or out of the pit you must notify dispatch with a safety alert of who you are, and the roadways that you will be traveling to get to your destination.
- Make sure that if you are the escort that you and the vehicle being escorted have all the required items to enter the pit (i.e., 12' buggy whip and light, proper radio channel, PPE, and chocks to chock your vehicle.
- **When providing an escort, you do not pass haul trucks or support equipment.**



Right of way

- Head Lights
 - Turn your Head lights OFF and Flashers ON when you are giving someone the right of way, they serve as an excellent indicator to other traffic that you are yielding to them
 - Once the other traffic clears, resume normal operation (turning flashers off and headlights on)
 - Which vehicles have the right of way?
 - Haul Trucks
 - Large Mining Equipment
 - Blasting Vehicles
 - Emergency Vehicles

What are the names of the two main roads



Primary Crusher



Crusher Flat

LSP Tie Down

1800
ramp

It is not necessary to call the haul trucks staged in the pocket when passing behind them or the crusher when passing through the crusher area.

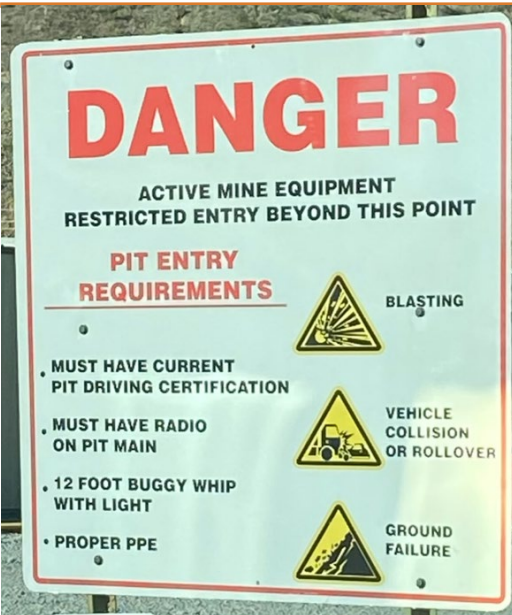
You need to pay attention to the trucks dumping. Are they still loaded, dumping or bed coming down.

Haul Trucks have the right of way PERIOD!!



Do not become sign blind!!

Stop and clean it if safe to do so or call it in





No Passing Zone



Please make sure that
you are aware of the no
passing zones
throughout the pit.





Triple H

- Triple H is the access road that can take you from Southeast to the Northeast without having to travel thru the pit.
- **All heavy equipment must announce on Mine Operations 1** prior to traveling on this segment of road.
- This is required since larger mine equipment will take up the whole road.
- Triple 777 Rock Trucks and Water Trucks are not allowed.



Passing around the primary crusher it is not necessary to call and state your intention to pass around the crusher.

- A. ☒ True
- B. ☐ False

When following a haul truck what is the minimum distance you should maintain?

A. 300 ft.

B. 200 ft.

C. 150 ft.

D. 100 ft.

In wet weather, the minimum distance for following a haul truck is?

A. 500 ft.

B. 300 ft.

C. 150 ft.

D. 100 ft.

Minimum proper PPE for the pit consist of?

- A. Respirator when outside vehicle\equipment
- B. Ear plugs always worn while in the pit
- C. Hard hat, safety glasses, safety vest and approved steel toe work boots
- D. All the above

What is the proper procedure for passing a piece of equipment in the mine?

- A.- Call dispatch for permission to pass- Dispatch grants you permission to pass - Proceed around equipment with caution.
- B.- TRN 003 to Grader # 19 can I pass on your right? - Yes TRN 003 come around grader # 19.
- 10-4 grader # 19 TRN 003 coming around, thanks.
- C.- Make eye contact with grader # 19 operator. - Grader #19 operator waves you around. -
Proceed around grader #19 with caution.

What is the maximum speed for small vehicles around shop areas and parking lots?

A. 25

B. 15

C. 5

D. 10

What is the maximum speed limit in the pit?

