

PROVINCE OF METALS

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June 2016

Contractor Safety Meeting

06/14/2016

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Overview

- TRIR
- PFEA
- Fatality Prevention Refresher
- Environmental-Jim Glasston



Safety Performance

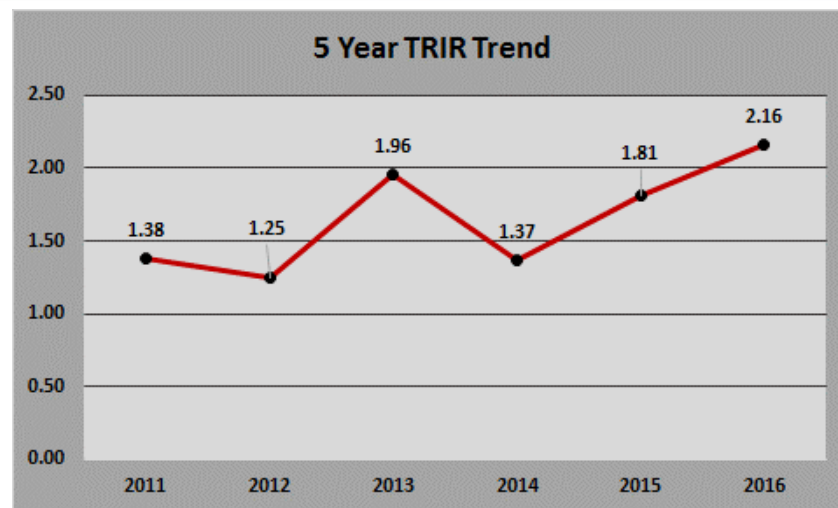
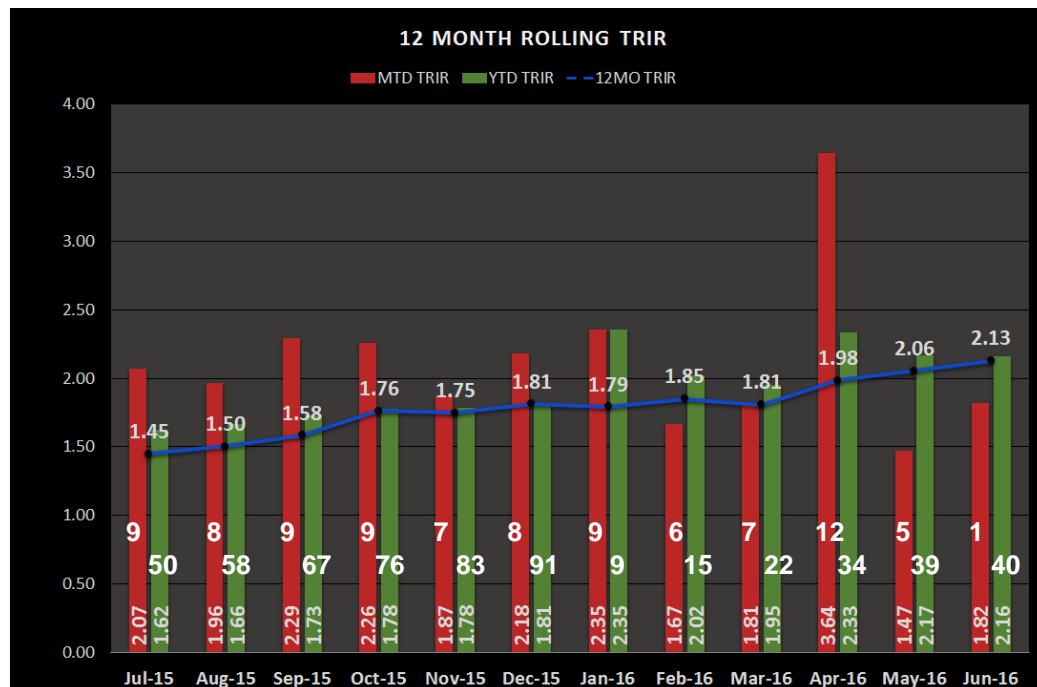
Day of the Year	Employees working Safely (Reportable Injuries Only)			REPORTABLE INJURY RATE				LTIR			PROPERTY DAMAGE			MTD HEHI	YTD HEHI	YTD HEHI Rate	HEHI Target	DAYS W/O LTA	Hrs W/O LTA	Days W/O Rec.	Hrs W/O Rec.
	TOTAL	MTD	YTD	MTD	YTD	QTD	Target	MTD	YTD	Target	MTD	YTD	Target								
157																					
Number	3104	3100	3072	1	40	18	1.70	1	10	0.45	7	260	11.70	0	13	0.70	0.54	4	87908	5	109885
Rate				1.82	2.16	2.48		1.82	0.54		12.74	14.03									

