FAI-6875415-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Underground
(Gold)

Fatal Powered Haulage Accident
February 14, 2022

Cortez District-Underground
Nevada Gold Mines, LLC
Crescent Valley, Lander County, Nevada
ID No. 26-02573

Accident Investigator

Benjamin Burns
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Vacaville District
991 Nut Tree Road
Vacaville, CA 95687
Gary Hebel, District Manager

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OVERVIEW

On February 14, 2022, at 8:48 p.m., Marissa Hill, a 34 year-old maintenance technician with ten years of mining experience, was fatally injured when the lube truck she was driving went over the edge of an open stope. The lube truck fell approximately 60 feet to a lower level and came to rest on its cab.

The accident occurred because the mine operator did not: 1) place a berm in front of the open stope, 2) conduct adequate workplace examinations, and 3) maintain the backup camera on the Getman A64 Lube/Fuel truck.

GENERAL INFORMATION

Nevada Gold Mines, LLC owns and operates the Cortez District-Underground mine. This mine is an underground multi-level gold mine located near Crescent Valley, Lander County, Nevada. Cortez District-Underground employs 302 miners and operates two 12-hour shifts, seven days per week. The miners' work schedule alternates between two weeks working the day shift and two weeks working the night shift. Miners drill and blast gold-bearing ore inside stopes (open underground spaces that result from the extraction of the ore) and transport the ore to the surface

with haul trucks and belt conveyors. Miners use haul trucks to transport the ore to a nearby processing facility where it is processed into 100-pound gold bars.

The principal management officials at Cortez District-Underground at the time of the accident were:

Michael Gill	Operations Superintendent
Collin Rogers	Health and Safety Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on November 29, 2021. The 2021 non-fatal days lost incident rate for Cortez District-Underground was 0.29, compared to the national average of 1.31 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On February 14, 2022, at 7:00 p.m., Hill began her shift by attending a pre-shift meeting. Gary Knobbe, Supervisor, assigned her to operate a Getman A64 Lube/Fuel truck (lube truck) to lubricate and refuel mobile equipment in the underground mine. At 7:30 p.m., Hill conducted a pre-operational inspection of the lube truck in the surface shop. Afterwards, Hill drove the lube truck underground.

Based on data/information from the mine's electronic tracking system, Hill drove the lube truck into the West decline of the mine at 8:05 p.m. and stopped at a maintenance bay where miners perform preventative maintenance on their mobile equipment or gather supplies. Hill left the preventative maintenance bay at 8:23 p.m., stopped at the LA4010 level until 8:30 p.m., and arrived on the LA4070 level at 8:47 p.m. Hill traveled around the East side of the 430 stope facing West. Hill was in the process of backing into the crosscut when the machine over-traveled the edge of the open 430 stope on the LA4070 level and came to rest on the LA 4010 level. The last location of the lube truck shown in the tracking system data was on the LA4010 level at 8:51 p.m., where the lube truck came to rest.

The investigator learned from interviews that, at approximately 11:45 p.m., Bradley Stocks, Material Handling Supervisor, and Christopher Foote, Lead Miner, were driving on the LA4070 level when they noticed the barrier chains at the 430 stope were down. Stocks and Foote stopped and saw that the chains were no longer attached to the hanger plates on the right rib, and it appeared to them that a vehicle had fallen off in the area. Foote looked over the edge of the stope and saw the tires and bottom of the lube truck facing upward. Stocks and Foote drove to the bottom of the stope on the LA4010 level and looked behind the air curtain and saw that the lube truck was inverted. Stocks and Foote did not approach the lube truck because it was in an area of unsupported ground. Stocks and Foote called to Hill repeatedly but did not receive a response. Stocks and Foote made the decision to activate a safety standdown, which compelled all miners to gather outside to determine if anyone was missing. On February 15, 2022, at 1:15 a.m., the standdown ended when the mine operator found Hill's personal tag was the only one left on the tag board of the check-in and check-out system. After ending the standdown, the mine operator performed reconnaissance using drones, due to the unsupported ground.

