

**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 Powered Haulage Accident
June 6, 2009**

**Newmont USA Limited
Genesis Mine
Carlin, Eureka County, Nevada
Mine ID No. 26-00062**

Investigators

**Ronald J. Jacobsen
Supervisory Mine Safety and Health Inspector**

**F. Terry Marshall
General Engineer**

**Originating Office
Mine Safety and Health Administration
Western District
2060 Peabody Road, Suite 610
Vacaville, California 95687
Arthur L. Ellis, District Manager**

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Accident Scene

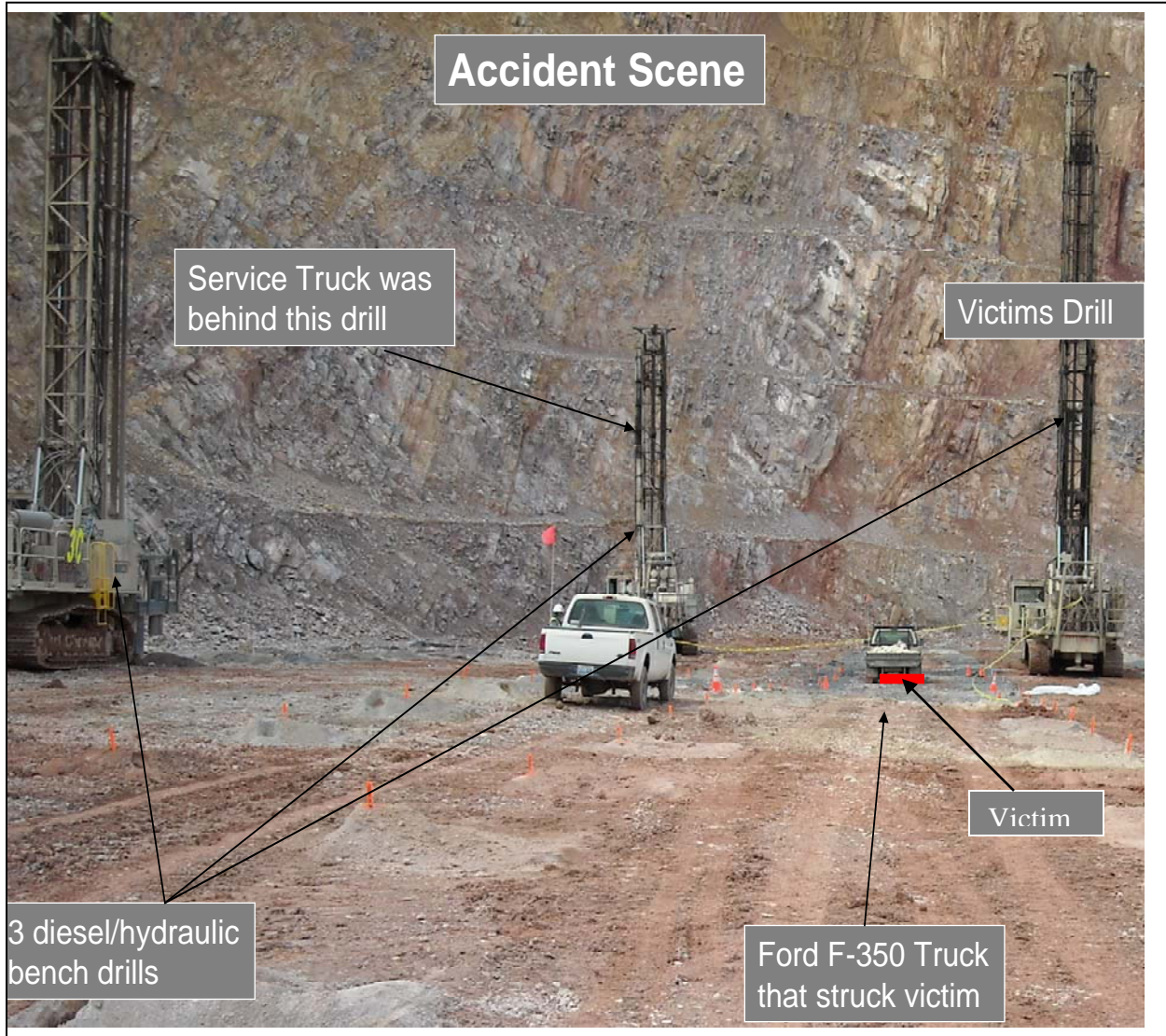
Service Truck was behind this drill

Victims Drill

3 diesel/hydraulic bench drills

Ford F-350 Truck that struck victim

Victim



OVERVIEW

Steven L. Halverson, Drill Operator, age 57, was fatally injured on June 6, 2009. Halverson was drilling in a pit, exited the drill, and walked in the drilling area when he was struck by a flatbed truck as it backed up. The truck was in the area to collect drill cutting sample bags.

