

Atlantic Alliance Conference

September 25, 2008

Analyzing the USA Numbers

--Root Causes--Best Practices--



[Español](#)

Title 30

Parts 1-199 Mineral Resources
Department of Labor
Mine Safety and Health Administration

Code of Federal Regulations

MSHA - Title 30 CFR

CFR § 50.20

Preparation and submission of MSHA Report Form 7000-1--Mine Accident, Injury, and Illness Report.

Each operator shall maintain at the mine office a supply of MSHA Mine Accident, Injury, and Illness Report [Form 7000-1](#). These may be obtained from the MSHA District Office. Each operator shall report each accident, occupational injury, or occupational illness at the mine. The principal officer in charge of health and safety at the mine or the supervisor of the mine area in which an accident or occupational injury occurs, or an occupational illness may have originated, shall complete or review the form in accordance with the instructions and criteria in [§§50.20-1](#) through 50.20-7. If an occupational illness is diagnosed as being one of those listed in [§50.20-6\(b\)\(7\)](#), the operator must report it under this part. The operator shall mail completed forms to MSHA within ten working days after an accident or occupational injury occurs or an occupational illness is diagnosed. When an accident specified in [§50.10](#) occurs, which does not involve an occupational injury, sections A, B, and items 5 through 12 of section C of Form 7000-1 shall be completed and mailed to MSHA in accordance with the instructions in [§50.20-1](#) and criteria contained in [§§50.20-4](#) through 50.20-6.

Each operator shall report each occupational injury or occupational illness on one set of forms. If more than one miner is injured in the same accident or is affected simultaneously with the same occupational illness, an operator shall complete a separate set of forms for each miner affected. To the extent that the form is not self-explanatory, an operator shall complete the form in accordance with the instructions in [§50.20-1](#) and criteria contained in [§§50.20-2](#) through 50.20-7.

Mine Accident, Injury and Illness Report

U.S. Department of Labor
 Mine Safety and Health Administration



Approved For Use Through 04/30/2008 OMB Number 1219-0007

Section A - Identification Data

MSHA ID Number _____ Contractor ID _____ Report Category Metal/Nonmetal Mining Coal Mining Check here if report pertains to contractor

Mine Name _____ Company Name _____

Section B - Complete for Each Reportable Accident Immediately Reported to MSHA

1. Accident Code (circle applicable code - see instructions) 01 - Death 02 - Serious Injury 03 - Entrapment
 04 - Inundation 05 - Gas or Dust Ignition 06 - Mine Fire 07 - Explosives 08 - Roof Fall
 09 - Outburst 10 - Impounding Dam 11 - Hoisting 12 - Offsite injury

2. Name of Investigator _____ 3. Date Investigation Started _____ 4. Steps Taken to Prevent Recurrence of Accident _____

Section C - Complete for Each Reportable Accident, Injury or Illness

5. Circle the Codes Which Best Describe Where Accident/Injury/Illness Occurred (see instructions)

(a) Surface Location: 02 Surface at Underground Mine 03 Mill, Preparation Plant, etc. 03 Strip/Open Pit Mine 04 Surface Auger Operation
 05 Cull Bank/Refuse Pile 06 Dredge Mining 12 Other Surface Mining 17 Independent Shops (with own MSHA ID) 99 Office Facilities

(b) Underground Location: 01 Vertical Shaft 02 Slope/Inclined Shaft 03 Face 04 Intersection 05 Underground Shop/Office 06 Other

(c) Underground Mining Method: 01 Longwall 02 Shortwall 03 Conventional Stopping 05 Continuous Mining 06 Hand 07 Caving 08 Other

6. Date of Accident _____ 7. Time of Accident _____ am _____ pm 8. Time Shift Started _____ am _____ pm

9. Describe Fully the Conditions Contributing to the Accident/Injury/Illness, and Quantify the Damage or Impairment

10. Equipment Involved _____ Type _____ Manufacturer _____ Model Number _____ 10
MAN

11. Name of Witness to Accident/Injury/Illness _____ 12. Number of Reportable Injuries or Illnesses Resulting from This Occurrence _____

13. Name of Injured/ill Employee _____ 14. Sex Male Female _____ 15. Date of Birth _____ 12
14

16. Last Four Digits of Social Security Number _____ 17. Regular Job Title _____ 18. Check if this Injury/Illness resulted in death. 19. Check if Injury/Illness resulted in permanent disability (include amputation, loss of use, & permanent total disability). 16
17
18
19

