

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

REPORT OF INVESTIGATION

**Surface Nonmetal Mine
(Gypsum)**

**Fatal Powered Haulage Accident
May 1, 2014**

**Silver State Minerals LLC
Gypsum Mountain Mine
Lovelock, Pershing County, Nevada
Mine ID No. 26-02758**

Investigators

**Garrett Frey
Mine Safety and Health Inspector**

**Troy Van Wey
Health and Safety Specialist**

**John Homer
General Engineer**

**Jason Novakovich
General Engineer**

**Joe Rhodes
Mine Safety and Health Specialist (Training)**

**Originating Office
Mine Safety and Health Administration
Western District
991 Nut Tree Road
Vacaville, CA 95687
Wyatt S Andrews, District Manager**



Photograph of the accident scene and road. The small object visible near the upper bench is the All-Terrain Vehicle the victim was operating.

OVERVIEW

On May 1, 2014, William M. Hill, President, age 57, was killed when the all-terrain vehicle (ATV) he was operating rolled over. Hill was using the ATV to transport warning signs for installation around the perimeter of the mine. Hill drove up an access roadway, traveling above and out of sight of the mine's actively drilled bench, where he encountered difficult terrain.

Tire marks indicate that Hill drove the ATV uphill when the vehicle's wheels started to spin and dig into the ground. Hill was unable to continue in the direction he had been going and attempted to turn around. When Hill backed up, he lost control of the ATV, rolling it side over side at least once before it came to rest. Hill was pinned beneath the front left fender and wheel.

The accident occurred due to management's failure to provide comprehensive task training prior to a person operating an ATV to ensure the operator could maintain control of the vehicle at all times. Hill did not have the experience to operate the ATV in difficult terrain and did not complete a training course as recommended by the manufacturer of the ATV.

Hill was operating the ATV in two-wheel drive (All Wheel Drive available) on a very steep roadway. He was operating the ATV in climbing and descending grades, attempting to turn on steep grade, and operating on loose terrain even though the ATV manufacturer expressly warns against operating an ATV under these conditions. A combination of these factors contributed to the ATV rolling over onto Hill. Additionally, Hill did not wear a helmet or other protective gear that may have protected him from injuries resulting from the accident.

GENERAL INFORMATION

Gypsum Mountain Mine, a surface gypsum operation owned and operated by Silver State Minerals LLC, is located about 5½ miles east of Lovelock, Pershing County, Nevada. The principal official was William M. Hill, President (victim). The mine operates one 8-hour shift, two days a week. Total employment is four persons.

The operator strips overburden using a bulldozer prior to a contractor drilling and blasting of target ores using a benching method. Agricultural grade gypsum is loaded into trucks and transported off site for mechanical sizing or a contracted portable crusher is brought on site. The low grade gypsum is sold at the mine.

The Gypsum Mountain Mine commenced operations on March 1, 2014. The Mine Safety and Health Administration (MSHA) had not inspected this operation prior to the accident.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, William M. Hill, (victim) arrived at the mine's shop in Reno, Nevada, about 11:00 a.m. to pick up signs that had been fabricated for the mine. The signs stated "Danger – Active Mine – Keep Out – Trespassers will be prosecuted." Hill then drove to the mine to install the signs throughout the mine property and along the mine's perimeter. He was going to use an ATV that he had borrowed from a mine employee to transport the signs. The ATV had been parked on a trailer at the mine's corporate office in Reno, Nevada, for several weeks prior to the accident.

Richard Porter, a contract driller working onsite, saw Hill struggling to unload the ATV from its trailer before Hill left to place the signs. When interviewed, Porter stated the signs were secured to one of the ATV's rear saddlebags. Porter also stated that Hill was not wearing a helmet or hardhat when he drove off on the ATV. Porter did not see Hill again until after the accident occurred.

Porter worked the remainder of his shift without incident. At 4:15 p.m., Porter was securing his equipment and preparing to leave the mine when he looked up and discovered the ATV overturned above the drill pad where he had been working. Porter went to investigate and found Hill pinned beneath the ATV. After assessing the scene, Porter called the Pershing County Sheriff's Office. Sergeant Jerry Allen of the Sheriff's Office arrived and pronounced Hill dead at 5:15 p.m. The victim was transported to the Washoe County Medical Examiner's Office. The cause of death was attributed to blunt neck trauma and compressive asphyxiation.

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 5:40 p.m. on May 1, 2014, by a telephone call from the Pershing County Sheriff's Office to MSHA's National Call Center. The Call Center then notified Gary Hebel, Supervisory Mine Safety and Health Inspector, Elko Field Office and an investigation was started the same day. An order was issued under the provisions of 103(j) of the Mine Act to ensure the safety of the miners. This order was later modified to 103(k) of the Mine Act the following day when the operator met an Authorized Representative at the mine.