6/6/2016



Safety Dashboard 6/5/2016

TRIR BREAKDOWN	MTD REP	MTD TRIR	YTD REP	YTD TRIR	2nd QTD REP	2nd QTD TRIR
FMMO	1	2.21 90692	33	2.29 2886368	15	2.51 1197134
CONTRACTORS	0	0.00 19193	7	1.70 821257	3	2.37 253352
CURRENT TOTAL MORENCI ALL	1	1.82 109885	40	2.16 3707625	18	2.48 1450486



Incident Date	Incident Type	Organization/ Division	Short Description
May 2016			
5/31/2016	Restricted Duty	Processing Crush & Convey	While installing liner at the Crusher 2 Apron Feeder a liner fell and struck an employee on the left foot.
5/31/2016	Medical Treatment	Mercantile Motel	A Motel employee was sharpening a knife when it slipped causing a laceration to the hand.
June 2016			
6/1/2016	First Aid	Processing Crush & Convey	A Western Industrial employee walked under the Vac Truck hose when the hose began to move and struck him on the head causing him to fall to the ground.
6/1/2016	Lost Time	Administration Res. Mgt.	An employee stepped off a berm when he rolled his ankle.
6/1/2016	First Aid	Contractor Leaching	A B.J. Cecil employee felt pain in his back while washing his truck.
6/1/2016	First Aid	Mine Maint.	An employee was stung on the neck by a bee.



The road to success must be paved with optimism!



<i>Division</i>	<i>Date of Last Rep. Injury (FMMO)</i>	<i># of Days w/o Rep. Injury (FMMO)</i>	<i>Date of Last Rep. Injury (Contractors)</i>	<i># of Days w/o Rep. Injury (Contractors)</i>	<i>Date of Last HEHI Event</i>	<i># of Days w/o a HEHI Event</i>
MAINTENANCE SERVICES	4/6/2016	20	9/14/15	*265	3/3/2016	94
HYDROMET & CLP	4/7/2016	59	3/27/15	*436	6/10/2015	*349
LEACHING	11/17/2015	201	3/17/16	80	2/25/2015	*405
MORENCI CONCENTRATOR	11/18/2015	200	8/25/15	*285	2/10/2015	*499
METCALF CONCENTRATOR	11/5/2015	213	8/8/15	*302	3/12/2016	85
CRUSH & CONVEY	5/31/2016	5	5/18/16	18	5/18/2016	18
MINE MAINTENANCE	4/5/2016	61	4/18/16	48	3/19/2016	78
FRAGMENTATION/LOADING/SUPPORT	4/17/2016	49	4/19/12	1515	5/6/2016	30
HAULAGE	5/25/2016	11	8/1/2008	3077	1/24/2016	133
RESOURCE MANAGEMENT	6/1/2016	4	2/17/16	109	1/5/2016	152
ADMINISTRATION	2/10/2015	499	9/15/15	264	1/1/2014	887
MERCANTILE	5/31/2016	5	3/3/15	460	1/1/2014	887
CONTRACTORS	5/18/2016	18	5/18/16	18	2/17/2016	21



Restricted Duty

Incident Detail			
Date	05.31.2016		
Organization	Processing		
Division	Crush & Convey		
Potential Risk	3	2	6
	Consequence	Likelihood	Potential Risk
Brief Description	While changing out the liners of the apron feeder the employee was hit on the top of the left foot with the edge of the liner. The employees had welded a D-ring in the center to support the liner with the crane, although when the liner popped off the wall the end of the liner swung down hitting the employee's left foot just past the metal toe protection. The liner weighed 2500 lbs. new and by the crane estimate 1500 lbs. now. It measured 108 inches by 18 inches and 3 ½ thick.		

Best Practices
<ol style="list-style-type: none">1. Conduct a thorough risk assessment, to include line of fire, prior to starting work.2. Stay out of the line of fire3. Use proper rigging techniques





Near Miss

Incident Detail			
Date	06.02.2016		
Organization	Mine		
Division	Fragmentation-Loading/ Support		
Potential Risk	3	2	6
	Consequence	Likelihood	Potential Risk
Brief Description	Layne Drilling Contractors were left inside the 1500ft blast zone for the shots.		

Best Practices

1. Conduct a thorough risk assessment, to include line of fire, prior to starting work.
2. Ensure communication between departments
3. Areas should be double checked when clearing for blasts.