After determining that this was a recovery operation, the company began formulating a plan at 8:20 a.m. to have rescuers safely retrieve the lube truck from under unsupported ground. The mine operator set up an incident command center and selected rescuers, equipment operators, and tools during the plan approval process. After the plan was reviewed by MSHA, the plan was implemented at 1:35 p.m. A load haul dump (LHD) loader cleared material away from the lube truck. Another LHD loader with a push plate telescoping attachment, also known as a Jammer stinger, was used to deploy rigging to and recover the vehicle. At 5:43 p.m. on February 15, 2022, the vehicle was pulled out of the stope and into an area of supported ground. Ron Unger, Sheriff and Coroner, checked on Hill in the cab of the truck, which was badly damaged, and pronounced Hill dead at 5:56 p.m. on February 15, 2022.

INVESTIGATION OF THE ACCIDENT

On February 15, 2022, at 1:01 a.m., Rogers called the Department of Labor National Contact Center (DOLNCC). The DOLNCC contacted Melvin Palmer, Supervisory Mine Safety and Health Inspector. Palmer contacted Gary Hebel, Assistant District Manager, who sent Patrick Barney, Supervisory Mine Safety and Health Inspector, to the mine. At 1:42 a.m., Barney issued an order under the provisions of Section 103(j) of the Mine Act to assure the safety of the miners and preservation of evidence. Barney contacted Leanne Russell and Benjamin Gibson, Mine Safety and Health Inspectors, and all three traveled to the mine site. Russell modified the 103(j) order to a 103(k) order upon arrival at the mine site. Barney, Gibson, and Russell obtained written statements from miners and mine management and examined the accident scene. Hebel contacted Benjamin Burns, Mine Safety and Health Inspector, and assigned him to be the accident investigator.

Burns arrived at the mine site at 9:02 a.m. on February 23, 2022, to continue the investigation. MSHA's accident investigator and investigators from the State of Nevada Department of Business & Industry, Mine Safety and Training Section, conducted an examination of the accident scene, interviewed miners, and reviewed conditions and work procedures relevant to the accident. See Appendix A for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred at the LA4070 level in the 430 stope of the mine when the lube truck over-traveled the edge of the stope (see Appendix B). The vehicle fell approximately 60 vertical feet and came to rest upside down on the LA4010 level (see Appendices C and D).

The drift off the LA4070 level to the 430 stope measured 31 feet wide by 19.5 feet high and is 16 feet to the 430 stope's vertical edge. The 430 stope was about 65 feet across to the other side towards the North, and approximately 31 feet wide. Miners last worked this area on January 5, 2022, and it was ready for backfill. Miners drill and blast gold bearing ore in stopes and transport the ore to the surface with haul trucks and belt conveyors. Once production in the stope is complete, it is scheduled for backfill. The mine has two batch plants, one on the surface and one underground, where cemented rock fill (CRF) is processed. The CRF mixture is hauled by

trucks to a dumping location at the stope and pushed over by a jammer. The LA4070 level had heavy traffic one week prior to the accident including haulage equipment, personnel carriers, and other mobile equipment through the area.

Equipment Involved

The Getman A64 Lube/Fuel truck, company number TRL0003, was a diesel-powered articulated haulage truck used daily to deliver fuels and lubricants to mining equipment throughout the mine. The lube truck had hydraulic articulated steering and hydraulic wet disc brakes. The lube truck also had a restricted view to the rear and therefore was equipped with a backup camera. Due to the severe damage caused by the accident, the investigator was unable to determine if the lube truck had any safety defects prior to the accident. The investigator determined the seat belt was functional but not used at the time of the accident.

Pre-Operational Inspections

The investigator reviewed the maintenance and inspection records for the lube truck for several months prior to the accident. The only safety defect reported during this time was a crack in the right cab window. The investigator does not believe the cracked window contributed to the accident. During interviews, the investigator learned that the backup camera on the lube truck was not functional and had not worked for several years. The camera was difficult to maintain in a functional condition due to vibration that would dislodge the wiring, and wet, muddy conditions around the mine. Therefore, according to interviews, the miners had stopped reporting the defect for over two years. The company maintains a digital record of reported defects, and this was not listed. As the defective items are corrected, they are removed from the list. The investigator determined the defective back-up camera contributed to the accident.