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 management and employees, the Pershing County Sheriff's Department and the State of Nevada Mine Safety and Training Section.

DISCUSSION

Location of the Accident

The accident occurred at the end of the roadway access above the mine's active drill pad and southeast from the mine's staging area. The roadway begins at the mine's staging area and slopes uphill as it heads south. The roadway continues uphill to the left in a sweeping arc until facing roughly north, providing access down to an active drill pad and up to the bench area above. The roadway is approximately 650 feet long with grades measured between 13 and 18 degrees. On the day of the accident, the roadway surface was dry and consisted of loose rocky granular overburden material. Berms were not in place on the roadway though small windrows, from the bulldozer used to build the roadway, were noted along its perimeter. A non-contributory citation was issued for not adequately berming the roadway.

The ATV traveled the roadway to the area above the drill pad where Hill lost control of the vehicle. The ATV rolled over downslope and was found at rest on its left side 44 feet down the roadway from where the victim attempted to turn around the ATV and 10 feet downslope from the edge of the roadway.

Equipment Involved in the Accident

The vehicle involved in the accident is a 2007 Polaris Sportsman 500 EFI All-Terrain Vehicle (ATV) with a gasoline engine and an automatic transmission. The investigators examined the ATV and checked all of the vehicle's components. The ATV was found with a completely discharged battery and minor body damage, but otherwise in operational condition. Investigators observed body damage in the form of scratches on the vehicle sides, slight cracking on the front plastic body panel near the fasteners, and minor rim damage at the outer edges.

Wheels / Tires

- Polaris Xtreme Tire PXT by Carlisle, see **Table 1**
- Installed directionally correct
- No loose or missing lug nuts
- Observed free rotation
- Maximum tire pressure, as labeled on tire: 7 psi
- Specified tire pressure, per 2007 Polaris Owner's Manual: 5 psi
- Specified tread depth, per 2007 Polaris Owner's Manual: > 1/8-inch
- Rock compacted between tire and rim; slight damage at rim edges.

Table 1: Tire Data

Tire	Size - installed (recommended)	Date Code	Pressure (psi)	Tread Depth (inches)
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Left Front	AT 26 x 8 R12 (26 x 8 - 12)	C42806	6	5/8
Right Front	AT 26 x 8 R12 (26 x 8 - 12)	C42806	6	5/8
Left Rear	AT 26 x 11 R12 (26 x 11 - 12)	C42806	4	1/2
Right Rear	AT 26 x 11 R12 (26 x 11 - 12)	C42806	7	1/2

Brake System

- The ATV is equipped with dual front and single rear hydraulic disc brakes that are simultaneously applied by pulling a single brake lever located on the left handlebar.
- A parking brake lock, integral to the brake lever assembly, holds the brake lever in a depressed position for a parking brake.
- An auxiliary foot brake, located on the inside of the right-side footrest, controls only the rear hydraulic disc brake. This is intended as a backup to the main brake system and used if the main brake system fails.
- Checked and verified functionality of brake lever. Normal function with firm resistance, no bottoming.
- Checked brake lever reservoir. Verified sufficient brake fluid level through site glass.
- Checked parking brake. Provided adequate brake holding force.
- Checked and verified functionality of auxiliary brake. Normal function with firm resistance, no bottoming.
- Rotors visually checked and appeared normal with slight wear.
- Measured pad thickness: All > 3/32-inch.
- Specified minimum pad thickness: > 3/64-inch recommended.
- Adam Ferran, Repair / Maintenance Foreman, performed an operational check of the brake lever and auxiliary brake systems, while riding it. The investigators observed normal function with sufficient stopping ability.

Suspension

- Front Suspension (non-adjustable). Verified functionality and performed visual inspection. No leaking or fractured components, normal stiffness, and damping.
- Rear Suspension (adjustable–softest ride setting). Verified functionality and performed visual inspection. No leaking or fractured components. Observed normal stiffness and damping.
- Rear stabilizer bar linkage bushings. Slight surface stress cracking, functionally intact, no noted looseness.

Steering

- Verified functionality and performed visual inspection. No noted looseness; free operation through full range, lock-to-lock.
- Equivalent total toe alignment, as described in the owner’s manual, was calculated from parallel distances measured at two sets of points located at the front leading and

rear trailing edge of the front tire centerlines. The four measurement points were located within a horizontal plan passing through the front wheel hub centers. The front and rear points were separated by a distance of 24 inches along the horizontal diametric line of each front tire. The parallel distances were measured at 39½ inches between the front and 40¼ inches between the rear locations. Equivalent total toe alignment, for comparison with specifications in the owner's manual, was determined to be approximately ⅜-inch toe in.

- Recommended total toe alignment, per 2007 Polaris Owner's Manual: ⅛-inch to ¼-inch toe out.