The accident occurred because management policies and procedures failed to address the hazards associated with foot traffic in this work area. The direction of travel for mobile equipment traveling in this area was not specified. The truck involved had backed up approximately 124 feet prior to striking the victim. Additionally, the back-up alarm was not mounted on the flatbed truck at a location recommended by the manufacturer.

GENERAL INFORMATION

Genesis Mine, a surface metal gold operation, owned and operated by Newmont USA Limited, was located in Carlin, Eureka County, Nevada. The principal operating official was Jack Henris, Mine Manager. The mine operated two 12-hour shifts per day, seven days per week. Total employment was 273 persons.

Gold ore was drilled, blasted, and loaded into haul trucks by diesel/hydraulic shovels and front-end loaders. The ore was hauled to a milling operation to be processed. Finished products were sold to commercial industries.

The last regular inspection at this operation was completed on March 31, 2009.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, Steven L. Halverson (victim) reported for work at 7:00 a.m., his normal starting time. Prior to the start of the shift, Clifton Jackson, Mine Operations Foreman, gave the drillers their shift assignments. Halverson and two other drillers went to the Lantern Pit to start drilling.

About 12:00 p.m., Halverson finished drilling the 12th blast hole and started backing the drill into position to drill another hole. At this time, a sample crew was collecting drill cutting sample bags in the same area.

About 12:25 p.m., Halverson finished positioning the drill, exited the cab of the drill, and started walking across the drilling area. Nicholas Brunson, Sampler, was backing a flatbed truck to collect the filled sample bags. Brunson was slowly backing up as he looked out the driver's side mirror for drilled holes and for Candy Rowe and Richard Shine, Samplers. Rowe and Shine were standing about 80 feet behind Halverson's drill and about 36 feet to the left. They were waiting for Brunson to park the truck so they could load the sample bags.

When Rowe saw Halverson walking toward the path of the backing truck, she shouted to him and waved her hands. Halverson looked up at Rowe; at that time he was struck by the truck. Brunson saw Rowe's hand signals, stopped the truck and then pulled forward.

Shine called for Emergency Medical Services (EMS). EMS arrived and cardiopulmonary resuscitation (CPR) was administered but Halverson was non-responsive. The Eureka County sheriff pronounced the victim dead at the scene. Death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

On the day of the accident, the Mine Safety and Health Administration (MSHA) was notified at 12:55 p.m. by a telephone call from Chris Mabey, Regional Director of Safety, to James Fitch, Supervisory Mine Safety and Health Inspector. An investigation was started the same day. An order was issued under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners.

MSHA's accident investigation team traveled to the mine, made a physical inspection at the accident scene, interviewed employees, and reviewed conditions and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management, mine employees, and the state of Nevada Mine Safety and Training Section.

DISCUSSION

Location of the Accident

The accident occurred in the Lantern Pit on the 5700 level drill pattern. The pit was located about 1 ½ miles from the mine's main entrance gate. The drilling area was level with no standing water.

Truck

The flatbed truck involved in the accident was a four-wheel drive 2007 Ford F-350 XL Super Duty regular cab with a wheelbase of 141 inches. It was equipped with a 6.8 liter gasoline engine and an automatic transmission. The truck had a Gross Vehicle Weight (GVWR) Rating of 13,000 pounds. The GVWR of the truck at the time of the accident was approximately 10,480 pounds.

The flatbed truck was 9 feet long, 7 feet 8 inches wide, and had 7-inch high side and rear rails extending above the floor of the bed. The truck was transporting filled ore sample bags in the rear area of the bed. Several cardboard boxes were randomly placed in the front area of the bed.

Mirrors and Visibility

The truck had original equipment manufacturer (OEM) manual adjustment type mirrors mounted on the exterior of both right and left side doors and one center mounted on the interior face of the windshield. The door mirrors were a two-piece type with a flat mirror 8½ inches high x 7 inches wide in the top section and a convex mirror 1¾ inches high x 6½ inches wide in the bottom section. The interior mirror was a flat

mirror. All five mirrors were intact and had no visible cracks or significant defects in the mirror glass.