Property Damage

Incident Detail

Date	06.06.2016		
Organization	Mine		
Division	Haulage		
Potential Risk	3	2	6
	Consequence	Likelihood	Potential Risk
Brief Description	While traveling down the 801 ramp the 623HT saw the 592HT slowed down in front of it and reduced speed causing it to go into a slide. The 623HT was going approximately 18MPH when the retarder and service brakes were applied. The 623HT slid 180 ft. and the bed made contact with the non-cab side guard rail of the loaded 571HT that was traveling up the ramp. The 801 ramp was heavily watered.		

Best Practices

1. Drive to road conditions
2. Follow roadway watering procedures



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PFEA

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LV-Operator and Passenger

DESCRIPTION / DETAILS OF ADVISORY

A Light Vehicle (LV) driver and his passenger fell asleep while the vehicle was in motion causing the LV to collide with an oncoming dump truck. The LV driver and his passenger sustained minor injuries.

The LV was southbound on the West Levee when the incident occurred. The oncoming dump truck driver noticed the LV drifting into his path and took evasive action by slowing, flashing his lights and driving onto the side berm of the road in an attempt to miss the LV. The LV collided with the dump truck at the fuel tank and became entangled in the drive wheels of the tractor trailer dump truck. The LV was dragged almost 8 meters while the dump truck came to a stop.

Emergency response crews responded immediately and were able to free the trapped driver of the LV. Both passenger and driver of the LV were treated at the scene and transported to medical facilities where only minor injuries were found.



Tenke HT 777

DESCRIPTION / DETAILS OF ADVISORY

On Wednesday 4 May, 2016 at 2:30 a.m. a light vehicle (LV) was traveling from Bravo camp to the process plant site for maintenance activities. After passing the Mulumbu security gate the LV proceeded towards the process maintenance shop area. This when the LV unexpectedly encountered a convoy of six Haulmax's followed by two larger 777 haul trucks. The lights and dust created by the Haulmax's partially obscured the vision of the LV driver. Immediately following the Haulmax convoy two larger 777 haul trucks were encountered and this is when the LV took evasive action to avoid collision by driving onto the right hand road berm. No contact was made and near miss reported immediately.

Note: This section of roadway travels through the AP2 process plant area and is the only haulage road that connects Fungurume hills with the ore stockpile. It is designated as right hand drive with a maximum speed of 30 kph (19 mph).



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Tenke HT 777



Picture 2: Path of light vehicle travel.



Picture 3: Road, light vehicle and 777 haul truck width.

**Pictures 2 and 3 above are a re-enactment of the incident only.*

Cerro Verde Pressurized Tank

DESCRIPTION / DETAILS OF ADVISORY

The lubrication supervisor and a technician decided to perform a pneumatic test on a used oil storage tank #87 in order to search for a leak. After pressurizing the tank for about two minutes with about 12 to 15 psi of compressed air, they heard a cracking noise when the roof of the tank failed. The supervisor and the technician were standing adjacent to the tank during the test trying to look for leaks.



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Chino- Cell Line Contact Break

DESCRIPTION / DETAILS OF ADVISORY

On 05/17/2016 two employees attempted to break anode to bus contact on a cell line while it was still energized at 36,000 amps. The Tankhouse supervisor talked to the west crane operator and asked him to raise all of the west side cell levels to help with electrolyte tank levels. However, the crane operator was wearing a PAPR (full face respirator) and did not clearly understand what the supervisor asked him to do, thinking he was asked to break contact on the cell line instead of raising the cell levels. The crane operator then went to get his crane helper to assist him with the task. The crane operator then relayed the misunderstood information to his crane help and both employees went to cell # 1 and started breaking contact. As the two employees progressed with breaking the contacts in the cell, they got to a point where there were only five contacts remaining when the cell started sparking and getting hot. When the crane operator noticed this, they immediately ran to and activated the closest emergency stop button, killing power to the cell line and stopping the uncontrolled energy event.



TFM – Carbon Monoxide Asphyxiation

DESCRIPTION / DETAILS OF ADVISORY

On Friday 20 May, 2016, at approximately 07:00 a TFM security guard working day shift arrived at the security Connex located adjacent to the mine blasting magazine to replace the nightshift. After arriving, verbal calls were made trying to locate the night shift security guard that went unanswered. When checking the security Connex it was found locked and upon further investigation looking through the side window his co-worker was seen unresponsive. At this time the initial call for help was made which included response from security, ISOS ambulance and emergency response team. When emergency services arrived forced entry was made through a side window where the individual was found unconscious. He was immediately transported to the ISOS clinic where he was treated and released.

Initial investigation shows that during the night shift the individual became cold and brought a charcoal brazier into the security Connex for heat. Subsequently he was overcome by carbon monoxide (CO) and was asphyxiated in the rear room.