20. What Directly Inflicted Injury or Illness? _____ 21. Nature of Injury or Illness _____ 20
21

22. Part of Body Injured or Affected _____ 23. Occupational illness (circle applicable code - see instructions) 21 Occupational Skin Diseases 22 Dust Diseases of the Lungs 23 Respiratory Conditions (toxic agents) 24 Poisoning (toxic Materials) 25 Disorders (physical agents) 26 Disorders (repeated trauma) 29 Other 22
23
24

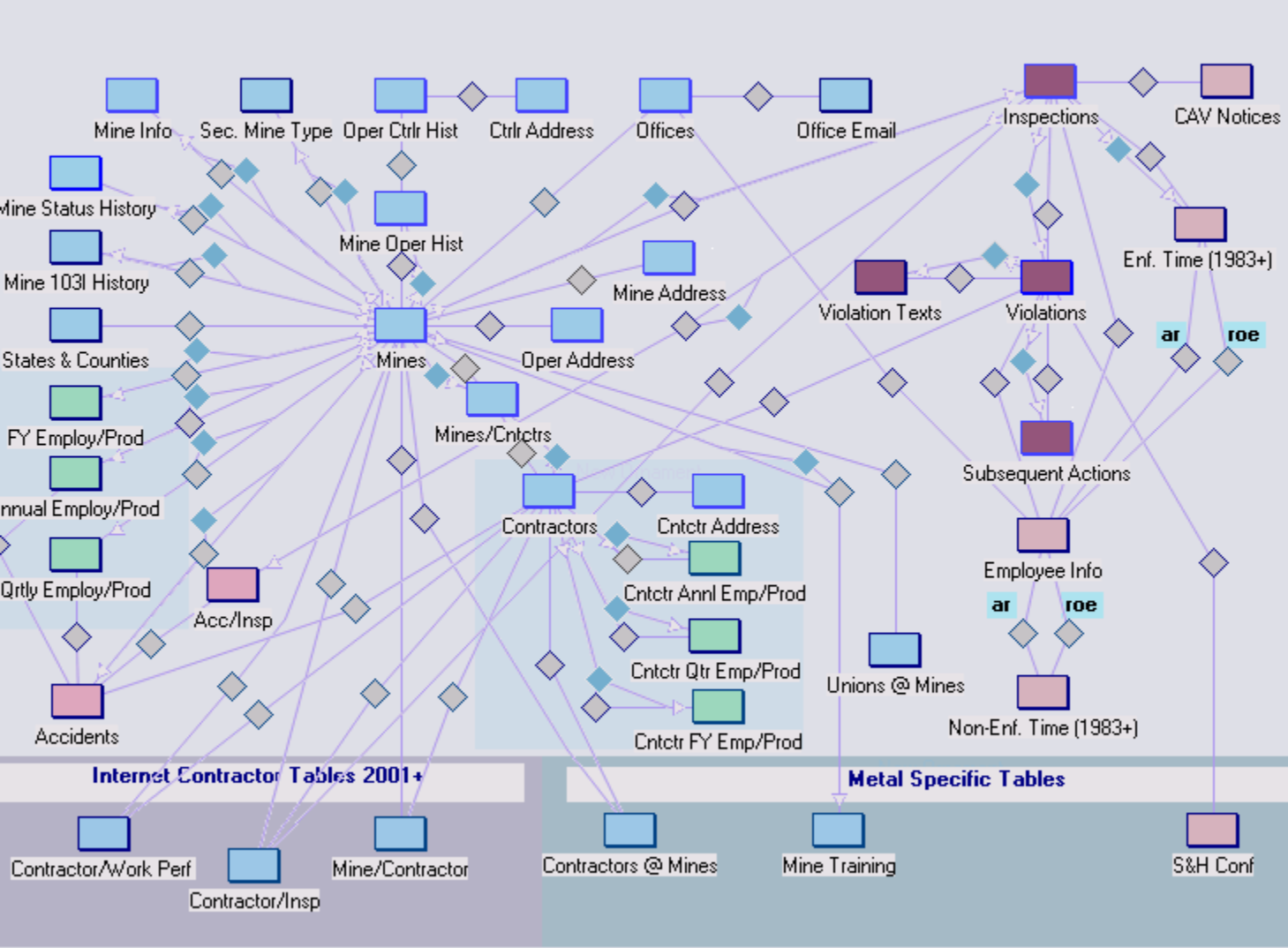
24. Employee's Work Activity When Injury or Illness Occurred	Experience	Years	Weeks	<i>For Official Use Only</i>
	25. Experience in This Job Title			
	26. Experience at This Mine			
	27. Total Mining Experience			

Section D - Return to Duty Information

28. Permanently Transferred or Terminated (if checked, complete items 29, 30, & 31) 29. Date Returned to Regular Job at Full Capacity (or item 28) _____ 30. Number of Days Away from Work (if none, enter 0) _____ 31. Number of Days Restricted Work Activity (if none, enter 0) _____