The passenger side window was reported to be in the full up position at the time of the accident. The window glass for the passenger side door had no visual cracks or significant defects.

The approximate visibility zones for the right side and right rear bed face areas of the truck are shown in Appendix D. The investigators determined that the victim had traveled within the viewing areas of both right side mirror sections while walking to the rear corner of the truck.

At the time of the accident, the position of the loaded materials on the truck itself did not significantly obstruct the operator's view through the rear view mirror mounted inside the cab. The truck had backed up at about 2-3mph for approximately 124 feet prior to striking the victim.

Brakes

The truck had a dual circuit hydraulic service brake system and a mechanical actuated parking brake system. The service brakes used hydraulic caliper disc brakes at all four wheels and the parking brake system used cable operated drum brakes at the rear wheels. The brake discs on the rear wheels also had a drum integral to the brake rotor structure. The service brakes were tested and no defects were found. Defects were found with the parking brake and a non-contributory citation was issued.

Transmission and Controls

The truck had a Ford Torque-Shift five speed automatic transmission with five forward gears and one reverse gear. The transmission selector had a typical column type automotive shifter with the shift pattern (from left to right) being P-R-N-D-3-2-1.

Tests conducted confirmed that the transmission's neutral start feature and the brake-shift interlock functioned adequately. The investigators determined that the truck could not have been started in reverse gear that could cause rearward movement. Additionally, the transmission could not have been shifted from the park to reverse gear with the truck running unless the operator applied the service brake pedal. Observations during tests also indicated that the transmission engaged without slipping or hesitation when the transmission selector was moved from park to reverse, reverse to any drive gear position, and from any drive gear position to reverse.

Back-up Alarm

The truck was equipped with a back-up alarm that operated off the transmission's reverse light switch circuit. The alarm was mounted in the rear bumper area, inboard of the bed's rear face plate. It was approximately 33 inches off the ground with the sound opening pointed toward the ground.

The back-up alarm sounded and both reverse lights illuminated when the transmission selector lever was placed in the reverse position with the engine running. The back-up alarm was an ECCO model 850 rated at a sound pressure level of 112 +/- 4 dBA at a distance of four feet with a nominal supply voltage of 12 to 36 Volts (DC) and operated in a frequency range of 1,000 - 1,500 Hertz.

The investigators conducted sound level measurements regarding the truck's back-up alarm and ambient noise levels. A Sound Level Meter (SLM) reading of the back-up alarm was taken with a Quest 200 dosimeter, using the weighted network, on June 8, 2009. The noise test was conducted with the truck's engine at idle and the automatic transmission in reverse. The SLM reading from the alarm was 113 dBA within two inches of the alarm. The alarm's SLM reading was 82 dBA at three feet behind the truck. The reading was 78.9 dBA three feet beside the rear dual tires.

On June 9, 2009, the back-up alarm was removed from its location under the truck bed and another SLM reading was taken with the same dosimeter. At two feet away, the noise level was 90 dBA. Another SLM reading was taken within two inches of the alarm and the reading was 113 dBA. According to the manufacturer's information, the alarm sound was approximately 20 dBA too low at two feet away.

The manufacturer's recommendations indicated that the back up alarm should be mounted approximately four feet above ground level in the area of the rear face of the bed with the sound opening facing the "target hazard area." An additional recommendation was that a spotter be provided to the driver when backing a vehicle in an environment where persons may not hear the back-up alarm.

Three drills were at the site of the accident. At the time of the accident, all of the drills were reported to be operating at high idle and one of the drills was drilling. The noise at the time of the accident was simulated by operating all the drills at high idle with one drilling and with the flatbed truck in reverse at the impact area. The level of noise was 86 dBA facing the rear of the truck where the victim was struck. At seven feet to the side of the truck and at the rear wheel well on the passenger side of the truck, the noise level was about 86 dBA. Investigators determined that the backup alarm was not audible above the surrounding noise levels during this simulation.

Weather

On the day of the accident, the sky was overcast and the temperature was 58 degrees Fahrenheit.

Training and Experience

Steven L. Halverson had 27 years of total mining experience. He had received training in accordance with 30 CFR Part 48.

Nicholas Brunson had 9 months of mining experience, all at this mine. He had received training in accordance with 30 CFR Part 48.