Picture 1: Security Connex



Picture 4: Charcoal brazier brought inside.



Picture 3: Back room of security Connex.



Bagdad Jaw Crusher

DESCRIPTION / DETAILS OF ADVISORY

On May 21st, three employees were assigned to replace the moving and stationary jaws of the Small Jaw Crusher. The employees removed the stationary and movable plates successfully and broke for lunch. After returning from lunch, the employees began the next step, removing the worn cheek plates. One employee (injured employee) was in the crushing chamber (a confined space), a second employee was above him removing cheek plate bolts, and a third employee (listed as the attendant on the Confined Space Permit) was operating the boom truck. (The employee operating the boom truck should have only been monitoring the confined space work and not operating the boom truck). The employee working in the upper portion of the crusher was removing the Cheek Plate on the right side when the deflector plate dislodged and fell. The deflector plate fell approximately 5 to 6 feet, striking the employee in the crusher on his legs and feet area. (The Deflector Plate weighed 551 pounds according to the service manual.) Rescue efforts began immediately and the injured employee was extracted from the area and taken to the clinic for treatment.



Bagdad Jaw Crusher





Cerro Verde Haul Truck

DESCRIPTION / DETAILS OF ADVISORY

At 06:51 a.m. on Sunday June 5th, HT #129 inexplicitly backed into HT #173 while it was dumping ore at the south bay of Millcrush N°1. Despite efforts by the driver of #173 and a nearby water truck to contact HT #129 via radio, including hitting the May Day button, the driver of #129 continued to back up and made contact with HT #173. Just prior to contact, the driver of #173 decided to exit his cab, run across the deck and jump off the right side of his truck. Operator received injuries to his back, hip and ankle. The operator of HT #129 claimed he never saw the other truck (#173) dumping at the crusher pocket.

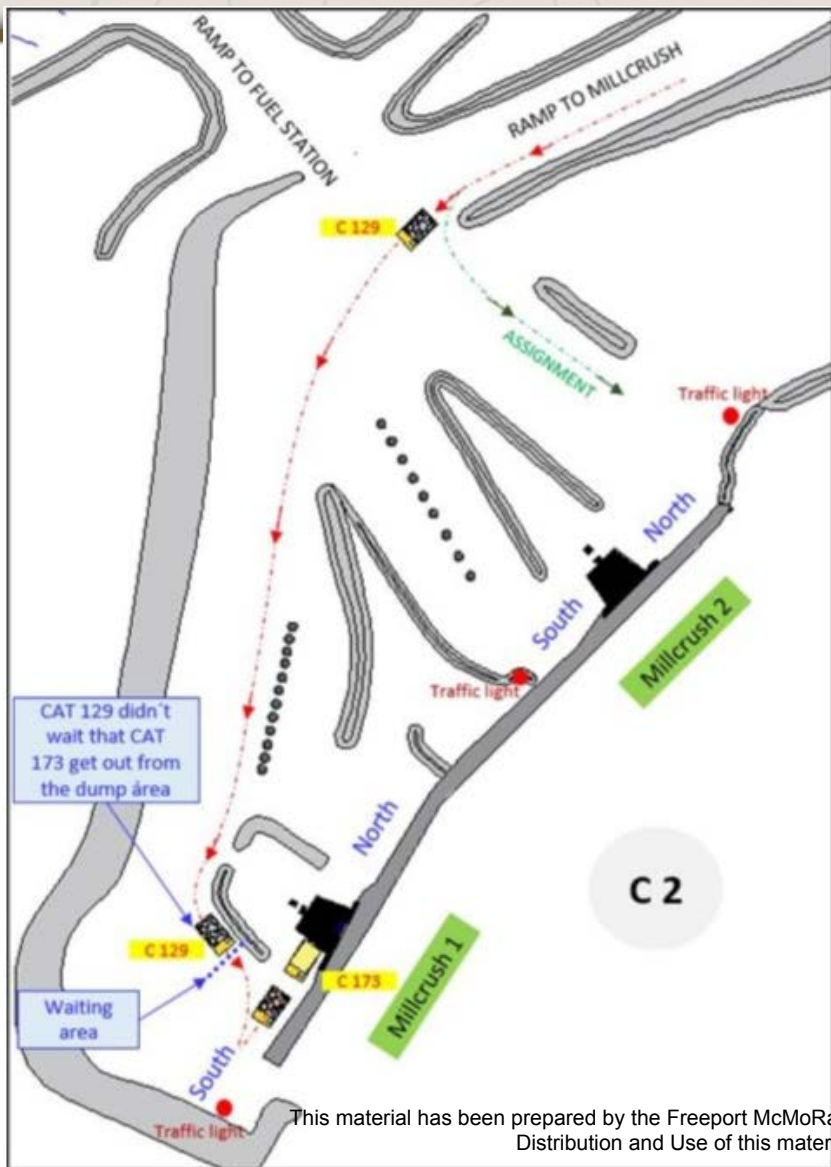
Immediate Actions:

