

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
Metal and Nonmetal Mine Safety and Health

REPORT OF INVESTIGATION

Surface Metal Mine  
(Copper)

Powered Haulage Accident  
June 20, 2010

Ray  
Asarco LLC  
Mine I.D. No. 02-00150  
Ray, Pinal County, Arizona

Investigators

David J. Small  
Mine Safety and Health Inspector

Patrick E. Retzer  
Electrical Engineer

Hilario S. Palacios  
Mine Safety and Health Specialist

Originating Office  
Mine Safety and Health Administration  
Rocky Mountain District  
P.O. Box 25367 DFC  
Denver, CO 80225-0367  
Richard Laufenberg, District Manager

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## **OVERVIEW**

Thomas E. Benavidez, mechanic, age 52, died on June 20, 2010, when the 1/2-ton pickup truck he was operating was struck by a 240-ton haul truck. The pickup truck had parked in front of the haul truck just prior to the accident. William Hyde, mechanic, a passenger in the pickup truck, was seriously injured in the accident.

The accident occurred because management policies, procedures, and controls were inadequate and failed to ensure that persons could safely park small vehicles near larger haul trucks. On June 14, 2010, large haul truck tires were placed in the parking area to demarcate parking spaces for mobile equipment that would then be parked between the large tires. This project was completed on June 16, 2010, four days prior to the accident.

With this configuration, the smaller vehicles could not park beside the larger haul trucks as before. Management did not establish new procedures and policies designating specific non-blind parking areas for smaller vehicles or require radio communications between the drivers of small vehicles and the haul truck operators.

## **GENERAL INFORMATION**

Ray, an open pit copper mine, owned and operated by Asarco LLC, was located in Ray, Pinal County, Arizona. The principal operating official was Steven Holmes, general manager. The mine operated multiple shifts, 24 hours a day, 7 days a week. Total employment was 800 persons.

Copper ore was drilled and blasted in the open pit and transported by haul truck to a primary crusher. Crushed ore was transported to the mill by belt conveyor. The ore was then milled, concentrated, and smelted into copper plates. The finished product was sold to commercial industries.

The last regular inspection of this operation was completed on May 6, 2010.

## **DESCRIPTION OF ACCIDENT**

On the day of the accident, Thomas Benavidez (victim) and William Hyde started work at 7:00 a.m., their normal starting time. Alex Tolman, shop supervisor, assigned them to work on a haul truck. Benavidez and Hyde went to the shop and began working on the truck. At 9:30 a.m., they determined that the truck needed to be test driven with a load of material to help them further diagnose a possible propulsion problem.

Hyde drove the haul truck to the south dike tie down area and parked it. Benavidez then picked up Hyde in a ½-ton pickup truck. They drove back to the shop to get a diagnostic laptop computer. The computer was needed to monitor the on-board systems of the haul truck during the test drive.

About 9:47 a.m., Tolman contacted the dispatch office to request that a truck driver meet Benavidez and Hyde at the south dike tie down area to test drive the haul truck they were repairing. Paul Madrid, truck driver, was contacted by the dispatch office and told to park the truck he was operating and then test drive the other haul truck by hauling a few loads of material. However, Madrid was not told that a mechanic would be riding along with him in the haul truck.

Madrid drove to the south dike tie down area where the haul truck that he was supposed to test drive was parked. About 10:04 a.m., Madrid turned the key for the haul truck to the "on" position. The on-board computer indicated that repairs were complete and the haul truck was released back into service. Madrid then conducted a pre-operational examination of the haul truck.

Benavidez and Hyde were unaware that the haul truck had been released back into service. About 10:10 a.m., they returned to the south dike tie down area, parking the pickup truck about 7 feet in front of the haul truck. Madrid did not see

them return. He sounded the truck's horn, moved the haul truck forward, and then struck and ran over the pickup truck.

Raymond Borquez, truck driver, witnessed the accident and immediately contacted Madrid on the radio and told him to stop. Borquez called for help on the radio and Emergency Medical Services were summoned. Several miners arrived and began administering First Aid. Benavidez was pronounced dead at the scene by the Pinal County medical examiner. The cause of death was blunt force trauma. Hyde was extricated from the truck, taken to a hospital for medical treatment, and eventually released.

## **INVESTIGATION OF THE ACCIDENT**

On the day of the accident, the Mine Safety and Health Administration (MSHA) was notified at 10:27 a.m., by a telephone call from Kristopher Tower, dispatcher, to MSHA's emergency hotline. Ronald Pennington, supervisory special investigator, was notified and an investigation was started the same day. An order was issued pursuant to Section 103(j) of the Mine Act to ensure the safety of the miners.

