

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
METAL AND NONMETAL MINE SAFETY AND HEALTH  
REPORT OF INVESTIGATION

Surface Metal Mine  
(Gold Ore)

Fatal Other Accident  
October 28, 2011

Purcell Tire & Rubber Co.  
Contractor ID No. (LMD)

at

South Area  
Newmont USA Limited  
Carlin, Eureka County, Nevada  
ID No. 26-00500

Investigators

Joel L. Dozier  
Mine Safety and Health Inspector

Roshan Gulati  
Mine Safety and Health Inspector

Dennis A. Beiter  
Mining Engineer

Robert Penigar  
Engineering Technician

Michael Valoski  
Industrial Hygienist

Joseph N. Rhoades  
Mine Safety and Health Specialist

Originating Office  
Mine Safety and Health Administration  
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Wyatt S. Andrews, District Manager

## Table of Contents

### OVERVIEW

GENERAL INFORMATION	Page # 1
DESCRIPTION OF THE ACCIDENT	Page # 1
INVESTIGATION OF THE ACCIDENT	Page # 2
DISCUSSION	Page # 2
ROOT CAUSE ANALYSIS	Page # 4
CONCLUSION	Page # 4
ENFORCEMENT ACTIONS	Page # 5
APPENDICES	
A.    Persons Participating in the Investigation	Page # 8
B.    Victim Data Sheet	Page # 9



## OVERVIEW

On October, 28, 2011, Joe M. Ashdown, contract Tire Repair Technician, age 21, was killed while repairing a haul truck tire in a tire repair shop. He was inside the large tire, completely out of view, repairing a damaged section in the tire's side wall. While applying glue to the interior area of the tire, he was overcome by trichloroethylene vapors.

The accident occurred due to mine and contract management's failure to provide adequate procedures and controls to protect persons working with toxic chemicals. Management failed to install proper engineering controls to control chemical vapors in the work area, provide appropriate respiratory protection, and conduct surveys verifying the adequacy of controls. Ashdown did not receive instruction in the safety and health aspects and safe work procedures of the task of repairing tires using trichloroethylene glue. He was assigned to perform this task alone, using a hazardous chemical inside a tire, where he was unable to communicate, be heard, or be seen by others after he was overcome by the vapors.

## GENERAL INFORMATION

South Area is a surface gold ore mine, owned and operated by Newmont USA Limited located in Carlin, Eureka County, Nevada. Wade Bristol, General Manager, Randall Squires, Regional Manager of Safety Relations, and Donald Neff, Senior Manager, Health Safety and Loss Prevention, Carlin Surface Operations are the principal operating officers. The mine operates two 12-hour shifts per day, seven days per week. Total employment is 1,126 persons.

Gold bearing ore is drilled, blasted, and loaded into haul trucks by electric shovels and front-end loaders. Trucks haul the ore to the milling operation for processing and refining. The finished products are sold to commercial industries.

Purcell Tire & Rubber Co., contractor tire company, is headquartered in Potosi, Washington County, Missouri. Robert G. Purcell, President, Matthew Johnson, Vice-President, Jay Tudor, Safety Manager, and James Lewis, Area Manager are the principal operating officers. Newmont USA Limited contracted with Purcell Tire & Rubber Co. to repair tires in a shop at the mine. Two persons worked split schedules, nine hours a day, six days per week.

The last regular inspection at this operation was completed on June 7, 2011.

## DESCRIPTION OF THE ACCIDENT

On the day of the accident, October 28, 2011, Joe M. Ashdown (victim,) reported at 8:18 a.m. for his normal 8:30 a.m. shift. Ashdown signed the logbook and went to the tire repair bay to complete the work assignment assigned the previous day by Shiloh McGaughey, Supervisor, Purcell Tire & Rubber Co.

On the day of the accident, Ashdown worked alone and unsupervised in the tire repair bay. Investigators could not determine his exact activities prior to the accident. Physical evidence indicates Ashdown removed the vulcanizing heating pads from a tire repaired the previous day and installed heating pads on another tire. While that tire vulcanized, he prepared the damaged area on the inside wall of a third tire for repair. Kenneth Barton, Tire Repair Technician, Newmont USA Limited, last saw Ashdown at approximately 5:00 p.m., taking a break outside the tire repair bay.

At approximately 5:50 p.m., Tim Plunkett, Tire Repair Technician, Newmont USA Limited, discovered Ashdown unresponsive, face down inside of the tire, and called for assistance. Following removal of Ashdown from his position in the tire, by persons who had been working in the adjacent shop, first responders administered Cardiopulmonary Resuscitation (CPR) and CPR continued by mine rescue personnel upon their arrival. Summit Air Ambulance arrived at 6:28 p.m. and administered resuscitative procedures with no response. Dr. Donald Crum pronounced the victim dead at 6:51 p.m. The Eureka County Coroner attributed the cause of death to acute exposure to trichloroethylene.

## INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified at 6:13 p.m. on October 28, 2011, by a telephone call from Donald Neff, Newmont USA Limited Surface Mine Manager to MSHA's emergency call center. The call center notified Randy Cardwell, Supervisory Mine Safety and Health Inspector, and an investigation began the same day. An order was issued pursuant to §103(j) of the Federal Mine Safety and Health Act of 1977 to ensure the safety of persons.

MSHA's accident investigation team traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine and contract management, mine employees, and the State of Nevada Department of Business and Industry, Division of Industrial Relations, Mine Safety and Training Section.

## DISCUSSION

### Location of the Accident

The accident occurred at the Newmont USA Limited, South Area contractor tire repair shop located inside the main gate. This shop repairs off-road mine equipment tires.

### Work Practices

Large off-road tires are removed from the equipment and wheel assembly. The tire being repaired is positioned on a steel stand holding the tire in an upright position.

Repairing a hole in the tire requires the tire repair technician to first roughen the surface of the inside and outside of the tire utilizing a rasp. The roughened area completely surrounds the hole and is tapered so the adhesive compound can create a proper seal. A patch is cut to fit the roughened area and adhesive is applied on the inside of the tire. This process again takes approximately three to five minutes. After about 30 to 40 minutes, the adhesive becomes tacky.

Adhesive is applied on the patch and a second coat of adhesive is applied inside the tire. Following an additional 30 to 40 minutes, the adhesive becomes tacky and a patch is applied inside the tire. The same procedure is followed to apply a patch to the outside of the tire. The tire is vulcanized by applying heat and pressure, utilizing moveable heating pads and clamps.

At the time of the accident, the two contract tire repair technicians worked split schedules. One technician works Monday through Thursday and the other works Wednesday through Saturday. They work together on Wednesday and Thursday. The accident occurred on a Friday when only one person was working.

## **Tire and Glue Involved in the Accident**

The tire involved in the accident was a Bridgestone VRDP 46/90R57 off road tire. The tire's outside dimensions are approximately 11 feet 6 inches diameter, 57-inch rim diameter, and 46-inch tread width. The inside of the tire cavity is approximately 3 feet deep and 46 inches wide.

The adhesive glue applied is a Rema Tip Top Thermopress MTR solution. The ingredients, by chemical name, listed in the product's Material Safety Data Sheet (MSDS) are trichloroethylene (60-90 %) and carbon black (1-3 %).

## **Trichloroethylene**

Trichloroethylene, also known as ethylene trichloride, TCE, trichloroethene, and trilene, Chemical Abstracts Service (CAS) Registry Number 79-01-6, is a halogenated hydrocarbon used as a solvent. It is a colorless liquid with a chloroform-like odor that evaporates as the glue dries. TCE vapor is heavier than air. The product's MSDS states:

*This product may be harmful by inhalation. Overexposure can cause central nervous system depression with symptoms of headache, dizziness, stupor, loss of consciousness or death. Exposure to high concentrations can cause irregular heartbeat, cardiac arrest and death.*

## **Ventilation and Respiratory Protection**

No local ventilation was in use when the task was performed in the tire repair shop. General ventilation available included the main shop bay door and two exhaust fans. The main shop bay door was closed at the time of the accident. Only one exhaust fan, located approximately 25 feet above the floor, was functional. One freestanding circulation fan was available in the shop but was not in use at the time of the accident. The manufacturer's MSDS specifies local exhaust ventilation be used to maintain worker exposure below exposure limits.

Ashdown was not wearing a respirator when found. A half-mask filter respirator was found on a tool cart in the shop. Selection of appropriate respirator protection is based on several factors, including the hazard, the exposure to the hazard, and the miner's ability to wear a respirator. The half mask filter found is adequate for protecting miners from exposures up to 10 times the PEL, 1000 ppm for trichloroethylene. Exposures exceeding 10 times the PEL would require higher levels of protection, such as a supplied air respirator. Respiratory protection is only used as a supplement to properly installed feasible controls, when these controls do not reduce exposures below the PEL.

## **Weather Conditions**

On the day of the accident, the temperature varied between approximately 18 and 61 degrees Fahrenheit with wind speed less than 10 miles per hour and no precipitation. Weather was not considered to be a factor in this accident.