- Evacuate injured personnel to the clinic.
- Stop the Millcrusher 1 and secure the incident scene.
- Perform investigation
- Communicate event to all oncoming shifts

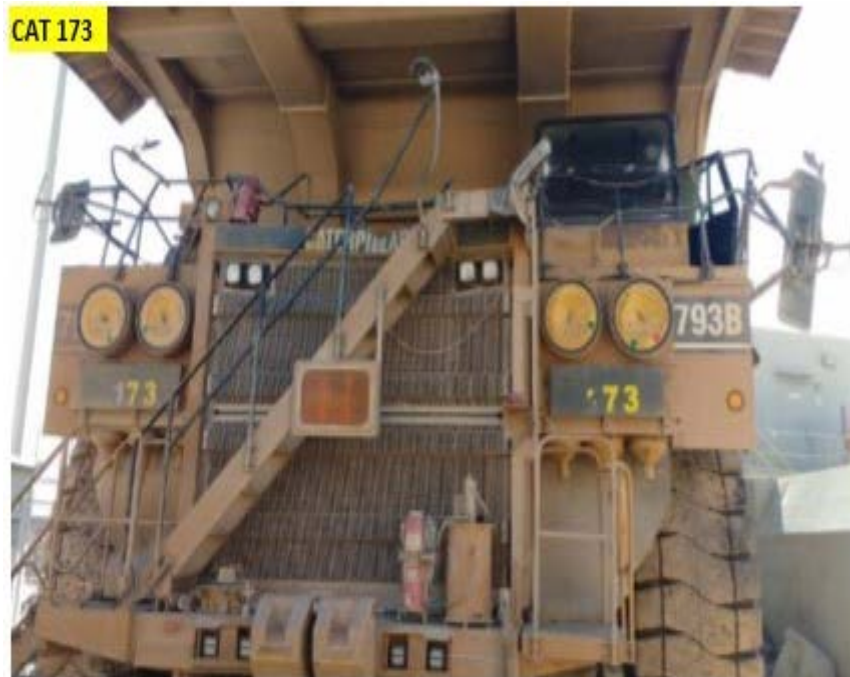




Cerro Verde Haul Truck



CAT 173



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Fatality Prevention Refresher

June 2016

Prevent the Event

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Interview with Mr. Peman Gombo