Person Completing Form (name) _____ Title _____

Date This Report Prepared (month, Day, year) _____ Area Code and Telephone Number _____



- Home Page
- MSIS Assessments
- MSIS Samples
- MSIS Common Tables
- MSIS Code Conv
- MSIS Accident Inv

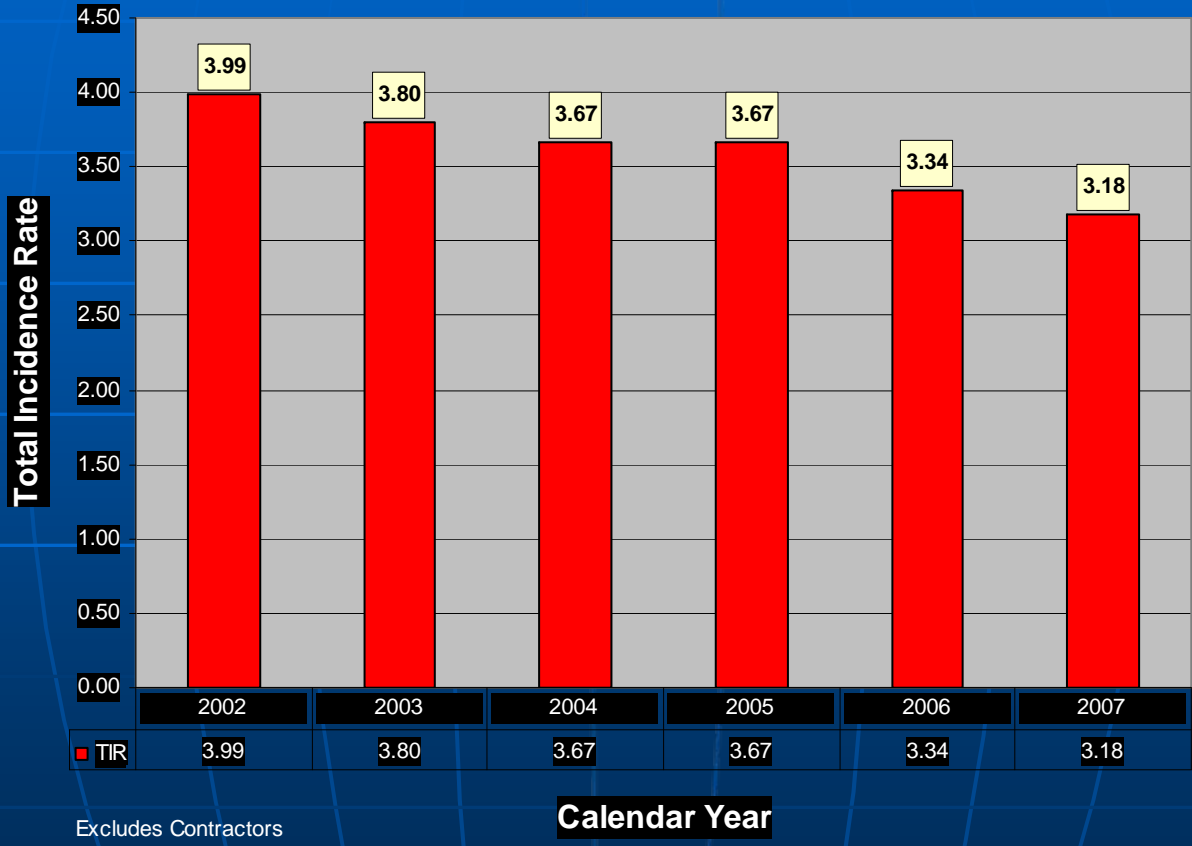
Enf. Common Tables



MSIS AD HOC Find

Attribute	Function	Qualify	Group	Sort
Mine ID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contractor ID	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Document No.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subunit Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subunit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accident Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Month	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calendar Year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calendar Quarter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calendar YearQtr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiscal Year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiscal Quarter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accident Time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Degree of Injury Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Degree of Injury	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SSN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIPS State Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UG Location Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UG Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UG Mining Method Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UG Mining Method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equip. Type Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type of Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