ROOT CAUSE ANALYSIS

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

Root Cause: Management's policies and procedures were inadequate and failed to ensure that persons could safely walk in the drilling area.

Corrective Action: Management implemented new policies and procedures for governing the direction of travel of mobile equipment in the drilling area. All persons working in the drilling area were trained regarding the procedures.

Root Cause: Management's policies failed to ensure the flatbed truck operating in the drilling area had a back-up alarm audible above the surrounding noise levels.

Corrective Action: Management implemented new policies and procedures to ensure back-up alarms were installed on mobile equipment in locations as recommended by the manufacturer to allow for the alarms to be audible above the surrounding noise levels.

CONCLUSION

The accident occurred because management policies and procedures failed to address the hazards associated with foot traffic in this work area. The direction of travel for mobile equipment traveling in this area was not specified. The truck involved had backed up approximately 124 feet prior to striking the victim. Additionally, the back-up alarm was not mounted on the flatbed truck at a location recommended by the manufacturer.

ENFORCEMENT ACTIONS

Order No. 6475612 was issued on June 6, 2009, under the provisions of Section 103(k) of the Mine Act:

A fatal accident occurred at this operation on June 6, 2009, when a driller was struck by a Ford F-350 Super Duty Flatbed Pickup Truck. This order is issued to assure the safety of all persons at this operation. It prohibits all activity at the Lantern 5700 Level Blast Site area until MSHA has determined it safe to resume normal mining operations in this area. The mine operator shall obtain approval from an Authorized Representative for all actions to recover and/or restore operations in the affected area.

This order was terminated on June 10, 2009. New Standard Operating Procedures (SOP) have been developed and implemented. A new back-up alarm has been installed according to the manufacturer's recommendations.

Citation No. 6475638 was issued on August 3, 2009, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.9100(a):

A fatal accident occurred at this operation on June 6, 2009. A driller exited the drill he was operating and was walking in the drill area when he was struck by a flatbed truck that was backing up. The truck was being used to collect drill cutting sample bags. Management had not provided rules governing the direction of movement of self-propelled mobile equipment in the drilling area to ensure the safety of pedestrians. Three different drills, a service crew, and sample crew were working in this area. The flatbed truck was backing up through a congested area for an extended distance.

This order was terminated on August 24, 2009. New Standard Operating Procedures (SOP) have been developed and implemented. A new back-up alarm has been installed according to the manufacturer's recommendations.

Citation No. 6475639 was issued on August 3, 2009, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.14132(a):

A fatal accident occurred at this operation on June 6, 2009. A driller exited the drill he was operating and was walking in the drill area when he was struck by a flatbed truck that was backing up. The truck's back-up alarm was not audible above the surrounding noise levels. Testing confirmed that the surrounding noise levels were considerably higher than the truck's backup alarm. Additionally, the backup alarm was not installed and used in accordance with the manufacturer's recommendations.

This citation was terminated on August 19, 2009, after the backup alarm was replaced and remounted according to the manufacturer's recommendation. An audio test was conducted of the alarm and the SLM reading was 110 dBA at 3 feet behind the truck.

Approved By:

Arthur L. Ellis
District Manager

Date

APPENDICES

- A. Persons Participating in the Investigation
- B. Victim Data
- C. Accident Scene Diagrams
- D. Pick-up Visibility Diagram

APPENDIX A

Persons Participating in the Investigation

Newmont USA Limited

Richard Tucker	Sr. Manager Compliance & Safety
Steve Garvin	Carlin Surface Compliance and Safety
Genalee Inchausti	Surface Safety Rep.

Eureka County Sheriff's Office

Kenneth E. Jones	Sheriff
W.F. Tilton Jr.	Under Sheriff

Mine Safety and Health Administration

Ronald J Jacobsen	Supervisory Mine Safety and Health Inspector
James Fitch	Supervisory Mine Safety and Health Inspector
F. Terry Marshall	General Engineer

Nevada Department of Business and Industry

Jerry Murphy	State Mine Inspector
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APPENDIX B

