

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

REPORT OF INVESTIGATION

**Underground Metal Mine
(Gold)**

**Fatal Machinery Accident
August 3, 2015**

SSX Mine

**Small Mine Development L.L.C.
Elko, Elko County, Nevada
Mine ID No. 26-02299**

Investigators

**Stephen A. Cain
Supervisory Mine Safety and Health Inspector**

**Charles Snare
Mine Safety and Health Inspector**

**Ronald Medina
Mechanical Engineer**

**John Kathmann
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**



OVERVIEW

On August 3, 2015, Jason Potter, miner, age 26, was tramming a jumbo rock drill in reverse up a slope when a 13 ½ foot long drill steel came in contact with the rib wall and sprang back striking and killing the victim.

The accident occurred due to management's failure to ensure that loading and transporting of materials were done in a safe manner.

GENERAL INFORMATION

SSX Mine, a multi-level underground gold operation operated by Small Mine Development L.L.C., is located near Elko, Elko County, Nevada. The principal official at the time of the accident was Jimmy Inskip, Superintendent. The mine currently operates two, 12-hour shifts, per day, seven days per week and employs 87 miners.

Gold bearing ore is drilled and blasted in long hole stopes. Broken material is transported from the bottom of the stopes with diesel powered load haul dumps (LHDs) and haul trucks to surface stockpiles. The material is then transported to the Jerritt Canyon Mill for processing and refining. The finished products are sold to commercial industries.

The Mine Safety and Health Administration (MSHA) completed the last regular inspection at this operation on July 21, 2015.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, the victim, Jason Potter arrived at the SSX Mine and began his shift at 6:00 a.m., which was his usual start time. Potter went to the 7115 heading and conducted utility work with Brian Fields, Shifter, until 8:30 am when Fields left. At around 9:30 am, Fields picked Potter up and they went to the surface. Potter took a tractor from the surface to his drill in the 7250 heading. At approximately 2:00 pm, Fields observed Potter drilling in the 7250 heading. At 2:30 pm, Fields returned to the 7250 and spoke with Potter. Fields then assisted Potter with breaking down his drill to move to the 7355 heading. Fields left Potter at 2:45 pm and went to the 6640 heading to inspect.

At 3:00 pm, Fields heard Bryce Walston, miner, calling over the radio that Potter was down at the 7250 main haulage way. Walston stated that he was coming up the 7250 heading when he observed the jumbo drill up against the left rib. Walston stated the jumbo drill was still running and the reverse alarm was on. Walston then looked past the jumbo drill and saw Potter face down next to the right rib. Walston ran over to Potter and checked his vitals. Walston called for help and began CPR. Jason Wynia, miner arrived and assisted Walston with administering CPR. Emergency Airlift was called at 3:15. Potter was then transported to the mine surface. .

Emergency Airlift arrived at 4:15 pm and took over administering medical attention. One of the Airlift nurses called the doctor who pronounced Potter deceased over the phone. The cause of death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

MSHA received notification of the accident at 3:45 pm on 8/3/2015, by a telephone call from David Joggerst to the Department of Labor's National Contact Center (DOLNCC). The DOLNCC notified Ramona Broadnax, an IT Specialist located in MSHA's Western District office, of the accident at 4:21 pm. An investigation started the same day. In order to ensure the safety of all persons, a 103(j) order was issued and was later modified to section 103(k) of the Mine Act when the first Authorized Representative arrived 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.

DISCUSSION

Location of the Accident

The jumbo drill was traveling up a 10% grade roadway at the time of the accident and the ground surface had a side slope of 6%, with the lower (right) rib being the one that the drill steel struck. The roadway was clear of any debris and in good condition. The drill steel left an indentation on the rib. After the drill steel struck the rib, the machine drifted 62 feet back down the slope and came to rest against the opposite rib. There was no damage to the braking and steering systems and both were fully operational after the accident. The drill steel rack was damaged when the drill steel struck the rib and the hydraulic tank it was welded to was punctured near the top of the tank. In addition, the drill steel itself was bent due to the impact. There was no other visible damage to the machine. The machine was being trammed using the diesel engine at the time of the accident and the power cable was completely reeled onto the cable reel and was not connected to a power source.