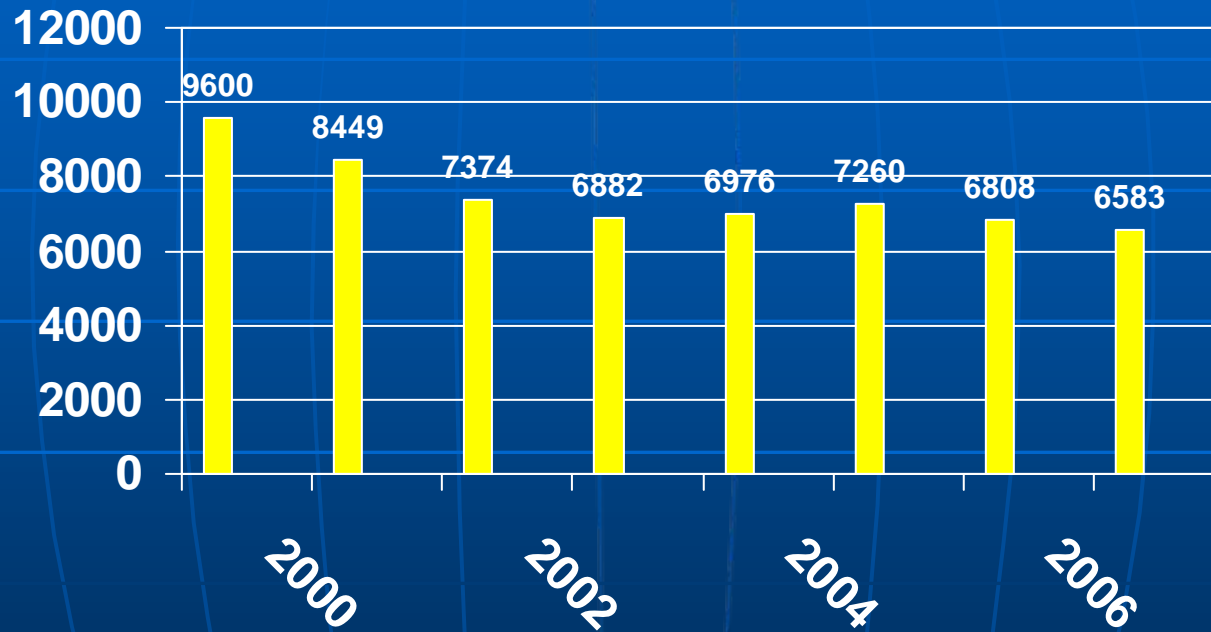
MNM Operator Total Incidence Rate CY 2002 - 2007



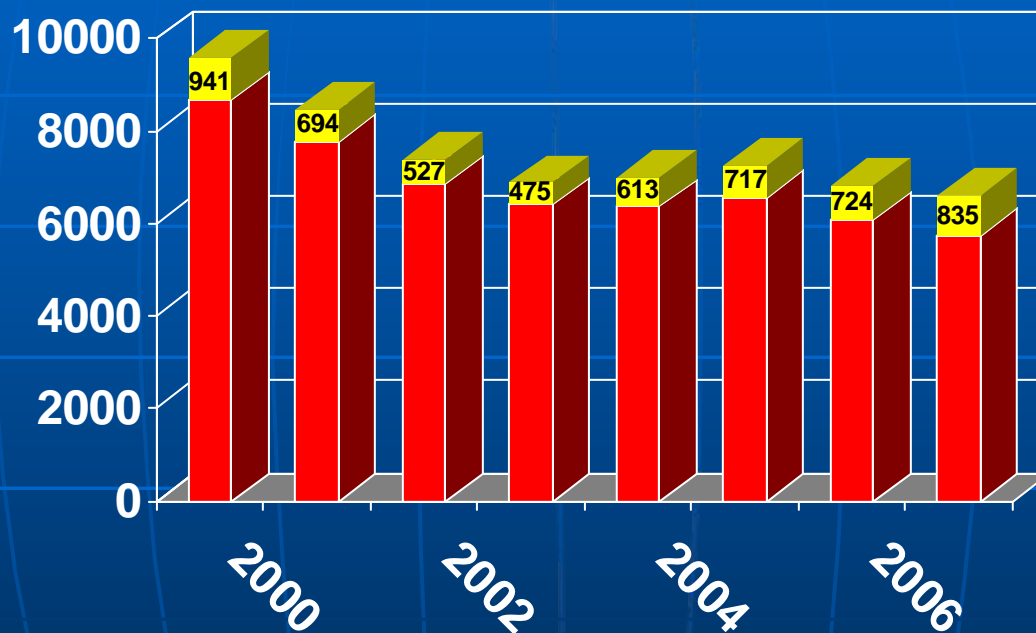
All MNM Reportable Injuries - CY 2003 - 2007