MSHA's investigation team traveled to the mine, conducted a physical inspection of the accident site, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management, employees, miners' representatives, and the State of Arizona Mine Inspector's Office.

## **DISCUSSION**

### **Location of the Accident**

The accident occurred in the tie down parking area of the south dike haul road. Four days prior to the accident, large haul truck tires were placed in the parking area to demarcate parking spaces for mobile equipment that would then be parked between the large tires.

### **Pickup Truck**

The pickup truck involved in the accident was a 2002 Chevrolet 1500 series standard cab truck. The pickup truck was completely destroyed in the accident and could not be inspected. However, investigators determined that it was equipped with an 8-foot vehicle indicator whip, commonly referred to as a buggy whip.

## **Haul Truck**

The haul truck involved in the accident was a 1994 Komatsu 830E rigid frame rear dump truck with a direct current electric-drive system. The truck was equipped with a Cummins QSK60 diesel engine. The horn provided on the truck was tested and found to be functional. However, further testing of the haul truck could not be conducted due to damage that occurred as a result of the accident.

## **Haul Truck Operator View Tests**

A test of the haul truck operator's view from the haul truck cab was conducted. An operator, approximately six feet tall, was placed in the cab of the haul truck and a person, approximately six foot tall, stood in front of the haul truck's front left corner. The operator could not see the person until he was standing 22.5 feet in front of the haul truck. At that distance, the haul truck operator could see the top half of the person's hardhat. The eye level for the haul truck operator, while seated in the cab of the haul truck, was approximately 17 feet and 1 inch from the ground.

For testing purpose, a pickup truck similar to the truck involved in the accident was parked approximately 7 feet in front of the haul truck. At this location, the haul truck operator's view of the 8-foot buggy whip was almost completely blocked by the hand rails and framework of the haul truck.

The 8-foot buggy whip on the pickup truck was then replaced with a 12-foot buggy whip. The haul truck operator could then see the orange flag on top of the 12-foot buggy whip.

## **Radio Communications**

Both the haul truck and the pickup truck were equipped with Motorola Radios, Model CDM1250. The haul truck radio was tested by communicating with a handheld radio. The pickup truck radio was recovered and bench tested by a technician. Both radios functioned properly in both transmit and receive mode. However, the radios were not tuned to the same channel. Investigators determined that no radio communication was established between the haul truck and the pickup truck.

## **Weather**

The weather at the time of the accident was clear with a temperature of 91 degrees Fahrenheit and calm winds. Weather was not considered to be a factor in the accident.

Investigators conducted a test, at the same approximate time of the accident, to determine if sunlight or glare may have impacted the haul truck operator's view.

They determined the direct sunlight or glare from the windshield would not have affected the haul truck operator's view.

### **Training and Experience**

Thomas Benavidez, victim, had eight years and three months of mining experience that included nine months at this mine as a mechanic. He had received training in accordance with 30 CFR Part 48.

William Hyde, mechanic, had four years and four months of mining experience that included four years and one month at this mine as a mechanic. He had received training in accordance with 30 CFR Part 48.

Paul Madrid, truck driver, had three years and two months of mining experience at this mine that included one year and three months operating a haul truck. He had received training in accordance with 30 CFR Part 48.

### **ROOT CAUSE ANALYSIS**

A root cause analysis was performed and the following root cause was identified:

*Root Cause:* Established traffic control policies and procedures were not being followed for travel in the pit area. Tires added to demarcate parking spaces prevented service and maintenance vehicles from parking next to the driver's side of any haul truck.

*Corrective Action:* Management established new procedures in the mine's "Self-Propelled Mobile Equipment Field Service & Repair Approach and Departure" policy designating specific non-blind areas for service and maintenance vehicles to park. Procedures were established requiring service and maintenance vehicles to be parked next to the driver's side of a haul truck.

The procedures also require persons traveling in service and maintenance trucks in the pit area to monitor a specific radio channel. These persons must make contact with the haul truck operator or the dispatcher prior to pulling up to a truck that is in use. Persons must also yield the right-of-way to haul trucks. The 8-foot buggy whips on service and maintenance trucks were replaced with 12-foot buggy whips with orange mesh flags mounted at the top. All miners were trained regarding these new policies and procedures.



## CONCLUSION

The accident occurred because management policies, procedures, and controls were inadequate and failed to ensure that persons could safely park small vehicles near larger haul trucks. On June 14, 2010, large haul truck tires were placed in the parking area to demarcate parking spaces for mobile equipment that would then be parked between the large tires. This project was completed on June 16, 2010, four days prior to the accident.

