MAI-2011-16

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Crushed and Broken Stone)

Fatal Machinery Accident
December 15, 2011

Damascus 535 Crushing
Damascus 535 Crushing
Lanesboro, Susquehanna County, Pennsylvania
MSHA I.D. No. 36-09824

Investigators

Andrew Bower
Mine Safety & Health Inspector

Mathew Mattison
Mine Safety & Health Inspector

Dustin Hinchman
Mining Equipment Compliance Specialist

Kenneth Chamberlain
Mine Safety and Health Specialist

Originating Office

Mine Safety and Health Administration
Northeast District
Thorn Hill Industrial Park
178 Thorn Hill Road, Suite 100
Warrendale, Pennsylvania 15086-7573
Donald J. Foster, Northeast District Manager

OVERVIEW

Wesley J. Sherwood Jr., Crusher Feed Controller, age 22, was killed on December 15, 2011, when he fell into an operating jaw crusher. Sherwood was last seen standing on the viewing platform. He apparently climbed over the railing of the platform to access the vibratory feeder to clear jammed material close to the opening of the crushing chamber.

The accident occurred due to management's failure to establish policies and procedures ensuring the safety of persons working near the jaw crusher. The jaw crusher was not de-energized, locked and tagged out, and blocked against motion prior to persons performing work around the feed opening. Procedures were not established to ensure that persons could safely access the feeder from the viewing platform or ground level. To access to the feeder, Sherwood had to climb out from the protective railing system, on the provided platform, and cross the jaw feed opening to reach the feeder deck. Additionally, Sherwood had only 14 weeks of experience and did not receive training in accordance with 30 CFR Part 46.

GENERAL INFORMATION

Damascus 535 Crushing is a portable crushing plant owned and operated by Damascus 535 Crushing located in Lanesboro, Susquehanna County, Pennsylvania. Thomas J. Bolles, Licensed Blaster, and Timothy M. Smith, Chief Executive Officer are the principal operating officials. The crushing plant normally operates one 10-hour shift, five days a week. Total mine employment is 20 persons.

At the time of the accident, the portable crushing plant was operating at the Lanesboro Quarry, owned and operated by B.S. Quarries, Inc. Material is drilled and blasted from a multiple-bench quarry and stockpiled adjacent to the crushing plant. The material is sorted and fed into the plant by a front-end loader and crushed and screened. Finished products are sold as construction aggregate.

The last regular inspection at this operation was completed on October 19, 2011.

DESCRIPTION OF ACCIDENT

On the day of the accident, December 15, 2011, Wesley J. Sherwood Jr. (victim) arrived at the mine at 6:00 a.m., his usual starting time. Sherwood carpooled to work with coworkers Randy L. Walker, Crusher Crew Leader/Loader Operator, and Joshua Harmon, Excavator Operator. Sherwood, Walker, and Harmon began the shift by performing their routine of plant and mobile equipment startup.

At approximately 7:00 a.m., they began replacing a stacker conveyor beneath the screen plant and finished at approximately 8:00 a.m. The crew began processing material following the completion of the replacement of the stacker conveyor. Walker returned to his front-end loader, feeding the crushing plant and loading trucks from finished material stockpiles. Sherwood was stationed in the jaw crushing plant's viewing platform, operating the vibrating feeder with a remote on/off switch ensuring an even flow of material into the crusher. Harmon returned to his excavator, sorting rip rap and loading trucks.

Work at the plant progressed normally until about 12:45 p.m. Sherwood, who was stationed on the viewing platform, motioned to Walker alerting him that a truck arrived for loading. Walker drove the front-end loader to the truck, parked approximately 150 feet from the crusher, loaded the truck, and returned to the crusher area. Walker could not see Sherwood on the viewing platform where he was stationed. At that moment, Harmon swung the excavator around and noticed that Sherwood was not on the platform. Harmon motioned to Walker inquiring if he could see Sherwood. Walker responded that he could not.

Harmon climbed up onto the viewing platform in an attempt to locate Sherwood and found him positioned head first inside the operating crushing chamber. Walker ran to the control panel to shut down power to the crusher.

Walker telephoned Chad T. Fotusky, Crusher Foreman, to notify him of the accident. Fotusky, who was not on site when the accident occurred, called for Emergency Medical Services (EMS). EMS arrived at 1:01 p.m. and at 1:40 p.m., the victim was pronounced dead at the scene by the Susquehanna County Coroner. The cause of death was attributed to blunt force trauma.

INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified of the accident at 12:50 p.m. on December 15, 2011, by a telephone call from Jay Molyneaux, Safety Director, to the National Call Center. The Call Center notified Brian Goepfert, Assistant District Manager, and an investigation was started the same day. In order to ensure the safety of all persons, an order was issued pursuant to Section 103(j) of the Mine Act. This order was subsequently modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived at the mine.

MSHA's accident investigation team traveled to the mine, conducted 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, local and state law enforcement personnel, and rescue agencies.

DISCUSSION

Location of the Accident

The accident occurred at the primary jaw crusher of the portable crushing plant.

Machine Information:

- **Lippmann Portable Jaw Crushing Plant**
  - i. Model: J3048-VGF5120

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- **Lippmann Model VGF-5120 Vibrating Grizzly Feeder with LLH-22 Vibrator**
  - i. 830 RPM, 7/16" Stroke @ 35 degrees
  - ii. 40 HP Electric Motor
  - iii. Manufactured in 2007
  - iv. Feed rate is adjustable
  - v. The bed measured approximately 51 inches wide by 20 feet long.
  - vi. Looking at the plant from the loading ramp, material flowed from the left side of the feeder hopper to the crusher which was located on the right side looking from the loading ramp.
  - vii. The feeder formed the bottom of the crusher feed hopper.

- **Lippmann 3048 Jaw Crusher**

i. The crusher was powered by a 200 HP Elektrim motor with a V-belt drive system @ 236 RPM NO LOAD with Automatic Lubrication System
ii. The crusher jaw opening was a nominal 48 inches wide by 30 inches long.
iii. The feeder bed was approximately 5½ inches above the top of the fixed crusher's jaw.
iv. The closed or exit end jaw opening measured approximately 4 inches.
v. The vertical length of the crushing chamber is approximately 6.5 feet.

Crushing Methods

The sandstone crushing operation at this portable plant utilized a jaw crusher and screening system connected together in series by belt conveyors.

The jaw crusher is the primary crusher reducing all quarried sandstone, that fits through the 30" x 48" inlet jaw opening, to a 4-inch top sized material. The primary crusher is fed by a vibrating feeder, at the bottom of a hopper, and is loaded by the crusher operator by a front-end loader. The crusher operator visually determines if the quarried sandstone fits through the jaw crusher by observing the material from the observation tower. When possible, oversized pieces of sandstone are broken into smaller pieces by striking them with the bucket of the front-end loader prior to loading the material into the hopper. The material exits the primary crusher, moved by belt conveyor to the attached screen plant, and is distributed to a stacker. Material not reduced to proper size is placed aside.

The investigators did not find any design, installation, or other physical factors that contributed to the accident.

Weather

On the day of the accident, weather conditions were overcast with a temperature approximately 44 degrees Fahrenheit and wind gusts to approximately 22 mph. Rain had fallen during the morning until noon, creating wet and muddy conditions at the crushing plant. Weather was not considered to be a factor in the accident.

Medical Analysis and Findings

An autopsy was performed by the Susquehanna County Coroner's Office on December 16, 2011, with a blood sample sent for toxicological analysis on December 22, 2011. An inactive marijuana metabolite (delta 9-tetrahydrocannabinol) was found in the blood at a concentration of 19 ng/mL. No psychoactive marijuana components were identified in the blood.

Training and Experience

Wesley J. Sherwood Jr. (victim) had 14 weeks of mining experience, all at this mine, performing work as a crusher feed controller for approximately four weeks. Investigators reviewed the training records for the victim and found that he did not receive the required task training regarding working at a crusher. Sherwood did not receive the proper safety procedures and precautions for operating or working on the crusher.

Root Cause Analysis

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

Root Cause: A risk assessment was not conducted to identify potential hazards and establish safe procedures prior to performing inspection, maintenance, or tasks such as clearing jammed material on the jaw crusher.

Corrective Action: Management implemented a policy requiring risk assessments/JSAs to be conducted prior to performing maintenance or other tasks on the crushing plant. The policy requires persons to identify potentially hazardous conditions. Procedures will be established to safely complete the task.

Root Cause: Management failed to ensure policies and procedures were in place to safely perform maintenance or other tasks on the jaw crusher. The victim left the confines of the protective railing system on the platform to access the areas adjacent to the jaw feed opening. Safe access was not provided or maintained to safely access the area.

Corrective Action: Management established written policies, procedures, and controls to ensure that:

1. Crushing plants will be de-energized, locked and tagged out, and blocked against hazardous motion before work begins. The procedures address the hazards associated with the work to be performed.
2. A safe means of access will be provided to the feeder deck using a secured external ladder.

