MAI-2010-21

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Crushed Stone)

Fatal Falling Material Accident
November 30, 2010

Portable Plant
Shawnee Rock Inc.
Pullman, Whitman County, Washington
Mine ID No. 45-03112

Investigators

Ronald J. Jacobsen
Supervisory Mine Safety and Health Inspector

Bryan Chaix
Mine Safety and Health Inspector

Michael J. Murawski, P.E.
Civil Engineer

Keith Palmer
Mine Safety and Health Specialist

Originating Office
Mine Safety and Health Administration
Western District
2060 Peabody Road, Suite 610
Vacaville, California 95687
Wyatt Andrews, District Manager (Acting)

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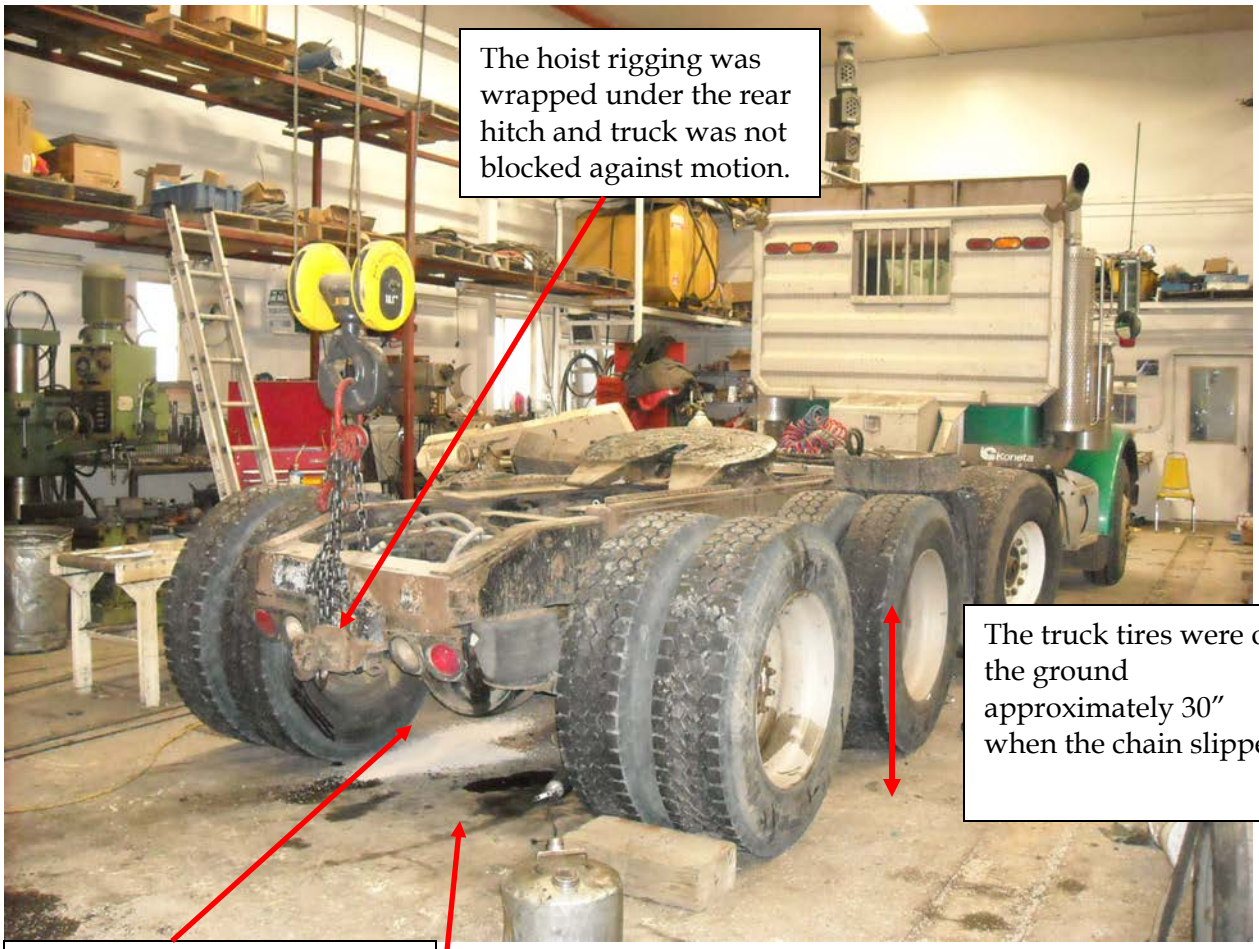
The hoist rigging was wrapped under the rear hitch and truck was not blocked against motion.
The truck tires were off the ground approximately 30″ when the chain slipped.
The victim was under the truck when the chain slipped. The injured miner was kneeling under the rear-end of the truck near the lights assembly.