Training and Experience

Marissa Hill had ten years of mining experience, all at the Cortez District-Underground mine, where she worked as a maintenance technician and was a member of the mine rescue team. Mike Tromble, Mine Safety and Health Training Specialist, examined the mine's approved training plan and Hill's training records, and found that she received all training in accordance with MSHA Part 48 training regulations. Records also indicate Hill was task trained on the Getman A64 Lube/Fuel truck involved in the accident. Hill also received training on traffic rules and roadway hazards during her last annual refresher class.

Standard Operating Procedure for Stope Access Points

The mine operator has a written standard operating procedure to install physical berms and warning signs in access points to open stopes to prevent mobile equipment from over-traveling the stope edge. According to interviews with mine management, the mine operator decided not to follow their own standard operating procedures of installing physical berms and warning signs in access points to open stopes to prevent mobile equipment from over-traveling the stope edge about two years prior to the accident. There were no berms and no adequate signage at any approaches to the 430 stope. The drift to the 430 stope had one tattered bungee rope with a sign attached. The investigator determined this contributed to the accident. The investigator observed that other stopes in the mine had clean and well-maintained metal signage at the entry on each rib with high-visibility reflective poles. Based on Hill's normal duties and other information gathered during the investigation, the investigator determined that Hill entered the

area to service equipment, realized no equipment was in the area, and was in the process of turning around when the accident occurred.

Workplace Examinations
Based on interview statements and a review of records, the investigator determined that the LA4070 level was commonly traveled by mine management and miners and was not being adequately examined. The lack of a berm blocking access to the 430 stope was a hazardous condition that existed for approximately one and a half months and was not reported, despite mine management's daily travel through the area, looking for mining hazards, and by mine management's own admission. Mine management did not notify miners of the hazardous condition or promptly initiate appropriate action to correct it. The investigator determined that inadequate workplace examinations, including no record of the adverse condition, contributed to the accident.

Additionally, Nathan Dillion, Safety Superintendent, told Gill that when he worked at the Cortez surface mine, MSHA cited the mine for not recording the workplace examinations. Dillion also told Gill that he knew that the Cortez District-Underground mine would be cited soon because examinations had not been properly recorded.

ROOT CAUSE ANALYSIS

The accident investigator conducted an analysis to identify the underlying causes of the accident. The accident investigator identified the following root causes, and the mine operator implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: The mine operator did not place a berm in front of the open 430 stope.

   Corrective Action: The mine operator installed berms and new signage at all open stopes. The mine operator provided additional training on the procedures for placement of berms and signage at the open stopes.

2. Root Cause: The mine operator did not conduct adequate workplace examinations.

   Corrective Action: The mine operator provided additional training on the identification, reporting, prompt correction, and recording of hazardous conditions.

3. Root Cause: The mine operator did not maintain the backup camera on the Getman A64 Lube/Fuel truck, company number TRL0003.

   Corrective Action: The mine operator installed functional backup cameras on the two remaining lube trucks at the mine and trained miners in conducting proper and thorough examinations of mobile equipment.

CONCLUSION

On February 14, 2022, at 8:48 p.m., Marissa Hill, a 34 year-old maintenance technician with ten years of mining experience, was fatally injured when the lube truck she was driving went over the edge of an open stope. The lube truck fell approximately 60 feet to a lower level and came to rest on its cab.

The accident occurred because the mine operator did not: 1) place a berm in front of the open stope, 2) conduct adequate workplace examinations, and 3) maintain the backup camera on the Getman A64 Lube/Fuel truck.

Approved By:

_____ _____

Gary Hebel Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Nevada Gold Mines, LLC.

   A fatal accident occurred on February 14, 2022, at 8:48 p.m. This order is being issued under the authority of the Federal Mine Safety and Health Act of 1977, under Section 103(k) to ensure the safety of all persons at the mine and requires the operator to obtain the approval of an authorized representative of MSHA of any plan to recover any person in the mine or to recover the mine or affected area. This order prohibits any activity in the affected area. The operator is reminded of the obligation to preserve all evidence that would aid in investigating the cause or causes of the accident in accordance with 30 CFR 50.12.

2. A 104(d)(1) citation was issued to Nevada Gold Mines, LLC for a violation of 57.18002(a).

   A fatal accident occurred at the Cortez District-Underground mine on February 14, 2022, when a Getman A64 Lube/Fuel truck, company number TRL0003, fell approximately 60 feet into the open 430 stope. A berm to prevent the lube truck from falling into the open stope had not been installed in accordance with the mine operator's standard operating procedure. An adequate examination of this working place would have noted this obvious condition that adversely affected the safety of the miners. This condition existed for approximately two months and management traveled through the area daily looking for defects that could adversely affect the safety or health of the miners. Prior to the accident, mine management decided to stop installing berms near open stopes. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by being aware of the unsafe condition and not promptly initiating appropriate action to correct it. This violation is an unwarrantable failure to comply with a mandatory safety standard.

3. A 104(d)(1) order was issued to Nevada Gold Mines, LLC for a violation of 57.9301.

   A fatal accident occurred at the Cortez District-Underground mine on February 14, 2022, when a Getman A64 Lube/Fuel truck, company number TRL0003, fell approximately 60 feet into the open 430 stope. Berms, bumper blocks, or similar impeding devices were not provided at the edge of the open stope where there was a hazard of potential overtravel. This stope was mined out and on hold for back fill. Cemented rock fill would be dumped at the vertical drop that was 16 feet from the main road. Prior to the accident, mine management decided to stop installing berms near open stopes. This obvious unsafe condition existed for approximately two months and management traveled through the area daily looking for defects. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by being aware of the unsafe condition and not promptly initiating appropriate action to correct it. This violation is an unwarrantable failure to comply with a mandatory safety standard.

4. A 104(d)(1) order was issued to Nevada Gold Mines, LLC for a violation of 57.14100(b).

   A fatal accident occurred at the Cortez District-Underground mine on February 14, 2022, when Getman A64 Lube/Fuel truck, company number TRL0003, fell approximately 60 feet into the open 430 stope. The backup camera provided on the unit as safety feature was not maintained in a functional condition. The lube truck is used daily in the mine for equipment maintenance and has a restricted view to the rear. This violation, which restricted the equipment operator's view to the rear, contributed to the accident. The defect had existed for several years and was not written up on the pre-operational examinations. This violation is an unwarrantable failure to comply with a mandatory safety standard.

APPENDIX A – Persons Participating in the Investigation

Cortez District – Underground

Michael Gill	Operations Superintendent
Nathan Dillion	Safety Superintendent
Jason Mayne	Training Emergency & Rescue Superintendent
Collin Rogers	Health and Safety Manager
John Heimer	Underground Operations Supervisor
Joseph Pepiot	Underground General Supervisor
Bradley Stocks	Material Handling Supervisor
James Bailey	Blast Supervisor
Ashley Helms	Health and Safety Specialist
Austin Timmons	Health and Safety Specialist
Gary Knobbe	Supervisor
Christopher Foote	Lead Miner
Zachary Glenn	A-Crew Lube Truck Operator
Perry Gollihar	C-Crew Lube Truck Operator
Justin Stewart	B-Crew Auto Loader Operator
Preston Chacon	D-Shift Lube Truck Operator
Robert Valles	Bolter
Shane Matthews	Underground Miner

Lander County Sheriff's Office

Ron Unger	Sheriff and Coroner
Lexy Bunch	Detective

State of Nevada Department of Business & Industry, Mine Safety and Training Section

Daniel Inman	Mine Inspector
Yvonne Peterson	Industrial Hygienist

Mine Safety and Health Administration

Patrick Barney	Supervisory Mine Safety and Health Inspector
Benjamin Burns	Mine Safety and Health Inspector
Benjamin Gibson	Mine Safety and Health Inspector
Leanne Russell	Mine Safety and Health Inspector
Mike Tromble	Mine Safety and Health Training Specialist

APPENDIX B – Photograph of the 430 Stope from the LA4070 Level

APPENDIX C – Photograph of the Equipment Involved

APPENDIX D – Cross Section of the Stope