A. 45

B. 35

C. 30

D. 25

What does a vehicle parked perpendicular in the road with yellow cones in front of it signify?

- A. Clean up vehicle
- B. Road work ahead
- C. Roadblock for blast
- D. Supervisor vehicle

What pieces of equipment have the right of way over a light vehicle?

- A. Haul trucks
- B. Vehicles carrying explosives
- C. Emergency vehicles
- D. Large Mining Equipment
- E. All of the above

When parking a light vehicle if it is not secured in a parking ditch or permanent parking chocks, you must place wheel chocks on the rear tire.

- A. ☒ True
- B. ☐ False

Miscellaneous

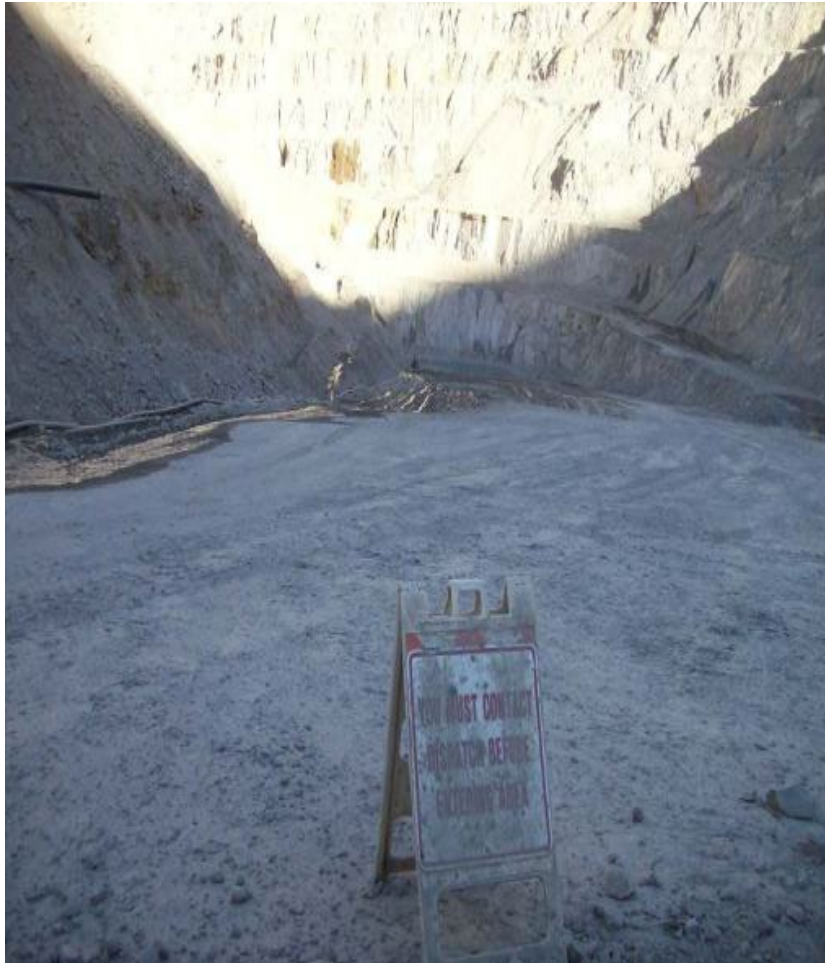


- Safety alerts
 - Anyone can call for a safety alert. Make sure to cancel when done.
- Be aware of changing conditions.
 - Do we expect rain, high winds, extremely hot etc.
- Pit Driving certification details expiration?
 - Good for one year.



Miscellaneous

Bottom of the pit
Can you read this sign?



Slopes
Must call for authorization prior to entering.



Garfield Gap / Low Boy 39

- Employee offered to help lowboy operator with unhooking and hooking the hoses, as well as re-hooking the lowboy trailer.
- Employee placed one foot in the line of fire while stinger was lowering, resulting in the stinger being set down on their foot.
- The foot was smashed between the stinger and the lowboy trailer.
- Sustained full amputation of big toe, partial amputation of 2nd toe.
- Anytime the Low Boy is loading or offloading the speed limit is 5 MPH and must call for clearance over the radio.