OVERVIEW

David E. Zorb, crusher operator, age 33, died on November 30, 2010, while performing maintenance on an over-the-road truck. The victim and a coworker were working under the rear portion of a ten-wheeled truck that was suspended by rigging attached to a hoist. The chain sling holding the truck slipped off the free end of the pintle-type hitch at the rear of the vehicle frame and released the load. The truck fell, striking the victim and the other miner who was seriously injured.

The accident occurred because management had not developed policies and procedures to provide safe practices when persons worked around or under equipment in a raised position. The truck was not blocked to prevent it from accidentally falling. Additionally, a safety latch was not provided for the hook of the chain rigging.

GENERAL INFORMATION

Portable Plant, a surface crushed stone operation owned and operated by Shawnee Rock Inc., is located in Pullman, Whitman County, Washington. The principal operating official is Mark Cochran, owner and president. The mine operates one 10-hour shift, four days per week. Total employment was five persons.

Rock is extracted from a multi-bench quarry. The crushed stone is blasted, loaded into haul trucks by a front-end loader, and then hauled to a crusher plant where it is crushed, sized, and hauled to a stock pile. The finished products are sold for construction material.

The last regular inspection at this operation was completed on September 14, 2010.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, David E. Zorb (victim) reported for work at 7:00 a.m., his normal starting time. Mark Cochran met with Zorb, Travis Deercop, laborer, and Jeffrey McNeilly, mechanic, to assign their duties to perform maintenance on an over-the-road truck.

At approximately 7:30 a.m., they installed the third member gearbox in the rear axle assembly on the truck. The crew had removed and rebuilt this gearbox the previous day.

At 1:00 p.m., with the truck raised about 30 inches off the ground, the crew continued making repairs. They finished installing the third member gearbox and noticed the rear right leaf spring was loose. Deercop kneeled under the rear end of the truck and used a torch to heat the nuts on the leaf spring U-bolt while McNeilly used a pneumatic impact wrench to tighten the nuts. McNeilly stepped out from under the truck as Deercop started heating the nuts on the U-bolt. Zorb was sitting under the truck between the third member gearbox and the rear wheels of the truck.

About 1:45 p.m., McNeilly heard a pop and immediately turned to see that the truck fell on Deercop. As he pulled Deercop out from under the truck, McNeilly noticed that Zorb had been struck as well and was not responsive.

Cochran was in the rear of the shop talking with Lyle Darrow, a sales representative. They heard the load noise and ran to see what happened. They rigged the truck and used the hoist to free Zorb. Darrow called for emergency medical services (EMS) as Cochran and McNeilly administered Cardiopulmonary Resuscitation (CPR). EMS arrived at 2:00 p.m. and at 2:55 p.m., the Whitman County Coroner pronounced the victim dead at the scene. Death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

On the day of the accident, the Mine Safety and Health Administration (MSHA) was notified at 2:07 p.m., by a telephone call from Mark Cochran, president, to Stephen Cain, supervisory mine safety and health inspector. An investigation started the following day.

An order was issued under the provisions of Section 103(j) of the Mine Act to ensure the safety of the miners. MSHA's investigation team traveled to the mine, made a physical inspection of the accident scene, interviewed employees, and reviewed conditions 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 accident occurred in the west bay of the Pullman shop. The shop was located about 0.2 of a mile from the portable crushing plant.

Pullman Shop

The Pullman maintenance shop was approximately 110 feet long by 50 feet wide. The ceiling of each bay was approximately 20 feet above floor level. The shop was heated. The floor was level and constructed of reinforced concrete. The shop had two bays, designated as the east bay and the west bay respectively. The East bay was rented out to a local fire department for storage. The west bay was approximately 60 feet long by 50 feet wide. It was used for rebuilding mining equipment such as conveyors and mobile equipment. At the time of the accident, a front-end loader was also in the shop.

