

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH
REPORT OF INVESTIGATION

Surface Coal Mine

Fatal Powered Haulage Accident
June 23, 2014

Spring Creek Mine
Spring Creek Coal Company
Decker, Big Horn County, Montana
ID No. 24-01457

Accident Investigators

David Hamilton
Coal Mine Safety and Health Inspector

David Maynard
Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 9
P.O. Box 25367, Denver Colorado 80225
Russell J. Riley, District Manager

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PHOTOGRAPH OF ACCIDENT SCENE

HAUL TRUCK IN THE SPOIL "V"

OVERVIEW

At approximately 7:35 p.m. on June 23, 2014, Stewart R. Orcutt (Victim) was killed while operating a Komatsu 830E DC haul truck. The haul truck traveled through a berm at the Ramp 65 Ranch dump and descended approximately 75 feet before stopping abruptly against the opposite embankment in the bottom of the spoil "V." The victim was not wearing his seat belt when the accident occurred, which resulted in him receiving fatal injuries.

GENERAL INFORMATION

The Spring Creek Mine is a surface mine operated by the Spring Creek Coal Company and owned by Cloud Peak Energy Resources LLC. It is located near Decker, Montana. The mine extracts coal from the Anderson-Dietz seam utilizing two draglines and two electric shovels for overburden removal. The coal is loaded by a shovel, front end loaders, and a hydraulic excavator into 240 ton haul trucks. The seam averages 80 feet in thickness and the overburden varies from 65 to 185 feet thick.

At the time of the accident, the mine produced 50,000 tons of coal per day and employed 282 miners. The mine operates seven days a week, using two 12-hour production shifts and two maintenance shifts per day.

The principal officials for the mine at the time of the accident were:

David Schwend.....General Manager

Erik Strom.....Production Manager

Kean Johnson..... Manager, Site Health & Safety

Joe Vaccari..... Maintenance Manager

The last regular safety and health inspection (E01), conducted by the Mine Safety and Health Administration (MSHA), was completed on January 10, 2014. There was an ongoing inspection at the time of the accident. The mine's non-fatal days lost (NFDL) incidence rate in calendar year 2013 was 0.00, compared to the national average of 0.96 for mines of the same type in 2013.

DESCRIPTION OF THE ACCIDENT

Monday, June 23, 2014, was the first day shift worked following a seven day break due to shift rotation. The truck drivers arrived at their equipment at approximately 6:55 a.m. At 7:00 a.m., Stewart Orcutt, was given his job assignment by Eli Whiteman, Crew C Supervisor. Orcutt was assigned to operate the Komatsu 830E truck, company number 361, to load coal from shovel number 303 in pit 4, cut 20.

The shift proceeded as normal, with coal being loaded during the shift. A lunch break occurred at approximately 1:00 p.m. Near the end of the shift, loading was stopped temporarily while the shovel was being repositioned. As the shovel was repositioning, Orcutt was the first truck in line when the loading resumed at 6:33 p.m. Shovel Operator, Cy Olson called on the mine's FM radio (company radio) "truck 361 go dump

out, you are done for the day." Leaving the loading area, Orcutt started shouting on the company radio, which was not understandable due to the loud music playing on a citizens band (CB) radio in the truck. Orcutt would often shout religious praises and key his microphone open to the CB radio speaker for long durations.

According to heavy equipment operator Ed Shannon, who was operating the dump bulldozer, Orcutt did not dump his last load on the dump. It was later determined that the load was dumped at an elevation below. Orcutt then traveled to the Ramp 74 parking area where the shift change occurs. Orcutt parked, shut his truck off, but remained in the cab of the truck. Orcutt would normally wait in the truck until the crew bus arrived, then Orcutt would exit the truck. Four other drivers came to the parking area after dumping their last load. They exited their trucks and gathered on the ground, waiting for the crew bus. Shannon drove a crew cab truck and stopped at the parking area to pick up the four drivers on the ground. Shannon noticed Orcutt in his truck and waved at him. Orcutt acknowledged and waved back. A crew bus arrived, drove by the parking area and proceeded to the #303 shovel. At this time, Orcutt restarted his truck and drove toward the #303 shovel. The crew bus passed Orcutt on its way back to the parking area. Orcutt turned around and followed the crew bus, but did not turn into the parking area. Instead, Orcutt turned onto Ramp 65, which is the road to the office/shop complex. Brandon Wilcox, the night shift truck driver for truck #361, observed Orcutt operating truck 361 and thought maybe the shop had sent Orcutt a message to come to the truck repair shop. Wilcox started walking to the lunch shack to call his boss on the company radio and to get a ride to another truck. Wilcox saw Orcutt turn onto the Ramp 65 Ranch dump at what appeared to be full speed. The truck traveled across the dump area, over the six-foot high berm, and disappeared.