Accident Classification	Fatalities	Percent of Fatalites	Reportable Injuries	Percent of Reportable Injuries
Handling of Materials	1	1%	12,482	36%
Slip or Fall of Person	21	14%	7,366	21%
Handtools (Nonpowered)	3	2%	4,876	14%
Machinery	37	25%	4,137	12%
Powered Haulage	44	30%	2,725	8%
Other	5	3%	1,066	3%
Stepping or Kneeling on Object	0	0%	567	2%
Striking or Bumping	0	0%	292	1%
Electrical	11	7%	218	1%
Fall of Roof or Back	3	2%	179	1%
Falling/Sliding/Rolling Materials	16	11%	174	1%
Exploding Vessels Under Pressure	2	1%	131	0%
Nonpowered Haulage	1	1%	111	0%
Fire	0	0%	80	0%
Fall of Face/Rib/Pillar/Side/Highwall	2	1%	75	0%
Ignition or Explosion of Gas or Dust	1	1%	45	0%
Hoisting	0	0%	41	0%
Explosives and Breaking Agents	0	0%	26	0%
Inundation	0	0%	3	0%
Total MNM Fatalities and Reportable Injuries	147		34,594	

MNM Operator & Contractor Injuries



MNM Operator - Contractor Injuries



MNM Contractor Accidents by Classification (2000-2007)

■ HANDLING OF MATERIALS	1,855
■ SLIP OR FALL OF PERSON	1,120
■ MACHINERY	939
■ HANDTOOLS (NONPOWERED)	664
■ POWERED HAULAGE	429
■ All Others	519
■ % of MNM Total	9%

Contractor Fatalities by Classification (2000-2007)

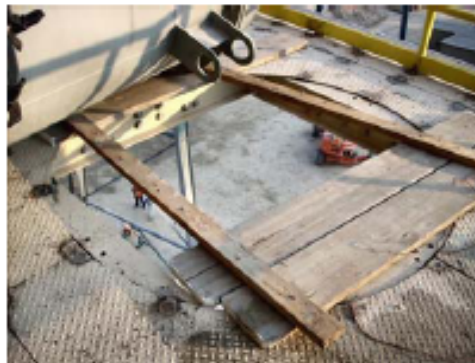
■ Fall of Person	16
■ Powered Haulage	15
■ Machinery	12
■ Falling Material	6
■ Electrical	5
■ All Others	5
■ MNM Total	59 (22%)

SAFETY SLOGAN OF THE MONTH
"YOU CAN DO IT RIGHT
AS MANY TIMES AS YOU WANT,
BUT YOU MAY ONLY BE ABLE
TO DO IT WRONG ONCE!"



Fatality #29 - October 25, 2007
Fall of Person - California - Cement
Riverside Cement Company - Oro Grande Quarry

METAL/NONMETAL MINE FATALITY - On October 25, 2007, a 19 year-old contractor ironworker with 20 weeks of experience was fatally injured at a cement operation. The victim was standing on 2 x 10 x 72 inch planks that were nailed to cross members and placed across a 48-inch diameter hole where a duct was to be installed. Several of the planks dislodged and he fell approximately 75 feet.



Best Practices

- Ensure that floor openings are protected by railings, barriers, or covers that are properly constructed, installed securely, and maintained to control all hazards.
- Ensure that areas are barricaded or have warning signs posted at all approaches if hazards exist that are not immediately obvious.
- Examine your work places for all possible hazards and correct them before you perform work.
- Remember and use SLAM: Stop, Look, Analyze, and Manage.

This is the 29th fatality reported in calendar year 2007 in the metal and nonmetal mining industries. As of this date in 2006, there were 30 fatalities reported in these industries. This is the 4th Fall of Person fatality in 2007. There were 3 Fall of Person fatalities in the same period in 2006.

The information provided in this notice is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.



Root Causes

- Contractor management policies and procedures were inadequate and failed to ensure that persons could safely work on the deck of the fifth level of the coal mill tower. The wooden platform covering the opening was not substantially constructed and maintained in good condition.
- Contractor management policies and work procedures failed to ensure that fall protection was properly used by persons where there was a danger of falling.
- Contractor management policies and work procedures failed to ensure that persons were aware of safety hazards not immediately obvious. No barricades or warning signs were posted at the approaches to the opening on the deck.



Fatality #19 - July 29, 2007
Fall of Person - Tennessee - Lead/Zinc Ore
East Tennessee Zinc Company, LLC - Immel Mine

METAL/NONMETAL MINE FATALITY - On July 29, 2007, a 29 year-old contractor miner with 3 years experience was fatally injured at an underground zinc mine. The victim and two other contractor miners were working on top of a service hoist located in the main mine service shaft. He was assisting another miner who was using a chipping hammer to remove concrete from around a steel shaft set. The miners had one foot on top of the service hoist and one foot on a cross section H-beam when one side of the beam collapsed. Both miners fell into the shaft. They were both wearing safety harnesses and lanyards but the victim's lanyard was not secured. The other miner was caught by his lanyard but the victim fell 1,000 feet to the shaft bottom.