Root Cause: Management failed to provide adequate New Miner and Task Training to the victim regarding tasks such as clearing a jammed crusher.

Corrective Action: Management established a written plan for proper New Miner and Task Training. This training includes procedures ensuring persons can safely perform crusher inspection, maintenance, or other tasks. The proper documentation of the training will be provided.

CONCLUSION

The accident occurred due to management's failure to establish policies and procedures ensuring the safety of persons performing work activities at or near the jaw crusher. The jaw crusher was not de-energized, locked and tagged out, and blocked against motion prior to persons performing work around the feed opening. Management failed to establish procedures ensuring persons could safely access the feeder from the viewing platform or from ground level. To gain access to the feeder, Sherwood had to climb out from the protective railing system, on the provided platform, and cross the jaw feed opening to reach the feeder deck. Additionally, Sherwood had 14 weeks of experience and did not receive training in accordance with 30 CFR Part 46.

ENFORCEMENT ACTIONS

Issued to Damascus 535 Crushing

Order No. 8651587 - Issued on December 15, 2011, under the provisions of Section 103(j) of the Mine Act:

An accident occurred at this operation on December 15, 2011, at approximately 12:45 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 of the accident. It prohibits all activity at the Lippmann 30x48 portable crusher and portable crushing plant area until MSHA has determined that it is safe to resume normal mining operations in this area. This was initially issued orally to the mine operator at 1:18 p.m. and now has been reduced to writing.

The order was subsequently modified to Section 103(k) after an Authorized Representative arrived at the mine. This order was terminated on February 21, 2012, after conditions that contributed to the accident no longer existed.

Order No. 8654300 - Issued on January 31, 2012, under the provisions of 104 (d)(1) of the Mine Act for a violation of 30 CFR 56.14105:

A fatal accident occurred at this operation on December 15, 2011. A crusher operator was positioned on a jaw crusher's protective railing system on the elevated viewing platform. He left this area; attempted to clear material lodged in the crusher, and fell into the operating jaw crusher. Maintenance was performed on the equipment, the power was not de-energized and the equipment was not blocked against hazardous motion. The victim was not effectively protected from the hazardous motion and fell into the operating equipment. Management engaged in aggravated conduct constituting more than ordinary negligence. The procedure of manually clearing material from the jaw crusher without ensuring that power to the crusher is shut down, and moving machine components are

blocked against hazardous motion prior to work being performed was accepted by management at this operation. This violation is an unwarrantable failure to comply with a mandatory standard.

This order is a "**Rules to Live By**" priority standard.

Order No.8656116 - Issued on January 31, 2012, under the provisions of 104 (d)(1) of the Mine Act for a violation of 30 CFR 56.11001:

A fatal accident occurred at this operation on December 15, 2011. A crusher operator was positioned on a jaw crusher's protective railing system on the elevated viewing platform. He left this area, attempting to clear material lodged in the crusher, and fell into the operating jaw crusher. A safe means of access was not provided or maintained to this area, requiring persons to climb out from the railing system on the provided platform, and cross over the jaw feed opening. Management engaged in aggravated conduct constituting more than ordinary negligence by not establishing procedures to ensure that persons could safely gain access to or from this area to perform work. Management was aware of the need to access the feeder to clear jammed material from the crushing chamber. This violation is an unwarrantable failure to comply with a mandatory standard.

Order No. 8656117 - Issued on January 31, 2012, under the provisions of 104 (d)(1) of the Mine Act for a violation of 30 CFR 46.7(a)

A fatal accident occurred at this operation on December 15, 2011. A crusher operator was positioned on a jaw crusher's protective railing system on the elevated viewing platform. He left this area; attempted to clear material lodged in the crusher, and fell into the operating jaw crusher. The victim, who had no previous work experience performing the task, was not provided training in the health and safety aspects of the task assigned, including the safe work for clearing material from the crusher Management engaged in aggravated conduct constituting more than ordinary negligence by not ensuring that the victim was properly and effectively task trained prior to being assigned work duties on the jaw crusher. This violation is an unwarrantable failure to comply with a mandatory standard.