Frame – Nuts / Bolts / Fasteners

- No noted damaged, loose, or missing fasteners.

Fuel and Oil

- Fuel indicator reading between ½-full and empty. Fuel level measured at 2½ inches from the bottom of fuel tank; tank depth is 6 inches from the bottom of fuel tank to the bottom of the fill neck.
- Oil low at “add” indicator position. Result of oil drained through intake while overturned; confirmed by presence of engine oil in air filter box.

Coolant System

- Coolant reservoir approximately was half-way between MAX and MIN level indicators, measured cold. No noted leaks.

Indicator Lights / Switches

- Performed a visual check of indicator lights; observed normal operation.
- Performed a functional check of all switches; verified normal operation.

Battery

- Found completely discharged; result of the main switch left in the “on” position with the engine off over an extended period of time after the accident occurred.
- The battery was replaced prior to functional assessment of the ATV.

Throttle

- Observed normal operation of throttle mechanism; found in fully returned or idle position.

Engine

- Model EH500PLE, 499 cubic centimeter, gasoline engine
- Verified normal operation; found in “Run” position
- Air Filter in clean condition. Engine oil was found in air filter box; result of oil drained through intake while overturned.

Headlamp / Brake Light / Tail lamp

- All lights were functional and visibly adequate; headlamp was found in “LO” position.

Transmission Gear Selector

- Observed normal and smooth operation; gear selector found in reverse position.

Key / Main Switch

- Observed normal and smooth operation; found with key # 2233 in ON position.

AWD (All Wheel Drive) Selector Switch

- Observed normal and smooth operation; found in “2X4” position.

Reverse Override

The ATV is equipped with a reverse speed limiter system. Pressing the “SPEEDO / REVERSE OVERRIDE” switch, located on the left handlebar, provides additional power while backing. The “SPEEDO / REVERSE OVERRIDE” switch also allows activation of AWD in reverse, if the AWD switch is on, and is also used to toggle through the modes of the rider information center. The 2007 Polaris Owner’s Manual states that “activating the override switch while the throttle is open can cause loss of control, resulting in severe injury or death.” The manual specifically states “do not activate the override switch while the throttle is open.” It further warns that “pushing reverse override button may cause sudden increases in power and traction if too much throttle is applied. Loss of control or forward flip-over may result, especially in AWD.” The investigators were unable to determine if the “SPEEDO / REVERSE OVERRIDE” was engaged when the accident occurred because the switch design returns the switch to a neutral position after it is pushed.

The main vehicle systems including wheel/tire, brake, suspension, steering, drivetrain, and controls were given a thorough visual and functional inspection. The condition of the ATV was determined to be substantially in conformance with manufacturer specifications with the exception of steering toe alignment and tire pressures. No single (or combination of) vehicle-related physical factors appears to have directly caused the rollover accident.

Tracks uphill of the accident indicate travel horizontal to the slope and multiple places where the ATV stalled and dug down into loose material in what appears to be an attempt to turn around. The ATV was found to be in two-wheel drive (all-wheel drive available) and in reverse upon recovery. Damage and transference of ground material to the ATV is consistent with a side to side rollover with at least one complete rotation.

Weather

The weather on the day of the accident was clear and sunny. Weather was not considered to be a contributing factor in the accident.

TRAINING AND EXPERIENCE

William Hill (victim) had only 7 weeks of experience, all working at this mine. A representative of MSHA's Educational Field Services staff conducted an in-depth review

of the mine operator's training records. The training records for Hill were reviewed and found not to be in compliance with MSHA training requirements. The mine operator did not submit a training plan to be approved by the District Manager. However, Hill had received Part 48 new miner training under a cooperative trainers plan. He had not received any hazard or new task training. Hill did not have the experience to operate the ATV in difficult terrain and did not complete a training course as recommended by the manufacturer of the ATV.

ROOT CAUSE ANALYSIS

The investigators conducted a root cause analysis of this accident and identified the following root cause and corresponding corrective action to prevent a recurrence of the accident:

Root Cause: Management failed to ensure that the victim, who did not have the experience to operate the ATV in difficult terrain, was provided task training to safely operate the ATV.

Corrective Action: The mine operator submitted a Part 48 training plan that was approved by the District Manager on May 13, 2014. All persons performing work at the mine were provided all required training in accordance with the approved plan. A record of all persons trained was submitted for review to MSHA.

CONCLUSION

The accident occurred due to the management's failure to provide comprehensive task training. Hill did not have the experience to operate the ATV in difficult terrain and did not complete a training course as recommended by the manufacturer of the ATV.

Hill was operating the ATV in two-wheel drive (All Wheel Drive available) on a very steep roadway. He was operating the ATV in climbing and descending grades, attempting to turn on steep grade, and operating on loose terrain even though the ATV manufacturer expressly warns against operating an ATV under these conditions. A combination of these factors contributed to the ATV rolling over onto Hill. Additionally, Hill did not wear a helmet or other protective gear that may have protected him from injuries resulting from the accident.