Victim Data

Accident Investigation Data - Victim Information

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

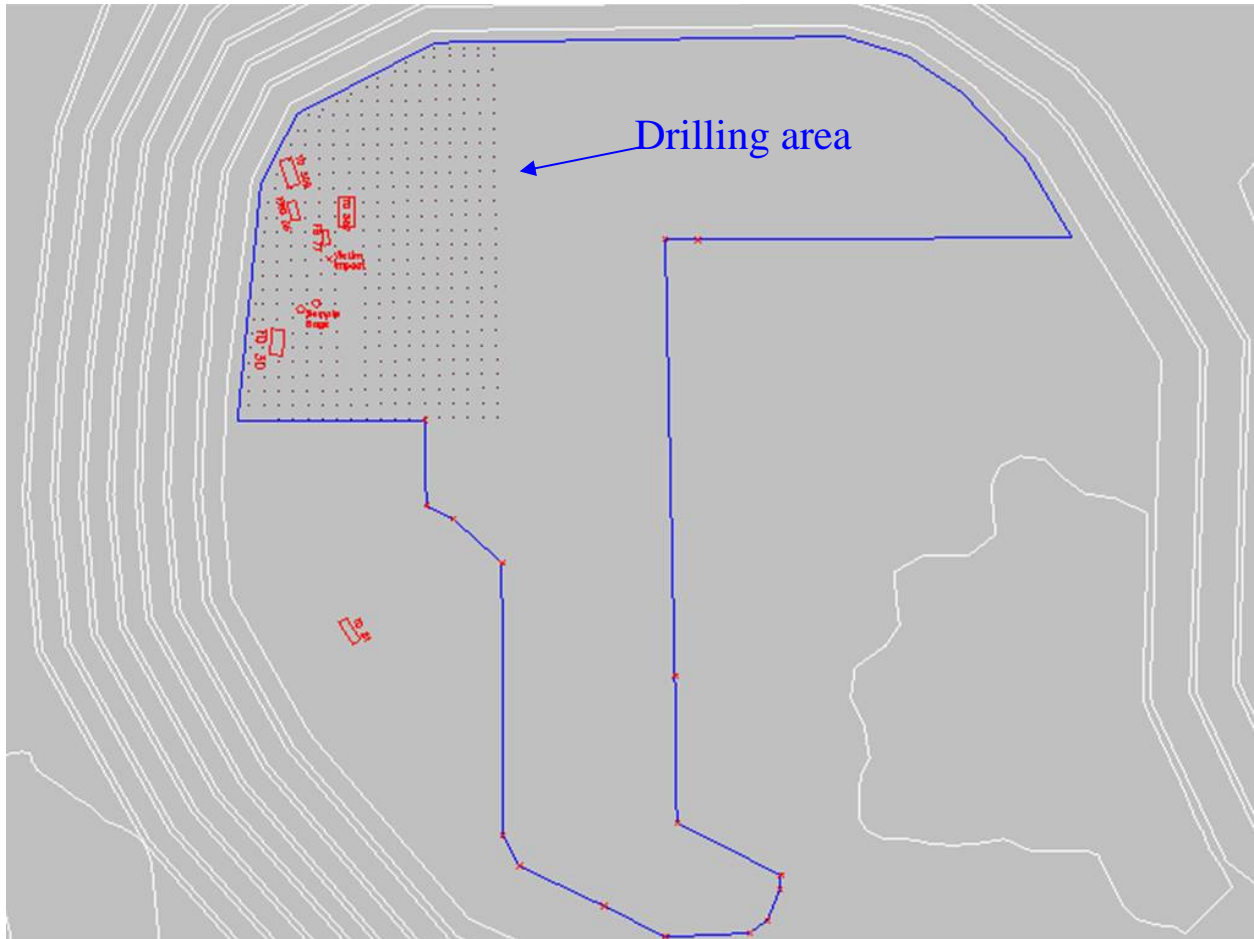


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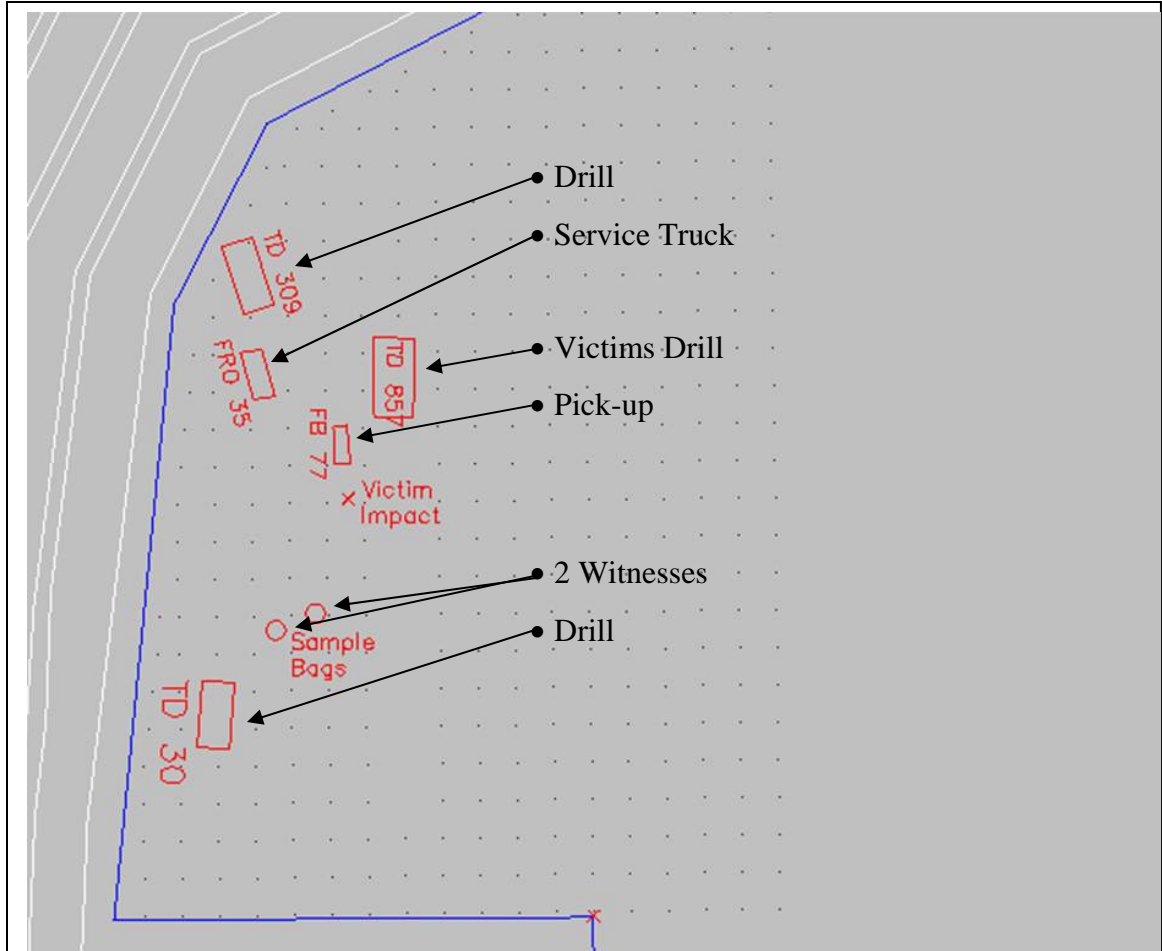
Victim Information: <input type="text" value="1"/>																															
1. Name of Injured/Ill Employee: <i>Steven L. Halverson</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>57</i>			4. Degree of Injury: <i>01 Fatal</i>																						
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 06/06/2009 b. Time: 12:24</i>										Date and Time Started: <i>a. Date: 06/06/2009 b. Time: 7:00</i>																					
7. Regular Job Title: <i>134 Drill Operator</i>						8. Work Activity when Injured: <i>098 Walking thru the Drill Pattern</i>						9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																			
10. Experience a. This		Years		Weeks		Days		b. Regular		Years		Weeks		Days		c. This		Years		Weeks		Days		d. Total		Years		Weeks		Days	
Work Activity:		<i>22</i>		<i>10</i>		<i>2</i>		Job Title:		<i>22</i>		<i>10</i>		<i>2</i>		Mine:		<i>22</i>		<i>10</i>		<i>2</i>		Mining:		<i>27</i>		<i>4</i>		<i>2</i>	
11. What Directly Inflicted Injury or Illness? <i>110 Ford Flatbed Truck</i>										12. Nature of Injury or Illness: <i>170 Crushing injury to the head</i>																					
13. Training Deficiencies Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>																															
14. Company of Employment: (If different from production operator) <i>Operator</i>																															
15. On-site Emergency Medical Treatment Not Applicable: <input type="checkbox"/> First-Aid: <input checked="" type="checkbox"/> CPR: <input checked="" type="checkbox"/> EMT: <input checked="" type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>																															
16. Part 50 Document Control Number: (form 7000-1)										17. Union Affiliation of Victim: <i>2501 Int Union Operating Engineers</i>																					

Appendix C

Top View of Accident Scene



Detailed View of Accident Scene



Appendix D

Mirrors and Visibility