Truck

The ten wheeled truck involved in the accident was a 1994 Peterbilt semi-tractor, model 378, with no trailer attached. The chassis weight of the truck indicated on the identification plate was 17,325 pounds. The truck had a dual rear drive axle with a drop axle located behind the cab on the chassis. It was equipped with a fifth wheel receiver plate attached to the rigid frame. The truck was normally used to pull a portable crushing plant to different pits and would typically stay on site until the crusher needed to be moved to another location.

Hoist

The hoist involved in the accident was manufactured by R&M Materials Handling Inc. The 10-ton capacity overhead gantry crane was supported by rails located near the top of the north and south shop walls and was used to assist maintenance activities. The main girder of the crane spanned the width of the shop (from the north wall rail to the south wall rail) and supported the hoist. Powered rollers on the hoist allowed it to be moved along the bottom flange of the main girder. The hoist had two separate drums. A wire rope extended from each drum to a separate sheave attached to the gantry crane hook and returned to an anchorage point on the hoist.

Using longitudinal (i.e., along the rails on the north and south walls) movements and lateral (i.e., along the main girder) movements, the hoist could be positioned to make lifts throughout nearly the entire west bay. The hoist was controlled by a pendant which, at the time of the accident, was located where the truck fell. The hook of the gantry crane was latched and held the oblong master link of a double chain sling.

The load raised and held by the gantry crane did not exceed the listed load capacity of the crane or the associated rigging elements. Investigators determined that, based on this value and the majority of the truck's weight concentrated in the area of the engine and cab, the crane lifted about forty percent of the truck's weight (6,930 pounds).

The hoist was tested and no operational problems or safety defects were found.

Chain Sling

The tag on the chain sling involved in the accident indicated it was a DOSA-type manufactured by Weissenfels USA Inc. This designation indicates that it was a double (D) sling with an oblong (O) master link and had sling-type hooks (S). The last letter (A) indicates the style (A or B), which dictates the respective chain lengths. The tag lists the chain size as 3/8-inch which was confirmed by direct measurement.

The allowable working loads listed on the tag were consistent with typical listed values for grade 80 alloy steel chain slings. Four separate lengths of chain were attached to the master link of the chain sling. Two were 68 inches long and terminated with a sling hook at their free end. The other two were 11 inches long and terminated with a grab hook at their free end. Although configured to accommodate them, neither of the two sling hooks was fitted with a safety latch. A noncontributory citation was issued.

Based on the markings and measurements, the rigging hardware between the gantry crane hook and the trailer hitch pickup point (i.e., the master link, the chain and sling

hook) had a working load capacity of 7,100 pounds. The load lifted did not exceed the lifted capacity of the rigging hardware.

Rigging Method

When the accident occurred, the crane rigging assembly (i.e., the chain sling) was attached to the trailer hitch of the truck using one of its 68-inch-long chains and its respective sling hook. The hitch was pintle-type extending 8 inches from the rear of the truck frame. Reportedly, this chain was wrapped (once) under the trailer hitch that protruded from the rear cross member of the semi-tractor frame. A hook placed around the chain at a location several inches above the trailer hitch formed a choker around the pickup point. The accident occurred when the chain sling holding the truck slipped off the free end of the pintle-type hitch at the rear of the vehicle frame and released the load. Investigators determined that the rigging arrangement (i.e., wrapping the long chain under the trailer hitch and "looping" the sling hook around the outside of the chain) had been used several times during the two days preceding the accident. Three other available chains were not utilized in the lift.

Training and Experience

David E. Zorb had 7 years of mining experience, three years at this operation. He had received training in accordance with 30 CFR Part 46.

Travis Deercop had 30 weeks of mining experience. He had received training in accordance with 30 CFR Part 46.

Jeffrey McNeilly had 13 years of mining experience, all at this operation. He had received training in accordance with 30 CFR Part 46.

