

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

REPORT OF INVESTIGATION

Surface Nonmetal Mine
(Dimension Sandstone)

Fatal Machinery Accident
March 23, 2015

Kane's Quarry
Kane's Quarry
Montrose, Susquehanna County, Pennsylvania
Mine I.D. No. 36-10136

Investigators

Thomas J. Shilling
Mine Safety and Health Inspector

Matthew H. Mattison
Mine Safety and Health Inspector

Steven J. Vamossy, P.E.
Civil Engineer

Gregory J. Mehalchick
Mine Safety and Health Specialist (Training)

Originating Office
Mine Safety and Health Administration
Northeast District
178 Thorn Hill Road, Suite 100
Warrendale, Pennsylvania 15086
Joseph M. Denk, Acting District Manager



OVERVIEW

On March 23, 2015, Daniel Acker, Owner/Operator, age 48, was killed while cutting stone on top of a bench using a walk-behind, self-propelled concrete saw. Daniel Acker was positioned between the saw and the ledge, when he tripped and fell. The victim and the saw went over the 4½-foot ledge, resulting in the saw falling on him.

The accident occurred due to the victim's failure to maintain control of the self-propelled concrete saw that he was operating in reverse gear while repositioning to cut stone.

GENERAL INFORMATION

Kane's Quarry, a surface dimension stone mine, is located near Montrose, Susquehanna County, Pennsylvania. The principal operating official was Daniel Acker, Owner/Operator (victim). The mine typically operates one 8-hour shift, 5 days per week.

Dimensional stone is removed from multiple benches using a self-propelled concrete saw. The saw operator follows a grid pattern laid out on each bench prior to cutting. Cut blocks or slabs are removed and transported to the yard for processing or shipment. The stone is sold for use in construction and landscaping.

The investigators found that Daniel Acker had operated the mine for approximately three years at this location. Mr. Acker never applied for a MSHA identification number by submitting the MSHA Form 2000-7. Therefore, MSHA had never inspected this mine. The mine had reopened about four weeks prior to the accident following a winter shutdown. Daniel Acker had not notified the Mine Safety and Health Administration (MSHA) of the commencement of operations at the site as required by 30 CFR §56.1000. A non-contributory citation was issued for this violation.

DESCRIPTION OF ACCIDENT

On the day of the accident, March 23, 2015, Daniel Acker and Dylan Acker (victim's son), Miner, arrived for work at 7:00 a.m., their normal start time. Due to inclement weather and icy conditions, they left the mine and returned about 12:30 p.m. At that time, the ice had melted from the active bench; however, the lower bench or sump area was still iced over. Daniel Acker started the saw and began cutting stone. At approximately 2:30 p.m., after making four north-to-south cuts and three west-to-east cuts, Daniel Acker attempted to reposition the saw and fell over the 4½-foot ledge to the sump area below, resulting in the saw falling on him.

Dylan Acker was working near the upper access road and witnessed the accident. He immediately ran down to the sump, turned the saw off, and called 9-1-1 for emergency assistance. While waiting for help to arrive, Dylan Acker administered Cardiopulmonary Resuscitation (CPR). At 2:39 p.m., Emergency Medical Services (EMS) arrived at the

mine access road and cut the lock on the entrance gate to enter the mine. After checking the victim, EMS requested assistance from Anthony J. Conarton, Susquehanna County Coroner, who pronounced the victim dead at the accident site. The cause of death was attributed to exsanguination (severe loss of blood).

INVESTIGATION OF THE ACCIDENT

MSHA was notified of the accident at 3:46 p.m. on March 23, 2015, by a telephone call from the Susquehanna County 911 Operations Center to the National Call Center. The National Call Center notified Joseph M. Denk, Staff Assistant, and an investigation was started the same day. An order was issued under provisions of Section 103(k) of the Mine Act after the arrival of an Authorized Representative at the mine site.

MSHA's accident investigation team traveled to the mine, conducted a physical inspection of the accident scene, interviewed the mine employee, and reviewed work procedures relevant to the accident. MSHA conducted the investigation with the assistance of the Pennsylvania Department of Environmental Protection's Bureau of Mine Safety, the Susquehanna County Coroner's Office, and local and State law enforcement.

DISCUSSION

Geology

The mining product consists of bluestone rock from the Catskill geologic formation. Bluestone is a unique sandstone formation found primarily in northeastern Pennsylvania and south-central New York. As sediments fossilized into rock, minerals carried by groundwater through the rock deposits created various colored strata. Bluestone derived its name from its typical blue color. Bluestone is characterized as a strong, stable rock that is resistant to cracking and does not discolor.