Survivor of Fatal Incident
PTFI DOZ Underground Mine
December 1, 2013

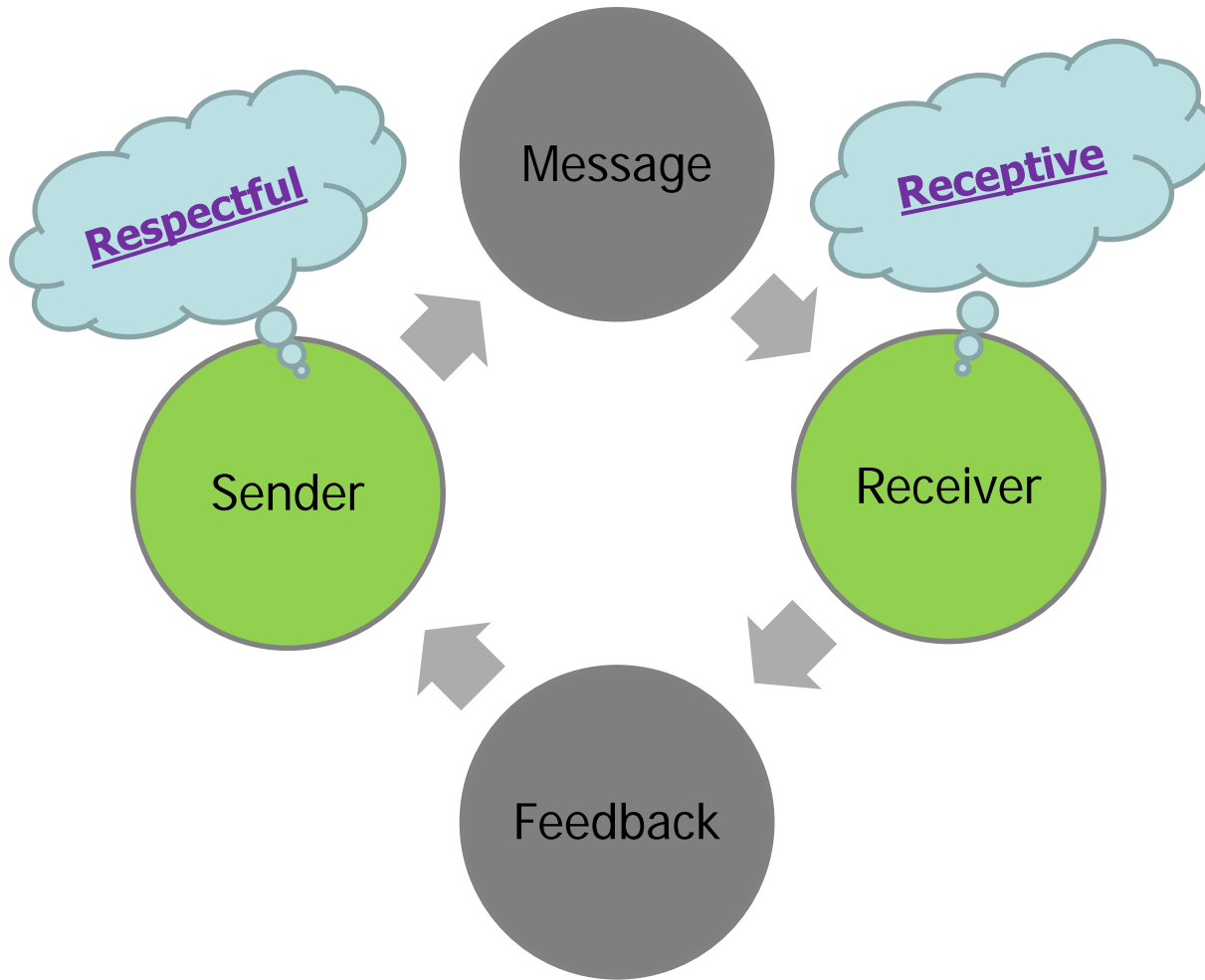
[<Click Here to Launch Video>](#)



Communication



Communication – A Simple Process?



Interpretation Factors:

- **Words 7%**
- **Inflection 38%**
- **Body Language 55%**

The natural outcome of communication is

MIS - interpretation



Potential Fatal Events

- PFEs:
 - How communicated
 - Why communicated
 - Difference between direct and indirect risks



Messaging and Perception



Messaging & Perception

- Messages and Perceptions
 - How message is sent
 - Sender must be careful
 - Receiver must ask for clarification
 - Additional dialogue to ensure correct message



Accountability



Steps of Accountability

1. Expectations
 - Hold yourself accountable
2. Understanding
 - Check for understanding
3. Outcomes
 - Negative and positive
4. Feedback
 - Giving and receiving
5. Follow through
 - Actions taken



Stopping Work



Stopping Work

- When:
 - During high risk work
 - Something changes

- Why:
 - To regroup
 - To prevent serious injury
 - To **SAVE A LIFE!**



Situational Risks and Outcomes



Situational Risks and Outcomes

- Situational risks and outcomes
 - Is it possible to multi-task?
 - How do you recognize risks if and when the situation changes?



Practical Application – Photo A

- Situational risks and outcomes
 - At your tables
 - Take a few minutes
 - Using the Significant Risk Assessment Template:
 - Review first photo (A), evaluate and list:
 1. Potential Fatal Risks
 2. Critical Controls for each risk
 3. Critical Behaviors to ensure done safely

NOTE: Leave space for additional photos



Practical Application – Photo B

- Situational risks and outcomes
 - Step 2
 - Continue using the Significant Risk Assessment Template:
 - Review the next photo (B), *situation is different*, evaluate and list:
 1. Potential Fatal Risks
 2. Critical Controls for each risk
 3. Critical Behaviors to ensure done safely



Practical Application – Photo C

- Situational risks and outcomes
 - Step 3
 - Continue using the Significant Risk Assessment Template:
 - Review the last photo (C), *situation is different*, evaluate and continue listing:
 1. Potential Fatal Risks
 2. Critical Controls for each risk
 3. Critical Behaviors to ensure done safely
 - Report Out (*use photos on next 3 slides*)



Trenching/Excavation – photo A



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Trenching/Excavation – photo B



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Trenching/Excavation – photo C



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Pre-Job Planning



Pre-job Planning

- Most incidents occur during routine work
 - What goes into planning non-routine work?
 - Is there anything that can be utilized for routine jobs?

