



FREEPORT-McMoRAN

Safford Site Specific Training



Welcome to Freeport McMoRan Safford Operations

CAT 793B 240 Ton Haul Truck



CAT 793B Haul Truck / P&H 4100 XPA Electric Shovel



Road 4 from Site 2 to Site 1



Primary Crusher



Mine Ore Handling – Crushing/Conveying



**Coarse Ore
Stockpile**

**Secondary
Crushing**

**Fine
Crushing**

**Primary
Crushing**

Agglomeration and Acid Unloading



Phase I & II Leach Pads



Phase 3/Lone Star Leach Pad



Radial Arm Stacker



Hazardous Gases

- Carbon Monoxide (CO)
- Hydrogen Sulfide (H₂S)
- Carbon Dioxide (CO₂)
- Sulfur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)

CO₂ and NO₂

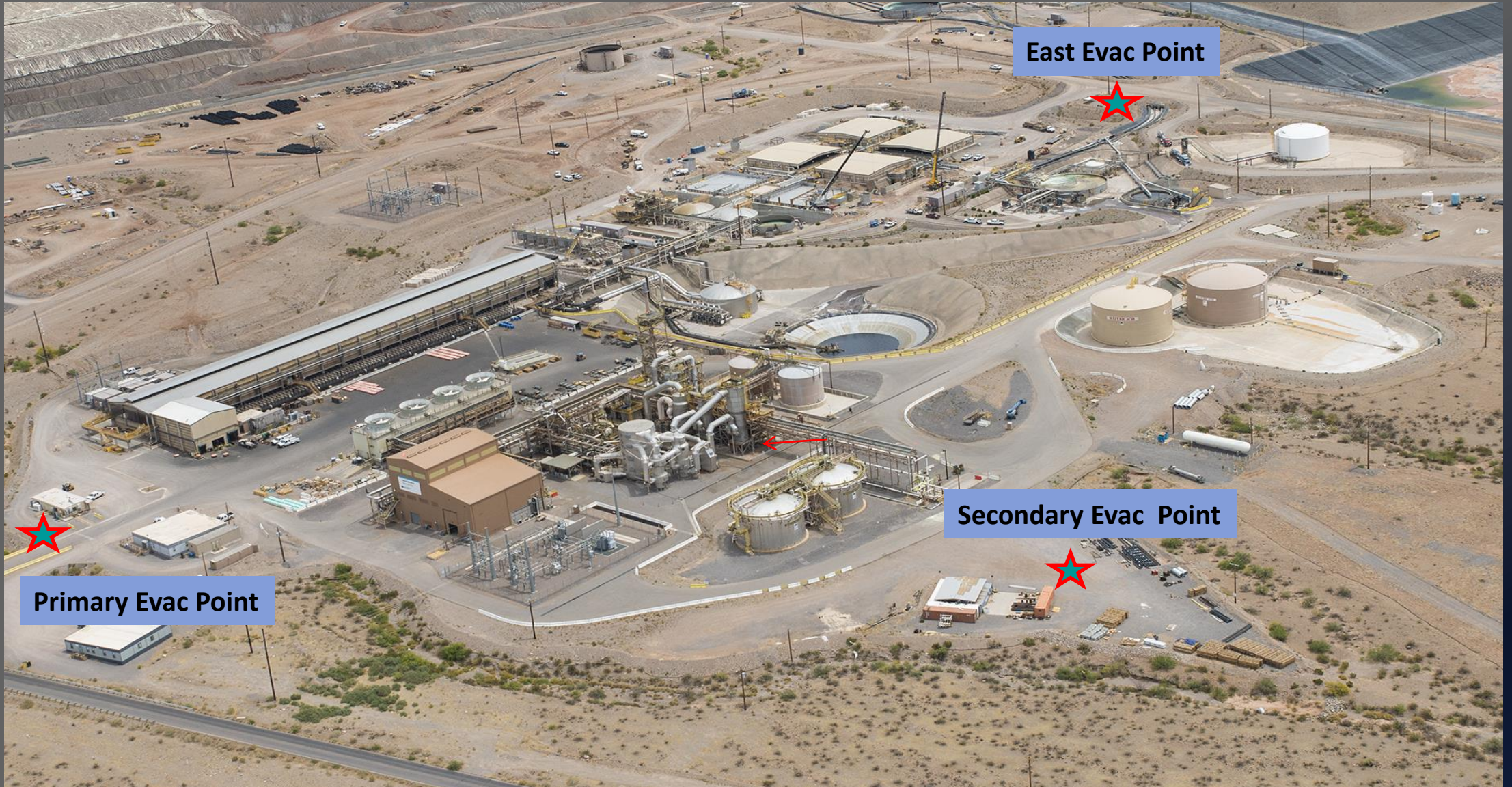
- Safford ore with high acid amounts creates CO₂ and NO₂ gases
- Anyone accessing the leach pad(s) will be required to always have a gas monitor and radio on their person
- Employees using gas monitors must be task trained
- Visiting personnel who do not work in C/C or Leaching must contact **L4** for access.
- Observe signage and barricading at designated danger zones