Wilcox ran to the lunch shack and called on the company radio "truck 361, are you ok?" Wilcox received no answer. Wilcox told Chris Boll, Truck Driver, what he had seen, but there were no other witnesses. Boll said he would drive up to the Ranch dump and look. Wilcox called on the company radio for the Shift Supervisor, Rob Marney, and asked him to go to the Ranch dump and look for Orcutt's truck. Marney and equipment operator Randy Barney arrived at the lunch shack. They picked up Wilcox, drove to the Ranch dump, and saw a hole in the berm through which Orcutt's truck had traveled. Boll, an emergency medical technician (EMT) and mine rescue member, parked his truck on the Ranch dump. Boll called a 'Mayday' over the company radio and went into the spoil "V," where Orcutt's truck had stopped the opposite embankment at the bottom of the spoil "V." Wilcox and Barney were already at the scene. Orcutt was visible in the truck, but did not respond when his name was called. Wilcox held the truck door open while Boll entered and checked for a pulse. No pulse was detected. Leonard Hotchken, EMT, arrived and also checked for a pulse. It was decided to remove the victim from the truck cab onto the deck. When more help arrived, the victim was removed from the truck to a level place on the ground. The EMTs started cardio pulmonary resuscitation (CPR) and an automated emergency

defibrillator (AED) was used. The AED advised 'no shock' and the EMTs continued CPR. The Rocky Mountain Ambulance Service from Sheridan, Wyoming arrived on scene and applied a cardiac monitor which indicated no heart activity. Terry Bullis, Big Horn County Coroner, pronounced the death at 9:45 p.m. on June 23, 2014. Orcutt was removed from the accident scene by Bullis and transported to St. Vincent's hospital in Billings, Montana for an autopsy.

INVESTIGATION OF THE ACCIDENT

Whiteman notified the MSHA Call Center of the accident on Monday, June 23, 2014, at 7:49 p.m. The call center notified William Reitze of District 9 at 7:58 p.m. Reitze verbally issued a 103 (j) order at 8:07 p.m. to Whiteman to secure the accident scene and assure miners' safety at the mine. Reitze then notified Todd Jaqua, Field Office Supervisor in Gillette, Wyoming, and instructed Jaqua to dispatch an inspector to the accident scene. Jaqua dispatched Coal Mine Inspector David Maynard, who was in Sheridan, Wyoming. Maynard modified the 103(j) order to a 103(k) order upon arrival at the mine. Maynard conducted a preliminary examination of the accident scene that evening. Photographs and measurements were taken of the haul truck's route of travel and location after the accident.

Jaqua; David Hamilton, Coal Mine Inspector; and Maynard arrived on June 24, 2014, and began the formal investigation of existing physical conditions, conducted initial interviews with mine employees present at the scene, and made the initial examination of the truck. Digital photographs and relevant measurements of the scene were taken as part of the investigation. The investigation also included a review of training records, mine examination and equipment records, and maintenance records. Interviews were conducted on June 25, 26, and 27, 2014, with persons who had knowledge of the accident (see Appendix B).

On June 26 and 27, 2014, data from electronic equipment removed from the truck was downloaded for investigation. This information was shared with MSHA Technical Support Mechanical Engineer, Ronald Medina. Review of the information did not reveal any issues related to the accident.

DISCUSSION

Location of Accident and Conditions:

The scene of the accident was an overburden dumping location that had not been used for at least three weeks. The haul truck went through the dump berm, across a lower dump berm and came to rest approximately 75 feet below the dump. The Ranch 65 dump had a berm on the outer edge of the dump. The berm at the location of the accident extended 6 feet to the right side of a hole created by the truck going through the berm, and 5 feet and 5 inches to the left. The Komatsu 830E DC trucks on the mine site were measured to be 5 feet 4 inches high at mid-axle of the trucks and were in compliance with MSHA regulations.

Approximately 0.35 inches of rain had fallen earlier in the day, ending at 7:00 a.m. The dump area was dry at the time of the accident. The temperature was 71^o Fahrenheit, with a 3.5 to 4.6 miles-per-hour wind from the South. The road to the 65 Ranch dump was intermittently watered.

The accident investigation team was not able to determine what caused the truck operated by Orcutt to travel across the dump, through the berm, and descend into the spoil "V" cut.