Best Practices

- Ensure workers are trained and understand that safety lanyards are not permitted to be unfastened while working at elevated locations.
- Provide self retracting lanyard mechanisms when workers are required to reposition themselves to perform tasks.
- Ensure safety lanyards are securely fastened at all times when workers are positioned at elevated locations.

This is the 19th fatality reported in calendar year 2007 in the metal and nonmetal mining industries. As of this date in 2006, there were 18 fatalities reported in these industries. This is the 2nd Fall of Person fatality in 2007. There were 2 Fall of Person fatalities in the same period in 2006.

The information provided in this notice is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.

Root Causes

- Management policies and controls were inadequate and failed to ensure that persons could safely work at elevated positions where there was a danger of falling. Management failed to conduct an assessment of the risk when performing these tasks and had not identified procedures to ensure the work could be completed safely.
- Management policies and work procedures failed to ensure that fall protection was properly used by persons working where there was a danger of falling.



Fatality #7 - April 5, 2007
Falling Material - Texas - Dimension Sandstone
1845 Texas Stone Products, Inc. - Texas Stone Products, Inc.

METAL/NONMETAL MINE FATALITY - On April 5, 2007, a 46 year-old tire contractor, with 8 years experience, was fatally injured at a dimension stone operation. The victim was replacing tires on the front-end loader. He was pinned under the loader when it fell off the supporting jacks.



Best Practices

- Stop, Look, Analyze, and Manage (SLAM) each task to identify all potential hazards before performing maintenance work. Practice safe work habits during the entire task.
- Train miners and persons hired to perform work on the mine site in safe work procedures before beginning repairs. Monitor work to ensure procedures are followed.
- Securely block equipment against all hazardous motion at all times while performing maintenance work.

This is the 7th fatality reported in calendar year 2007 in the metal and nonmetal mining industries. As of this date in 2006, there were five fatalities reported in these industries. This is the 1st Falling Material fatality in 2007. There was one Falling Material fatality in the same period in 2006.

Root Cause

- Policies and procedures were inadequate. Potential hazards were not addressed before performing the task of changing tires on a wheel loader. Procedures were not established to ensure the wheel loader was blocked against hazardous motion.



Fatality #18 - July 27, 2006
Determined to be Chargeable 07/31/2006
Electrical - Massachusetts - Limestone (C&B)
Specialty Minerals Inc - Adams Mine

METAL/NONMETAL MINE FATALITY - On July 27, 2006, a 25-year-old contractor laborer, with 2 years experience, was fatally injured at a crushed stone operation. The victim was using a gasoline-powered weed trimmer, equipped with a circular steel blade, to cut weeds and brush near a power pole when he struck the guy wire for the pole. The blade severed the guy wire, causing it to contact the energized supply conductors on the pole mounted transformer and electrocuted him.



Best Practices

- Ensure that guy wires from power poles are securely connected to the system ground or are provided with the proper number of insulators installed near the pole end.
- Examine the area for any potential hazards before trimming weeds and brush.

This is the 18th fatality reported in calendar year 2006 in the metal and nonmetal mining industries. As of this date in 2006, there were 18 fatalities reported in these industries. This is the 3rd Electrical fatality in 2006. There were three Electrical fatalities in the same period in 2005.

The information provided in this notice is based on preliminary data ONLY and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the fatality.

Root Causes

- Standards and controls were inadequate. Management failed to inspect and verify that the guy wire was installed properly.
- The provided guy wire on the power pole was not installed in accordance with the National Electrical Safety Code. The guy wire was not provided with two insulators installed to include the exposed section of the guy wire between them. The slackened guy wire contacted the energized transformer supply conductor below the provided insulator, thus energizing the wire.



Fatality #38 - May 4, 2006
(Jurisdiction determined 03/05/06)
Electrical - Surface - Virginia
Consolidation Coal Company - Buchanan Mine #1

COAL MINE FATALITY - On Thursday, May 4, 2006, a 40 year old contractor with 2 1/2 years of experience was electrocuted while clearing brush from the right-of-way of a 12,470 VAC transmission line. The miner touched a loose guy wire causing it to contact an energized conductor on the pole. There was no insulator, ground, or proper anchor at ground level preventing the guy wire from becoming energized.



Best Practices

- Connect guy wires securely to the system ground, and/or properly install insulators to protect miners in the event of a breakage.
- Anchor guy wires where they will not be contacted by vehicles and equipment or be disturbed by maintenance personnel.
- Examine areas surrounding electrical installations for potential hazards before beginning any work, including trimming weeds and brush.
- Mark guy wire anchor points for easy identification.

This is the 38th fatality reported during calendar year 2006 in the coal mining industry. As of May 4th in 2005, there were four fatalities reported in coal mining. This is the first fatality classified as Electrical in 2006. There were no electrical fatalities at this time in 2005.

ISSUE DATE: 03/27/07
PROGRAM INFORMATION BULLETIN
NO. P07-06
FROM: KEVIN G. STRICKLIN
Acting Administrator for
Coal Mine Safety and Health
FELIX A. QUINTANA
Administrator for
Metal and Nonmetal Mine Safety and
Health
SUBJECT: Guy Wires of Poles
Supporting High-Voltage Electric
Power Lines

Background

There have been several fatalities attributed to energized guy wires. The most recent fatality occurred on July 27, 2006, at a crushed stone operation. The accident occurred when a laborer, with two years experience, struck the guy wire of a power pole while using a weed trimmer equipped with a circular steel blade to cut weeds and brush near the pole. The blade severed the guy wire, causing it to contact the 23,000-volt energized conductors of the pole mounted transformer and electrocuting the laborer. An illustration of the hazards leading to this fatality is attached. On May 4, 2006, an independent contractor at a coal mine was electrocuted while clearing brush and timber from the right-of-way of a 12,470-volt transmission line. The victim contacted an energized guy wire that was used to support a pole-mounted transformer bank installed in the right-of-way. On September 19, 1990, a fatality occurred at a coal mine while the victim was moving a loosened guy wire and contacted one phase of the energized high-voltage electric power line. These fatalities could have been prevented if the guy wires had been properly grounded or insulated in accordance with the above referenced standards.

MSHA inspectors and mine operators should:

- Ensure that each guy wire extending from power poles supporting energized high-voltage power lines are securely connected to the system ground or are provided with properly rated insulators installed near the pole end of each guy wire. Generally, the insulators are installed at least eight feet from the guy wire anchor point and/or in such manner that if the guy wire becomes loose it would not contact the energized conductors.
- Examine the area around guy wire installations for potential electrical hazards before trimming weeds and brush or otherwise working in the vicinity of guy wires.
- Ensure that the guy wires are properly anchored to ground and that anchor points are marked for identification



HAZARD ALERT BULLETIN

ENERGIZED GUY WIRES HAVE ELECTROCUTED TWO MINERS IN 2006

BEST PRACTICES FOR THE MINING INDUSTRY

- 1) Connect guy wires securely to the system ground, and/or properly install insulators to protect miners in the event of a breakage.
- 2) Adequately anchor guy wires where they will not be contacted by vehicles/equipment or disturbed by maintenance personnel.
- 3) Examine areas surrounding electrical installations for potential hazards before beginning any work, including trimming weeds and brush.
- 4) Mark guy wire anchor points for easy identification.

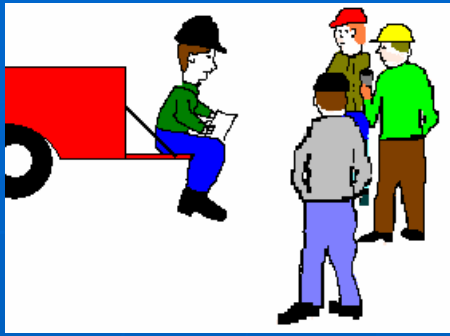


METAL/NONMETAL MINE FATALITY - On July 27, 2006, a miner was fatally injured using a weed trimmer to cut weeds near a power pole when he struck the guy wire for the pole. The blade severed the guy wire, causing it to contact the energized supply conductors on the pole mounted transformer and electrocuted him.

COAL MINE FATALITY - On May 4, 2006, a miner was fatally injured while clearing brush from the right-of-way of a 12,470 VAC transmission line. The miner touched a loose guy wire causing it to contact the energized supply conductors on the pole to which it was attached. There was no insulator, ground, or proper anchor at ground level preventing the guy wire from becoming energized.

Stakeholders Best

**SAFETY AND
HEALTH ARE
VALUES!**



Practices Tailgate Safety Meeting Series

"CHANGING SCREENS"

Aggregate mining requires screening to separate material into various sizes. The abrasiveness of the material results in extreme wear to these screens, which require frequent replacement and maintenance. Generally, replacing the screens requires miners to work in elevated, potentially precarious work areas.