Tamrock Type H 205D Rock Drill

A dual boom Tamrock Type H 205D rock drill was the piece of equipment involved in the accident. This rubber tired drill was built in 1995 and is diesel-powered. The total weight of the machine was approximately 41,900 pounds, and it was 6 ft. - 6 in. wide, 41 feet long and 7 ft. - 9 in. high when in the tram mode. It was equipped with a steering wheel, an accelerator pedal and a service brake pedal. The operator's seat was perpendicular to the direction of travel and was located on the left side of the machine. The drill booms were located on the front half of the articulated rock drill and the engine compartment was located on the rear half. The machine was equipped with a Deutz F5L, 8.0 liter diesel engine and a Clark three speed transmission, which could be operated forward

and reverse. The desired driving direction was selected using a lever on the steering column that could be placed in three positions – forward, neutral, and reverse. A twist grip on the lever allowed the operator to select 1st, 2nd, or 3rd gear in each travel direction. The maximum rated speed was 3.4 mph in 1st, 6.8 mph in 2nd, and 9.3 mph in 3rd for both directions of travel. The rock drill was also equipped with a cable reel and power supply cable to operate the drilling functions after the machine arrived at a drilling location.

DRILL STEEL CARRIER RACK: The drill steel rack shown in photo 1 was added to the engine half of the articulated machine after it left the factory. One end of the drill steel carrier rack consisted of a bracket made from a 14 inch long, 4 inch wide steel channel located 3½ feet away from the center of the operator's seat toward the engine end of the machine. This bracket was welded to the side of the hydraulic tank, near the top. Both the bracket and the operator's seat were on the left side of the machine. Two 2¾ inch outside diameter steel tubes were welded on top of the bracket, one 6 inches out and the other 12 inches out from the edge of the hydraulic tank. A set screw bolt in each tube could be threaded down to lock the drill steel in place. The outer tube being used at the time of the accident broke off and was still attached to the drill steel after the accident. The entire bracket was also bent back 90 degrees as a result of the impact. A cord on an engine cover handle 8½ feet from the center of the seat toward the engine end of the machine could be used to secure the other end of the drill steel. The cord was found to be intact and undamaged, other than fraying from wear, after the accident. One end of a 13½ foot long drill steel would extend approximately 2 ½ feet beyond the engine end of the machine when installed in the carrier rack and was at approximately the same elevation as the operator's head when seated in the operator's compartment. The other end of a 13½ foot long drill steel would extend to within approximately 3 feet of the center of the operator's seat.

BRAKE SYSTEM DESCRIPTION: The rock drill was equipped with a foot pedal controlled, hydraulic power assisted, dual circuit, oil-immersed, multidisc service brake inside each of the two axles. The rock drill was also equipped with a spring-applied, hydraulically-released parking brake/safety brake inside each axle that utilized the same multidisc brake packs used in the service brake system. The parking brake/safety brake was applied and released using a red push-pull control button on the left side of the dashboard below the steering wheel.

BRAKE TESTING AND EXAMINATION: The machine was brought to the surface for testing. The machine was placed on a 15% grade and the service brake and park brake both had the capability to stop and hold the machine on the grade. The tests were done with the engine running, the transmission in neutral, and with the engine and transmission at normal operating temperatures. The

15% stopping and holding ability of the service brake and the 15% grade holding ability of the parking/emergency brake exceeded the braking force needed to stop and hold the machine on the 10% grade where the accident occurred. The machine was also operated extensively in an open area and the service brakes functioned to stop and hold the machine throughout the tests with no defects noted.

STEERING SYSTEM DESCRIPTION AND TESTING: The articulated rock drill was equipped with a steering wheel located in the operator's compartment that controlled the hydraulic pressure and flow to the two steering cylinders located at the articulation joint. The machine was operated and maneuvered extensively in an open area and no steering defects were found.