For high risk jobs:

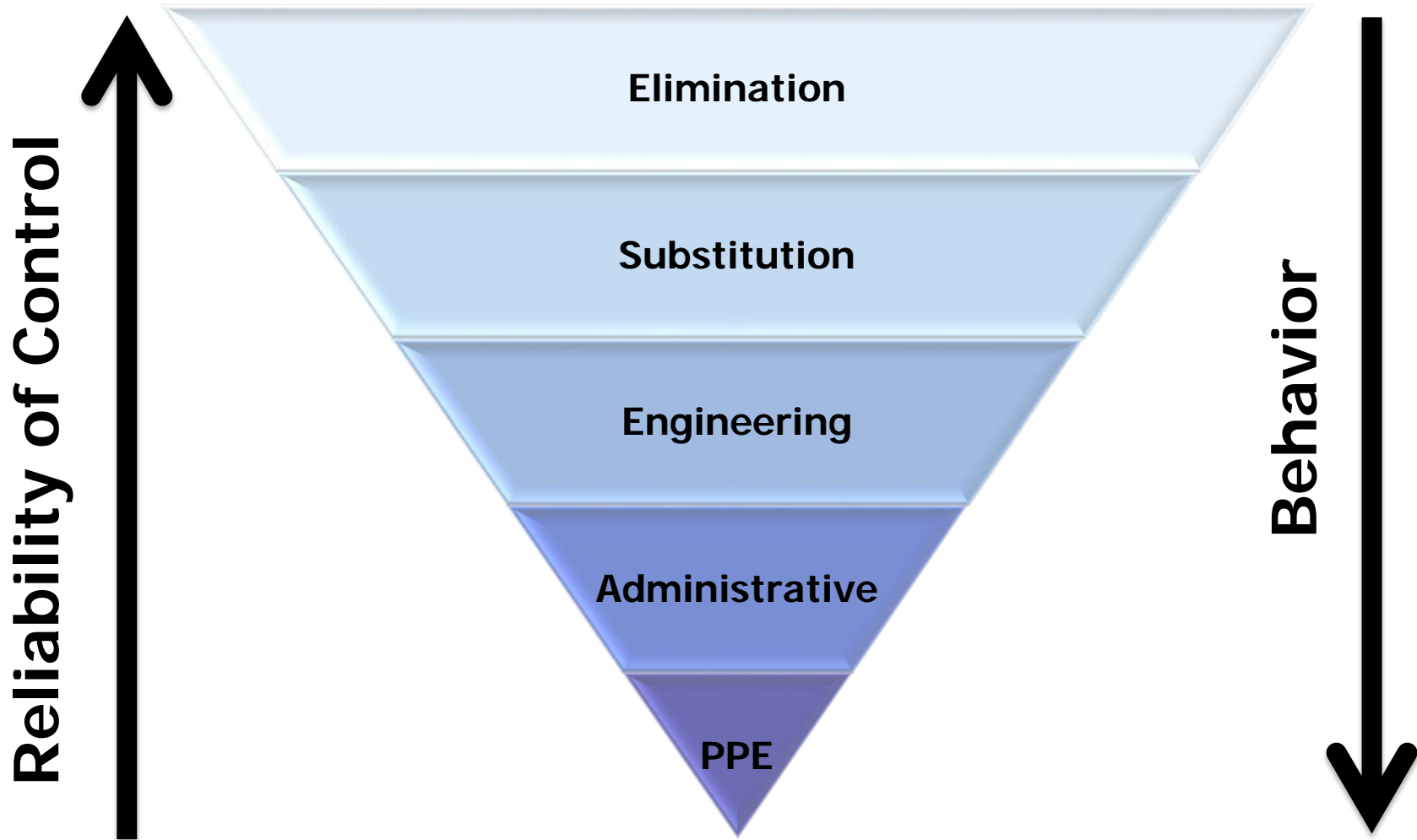
- Identify **Potential Fatal Risks** (*"what can kill me"*)
- Ensure **Critical Controls** are in place (*"what needs to be done to ensure I don't die"*)