Night driving awareness

- Prepare your light vehicle and equipment for night driving
Keep all glass and mirrors clean!
- Have your headlights properly aimed
Do not operate with defective safety items!
- Keep your eyes moving
Wear proper safety glasses at night
- Don't out-drive your headlights
Extend following and stopping distances



Night driving awareness

- 90% of a driver's reaction at night depends on vision
- Fatigue management
- Fit for duty



HDPE Procedure

- All Freeport-McMoran employees and contractors who handle or participate in the handling of HDPE pipe **MUST** attend the HDPE Pipe Handling Training course
- A safety alert will be issued to all areas affected by path of travel. Positive acknowledgement must be made by all affected areas
- **A 50 Foot Safe Zone must be always maintained when pipe is being pulled or pushed or a Substantial Barrier used if personnel are within the 50 feet**
- A flashing blue light is required on all equipment involved with pulling pipe where there is potential for interaction with other traffic
- It is critical that these safety precautions are recognized and understood by Haulage and vehicle traffic.



HDPE



Can we pass?



Advised to be used on the trailing vehicle

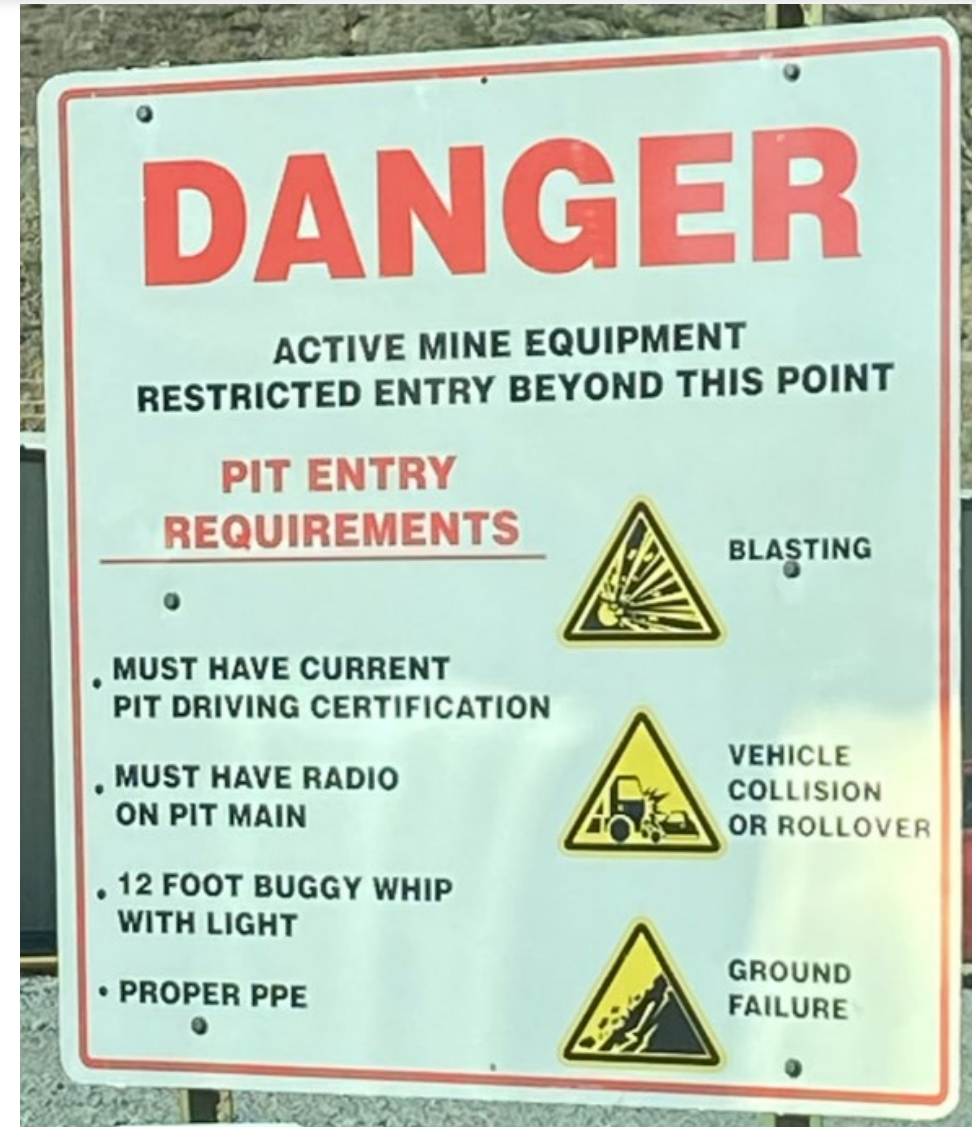


Pit Entrance

Radio communication
Proper PPE for the pit
Required vehicle equipment ?
Authorization

Remember :

Consequence thinking,
Pay attention to your
surroundings, and focus
on the task at hand.



I must have a pre shift inspection filled out or digital inspection and in my vehicle every time I drive in the pit.

- A. ☒ True
- B. False

During a Mayday (emergency) all traffic must _____ unless assisting in the emergency response. _____ is in effect and should also be honored during the emergency?

- A. Stop, radio silence
- B. Pull off roadway, emergency vehicles
- C. Stop, supervisor vehicles
- D. Find a place to park, dispatch radio signal

What does the blue flag represent when displayed on a haul truck?

- A. Down for maintenance and do not approach or touch
- B. Down for shift change
- C. Operator break
- D. None of the above
- E. All of the above

Identify this equipment

- A. RTD
- B. Dozer
- C. Loader
- D. Backhoe

Can we pass?



Identify this equipment

- A. Track dozer
- B. Rubber tire dozer
- C. Motor Grader