ROOT CAUSE ANALYSIS

A root cause analysis was performed and the following root cause was identified:

Root Cause: Management's policies, procedures, and controls were inadequate and failed to ensure that persons could safely perform maintenance in the shop. The truck was not blocked or mechanically secured to prevent it from falling or rolling accidentally.

Corrective Action: Management implemented policies, procedures, and controls to ensure that when mobile equipment is raised, it is properly blocked while persons perform maintenance in the shop. All persons were trained regarding the new procedures and will be monitored to ensure that these safe procedures are being followed.

CONCLUSION

The accident occurred because management had not developed policies and procedures to provide safe practices when persons worked around or under equipment in a raised position. The truck was not blocked to prevent it from accidentally falling. Additionally, a safety latch was not provided for the hook of the chain rigging.

ENFORCMENT ACTIONS

Issued to Shawnee Rock Inc.

Order No. 64833274 was issued on November 30, 2010, under the provisions of Section 103(j) of the Mine Act:

> A fatal accident occurred at this operation on November 30, 2010, when three miners were conducting maintenance work on a ten wheeled truck and attempting to tighten a nut on the leaf spring while it was suspended in the air. A verbal J-order was issued to assure the safety of all persons at this operation. It prohibits all activity at the West bay of the Pullman shop until MSHA has determined that it is safe to resume normal mining operations in the area. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations to the affected area with the exception of the rescue crew.

This order was modified to a section 103 (k) Order on December 1, 2010, when an authorized representative arrived at the mine site.

This order was terminated on December 4, 2010, after conditions that contributed to the accident no longer existed.

Citation No. 6483328 was issued on March 10, 2011, under the provisions of Section 104(d)(1) of the Mine Act for a violation of 56.14211(a):

A fatal accident occurred at this mining operation on November 30, 2010, when a miner was struck by a ten wheel truck that had been suspended by an overhead crane. Another miner was seriously injured. The suspended truck had not been blocked or mechanically secured to prevent it from falling accidentally. The mine's manager engaged in aggravated conduct constituting more than ordinary negligence in that he was aware that a maintenance task was being performed but made no effort to correct an unsafe and obvious hazardous condition. This is an unwarrantable failure to comply with a mandatory standard.

This citation was terminated on March 10, 2011. Miners who perform maintenance were re-trained regarding procedures to be used when working under equipment in a raised position.

Approved By:

_____ _____

Wyatt Andrews Date
Acting District Manager

APPENDICES

APPENDIX A

Persons Participating in the Investigation

Shawnee Rock Inc.

Mark Cochran	President
Krissy McNeilly	Office Manager

N-Compliance Safety Services, Inc.

Kim Redding	Safety Consultant

Mine Safety and Health Administration

Ronald J Jacobsen	Supervisory Mine Safety and Health Inspector
Michael J. Murawski, PE	Civil Engineer
Ivan K. Urnovitz	Mine Safety and Health Inspector
Bryan Chaix	Mine Safety and Health Inspector
Keith Palmer	Mine Safety and Health Specialist

Whitman County Sheriff

Vince Waltz	Whitman County Sheriffs Office Responding Officer
Ron McMurray	Whitman County Sheriff's Chaplain
Anna Nofsinger	Whitman County Deputy Coroner

Appendix B

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:
David E. Zorb	*M*	*33*	*9405*	*01 Fatal*

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	7. Date and Time Started:
a. Date: 11/30/2010 b.Time: 14:15	*a. Date: 11/30/2010 b.Time: 7:00*

8. Regular Job Title:	9. Work Activity when Injured:	10. Was this work activity part of regular job?
181 Crusher operator/mechanic	*039 Maintenance on Truck*	Yes | X | No

11. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*13*	*14*	*4*	b. Regular Job Title:	*13*	*14*	*4*	c: This Mine:	*3*	*14*	*4*	d. Total Mining:	*7*	*14*	*4*

12. What Directly Inflicted Injury or Illness	13. Nature of Injury or Illness:
110 Truck falling on top of miner	*170 Massive neck and chest injuries*

14. Training Deficiencies:

Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

15. Company of Employment:(If different from production operator)

Operator

Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment

Not Applicable: | | First-Aid: | | CPR: | X | EMT: | X | Medical Professional: | | None: | |

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim: *9999* *None (No Union Affiliation)*