MAI-2010-18

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Limestone)

Fatal Powered Haulage Accident
October 16, 2010

Plant # 80013
N.R. Hamm Quarry Inc.
Perry, Jefferson County, Kansas
Mine I.D. No. 14-01609

Investigator

David M. Sinquefield
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Rocky Mountain District
P.O. Box 25367, DFC
Denver, Colorado 80225-0367
Richard Laufenberg, District Manager

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PHOTOGRAPH OF ACCIDENT SCENE
BELT CONVEYOR TAIL PULLEY

AIR HOSE FOR CHIPPING HAMMER

VICTIM WAS CLEANING HERE

OVERVIEW

On October 16, 2010, William W. Oaks, haul truck driver, age 52, died while he was cleaning out hardened material on a belt conveyor tail pulley. Oaks was positioned on top of the return side of the belt conveyor when the belt conveyor was energized, entangling him in the tail pulley.

The accident occurred because management failed to ensure that safe work procedures were followed while persons performed work on the belt conveyor tail pulley. The belt conveyor was not deenergized and blocked against motion before persons removed spillage. Additionally, the procedures for starting the belt conveyor did not ensure that persons were protected.

GENERAL INFORMATION

Plant #80013, a surface crushed limestone mine, owned and operated by N.R. Hamm Quarry Inc., was located in Perry, Jefferson County, Kansas. The principal operating official was N. Rodney Hamm, president. The plant operated two 14-hour shifts, 6 days a week. Total employment was 13 persons.

Limestone was mined from a single bench. The material was drilled, blasted, and loaded into haul trucks by a front-end loader. The material was hauled to a plant where it was crushed, screened, and washed. Finished products were sold for construction aggregate.

The last regular inspection at this operation was completed on September 8, 2010.

DESCRIPTION OF THE ACCIDENT

On the day of the accident, William W. Oaks (victim) arrived at the mine at 6:00 a.m., his usual arrival time. Oaks began his day by driving a haul truck, delivering broken rock from the pit to the plant.

About 7:30 a.m., a build-up of material on the tail pulley caused the belt conveyor to run off to one side. John Bonnell, foreman, then used a front-end loader to clean out material from under the tail pulley. At about 7:45 a.m., John Bonnell, radioed to Hunter Bonnell, plant operator; William Oaks (victim); Adam Jones, mechanic; Wayne Herman, mechanic; Cesar Salazar, truck driver; and James Bogner, production manager, to shut the plant down to clean the fins of the belt conveyor tail pulley.

At 7:50 a.m., Oaks used a 6-foot metal bar to clean the material from the tail pulley. When John Bonnell saw that the metal bar was not effective, he asked Oaks if he wanted to use a chipping hammer. John Bonnell positioned an air compressor and strung out the air hose and chipping hammer. Oaks climbed in on top of the bottom of the belt conveyor and began using the chipping hammer to remove the build-up of material from the tail pulley.

At about 8:10 a.m., Hunter Bonnell came to the work area of the tail pulley. John Bonnell directed him to go to the operator's control booth and stand by. Hunter Bonnell went to the operator's control booth and sounded the horn signal. When John Bonnell heard the horn signal he used hand signals to communicate with Hunter Bonnell not to start the belt conveyor. Hunter Bonnell misunderstood the signals and started the belt conveyor. Oaks was then entangled in the tail pulley.

At 8:14 a.m., James Bogner called for Emergency Medical Services (EMS). EMS arrived at 8:32 a.m., and Oaks was pronounced dead at the scene by the Jefferson County coroner. The cause of death was attributed to blunt trauma.

INVESTIGATION OF THE ACCIDENT

On the day of the accident, the Mine Safety and Health Administration (MSHA) was notified at 8:29 a.m., by a telephone call from Kent Miller, safety director, to MSHA's emergency hotline. Dustan Crelly, staff assistant, was notified and an investigation was started the same day. To ensure the safety of all persons, an order was issued pursuant to Section 103(j) of the Mine Act. This order was later modified to Section 103(k) of the Mine Act.

MSHA's accident investigator 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, employees, and the Jefferson County Ambulance Service.

DISCUSSION

Location of the Accident

The accident occurred on the tail pulley of a belt conveyor that delivered material to the surge bin.

Belt Conveyor

The belt conveyor was a Masaba 110 feet long by 42-inch field conveyor. The belt conveyor was powered by a 480-volt, 20 horsepower and 1,750 revolutions per minute motor that operated at a speed of 300 feet per minute. The tail pulley was 48 inches wide. This belt conveyor was controlled from the plant control tower and was in plain view of a person sitting in the control tower operator’s seat. The “on and off” belt control buttons were located on a control panel console next to the operator. They were labeled and functioned properly.

Electrical Power

The electrical power for the plant was provided by a generator. The electrical disconnects were located about 110 feet from the belt conveyor tail pulley. All electrical disconnect devices for the belt conveyor were tested and found to be functional.

Warning Siren

A SHO-ME Model 30.2100 100-watt full feature siren was installed in the plant control booth. The siren had three settings (horn, yelp, and siren). The mine’s safe operating procedures for starting the belt conveyor involved in the accident require that the siren be used before energizing plant equipment. On the day of the accident, the horn setting was used. The horn and siren settings were tested and found to be functional.