- D. Loader

Can we pass?



Identify this equipment

- A. Track dozer
- B. Excavator
- C. Motor Grader
- D. Baby Shovel

Can we pass?



Identify this equipment

- A. Track dozer
- B. Mobile Crane
- C. Motor Grader
- D. Big Yellow Thing

Can we pass?



In the pit what does 2150 refer to?

- A. Equipment on that level
- B. Which department is on that level
- C. Elevation
- D. Exact coordinates of the level

What is the best way to be sure you are outside the blind area of a haul truck or any piece of equipment?

- A. If you can see the operator and the operator can see you
- B. You can't see the operator but are outside the required 70' perimeter
- C. You are inside the vehicle avoidance systems radar and so the operator can see you in their camera system
- D. There is no way to tell

Left hand traffic is used throughout the mine because?

- A. MSHA requires it at all surface mine locations
- B. It protects the haul truck driver in the rare chance of a head on collision and provides better visibility for the operator to the edge of the roadway.
- C. Johnson v. Smith court case dictated this law
- D. All of the above

What is required for a haul truck to make a (blind) right hand turn?

- A. Radio communication announcing location, truck number and intention of making a blind right turn followed by clearance to make turn
- B. Nobody can give clearance for a blind right turn
- C. Only supervisors can give clearance for blind right turn
- D. Both A and C

Since power cable is heavily insulated it is ok to drive over it with a light vehicle?

A. True

B. False

If you can't make radio contact with equipment and would like to pass, what should you do?

- A. Go around anyway just swing out wide
- B. Do not pass
- C. Call dispatch and ask for assistance
- D. Flashlights, honk horn and try to get attention of operator
- E. All the above
- F. None of the above

Call sign 761 refers to ?

- A. Chief engineer
- B. Pit supervisor
- C. Dispatch tower
- D. Training supervisor
- E. Lead blaster



Old equipment tires or a dozer turned sideways across the entrance of a stockpile or dump are?





Bagdad Mine Operations Pit Driving Test

What Questions do you have?

Please take the test quietly

Do Not Write on Test

Turn SOP Signature Page, Test and Test Answer Sheet into Instructor when done.