DRIVING LIGHTS: The rock drill was provided with two forward-facing headlights and two rear-facing headlights and all of these lights functioned when tested.

ACCELERATOR PEDAL AND LINKAGE: The accelerator pedal and related linkage operated smoothly and returned to low idle upon release.

SEAT BELT: The seat belt latched and unlatched when tested. Evidence indicated that the seat belt was not worn at the time of the accident.

Weather

Weather was not considered to be a contributing factor in the accident.

Training and Experience

Jason Potter had four years of underground mine experience as a miner, and 42 weeks at this mine. Potter had been a drill operator for 32 weeks. A representative of MSHA's Educational Field and Small Mine Services staff conducted an in-depth review of the mine operator's training records. The training records for Potter were reviewed and found to be in compliance with MSHA training requirements.

ROOT CAUSE ANALYSIS

Investigators conducted a root cause analysis and identified the following root cause:

Root Cause: Management's policies and procedures were inadequate and failed to ensure that persons loaded and transported materials in a safe manner. The drill steel was transported on top of the jumbo drill and was allowed to extend 2.5 feet beyond the leading edge of the drill. Additionally, the drill steel was not secured in a manner that prevented the drill steel from sliding side to side. This caused the drill steel to strike the rib and then strike the miner.

Corrective Action: Management conducted training for all persons regarding the safe loading and transporting of materials.

CONCLUSION

On August 3, 2015, Jason Potter, miner, age 26, was tramming a jumbo rock drill in reverse up a slope when a 13 ½ foot long drill steel came in contact with the rib wall and sprang back striking and killing the victim.

The accident occurred due to management's failure to ensure that loading and transporting of materials were done in a safe manner.

ENFORCEMENT ACTIONS

Issued to Small Mine Development L.L.C.

Order No. 8869697 - 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 8/3/15 at approximately 15:30 hours. 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 the investigation of the cause or causes of the accident. It prohibits all activity at the SSX/ Steer mine 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 other persons onsite. This order was initially issued orally to the mine operator at 16:45 hours and has now been reduced to writing.

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

Citation No. 8689972 - issued under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 57.9201:

A fatal accident occurred on August 3, 2015, when a miner was killed at this underground gold mine. The miner was operating a jumbo drill in the reverse direction of travel up a 10% slope carrying a 13.6 foot long drill steel on top of a jumbo drill when the leading end of the drill steel contacted the mine rib causing the drill steel to then strike the miner. The drill steel was loaded and transported on the jumbo drill in such a manner that it created a hazard to the jumbo drill operator by extending past the end of the jumbo drill approximately 2.5 feet as well as not being secured on the leading end of the drill steel.

Approved: Wyatt Andrews Date: 11/30/2015
Wyatt Andrews
District Manager

APPENDIX A: Persons Participating in the Investigation

Small Mine Development L.L.C.

Jimmy Inskeep	Superintendent
Brigham Garrett	Assistant Superintendent
Jeff Franke	Safety Superintendent

Mine Safety and Health Administration

Stephen A. Cain	Supervisory Mine Safety and Health Inspector
Ron Medina	Mechanical Engineer
Charles Snare	Mine safety and Health Inspector
John Kathmann	Mine Safety and Health Specialist (Training)

APPENDIX B: Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 6 5 9 7 6 9 1

Victim Information: 1															
1. Name of Injured/Ill Employee: <i>Jason L. Potter</i>				2. Sex <i>M</i>		3. Victim's Age <i>26</i>		4. Degree of Injury: <i>01 Fatal</i>							
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 08/03/2015 b. Time: 16:23</i>								6. Date and Time Started: <i>a. Date: 08/03/2015 b. Time: 6:00</i>							
7. Regular Job Title: <i>034 Jumbo Drill Operator</i>				8. Work Activity when Injured: <i>073 Operating Jumbo Drill</i>				9. Was this work activity part of regular job? Yes <input type="checkbox"/> 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	Years	Weeks	Days	
Work Activity: <i>0</i>	<i>32</i>	<i>0</i>	Job Title: <i>0</i>	<i>42</i>	<i>6</i>	Mine: <i>0</i>	<i>42</i>	<i>6</i>	Mining: <i>4</i>	<i>7</i>	<i>5</i>				
11. What Directly Inflicted Injury or Illness? <i>082 Drill Steel</i>								12. Nature of Injury or Illness: <i>370 Multiple Blunt Force Injuries</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: <input checked="" type="checkbox"/>		CPR: <input checked="" type="checkbox"/>		EMT: <input checked="" type="checkbox"/>		Medical Professional: <input checked="" type="checkbox"/>		None: <input type="checkbox"/>					
16. Part 50 Document Control Number: (form 7000-1)								17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>							