General Machine Information

The haul truck was a Komatsu 830E and the product identification number was A30818. The truck had direct current (DC) electric drive, and was a rigid frame rear dump truck that was designated by the company as unit number 361. The truck was equipped with a Cummins QSK 60, 16 cylinder, diesel engine and a General Electric (GE) Statex III, electric drive system. The electric drive system had a three-position control for the forward, reverse, and neutral positions. Two GE type 787 electric wheel motors, one at each rear wheel, powered by an engine driven alternator, propelled the truck. The foot operated service brake or the electric retarder were utilized to slow the truck as needed.

Summary of Equipment Related Physical Factors:

- 1) No braking or steering system defects were found.
- 2) When the haul truck stopped suddenly at the bottom of the spoil "V" cut, an arc chute for the RP2 contactor dislodged and hit the door of the electrical enclosure. This caused the Statex III Drive System central processing unit (CPU) to record an RP2 contactor fault. The RP2 contactor is one of several contactors that are energized to establish the electric retarding circuit. No other braking,

steering, retarder, or electric drive system faults were logged during the time of the accident.

- 3) The RP2 contactor fault triggered the Statex III Drive System CPU to store 51 frames of data, 40 before the fault code event and 10 after, plus the event itself. In terms of time this was 8.51 seconds prior to the event and 2.08 seconds afterward. This was the standard window of data that is saved as a result of such events and was a total of 10.59 seconds. The data within the 10.59 second time frame was analyzed.
- 4) Putting the 10.59 seconds on a timeline, data collection began at time 0. Near the 1.8 second mark, the Statex data indicated the wheel speed suddenly increased, indicating the point where the truck crested the edge of the dump and started down the steep slope. Near the 6 second mark, the wheel speed data indicated the truck suddenly stopped, apparently when the truck struck the bottom of the "V" cut. The RP2 contactor fault occurred at 8.51 seconds. The Statex data indicated that the service brake and park brake were not applied at any time during the 10.59 second period of data collected. In addition, the Statex data indicated that the retarder was not applied as the truck approached the berm and traveled through it. After the truck went over the edge, the Statex data indicated intermittent retarder applications mostly at values of less than 10%, with 0% representing no retarder and 100% representing maximum retarder. These intermittent retarder commands occurred while the truck was bouncing down the slope and did not cause any effective slowing of the truck based on the wheel speed data collected.
- 5) A map based on global positioning system (GPS) data points from the Modular Mining Systems Dispatch/Mine Care system was generated that displayed the truck's position after the shift ended. The GPS data showed that the empty truck went to the parking area when the shift ended. Next, the truck left the parking area and traveled on a haul road back toward the dump point that had been used during the shift. Thereafter, the truck made a U-turn, traveled to the 65 Ranch dump, went through the berm, and down the steep slope.

Experience and training records

Orcutt was an experienced truck driver, having 5 years and 50 weeks of experience, all at the Spring Creek Mine. Orcutt received task training on a Komatsu 830E haul truck on July 9, 2008. Orcutt received annual refresher training on January 16, 2014.

The Cloud Peak Health and Safety Standards handbook, June 3, 2013 version, page 31, 7.1 states, "The driver and all passengers must wear their seat belts, where fitted, at all times." The seat belt in Orcutt's truck was not engaged when examined at the accident

scene. The seat belt assembly was still intact after the accident and the seat belt functioned when tested.

Toxicology

Toxicology of the victim's blood was conducted post-mortem. The results were:

1. Diphenhydramine: 0.19 MG/L quantitated in the blood and detected in the urine;
2. Cyclobenzaprine: 0.07 MG/L quantitated in the blood and detected in the urine;
3. Oxymorphone: 0.05 MG/L quantitated in the blood at this concentration;
4. Caffeine: detected in the blood and urine;
5. Ibuprofen: detected in blood;
6. Acetaminophen: detected in blood;
7. Gabapentin: detected in blood;
8. Metoprolol: detected in blood.

The Toxicology results did not draw a conclusion with regard to the substances found in the victim's blood.

Mine Examinations

The work area where the accident occurred was examined prior to the accident. No hazards were noted in the mine's examination records.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctible through management controls. These root causes, if corrected could have prevented the accident or mitigated the outcome. The following root cause was identified:


1. *Root Cause:* The mine operator failed to ensure seat belts were used where there is a danger of overturning mobile equipment. The victim did not wear his seat belt.

Corrective Action: The mine operator modified its new miner and contractor training plans to emphasize the importance of the use of seat belts. The plan further emphasized the potential disciplinary actions for not wearing a seat belt.

Additionally, the mine operator established a Safety Interaction Program that involves performing spot checks on a continual basis to determine if the miners are wearing their seat belts. This program also involves having conversations with employees about the use of seat belts and the requirement for wearing seat belts. The mine operator trained all miners and crews on the training plan revision and new safety interaction program, including the mandatory requirements of seat belt usage at the mine at all times.