Best Practices:

Task Hazard Analysis

- Plan
- Identify Safety & Health Hazards
- Communicate

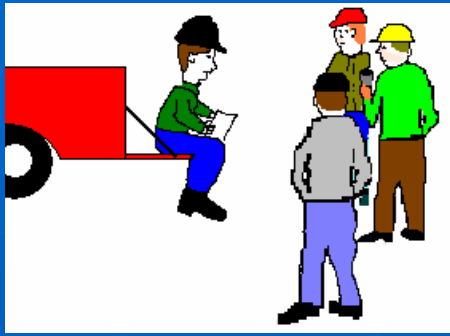
Use Proper Fall Protection Equipment

- Full body harness / double lanyard
- Approved ladders
- Certified man-lifts
- Cat walk or walkways
- Proper tie-offs
- Safe access to tie-offs
- Work platforms



Stakeholders Best

**SAFETY AND
HEALTH ARE
VALUES!**



Practices Tailgate Safety Meeting Series

"Mounting and Dismounting Equipment"

The mining industry uses various pieces of mobile equipment in their day to day operations. Safe access onto and off this equipment is essential. The failure of equipment operators to use three points of contact, while climbing onto these machines, has resulted in numerous injuries. Three points of contact is when a miner uses two hands and one foot or one hand and two feet. Safely accessing mobile equipment using this procedure is an important STEP in reducing injuries.

Best Practices:

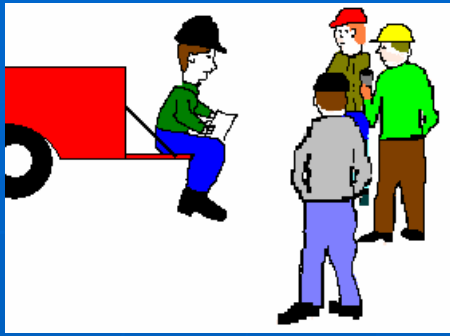
- Hands need to be free to make three points of contact.
- Footwear needs to be free of grease, oil, dirt, and have good traction.
- Handrails and steps need to be properly maintained and are:
 - Free from debris
 - Free of defects
 - Properly secured
- Visually inspect landing areas for trip or slip hazards.
- Face the equipment when mounting or dismounting.
- Utilize access provided by manufacturer.
- Landing areas need adequate illumination.
- Provide means to hoist materials (i.e., tools, lunch buckets, etc.)



Developed in cooperation with the following Quarry & Open Pit Group Members:
PCS Phosphate; Swift Creek Mine, White Springs, Florida; (Team Leader)
Quarries Inc.; Everlasting Pink; Elberton, Georgia;
Lafarge North America; Lithonia Plant, Lithonia, Georgia
Lafarge North America; Newton County Mine; Newton, Georgia

Stakeholders Best

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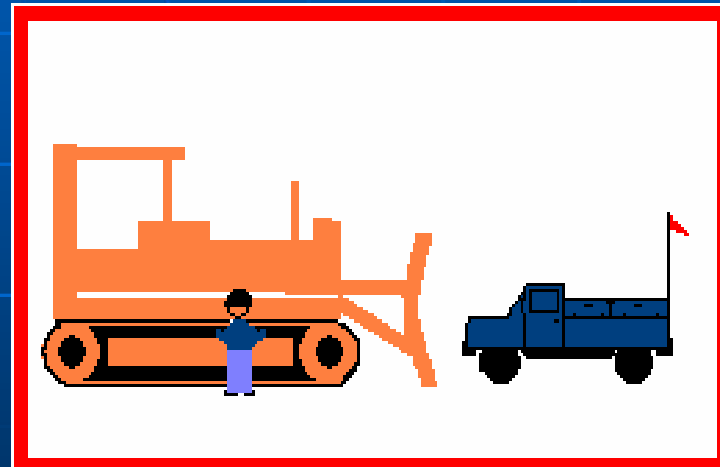
Practices Tailgate Safety Meeting Series

"Contractors Are Miners, Too"

Contractor safety is ultimately the responsibility of the mine operator. Whether the contractor is a overnight delivery truck driver, a contract maintenance worker, or a driller working on a highwall, it is the mine operator who needs to ensure that he is ready to fulfill the contract... safely.

Best Practices:

- Know your contractor(s).
- Verify that contractor has a training plan when required
- Ensure contractor understands minimum requirements of MSHA, State, and company rules, regulations, and policies
- Verify that all contractor employees have completed their new miner training, annual refresher, etc.
- Include contractors in weekly tailgate safety meetings.
- Provide adequate site specific training to contractors, tailored to the work they are to perform.
- Establish a direct contact person to interact with contractors



Developed in cooperation with:
5 R Constructors Quarry, 5R Constructors, LLC, Atlanta, Georgia (Team Leader)
Harper's Quarry, Harper's Quarry, Inc., Elberton, Georgia
Neill Georgia Pit, Boral Bricks Inc., Rome, Georgia
Macon Quarry, Rinker Materials Corporation, Macon, Georgia
Sandersville Technical College, Sandersville, Georgia (State's Grant)