With this configuration, the smaller vehicles could not park beside the larger haul trucks as before. Management did not establish new procedures and policies designating specific non-blind parking areas for smaller vehicles or require radio communications between the drivers of small vehicles and the haul truck operators.

## ENFORCEMENT ACTIONS

**Order No. 6586210** was issued on June 20, 2010, under the provisions of Section 103(j) of the Mine Act:

An accident occurred at this operation on June 20, 2010, at approximately 10:10 a.m. As rescue and recovery work is necessary, this order is being issued, under section 103(j) of the Federal Mine Safety and Health Act of 1977, to ensure the safety of all persons at this operation. This order is also being issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at the east end of the dike road tie down area and the south end of Poor Man haul road except to the extent necessary to rescue an individual or prevent or eliminate an imminent danger until MSHA has determined that it is safe to resume normal mining operations in this area. This order applies to all persons engaged in the rescue and recovery operation and any persons on-site. This order was initially issued orally to the mine operator at 11:10 a.m., and has been reduced to writing.

This order was subsequently modified to a Section 103(k) order and was terminated on June 28, 2010. Conditions that contributed to the accident no longer exist.

**Citation No. 6457766** was issued on July 15, 2010, under the provisions of Section 104(a) of the Mine Act for a violation of 56.9100(a):

A fatal accident occurred on June 20, 2010, when a mechanic operating a pickup truck was run over by a 240-ton haul truck. The victim had approached the haul truck from the right and parked in the blind spot of the haul truck. Rules governing traffic control for the safe movement of mobile equipment in the mine had been established, but not followed, in that the mechanic did not yield right-of-

way to the haul truck and communication with the haul truck driver had not been established.

This citation was terminated on July 15, 2010. The mine operator developed and implemented a new standard operating procedure for operating and parking vehicles near large haul trucks. All miners were trained regarding these new procedures.

Approved by,

Date: October 14, 2010

Richard Laufenberg  
District Manager

## **LIST OF APPENDICES**

Appendix A—Persons Participating in the Investigation

Appendix B—Victim Data Sheet

## APPENDIX A

### Persons Participating in the Investigation

#### Asarco LLC

Gerald Banky.....human resource manager  
Kim Bradshaw..... corporate safety director  
Michael Kovach.....general mine supervisor  
Wes Cruea.....senior safety engineer  
Steve Winkelmann.....mine supervisor  
Keith Kenyon.....maintenance supervisor  
Steven Holmes.....general mine manager

#### Patton Boggs LLP

Brian Hendrix.....attorney  
Donna Pryor.....attorney

#### State of Arizona Mine Inspector's Office

William Schifferns.....deputy mine inspector  
Jack Speer.....deputy mine inspector

#### Mine Safety and Health Administration

David J. Small.....mine safety and health inspector  
Patrick E. Retzer.....electrical engineer  
Hilario S. Palacios.....mine safety and health specialist

## APPENDIX B

**Accident Investigation Data - Victim Information**

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



Event Number:

Victim Information:

1. Name of Injured/Ill Employee: <i>Thomas E. Benavidez</i>		2. Sex <i>M</i>	3. Victim's Age <i>52</i>	4. Degree of Injury: <i>01 Fatal</i>	
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 06/20/2010 b. Time: 10:10</i>			6. Date and Time Started: <i>a. Date: 06/20/2010 b. Time: 8:00</i>		
7. Regular Job Title: <i>104 Mechanic</i>		8. Work Activity when Injured: <i>072 Driving a 1/2 ton pick up service truck</i>		9. Was this work activity part of regular job? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
10. Experience		b. Regular		c. This	
a. This	Years	Weeks	Days	Years	Weeks
Work Activity:	<i>0</i>	<i>36</i>	<i>0</i>	Job Title:	<i>0</i>
				Mine:	<i>3</i>
					<i>3</i>
					<i>0</i>
11. What Directly Inflicted Injury or Illness? <i>103 Struck by 240-ton haul truck</i>			12. Nature of Injury or Illness: <i>170 Crushing</i>		
13. Training Deficiencies:					
Hazard:		New/Newly-Employed Experienced Miner:		Annual: Task:	
14. Company of Employment: (If different from production operator) <i>Operator</i>					
Independent Contractor ID: (if applicable)					
15. On-site Emergency Medical Treatment:					
Not Applicable:		First-Aid:	CPR:	EMT: <input checked="" type="checkbox"/>	Medical Professional: None:
16. Part 50 Document Control Number: (form 7000-1)			17. Union Affiliation of Victim: <i>2605 United Steel Workers of America</i>		