CONCLUSION

The fatal accident occurred when the haul truck, operated by the victim, traveled through a berm, descended approximately 75 feet, and stopped abruptly against the opposite embankment in the bottom of a spoil "V." The cause of the truck traveling through the berm was not determined. The victim was not wearing his seat belt when the accident occurred which resulted in him receiving fatal injuries.


Russell J. Riley
District Manager

12/03/2014
Date

ENFORCEMENT ACTIONS

1. 103(j) Order No. 8477220 was issued to ensure the safety of all miners during and after any recovery actions taken for the affected area. It prohibited all activity at the Ramp 65 Ranch Dump and 500 feet to either side of its entrance, until MSHA determined that it is safe to resume normal mining operations. The order was modified to a section 103(k) order at 9:28 p.m. on June 23, 2014.
2. 104(a) Citation No. 8476775 was issued for a violation of 30 CFR § 77.403-1(g). Komatsu 830E end dump truck c/n 361 was involved in a fatal accident at approximately 7:35 p.m., on 6/23/2014 at the Ramp 65 Ranch dump. The driver of the truck was not wearing a seat belt. Mobile equipment that is required to be equipped with ROPS by § 77.403(a) must have a seat belt that is worn by the equipment operator. This is also a requirement of 30 CFR § 77.1710(i).

APPENDIX A

List of persons participating in the investigation

Spring Creek Coal Company

David Schwend.....General Manager
Erik Strom.....Production Manager
Kean Johnson.....Manager Site Health & Safety
Joe Vaccari.....Maintenance Manager
Greg Jones.....Mine Engineer
Keith Walters.....Technical Services Manager
Eli Whiteman.....Crew C Supervisor

Jackson & Kelly

Kristin White.....Counsel

Spring Creek Coal Miner’s Representatives

Andy Beard.....Miners Representative
Matt Lindstrom.....Miners Representative
Steve Nelson.....Miners Representative
Kaleb Rexroat.....Miners Representative
Doyle Hodgen.....Miners Representative

Spring Creek Coal Employees

Brandon Wilcox.....Truck Driver
Ed Shannon.....Heavy Equipment Operator
Curtis Fladager.....Heavy Equipment Operator
Doyle Hodgen.....Mechanic
Tim Geary.....Mechanic

Cloud Peak Energy

Kirby Drube.....MM&C Electronic technician

Mine Safety and Health Administration

David Hamilton.....Lead Investigator
David Maynard.....Surface Coal Mine Inspector
Todd Jaqua.....Gillette, WY Field Office Supervisor
Ronald Medina.....Mining Engineer, Approval and Certification Center

APPENDIX B

List of persons interviewed

Spring Creek Coal employees

Brandon Wilcox.....	Truck Driver
Chris Boll.....	Truck Driver/EMT
Erik Koepp.....	Mechanic/EMT
Ed Shannon.....	Heavy Equipment Operator
Charlie Brehmer.....	Truck Driver
Kenneth Cross.....	Rubber-tired bulldozer operator
Coy Trumbull.....	Water truck Driver
Eli Whiteman.....	Crew C Supervisor

APPENDIX C

Victim Information

Accident Investigation Data - Victim Information

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



Event Number:

Victim Information:

1. Name of Injured/Ill Employee: <i>Stewart R. Orcutt</i>		2. Sex <i>M</i>	3. Victim's Age <i>58</i>	4. Degree of Injury: <i>01 Fatal</i>											
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 06/23/2014 b. Time: 19:35</i>				6. Date and Time Started: <i>a. Date: 06/23/2014 b. Time: 7:00</i>											
7. Regular Job Title: <i>176 Truck Driver</i>		8. Work Activity when Injured: <i>055 Operating haul truck surface</i>			9. Was this work activity part of regular job? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No										
10. Experience	Years	Weeks	Days	b. Regular	Years	Weeks	Days	c. This	Years	Weeks	Days	d. Total	Years	Weeks	Days
a. This				Job Title:				Mine:				Mining:			
Work Activity:	<i>5</i>	<i>50</i>	<i>1</i>		<i>5</i>	<i>50</i>	<i>1</i>		<i>5</i>	<i>50</i>	<i>1</i>		<i>5</i>	<i>50</i>	<i>1</i>
11. What Directly inflicted Injury or Illness? <i>076 Truck driving through berm</i>				12. Nature of Injury or Illness: <i>370 head injuries/multiple 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:	CPR:	EMT:	Medical Professional:	None:									
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>									
16. Part 50 Document Control Number: (form 7000-1)				17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>											