

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

REPORT OF INVESTIGATION

**Underground Metal Mine
(Gold Ore)**

**Fatal Powered Haulage Accident
December 21, 2016**

at

**Buckhorn Mine
Crown Resources- Kettle River Operations
Kinross Gold Corp
Mine ID No. 45-03615**

Investigators

**Keith Palmer
Supervisory Mine Safety and Health Inspector**

**Thomas Rasmussen
Mine Safety and Health Inspector**

**Jamie Peck
Mine Safety and Health Inspector**

Originating Office

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



OVERVIEW

On December 21, 2016, Robert Aprato Jr. (age 39), was fatally injured hauling ore from the mine site to a mill. While descending the haul road, Mr. Aprato lost control of his truck, traveled over an embankment and back onto the road, landing on the driver's side of the truck.

The accident occurred because management's policies, procedures and controls failed to assure the victim could maintain control of the truck, and did not make certain the braking systems on the truck were maintained in a functional condition.

GENERAL INFORMATION

The Buckhorn Mine is an underground gold ore operation owned and operated by Crown Resources-Kettle River Operations, a subsidiary of Kinross Gold Corp. The mine is located in Oroville, Okanogan County, Washington, and the Mine Manager is Boyd Hewitt. The mine employs 110 miners and operates two shifts, seven days per week. Buckhorn Mine hired independent contractor ACI Northwest, Inc. (ACI), located in Coeur D'Alene, Idaho, to provide labor and equipment to haul gold ore from the Buckhorn Mine to the Kettle River Mill, located approximately 44 miles from the mine in Republic, Washington. Additionally, ACI provided labor and equipment to load haulage trucks on the ore pad at the mine, as well as conduct maintenance on the haul road. ACI's principal operating official is William Radobenko, Jr., President. ACI subcontracted with Giddings Excavation, LLC (Giddings), located in Republic, Washington, to provide one truck, including one driver, to assist in hauling ore. The principal operating official is Jack Giddings, Owner.

The Mine Safety and Health Administration's (MSHA) completed the most recent regular inspection of the Buckhorn Mine on October 6, 2016.

DESCRIPTION OF ACCIDENT

Robert Aprato Jr., a Truck Driver for Giddings, began work at his normal starting time of 5:30 a.m. on Wednesday, December 21, 2016. A daily shift meeting with the crew was held at 5:30 a.m. at ACI's truck yard outside Republic, Washington. Aprato departed ACI's truck yard at approximately 6:00 a.m. and drove a 1989 Peterbilt 378, 3-axle dump truck, towing a 1980 Williamsen 2-axle dump trailer, to the mine. Darrin Hubner, Front-end Loader Operator and an ACI employee, was loading trucks on the ore pad at the Buckhorn Mine. Hubner loaded Aprato's truck and trailer with gold ore, and Aprato departed for Kettle River Mill. At 8:55 a.m., Aprato arrived at Kettle River Mill in Republic, Washington.

Aprato returned to the Buckhorn Mine, and the front-end loader operator loaded the truck with ore. He returned to Kettle River Mill, where the truck was weighed at 12:09 p.m. for the second delivery of the day. Aprato went back to the Buckhorn Mine for another load of gold ore. Hubner loaded Aprato's truck, and Aprato began the return trip to Kettle River Mill for delivery.

Aprato traveled downhill and passed Frank Betschart, a truck driver and ACI employee. The drivers passed at approximately mile marker 5.75 on the haul road. Seconds after passing, Betschart heard Aprato call over the radio "no brakes, five and a half, no brakes" ("Five and a half" referred to mile marker 5.5). After hearing Aprato, Betschart attempted to contact the victim by radio, but there was no response. ACI employee Kelly Heitstuman, Grader Operator, had been grading the haul road at 4.75 mile marker when he heard a call over the radio "no brakes, top of five-five, no brakes." Heitstuman attempted to contact Aprato by radio, but received no response. Heitstuman traveled

on the haul road to the 5.5 mile marker where he observed the Peterbilt 378 dump truck on its left side on the roadway. Heitstuman also called "May Day" over the citizen band radio and the company radio. He ran to the truck and found Mr. Aprato unconscious and unresponsive inside the truck. Jake Karchner, Shift Supervisor, called 911 at 2:57 p.m., and emergency medical services were dispatched. Heitstuman administered first aid until Buckhorn Mine's Emergency Medical Technicians arrived and provided medical assistance.

Records indicate that emergency medical services were dispatched at approximately 2:58 p.m., and personnel from the Okanogan County Sheriff's Office arrived on site at approximately 4:21 p.m.