Weather Conditions

The weather conditions the day of the accident were clear and calm with a temperature of 60 degrees Farenheight.

Training and Experience

William W. Oaks had 5 years and 12 weeks of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

John Bonnell had 22 years of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

Hunter Bonnell had 3 years of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

Adam Jones had 6 years of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

Wayne Herman had 2 years of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

Cesar Salazar had 1 year of mining experience, all at this mine. He had received all training as required by 30 CFR Part 46.

ROOT CAUSE

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

Root Cause: Management did not ensure that safe operating procedures were followed while persons removed spillage from the belt conveyor. The victim entered the belt conveyor without ensuring that it had been deenergized and blocked against motion.

Corrective Action: The procedures to deenergize and block equipment from hazardous motion have been revised. All miners have been trained regarding the new procedures.

Root Cause: Management did not ensure that safe operating procedures were followed prior to starting a belt conveyor.

Corrective Action: Safe operating procedures for starting belt conveyors have been established and all miners have been trained regarding the new procedures.

CONCLUSION

The accident occurred because management failed to ensure that safe work procedures were followed while persons performed work on the belt conveyor tail pulley. The belt conveyor was not deenergized and blocked against motion before persons removed spillage. Additionally, the procedures for starting the belt conveyor did not ensure that persons were protected.

ENFORCEMENT ACTIONS

Order No. 6459094 was issued on October 16, 2010, under the provisions of Section 103(j) of the Mine Act. This order was modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived at the mine site:

> A fatal accident occurred at this operation on October 16, 2010. This Section 103(k) order is intended to protect the safety of all persons on-site, including those involved in rescue and recovery operations, or investigation of the accident. The mine operator shall obtain approval of an Authorized Representative of the Secretary to recover and or restore operations in the affected area. Additionally, the mine operator is reminded of its existing obligations to prevent destruction of evidence that would aid in the investigation of the cause or causes of the accident.

This order was terminated on October 20, 2010, when the conditions that contributed to the accident no longer existed.

Citation No. 6589805 was issued on November 15, 2010, under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 57.12016:

> A fatal accident occurred at this operation on October 16, 2010. A haul truck driver was using an air-powered hammer/chisel to mechanically clean hardened material on a belt conveyor tail pulley. The victim was positioned on top of the return side of the belt conveyor when the belt conveyor was energized, entangling him in the tail pulley. The electrically powered equipment was not deenergized and locked out or other measures taken to prevent the equipment from being energized without the knowledge of the person working on it. The equipment was never blocked against motion. Management engaged in aggravated conduct constituting more than ordinary negligence in that the foreman was in direct supervision of the maintenance activities being performed by the victim in the tail pulley of the belt conveyor. This violation is an unwarrantable failure to comply with a mandatory standard. This condition was a violation of 56.12016 or, in the alternative, 56.14105.

This order was terminated on November 15, 2010, after all persons working at the plant were retrained regarding the procedures to be used when cleaning spillage on belt conveyors.

Order No. 6589806 was issued on November 15, 2010, under the provisions of Section 104(d)(1) of the Mine Act for a violation of 30 CFR 56.14201(b):

> A fatal accident occurred at this operation on October 16, 2010. A haul tuck driver was using an air-powered hammer/chisel to clean hardened material on a belt conveyor tail pulley. The victim was positioned on top of the return side of the belt conveyor when the belt conveyor was energized, entangling him in the tail pulley. An audible warning was not given when the belt conveyor started. Management engaged in aggravated conduct constituting more than ordinary negligence in that the foreman was in direct supervision of the maintenance activities being performed by the victim in the tail pulley of the belt conveyor. This violation is an unwarrantable failure to comply with a mandatory standard.

This order was terminated on November 15, 2010, after all persons working at the plant were trained on belt conveyor start up warnings.

Approved By: Date January 4, 2011

Richard Laufenberg
District Manager

LIST OF APPENDICES

APPENDIX A
Persons Participating in the Investigation

N.R. Hamm Quarry Inc.

Kent Miller	safety manager
John Bonnell	foreman
Hunter Bonnell	plant operator
James Bogner	production manager
Adam Jones	mechanic
Wayne Herman	haul truck driver

Mine Safety and Health Administration

David M. Sinquefield	mine safety and health inspector

APPENDIX B
Victim Data Sheet

Accident Investigation Data - Victim Information
Event Number: 6 5 2 0 9 5 8

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

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
William Oaks	*M*	*52*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 10/16/2010 b.Time: 9:32	*a. Date: 10/16/2010 b.Time: 6:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
176 Haul Truck Driver	*011 Cleaning Material from Tail Pulley*	Yes | X | No | |

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*5*	*12*	*0*	b. Regular Job Title:	*5*	*12*	*0*	c: This Mine:	*5*	*12*	*0*	d. Total Mining:	*5*	*12*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
035 Belt conveyor	*170 Crushing*

13. Training Deficiencies
Hazard: | | New/Newly-Employed Experienced Miner: | | Annual: | | Task: | |

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: | | CPR: | X | EMT: | X | Medical Professional: | X | None: | |

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

17. Union Affiliation of Victim: