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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
Construction Sand and Gravel

Fatal Powered Haulage Accident
August 9, 2011

4 J's Gravel Crushing
4 J's Gravel Crushing Plant 2
Fairfax, Renville County, Minnesota
Mine ID No. 21-03739

Investigators

George F. Schorr
Supervisory Special Investigator

Richard A. King
Mine Safety and Health Specialist

Dale P. Ingold, P.E.
General Engineer

Originating Office
Mine Safety and Health Administration
North Central District
515 W. First Street, Room 333
Duluth, MN 55802-1302
Steven M. Richetta, District Manager

OVERVIEW

Aaron D. Kaufmann, equipment operator, age 24, was killed on August 9, 2011, when he contacted the crushing plant's feed belt conveyor head pulley components. Kaufmann was standing on a catwalk while the belt conveyor was operating and became entangled in the head pulley components.

The accident occurred because management failed to ensure that moving machine parts were guarded to protect persons from contacting them. Additionally, the victim had limited mining experience and was not task trained regarding the health and safety hazards associated with operation of the crushing plant.

GENERAL INFORMATION

The 4 J's Gravel Crushing Plant 2, operated by 4 J's Gravel Crushing, is a sole proprietorship owned by Kevin R. Paul. The mine is a portable crushing operation contracted by public and private entities to crush various grades of construction sand and gravel. The mine operates one, 10 to 12-hour shift a day. Days of operation per week varied depending on production needs. Total employment is three persons.

At the time of the accident, 4 J's Gravel Crushing Plant 2 was being operated in the Brad Lund pit, located in Fairfax, Renville County, Minnesota. 4 J's Gravel Crushing had been contracted by the pit owner to crush road gravel. The crushing plant had been moved in and set up on August 6, 2011. The work was to be completed in approximately three days. The mine operator failed to notify MSHA of commencement of mining. A non-contributory citation was issued to the mine operator.

DESCRIPTION OF ACCIDENT

On the day of the accident, Aaron D. Kaufmann (victim), Jason D. Paul, dozer operator, and John L. Winquist, contract mechanic, started work at 6:00 a.m. and prepared the plant for operation. Kaufmann and Paul started a gen-set motor, the crushing plant drive motor, a skid steer loader, and a dozer. Winquist applied belt dressing to the plant's drive motor belt/pulleys.

After the equipment warmed up, Jason Paul pushed material with the dozer to the dozer trap. Kaufmann started the plant's conveyor electrical motors. He then operated the skid steer loader, placing larger rocks for the dozer to move. At approximately 8:00 a.m., Bradley C. Lund, owner of the pit, arrived and began operating another dozer, moving overburden.

At approximately 11:50 a.m., Winquist observed Kaufmann walking to his vehicle to get his lunch and return to the skid steer loader. About 12:00 p.m., Winquist looked up toward the crusher and saw Kaufmann standing on the catwalk, next to the head pulley of the plant's feed belt conveyor. Kaufmann signaled to Winquist to shut the plant down by motioning across his neck with his hand. Winquist then lost sight of Kaufmann, ran to the opposite side of the crusher, and saw him lying on the catwalk.

Winquist went on the catwalk to check Kaufmann, saw that he needed help, and went to get Jason Paul. They climbed up on the catwalk and found Kaufmann unresponsive. Winquist went to Lund and informed him what had happened. At 12:02 p.m., Lund called for Emergency Medical Services (EMS) and provided first

aid to the victim. At 12:12 p.m., EMS arrived and pronounced Kaufmann dead at the scene about 12:50 p.m. The cause of death was attributed to exsanguination.

INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified of the accident on August 9, 2011, at 12:50 p.m., by a telephone call from Kevin R. Paul, owner, to John C. Koivisto, mine safety and health inspector. An investigation began the same day. An order was issued pursuant to 103(j) and later modified to 103(k) of the Mine Act to ensure the safety of the miners.

MSHA's accident investigation team traveled to the mine, conducted a physical examination of the accident scene, interviewed employees, and reviewed documents, equipment, and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of 4 J's Gravel Crushing management and employees.

DISCUSSION

Location of Accident

The accident occurred on a catwalk located alongside and attached to the Cedar Rapids portable crushing plant.

Conveyor

The portable stacking conveyor involved in the accident is a Kolman, Model 3665. At the time of the investigation, the tail section of the conveyor was not accessible because it was partially buried by the dozer pocket feed ramp. The investigators could not locate a nameplate on the conveyor. Management provided the model number and manufacturer information. Kolman lists Model 3665 as a stacking conveyor 65 feet long with a 36-inch wide belt. However, the conveyor was modified from its original design and was approximately 45 feet long and had a 35-inch wide belt.

The conveyor was located perpendicular to and inclined from the ground to the top of the portable crusher unit. The head pulley of the conveyor was positioned approximately 53 inches above the elevated walkway along the crusher.

The investigators could not determine why Kaufmann accessed the catwalk or was positioned next to the head pulley.

Crusher and Walkway

The stacking conveyor is used to feed a Cedar Rapids crusher, Model 1952 Commander 443, a jaw and roller crusher equipped with three fixed sizing screens. The walkway located alongside of the crusher was installed by the manufacturer. The walkway measured approximately 16 inches wide and the distance from the handrail to the side of the crusher is approximately 22½ inches. The walkway is level and no tripping or slipping hazards were observed.

Weather

At the time of the accident, the weather was clear. Weather was not considered to be a factor in the accident.