Appendix C: Relevant Photographs

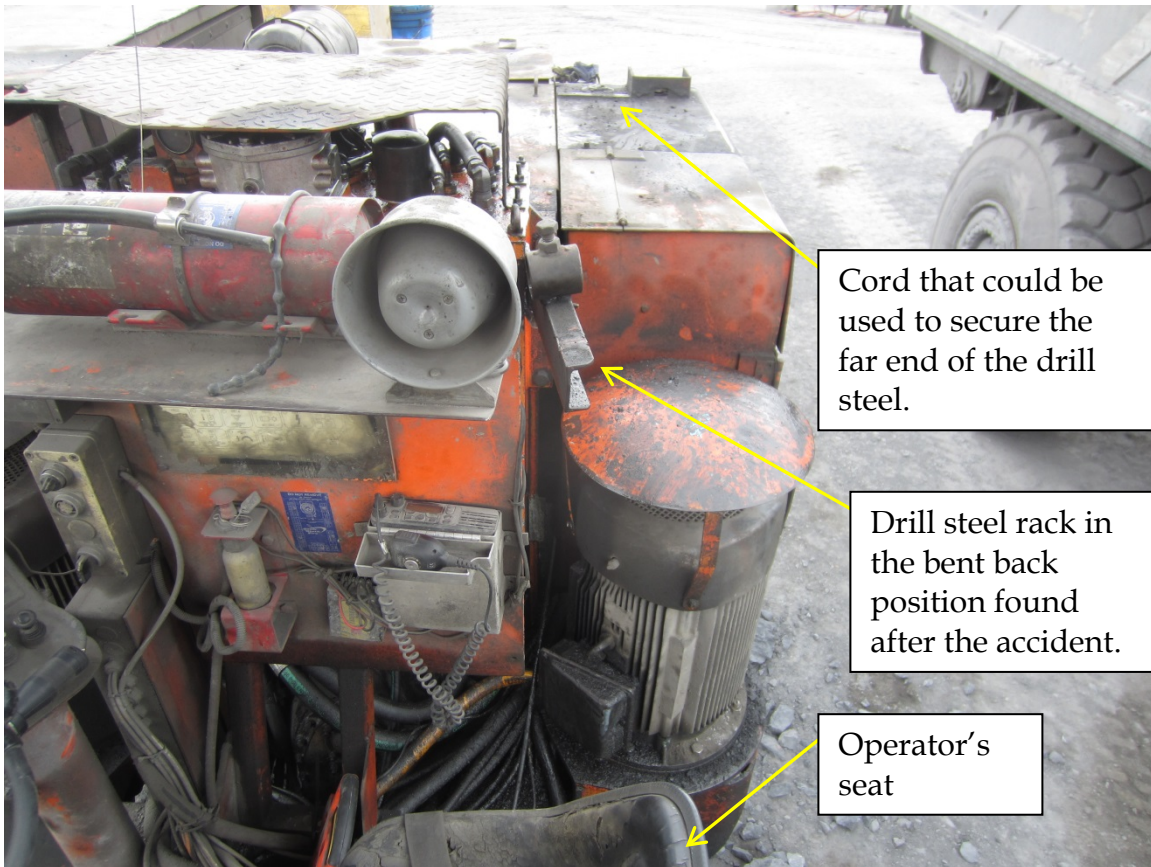


Photo 1 – Drill Steel Rack