INVESTIGATION OF ACCIDENT

A private citizen notified MSHA of the accident at 11:23 a.m. on January 3, 2017, by email to the Kent, Washington, Field Office Supervisor. The Field Office Supervisor notified Paul Belanger, Assistant District Manager for MSHA's Western District, and an investigation was started the same day. An Authorized Representative traveled to the mine and issued an order under Section 103(k) of the Mine Act. MSHA's accident investigation team also traveled to the mine, conducted 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, mine employees, ACI management and employees, and Giddings management.

Both the mine operator and ACI failed to report the accident immediately. MSHA issued non-contributory citations for these violations.

DISCUSSION

Location of the Accident

The accident occurred on the haul road near the 5.5 mile marker. On the downhill side between 6 mile marker and 5.25 mile marker, the haul road was posted as an 8% grade and consisted of several S-curves. The victim was traveling down the right side of the road (Attachment 1) when his truck struck and traveled over an embankment, and fell 20 feet to the roadway below. (Attachment 2) The graded roadway consisted of packed snow and ice with road rock and sand on the surface. There was snow accumulation on the adjacent bank.

Equipment involved in the accident

The equipment involved in the accident included a 1989 Peterbilt 378 dump truck and 1980 Williamsen end dump trailer combination. At the time of the accident, it was loaded with ore.

The Peterbilt 378 dump truck was a 3-axle, end dump truck. The braking system on the truck was air-operated. The braking systems on the truck and trailer had not been maintained in a functional condition. Multiple brakes on the truck and trailer were out of adjustment, contaminated with oil, worn out and improperly maintained. The truck was equipped with manual brake adjusters. Examination of the brake assemblies showed cracked and unevenly worn linings, improper brake adjustment and defective brake adjustment locks. Additionally, the brake adjustment lock nuts on the #3 truck axle were not functioning and there was evidence of water and ice in the air brake supply line. The defects had existed for an extended period of time, and there were no indications or records that maintenance or repairs had been conducted for the braking system in the months that this truck was hauling ore at the mine.

The Williamsen trailer, which was being towed at the time of the accident, was a 2-axle end-dump style. The braking system was operated by air pressure supplied by the towing vehicle. Examination of the trailer brake assemblies showed improper brake shoe installation, improper brake adjustment and oil-contaminated brake shoes. Additionally, there were brake shoes with linings worn out to the point the attachment rivets were wearing into the brake drum.

Weather

The weather at the time of the accident was mostly cloudy with calm winds and a temperature of approximately 26 degrees Fahrenheit, and was not considered to be a contributing factor in the accident. However, the weather from the previous week created a snow and ice surface component to the haul road.

Training and Experience

Mr. Aprato had three years of experience as a Truck Driver with a total of twelve weeks working at this mine. A representative of MSHA's Educational Field and Small Mine Services staff conducted a review of the contractor's training plan and records and found that the training plan and records were not in compliance with MSHA Part 48. Citations were issued for non-contributory recordkeeping and training plan violations.

ROOT CAUSE ANALYSIS

MSHA conducted a root cause analysis and identified the following root causes:

Root Cause: ACI and Giddings management's policies and work procedures were inadequate, and failed to ensure that operators of self-propelled mobile equipment maintained control of the equipment while in motion.

Corrective Action: All haul truck operators were retrained in safe operating procedures and maintaining control of mobile equipment. ACI's management has instituted a policy of increased ride-along monitoring and driving audits.

Root Cause: ACI and Giddings management's policies and work procedures were inadequate and failed to ensure that all braking systems on self-propelled mobile equipment were maintained in a functional condition.

Corrective Action: ACI management developed and instituted a policy requiring contractors to complete pre-shift examinations that include brake inspections. The new policy requires contractors to document findings and corrective actions, and present the results with corrective actions to management for review.

CONCLUSION

The accident occurred because management's policies, procedures and controls failed to assure the victim could maintain control of the truck, and did not make certain the braking systems on the truck were maintained in a functional condition.

ENFORCEMENT ACTIONS

Issued to ACI Northwest

Order No. 8780787 was issued under the provisions of section 103(k) of the Mine Act: An accident occurred at this operation on 12/21/2016 at approximately 14:56 hours. This order is being issued, under Section 103(k) 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 activities, movements, modifications, alterations or transportation of the Peterbilt 378 truck and trailer combination, Company Number 29, until MSHA has concluded its investigatory activities. This order was initially issued orally to the operator at 10:50 hours on 01/09/2017 and has now been reduced to writing.

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

Citation No. 8780788 was issued on February 23, 2017, under provisions of Section 104(a) of the Mine Act for a violation of 57.9101:

A fatal accident occurred at this mine on 12/21/2016 when a haul truck operator lost control of the vehicle while descending a posted 8% grade on the mine haul road. The Peterbilt 378 dump truck left the right side of the road and went about 175 feet up the side of a hill where it then traveled over a drop off of about 20 feet and came to rest on the driver's side, back on the original roadway.