Evaluate and Improve Controls




Hierarchy of Controls





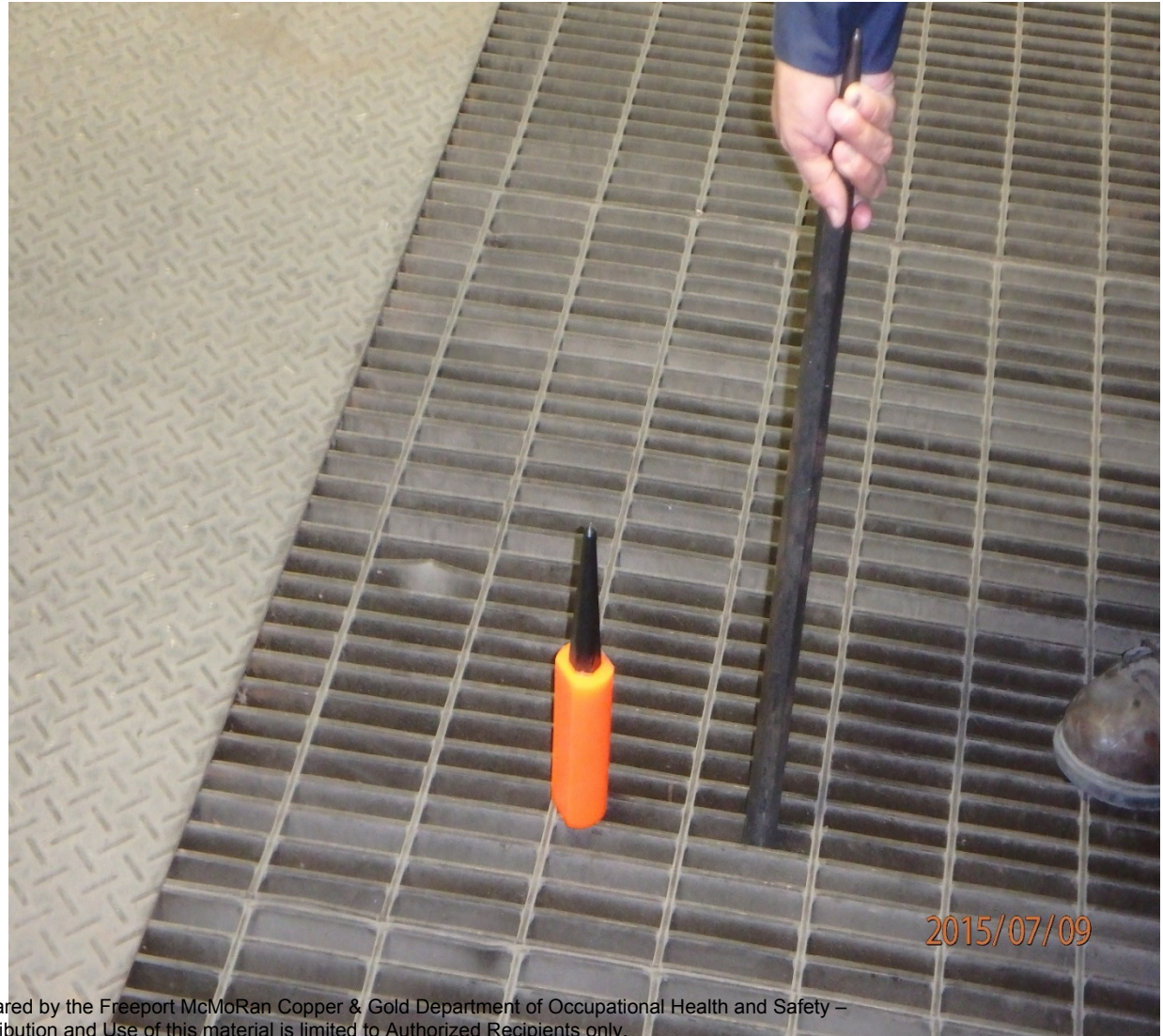
Critical Control Improvements

Critical Control Improvement	
	
CCI #	
OPERATION:	
AREA:	
DATE:	1/1/2016
Issued By: _____ Contact For Additional Details: _____	
<p>This Advisory is a NOTIFICATION of a critical control upgrade at one or more FCX locations. The purpose is to share the information so that others with similar risks can utilize the information to improve the reliability of critical controls where applicable. In some cases the control may not be directly applied but may generate an idea for other to pursue a similar control and thereby reduce risk.</p>	
DESCRIPTION / DETAILS OF ADVISORY	
GLOBAL SIGNIFICANT RISKS(if applicable)	
Choose an item.	Choose an item.
OTHER SIGNIFICANT RISK (specific to site or task not categorized as global)	
ORIGINAL CONTROL CATEGORY	UPGRADED CONTROL CATEGORY
Choose an item.	Choose an item.
LINKS TO DESIGNS, DRAWINGS AND OTHER RELEVANT INFORMATION:	



Critical Control Improvements

- Pry Bar (Sierrita)



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Critical Control Improvements

- Fall Arrest on Conveyor Belts (Safford)





Critical Control Improvements

- Dump Pocket Barricade (Morenci)



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Conclusion

- Respectful communications is key to Fatality Prevention
- Look for final summary of PFE to understand the learnings

Remember, communicating PFEs is to help prevent a similar incident.



Fatality Prevention

It's about the "big stuff"

What can kill you and what
to do to '**Prevent the Event**'

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Environmental Department

Jim Glasston

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Questions

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