Training and Experience

The training records were examined by a specialist from MSHA's Educational Field Services.

Aaron D. Kaufmann, victim, had limited mining experience. Reportedly, he had worked intermittently for 4 J's Gravel Crushing for 12 weeks over the last 3 years. Kaufmann received annual refresher training on February 24, 2011. He was not task trained regarding the health and safety hazards associated with operation of the crushing plant. A contributory citation was issued. Management trained all persons to identify hazards and eliminate them before beginning any work near belt conveyors.

Jason A. Paul worked for 4 J's Gravel Crushing for seven years. He received annual refresher training on February 24, 2011.

John L. Winquist, contract mechanic, had 25 years of mining experience operating mobile equipment. The last annual refresher training he received was in 2008. A non-contributory citation was issued to this contractor for the lack of a training plan.

Bradley C. Lund, dozer operator (pit owner), had worked for another mining company five or six years ago; however, he was unable to produce any training records. A non-contributory citation was issued to this pit owner for the lack of a training plan.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following root causes were identified:

Root Cause: Management failed to ensure that moving machine parts were guarded to protect persons from contacting them.

Corrective Action: Management established safe operating procedures to protect persons working around moving belt conveyor components. All moving machine parts were guarded to protect persons from contacting them. Since the accident, all persons were trained to recognize identifiable hazards and eliminate them before beginning any work near belt conveyors.

Root Cause: Management did not task train the victim regarding the health and safety hazards associated with operation of the crushing plant.

Corrective Action: Management trained all persons to identify hazards and eliminate them before beginning any work near belt conveyors.

CONCLUSION

The accident occurred because management failed to ensure that moving machine parts were guarded to protect persons from contacting them. Additionally, the victim had limited mining experience and was not task trained regarding the health and safety hazards associated with operation of the crushing plant.

ENFORCEMENT ACTIONS

Issued to 4 J's Gravel Crushing

Order No. 6560128 was issued on August 9, 2011, under Section 103(j) of the Mine Act:

> An accident occurred at this operation on August 9, 2011, at approximately 12:50 p.m. This order is being issued under Section 103(j) 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 activity at the crushing plant until MSHA has determined that it is safe to resume normal mining operations at this crushing plant. This order was initially issued orally to the mine operator at 1:45 p.m. and has now been reduced to writing.

The order was terminated on August 16, 2011, after it was determined that conditions that contributed to the accident have been corrected and mining operations can resume.

Citation No. 6135242 was issued on September 29, 2011, under provisions of 104(a) of the Mine Act for a violation of 30 CFR Part 56.14107(a):

> A fatal accident occurred at this operation on August 9, 2011, when a miner came into contact with the crushing plant's feed conveyor head pulley components. The miner was standing on the plant's catwalk while the plant was operating and had positioned himself next to the unguarded head pulley. The head pulley for the plant's feed conveyor was located approximately 53 inches above the catwalk and was not guarded to protect persons from the exposed moving machine parts hazard.

The citation was terminated on September 29, 2011, after the mine operator installed guarding on the crushing plant feed conveyor head pulley components, preventing access to moving machine parts.

Citation No. 6135243 was issued on September 29, 2011, under provisions of 104(a) of the Mine Act for a violation of 30 CFR Part 46.7(a):

> A fatal accident occurred at this operation on August 9, 2011 when a miner came into contact with the crushing plant's feed conveyor head pulley components. The miner was standing on the plant's catwalk while the plant was operating and had positioned himself next to the unguarded head pulley. He had not received adequate training to perform the task of operating the crushing plant prior to assuming his duties on August 8, 2011. The mine operator was aware of Part 46 training requirements and the mine operator's training plan covered New Task Training; however, the mine operator reported to be unaware that miners were required to be task trained or that a record of task training was required. The Federal Mine Safety and Health

Act of 1977 states that an untrained miner is a hazard to himself and to others.

The citation was terminated on September 29, 2011. The miner died as the result of a fatal accident at this operation on August 9, 2011, and consequently the required training could not be provided.

Approved by: Date:

Steven M. Richetta
District Manager
North Central District

APPENDIX A

Persons Participating in the Investigation

4 J's Gravel Crushing

Kevin R. Paul	Owner
Jason A. Paul	Dozer Operator

Mine Safety and Health Administration

George F. Schorr	Supervisory Special Investigator
Richard A. King	Mine Safety and Health Specialist
Dale P. Ingold, P.E.	General Engineer

APPENDIX B

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
Aaron D. Kaufmann	*M*	*24*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 08/09/2011 b.Time: 12:03	*a. Date: 08/09/2011 b.Time: 6:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
125 Bobcat operator	*036 Inspecting equipment - not maint/repair*	Yes [ ] No [*X*]

10. Experience

	Years	Weeks	Days
a. This Work Activity:	*0*	*0*	*2*
b. Regular Job Title:	*0*	*12*	*0*
c: This Mine:	*0*	*0*	*2*
d. Total Mining:	*0*	*12*	*1*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
038 conveyor	*100 amputation*

13. Training Deficiencies

Hazard: [ ] New/Newly-Employed Experienced Miner: [ ] Annual: [ ] Task: [*X*]

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

Operator

Independent Contractor ID: (if applicable)

15. On-site Emergency Medical Treatment

Not Applicable: [ ] First-Aid: [*X*] CPR: [ ] EMT: [ ] Medical Professional: [ ] None: [ ]

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

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