Citation No. 8780790 was issued on February 23, 2017, under provisions of Section 104(d)(1) of the Mine Act for a violation of 57.14101(a)(3):

A fatal accident occurred at this mine on 12/21/2016 when a haul truck operator lost braking capability while descending a posted 8% grade and subsequently overturned. The braking systems on the truck and trailer had not been maintained in a functional condition. Multiple brakes on the truck and trailer were out of adjustment, contaminated with oil, worn out and improperly maintained. Additionally, the brake adjustment lock nuts on the #3 truck axle were not functioning and there was evidence of water and ice in the air brake supply line. This violation was an unwarrantable failure to comply with a mandatory standard. Management engaged in aggravated conduct constituting more than ordinary negligence in that management was aware the truck and trailer combination was hauling heavy loads while descending 8% grades through adverse winter conditions and did not establish a monitoring and maintenance system to ensure that the brakes on this truck were maintained in a functional condition. The defects had existed for an extended period of time, and there were no indications or records that maintenance or repairs had been conducted for the braking system in the months that this truck was hauling ore at the mine. This violation is an unwarrantable failure to comply with a mandatory standard.

Issued to Giddings Excavation

Citation No. 8780789 was issued on February 23, 2017, under provisions of Section 104(a) of the Mine Act for a violation of 57.9101:

A fatal accident occurred at this mine on 12/21/2016 when a haul truck operator lost control of the vehicle while descending a posted 8% grade on the mine haul road. The Peterbilt 378 dump truck left the right side of the road and went about 175 feet up the side of a hill where it then traveled over a drop off of about 20 feet and came to rest on the driver's side, back on the original roadway.

Citation No. 8780791 was issued on February 23, 2017, under provisions of Section 104(d)(1) of the Mine Act for a violation of 57.14101(a)(3):

A fatal accident occurred at this mine on 12/21/2016 when a haul truck operator lost braking capability while descending a posted 8% grade and subsequently overturned. The braking systems on the truck and trailer had not been maintained in a functional condition. Multiple brakes on the truck and trailer were out of adjustment, contaminated with oil, worn out and improperly maintained. Additionally, the brake adjustment lock nuts on the #3 truck axle were not functioning and there was evidence of water and ice in the air brake supply line. This violation was an unwarrantable failure to comply with a mandatory standard. Management engaged in aggravated conduct constituting more than ordinary negligence in that management was aware the truck and trailer combination was hauling heavy loads while descending 8% grades through adverse winter conditions and did not establish a monitoring and maintenance system to ensure that the brakes on this truck were maintained in a functional condition. The defects had existed for an extended period of time, and there were no indications or records that maintenance or repairs had been conducted for the braking system in the months that this truck was hauling ore at the mine. This violation is an unwarrantable failure to comply with a mandatory standard.

Approved: Wyatt S. Andrews Date: 4/25/17
Wyatt S Andrews
District Manager

Appendix A

Persons Participating in the Investigation

Crown Resources-Kettle River Operations

Boyd Hewitt, Mine Manager
Ivan Brown, Safety Manager

ACI Northwest

Scott Sullens, Project Manager
Jeff Pugh, Trainer
Dennis Ashbey, Shop Foreman

Giddings Excavation

Jack Giddings, Owner

Mine Safety and Health Administration

Keith Palmer, Supervisory Mine Safety and Health Inspector
Thomas Rasmussen, Mine Safety and Health Inspector
Jamie Peck, Mine Safety and Health Inspector
Heather Smith, Educational Field and Small Mine Services Training Specialist

Appendix B

Accident Investigation Data - Victim Information

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



Event Number:

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Victim Information: 1											
1. Name of Injured/Ill Employee: <i>Robert J. Aprato</i>			2. Sex <i>M</i>		3. Victim's Age <i>39</i>		4. Degree of Injury: <i>01 Fatal</i>				
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 12/24/2016 b. Time: 19:10</i>						6. Date and Time Started: <i>a. Date: 09/20/2016 b. Time: 5:30</i>					
7. Regular Job Title: <i>076 Truck Driver</i>				8. Work Activity when Injured: <i>055 Operating haul truck</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
<i>3</i>	<i>0</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>12</i>	<i>0</i>	<i>0</i>	<i>12</i>	<i>0</i>
11. What Directly Inflicted Injury or Illness? <i>119 Haul road</i>						12. Nature of Injury or Illness: <i>370 Multiple Blunt Force Injuries</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>Giddings Excavation LLC</i>						Independent Contractor ID: (if applicable) <i>U3W</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>9999 None (No Union Affiliation)</i>					

Appendix C

Attachment # 1 (Downhill view entering S-curve at top of 5.5 mile)



Attachment # 2 (Uphill view of cut-bank where truck traveled over)