## Training and Experience

Joe M. Ashdown, victim, had 39 weeks and 4 days of mining experience with this contractor, all at this mine. A specialist from MSHA's Educational Field Services staff conducted an in-depth review of the mine operator's training records. The training records for the victim were examined and found to be in compliance with MSHA training requirements of 30 CFR Part 48, with the exception of Part 48.27(c); task training. Investigators, reviewing the training records, identified Ashdown did not receive instruction in the safety and health aspects and safe work procedures of the task of repairing tires using trichloroethylene glue.

## ROOT CAUSE ANALYSIS

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

*Root Cause:* Mine and contract management failed to establish procedures and controls to safely repair haul truck tires using glues containing trichloroethylene, a toxic chemical. Exposure to trichloroethylene was not controlled through ventilation or the use of appropriate respiratory protective equipment, surveys were not conducted to verify the adequacy of controls, proper task training was not provided to persons performing this work, and persons were assigned to perform this task alone.

*Corrective Action:* Mine and contract management established procedures and controls for persons to safely repair haul truck tires. Exposures to hazardous chemicals are controlled through local ventilation, surveys are conducted verifying the adequacy of controls, and task training is provided to persons assigned to perform this work. A policy implemented by management requires persons not to work alone while repairing tires.

## CONCLUSION

The accident occurred due to mine and contract management's failure to provide adequate procedures and controls to protect persons working with toxic chemicals. Management failed to install proper engineering controls to control chemical vapors in the work area, provide appropriate respiratory protection, and conduct surveys verifying the adequacy of controls. Ashdown did not receive instruction in the safety and health aspects and safe work procedures of the task of repairing tires using trichloroethylene glue. He was assigned to perform this task alone, using a hazardous chemical inside a tire, where he was unable to communicate, be heard, or be seen by others after he was overcome by the vapors.



## ENFORCMENT ACTIONS

### Issued to Newmont USA Limited

**Order No. 8608684** - Issued on October 28, 2011, under the provisions of § 103(j) of the Mine Act:

An accident occurred at this operation on Oct. 28, 2011, at approximately 5:45 p.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 assure 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 Contractor (Purcell Tire Company) Tire Shop and the personal vehicle parked in the parking lot, until MSHA has determined that it is safe to resume normal mining operations in these areas. This order applies to all persons engaged in the rescue and recovery operation and any other persons on site. This order was initially issued orally to the mine operator at 6:30 p.m. and has now been reduced to writing.

**Citation No. 8690527** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.5001a/.5005:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. Trichloroacetic acid and halocarbons, metabolites indicating exposure to trichloroethylene (TCE), were found in the victims blood, postmortem, indicating an exposure exceeding the permissible exposure limit of 100 parts per million (ppm) occurred. The victim was not wearing any form of respirator when found inside of the tire, and ventilation was not provided to adequately control this airborne contaminant. This violation is an unwarrantable failure to comply with a mandatory safety standard. Management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the hazardous chemical being used, yet failed to ensure the control of exposure by either prevention of contamination, removal by exhaust ventilation, dilution with uncontaminated air, or the use of appropriate respiratory protective equipment.

**Order No. 8690528** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.5002:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. The operator did not conduct surveys to verify adequacy of controls. Control measures specified by the Material Safety Data Sheet were not implemented and verified for adequacy in protecting miners. This violation is an unwarrantable failure to comply with a mandatory safety standard. Management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the chemical being used, yet failed to conduct surveys to determine the adequacy of control measures.

**Order No. 8690529** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.18020:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. The victim was assigned to perform this work task alone within the interior of the tire, where he was not able to communicate, be heard, or be seen by others until he was discovered unresponsive after being overcome by chemical vapors. This is an unwarrantable failure to comply with a mandatory safety standard. Management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the hazardous chemical being used, the confined nature of the work area, and the absence of others nearby to assist in the event of emergency, yet failed to comply with the standard by ensuring that there were other persons in the area to assist.

**Issued to Purcell Tire & Rubber Co.**

**Citation No. 8690523** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.5001a/.5005:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. Trichloroacetic acid and halocarbons, metabolites indicating exposure to trichloroethylene (TCE), were found in the victims blood, postmortem, indicating an exposure exceeding the permissible exposure limit of 100 parts per million (ppm) occurred. The victim was not wearing any form of respirator when found inside of the tire, and ventilation was not provided to adequately control this airborne contaminant. The contractor does not have a respiratory protection program meeting the requirements of ANSI Z88.2-1969. This violation is an unwarrantable failure to comply with a mandatory safety standard. Contract management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the hazardous chemical being used, yet failed to ensure the control of exposure by either prevention of contamination, removal by exhaust ventilation, dilution with uncontaminated air, or the use of appropriate respiratory protective equipment.

**Order No. 8690524** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 48.27(c):

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. This miner was not instructed in the safety and health aspects and safe work procedures of the task being performed. This violation is an unwarrantable failure to comply with a mandatory safety standard. Contract management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the task being performed, the hazardous chemical being used, and were in possession of the products MSDS, yet failed to ensure that the victim received proper task training in order to use the appropriate protective measures and equipment necessary to perform the work safely.

**Order No. 8690525** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.5002:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. The contractor did not conduct surveys to verify adequacy of controls. Control measures specified by the Material Safety Data Sheet were not implemented and verified for adequacy in protecting miners. This violation is an unwarrantable failure to comply with a mandatory safety standard. Contract

management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the chemical being used, yet failed to conduct surveys to determine the adequacy of control measures.

**Order No. 8690526** - Issued on March 8, 2012, under the provisions of § 104(d)(1) of the Mine Act for a violation of 30 CFR Part 56.18020:

A fatal accident occurred at this mine on October 28, 2011, when a contract tire repair technician was fatally overexposed to a hazardous chemical while repairing a haul truck tire. The victim was assigned to perform this work task alone within the interior of the tire, where he was not able to communicate, be heard, or be seen by others until he was discovered unresponsive after being overcome by chemical vapors. This is an unwarrantable failure to comply with a mandatory safety standard. Contract management engaged in aggravated conduct constituting more than ordinary negligence in that they were aware of the hazardous chemical being used, the confined nature of the work area, and the absence of others nearby to assist in the event of emergency, yet failed to comply with the standard by ensuring that there were other persons in the area to assist.

●  
Approved By:

Date

  
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Wyatt S. Andrews  
District Manager



## APPENDIX A

### Persons Participating in the Investigation

#### Newmont USA Limited

Randall Squires	Regional Manager of Safety Relations
Donald W. Neff	Senior Manager, Health Safety and Loss Prevention, Carlin Surface Operations
Shane Owen	HSLP Specialist Carlin Operations
Temby Lawrence	HSLP Surface Representative

#### Purcell Tire & Rubber Company

Matthew Johnson	Regional Director of Global Mining
Jay Tudor	Safety Manager of Global Mining

#### Eureka County Sheriff Department

Keith A. Logan	Sergeant
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#### State of Nevada Department of Business and Industry, Division of Industrial Relations, Mine Safety and Training Section

Patrick Crespin	Mine Inspector
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#### Mine Safety and Health Administration

Joel Dozier	Mine Safety and Health Inspector
Roshan Gulati	Mine Safety and Health Inspector
Gerald Killion	Mine Safety and Health Inspector
Joseph Rhoades	Mine Safety and Health Specialist
Dennis A. Beiter	Mining Engineer
Robert Penigar	Engineering Technician
Michael Valoski	Industrial Hygienist

## APPENDIX B

### Victim Data Sheet

**Accident Investigation Data - Victim Information**

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



Event Number: 

1	1	4	8	6	0	0
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<b>Victim Information: 1</b>																	
1. Name of Injured/Ill Employee: <i>Joe M. Ashdown</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>21</i>			4. Degree of Injury: <i>01 Fatal</i>								
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 10/28/2011 b. Time: 18:51</i>								6. Date and Time Started: <i>a. Date: 10/28/2011 b. Time: 8:18</i>									
7. Regular Job Title: <i>104 Tire Repair Technician</i>						8. Work Activity when Injured: <i>039 Repairing Haul Truck Tire</i>						9. Was this work activity part of regular job? <table style="width: 100%;"><tr><td style="text-align: center;">Yes</td><td style="text-align: center;"><input checked="" type="checkbox"/></td><td style="text-align: center;">No</td><td style="text-align: center;"><input type="checkbox"/></td></tr></table>		Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>														
10. Experience		Years		Weeks		Days		b. Regular		Years		Weeks		Days			
a. This								c. This						d. Total			
Work Activity:		<i>0</i>		<i>37</i>		<i>3</i>		Job Title:		<i>0</i>		<i>37</i>		<i>3</i>			
11. What Directly Inflicted Injury or Illness? <i>024 Trichloroethylene (TCE), CAS 79-01-6</i>								12. Nature of Injury or Illness: <i>110 Asphyxiation</i>									
13. Training Deficiencies																	
Hazard:				New/Newly-Employed Experienced Miner:				Annual:				Task:   <input checked="" type="checkbox"/>					
14. Company of Employment: (If different from production operator) <i>Purcell Tire &amp; Rubber Co.</i>										Independent Contractor ID: (if applicable) <i>LMD</i>							
15. On-site Emergency Medical Treatment																	
Not Applicable:		First-Aid:		CPR:   <input checked="" type="checkbox"/>		EMT:   <input checked="" type="checkbox"/>		Medical Professional:		None:							
16. Part 50 Document Control Number: (form 7000-1) <i>220113080019</i>								17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>									