Approved by, Dennis A Yesko

For

Donald J. Foster
District Manager

Date: 6/19/2012

LIST OF APPENDICES

APPENDIX A

Persons Participating in the Investigation

Damascus 535 Crushing
Thomas J. Bolles ……Vice-President
Jay Molyneaux ……... Safety Director
Chad Fotusky ……. Foreman

Susquehanna County Coroner's Office
Anthony J. Conarton.……Coroner

Mine Safety and Health Administration
Andrew Bower……....Mine Safety and Health Inspector
Mathew Mattison.…… Mine Safety and Health Inspector
Kenneth Chamberlain……..Mine Safety and Health Specialist
Dustin Hinchman.……...…. Mining Equipment Compliance Specialist

APPENDIX B

Accident Investigation Data - Victim Information

Event Number: 6 5 6 7 8 0 7

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:
Wesley J. Sherwood	*M*	*22*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 12/15/2011 b.Time: 12:50	*a. Date: 12/15/2011 b.Time: 8:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
181 crusher operator	*039 Removing stuck material from crusher*	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*0*	*4*	*0*	b. Regular Job Title:	*0*	*4*	*0*	c: This Mine:	*0*	*12*	*0*	d. Total Mining:	*0*	*12*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
075 Jaw Crusher	*170 Blunt Force Trauma to Head*

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

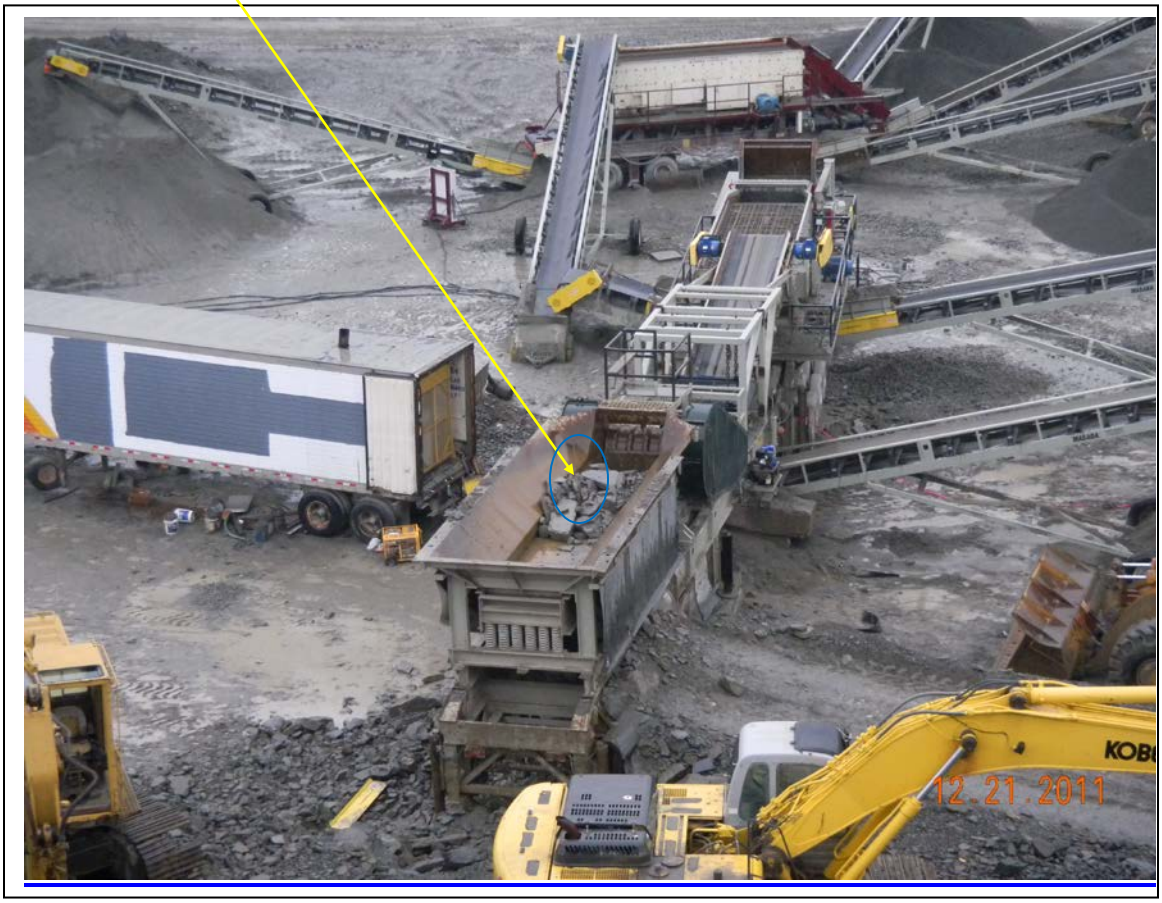
14. Company of Employment: (If different from production operator)	Independent Contractor ID: (if applicable)
Operator	

15. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: X | Medical Professional: | None:

16. Part 50 Document Control Number: (form 7000-1)	17. Union Affiliation of Victim:

APPENDIX C

The victim was standing here



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