Crush & Convey – Agglomeration Restricted Area

- **Hazards**
 - CO₂, NO₂ and SO₂
- **Required PPE**
 - Standard PPE
 - Multi-Gas monitor
 - Respirator
- **Training Required**
 - Agglomeration and Leach Pad Access SOP
 - Gas Monitor training
 - Respirator fit testing



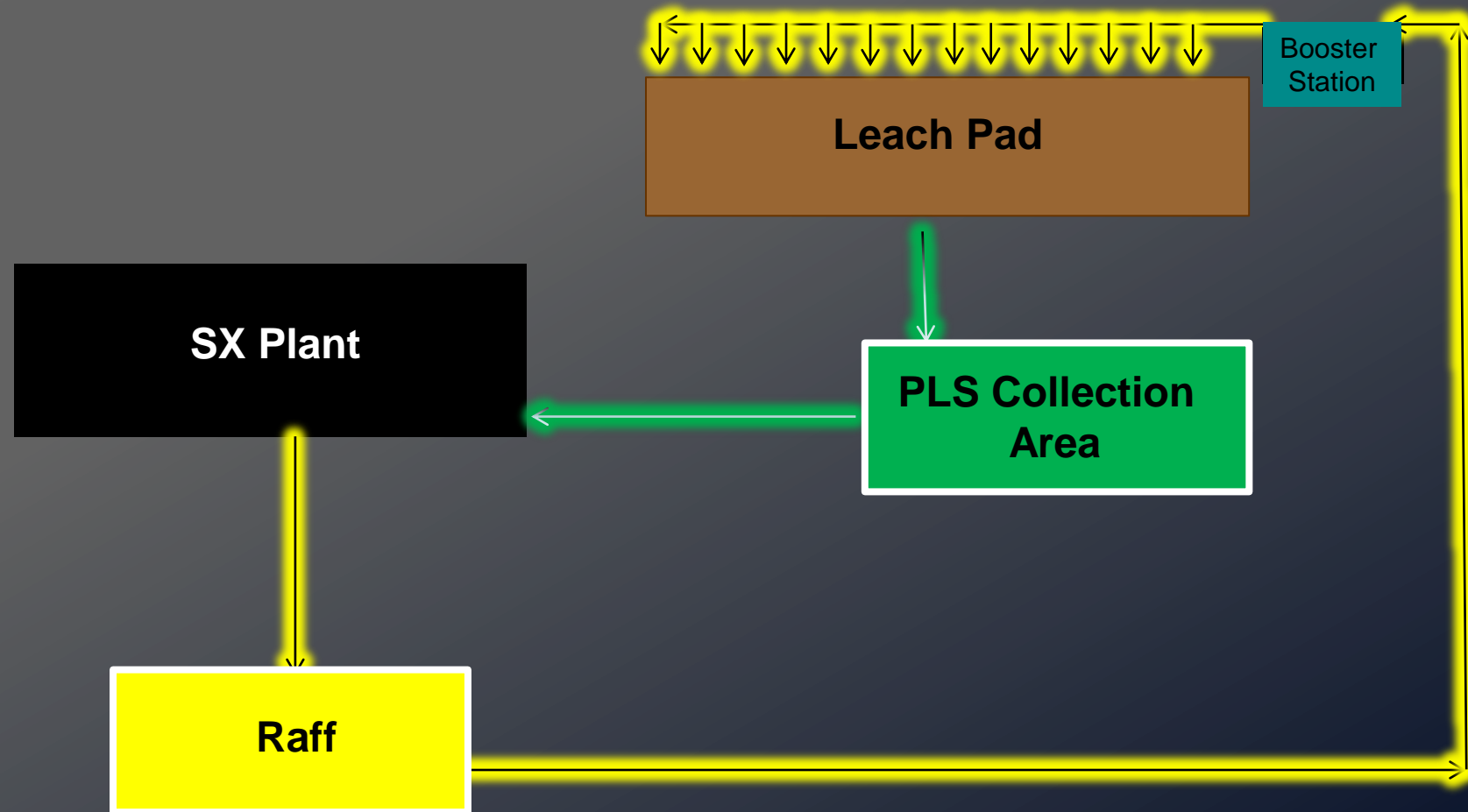
Hydromet Emergency Evacuation Points



Hydromet Restricted Area Boundary



Process Flow



Acid addition can occur anywhere in the raff delivery system

Solution Extraction - SX



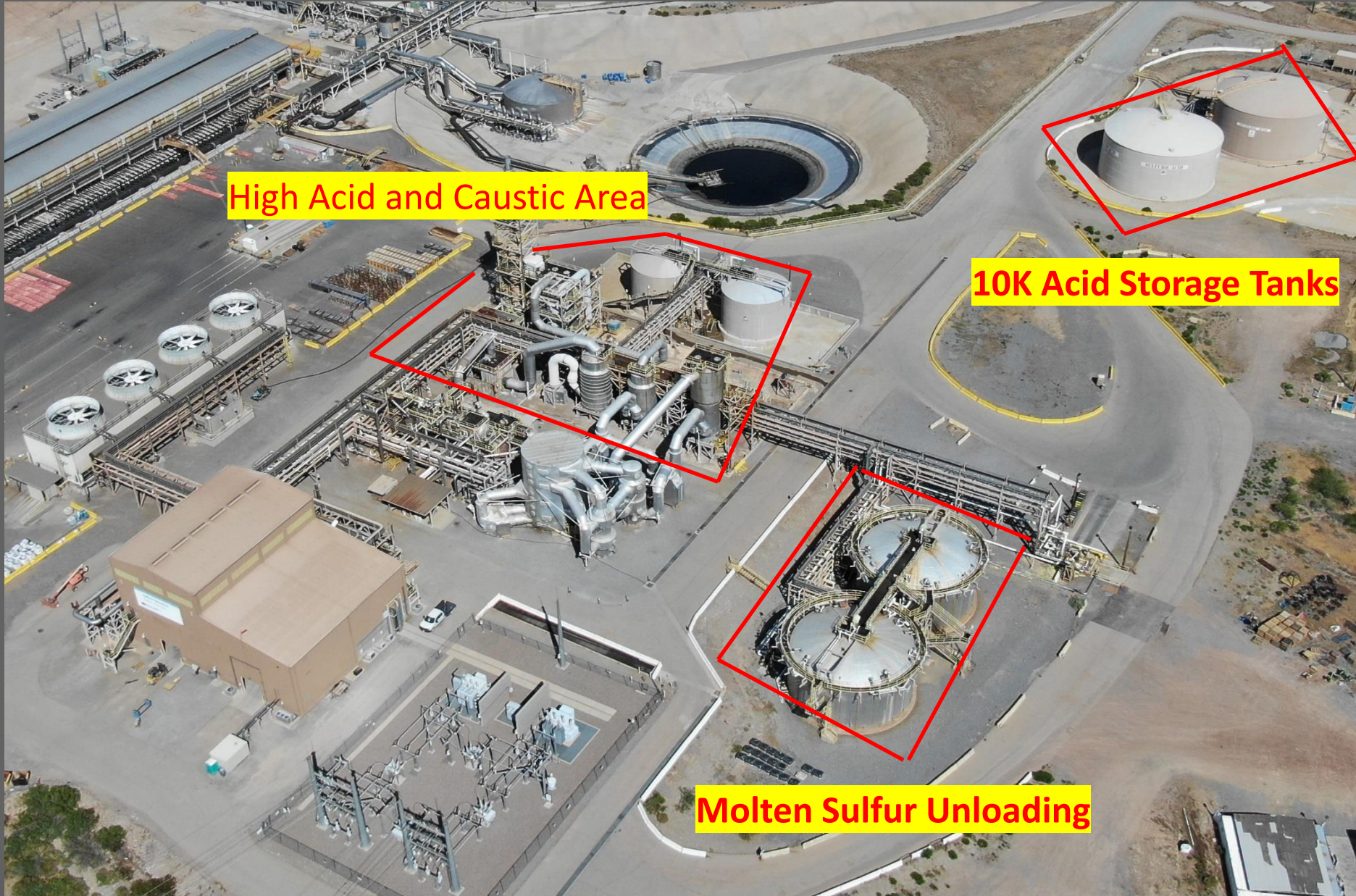
Electrowinning - EW



Safford Cathode Copper



Strong Acid Areas



Strong Acid & Caustic Area PPE

Full acid suit and the following:

1. Goggles
2. Clear face shield
3. Approved acid resistant rubber boots
4. Approved acid resistant rubber gloves
5. Respirator
6. Multi-Gas monitor

Acid Plant PPE

- Standard Hydromet PPE
- Multi-gas monitor
- Respirator (on your person)
- Long sleeved shirt

Mandatory Health and Safety Standards

Critical Safety Rules:

1. D&A Policy
2. Fighting, physical assault and verbal assault
3. Lock Out / Tag Out/ Try Out - LOTOTO
4. Blue Stake
5. Restricted Area Access

Other Rules With Serious Consequences:

1. Seatbelts
2. Cell phones
3. Speeding
4. Fall Protection

Mandatory Health and Safety Standards - PPE



(NO CONTACT LENSES)



Overhead Power Lines

- The minimum clearance under power lines is:
- 10 ft if the voltage is 75 KV or less
- 20 ft if the voltage is unknown



Power Cables

- Power cables are primarily found in shovels and portable stacker areas
- Avoid contact with them
- If you hit one with a vehicle, report it immediately
- Shovel cable voltage is **7,200** volts
- Portable stacker cable voltage is **13,800** volts
- You will not survive contact with either of them

Speed Limits

- Access roads – 35 to 45 mph according to signs
- Mine – 35 mph / 15 mph when dusty
- Congested areas – 5 mph
- Bad weather – According to conditions

NO Smoking Areas

“NO SMOKING” signs must be obeyed

Specifically Prohibited Areas:

- Fuel storage
- Satellite accumulation areas
- Hydromet areas
- Blasting operations
- Utility trucks



Smoking is only allowed in specified areas

These rules also apply to e-cigarettes

Hazardous Chemical Communication

- Any chemicals or hazardous materials brought onto Freeport property must have prior approval from the Health and Safety Dept. and Environmental Services
- An SDS is required for all hazardous chemicals
- SDS' are accessed on the FM intranet

Hazard Recognition

Consequence thinking

- Identify hazards
- Analyze risk
- Manage risk

Will it kill me?

What are the chances of it killing me?

How do I keep it from killing me?

Rules to live by

Violations of just these thirteen MSHA standards caused or contributed to 44% of surface mining fatalities

- 1. 56.9101 Operating speeds and control of equipment**
- 2. 56.12017 Work on powered circuits**
- 3. 56.14101(a) Brake performance**
- 4. 56.14105 Procedures during repairs or maintenance**
- 5. 56.14130(g) Seat belts shall be worn by equipment operators**

Rules to live by (cont.)

- 7. 56.14205 Machinery, equipment, and tools used beyond design**
- 8. 56.14207 Parking procedures for unattended equipment**
- 9. 56.15005 Safety belts and lines**
- 10. 56.16002(c) Bins, hoppers, silos, tanks, and surge piles**
- 11. 56.16009 Persons shall stay clear of suspended loads**
- 12. 56.20011 Barricades and warning signs**
- 13. 57.3360 Ground support use**

Cell Phones

- The use of company or personal cell phones while driving on company property and/or in a company vehicle or equipment is prohibited

Seat Belts

- Always required in all vehicles while on property

Parking

- Chock all vehicles on any tire
- Set park brake



Lightning

Dispatch will:

- Monitor the lightning prediction system
- Broadcast over company radio when an alert is issued
- Notify when conditions change



Lightning

- YELLOW ALERT
 - Issued when the first lightning strikes are 10 miles away
 - Start immediate leachpad evacuation
- RED ALERT
 - Issued when lightning strikes are 5 miles away
 - Seek shelter or stay in your vehicle



Radio Emergency Procedures



Security will coordinate all emergency activities

Emergency:

1. Press and release the Orange Button on the radio
2. Wait for Security to call you back
3. Give them all requested details
4. Stay on the radio until Security releases you

In Pit:

1. Call "May Day, May Day, May Day!"
2. Follow the emergency procedure

Security gate phone number
928-792- 5800

Do not give names or equipment numbers over the radio in an emergency

Emergency Procedures

During a 'MAY DAY' radio silence will be observed

Any of the following will be reason to call a May Day

- ✓ **Chest pains**
- ✓ **Difficulty breathing**
- ✓ **Unconscious/Unresponsive**
- ✓ **Altered mental state**
- ✓ **Electrical shock**
- ✓ **Major trauma**



Comply with all permit policies

- Hot work
 - Welding, cutting or grinding within 35' of process or 50' of flammables
- Confined Space
 - Large enough to enter
 - Not designed for continuous occupancy
 - Limited entry/exit
- Blue Stake
 - Penetration of more than one inch
 - Any penetration in concrete

Stay Hydrated

- **Water helps regulate body temperature**
- **Proper hydration is key to muscle function**
- **The body can lose up to 1 quart of water during strenuous activities**
- **Drink extra water before starting work in a hot environment**
- **Wind can dehydrate you as well**

Factors Contributing to Dehydration

- Air temperature
- High humidity
- Radiant heat
- Air movement
- Work in or near conductive heat sources
- Strenuous labor
- Heavy clothing or PPE

Freeport McMoRan is committed to the philosophy of zero incidents, injuries, fatalities and occupational illnesses. Any number other than zero is not acceptable.



Our Expectation

Everyone shows up to work fit for duty and accepts responsibility for their individual safety and the safety of their co-workers. This responsibility is a condition of employment.



Questions?