ENFORCEMENT ACTIONS

Issued to Silver State Minerals LLC

Order No. 8789012 - Issued under the provisions of section 103(j) of the Mine Act. An Authorized Representative modified this order to section 103(k) of the Mine Act upon arrival at the mine site:

An accident occurred at this operation on 5/1/2014 at approximately 5 PM. This order is being issued, under Section 103(j) of the Federal Mine Safety and Health Act of 1977, to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at Gypsum Mine site until MSHA has determined that it is safe to resume normal mining operations in this area. This order was initially issued orally to the mine operator a 6:15 PM and has now been reduced to writing.

This order was terminated after conditions that contributed to the accident no longer existed.

Citation No. 8782502 - Issued under provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 48.27:

A fatal accident occurred on May 1, 2014, when the all-terrain vehicle being operated by the Co-owner/President of the mine over turned and landed on top of him. The victim did not have comprehensive task training prior to operating the vehicle. The vehicle was new to the site. Mine management engaged in aggravated conduct constituting more than ordinary negligence by continuing mining related activities after being made aware of training deficiencies by their cooperative trainer. The victim was not experienced at operating the vehicle. This violation is an unwarrantable failure to comply with a mandatory standard.

Citation No. 8782503 - Issued under provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.9101:

A fatal accident occurred on May 1, 2014, when the all-terrain vehicle being operated by the Co-owner/President of the mine over turned and landed on top of him. The victim failed to maintain control of the all-terrain vehicle while turning and backing up on a steep roadway above the southeast drill pad.

Citation No. 8782504 - Issued under provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.15006:

A fatal accident occurred on May 1, 2014, when the all-terrain vehicle being operated by the Co-owner/President of the mine over turned and landed on top of him. The victim was not wearing a helmet or other protective equipment that may have protected him from injuries resulting from an accident while operating the all-terrain vehicle.

Approved: Wyatt Andrews
Wyatt Andrews
District Manager

Date: 9/2/14

APPENDIX A

Persons Participating in the Investigation

Silver State Minerals LLC

Paul Gianoli	Secretary/Treasurer
Eric Panelli	Accountant
Adam Ferran	Mechanic

Wesco

Richard Porter	Drill Operator
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Ron Applegate Safety Training

Ron Applegate	Cooperative Trainer
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Mine Safety and Health Administration

Garrett Frey	Mine Safety and Health Inspector
Charles Snare	Mine Safety and Health Inspector
William Whitby	Mine Safety and Health Inspector
Troy Van Wey	Mine Safety and Health Specialist
Joe Rhoades	Mine Safety and Health Specialist (Training)
John Homer	General Engineer
Jason Novakovich	General Engineer

State of Nevada Mine Safety and Training Section

Ben Viljoen	Mine Inspector
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Pershing County Sheriff's Office

Sgt. Jerry Allen	Deputy/County Coroner
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APPENDIX B

Accident Investigation Data - Victim Information

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



Event Number:

6	5	9	7	6	1	8
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Victim Information: 1											
1. Name of Injured/All Employee: <i>William M. Hill</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/YYYY) and Time(24 Hr.) Of Death: a. Date: <i>05/01/2014</i> b. Time: <i>20:50</i>						6. Date and Time Started: a. Date: <i>05/01/2014</i> b. Time: <i>10:30</i>					
7. Regular Job Title: <i>149 President</i>				8. Work Activity when Injured: <i>072 Operating all-terrain vehicle</i>				9. Was this work activity part of regular job? Yes No <input checked="" type="checkbox"/>			
10. Experience											
a. This			b. Regular			c. This			d. Total		
Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days	Years	Weeks	Days
<i>0</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>7</i>	<i>0</i>	<i>0</i>	<i>7</i>	<i>0</i>	<i>0</i>	<i>7</i>	<i>0</i>
11. What Directly Inflicted Injury or Illness? <i>110 All-terrain vehicle</i>						12. Nature of Injury or Illness: <i>370 Blunt Neck Trauma/Compressive Asphyxia</i>					
13. Training Deficiencies:											
Hazard: <input checked="" type="checkbox"/>		New/Newly Employed		Experienced Miner:		Annual:		Task: <input checked="" type="checkbox"/>			
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: <input type="checkbox"/>		First-Aid: <input type="checkbox"/>		CPR: <input type="checkbox"/>		BMT: <input type="checkbox"/>		Medical Professional: <input type="checkbox"/>		None: <input checked="" type="checkbox"/>	
16. Part 50 Document Control Number: (form 7000-1) <i>220141360004</i> 17. Union Affiliation of Victim: <i>9999</i> <i>None (No Union Affiliation)</i>											