Bluestone is typically marketed commercially in two types: dimensional (architectural grade) used for stair steps, flooring, countertops, etc.; and flagstone used for walls, walkways, and patios.

Mining Method

Overburden is removed by a track-mounted front-end loader exposing the top layer of stone. A rectangular grid pattern using "chalk lines" is laid out on each bench for use as a guide during the extraction process. A walk-behind, self-propelled concrete saw is used to cut the slabs or blocks of stone from the bench. The cutting depth typically ranges from 15 to 17 inches.

The saw operator positions several steel plates on the bench floor and levels each plate using wooden wedges or broken pieces of stone. This allows the saw operator to

maneuver the saw on a level surface to produce a more uniform cut. The saw operator makes a series of cuts in the same direction along the chalk lines in each row of the grid. The steel plates are advanced to the next chalk line for each cut. The saw operator then turns the saw 90 degrees and cuts along the perpendicular chalk lines to complete the rectangular shape of each block.

This sequence of steps is repeated until all of the cuts are made for the grid on each bench. The blocks or slabs are then removed with a skidsteer loader and transported to a yard where they are split into approximate 1-inch-thick flagstones. The flagstones are then stacked on wooden pallets and sold to customers as construction or decorative stone.

Location of the Accident

The accident occurred in the center of the quarry pit near the sump area (see Figure 1). A 25-foot-high waste pile of rocks is located to the east of the sump area, and the quarry access road and yard processing area are located to the west of the sump area. The sump area dimensions are approximately 40 feet wide by 80 feet long. Two benches had been created within the bluestone outcrop at the south end of the sump area. The upper bench is approximately 16 feet wide and the lower bench is approximately 18 feet wide. The high-wall above the upper bench is about 15 feet high and the high-wall above the lower bench is approximately 19½ feet high. Therefore, there is a 4½-foot height difference between the two benches. The exposed edge (drop-off) is oriented north to south and is approximately 10 feet long. The drop-off has a slope angle between 45 and 55 degrees. There is no berm or barrier installed along the edge of the upper bench.

Prior to the accident, the victim had made four north-to-south cuts and three west-to-east cuts along the upper bench. At the time of the accident, he was repositioning the saw for a fourth west-to-east cut across the bench. During this repositioning, with his back facing the edge, the victim slipped and fell onto the lower bench.

Concrete Saw

The saw involved in the accident is a MECO (Husqvarna), Model 40D, walk-behind concrete saw manufactured in 2005. The saw is a self-propelled circular saw equipped with a 42-inch-diameter water-cooled blade. An air-cooled Hatz, Model 2M41Z, 34-horsepower, diesel engine powers the blade and the hydrostatic drive system. The machine is equipped with a 12-volt electrical system and electric starter.

The saw operator stands at the rear of the machine and maneuvers the saw on its four wheels using two 32-inch-long non-retractable handlebars. The approximately 1,860 pound unit is approximately 70 inches long (not including the handlebars), 48 inches high, and 35 inches wide.

After the accident, the saw was found in the reverse gear, and the left handlebar was bent up slightly.

Weather

The weather on the day of the accident consisted of a high temperature of 22 degrees Fahrenheit. Sunrise was at 7:03 a.m. In the morning, the area experienced some minor snow fall and temperatures in the lower teens. Dylan Acker indicated that due to the poor weather conditions in the morning, he and his father left the mine and returned about 12:30 p.m. Weather was not considered to contribute to the accident.

TRAINING AND EXPERIENCE

Daniel Acker had approximately 20 years mining experience with no formal training.

ROOT CAUSE ANALYSIS

The investigators conducted a root cause analysis and identified the following root cause:

Root Cause: The victim failed to maintain control of the self-propelled concrete saw that he was operating in reverse gear while repositioning to cut stone. No procedures were in place for persons to safely operate the walk-behind, self-propelled concrete saw on an elevated bench.

Corrective Action: The victim was a sole proprietor and; therefore, the business terminated at the time of his death. Consequently, no corrective action was taken.

CONCLUSION

The accident occurred due to the victim's failure to maintain control of the self-propelled concrete saw that he was operating in reverse gear while repositioning to cut stone.

ENFORCEMENT ACTIONS

Issued to Kane's Quarry

Order No. 8807948 – Issued on March 24, 2015, under the provisions of Section 103(k) of the Mine Act by an Authorized Representative upon arrival at the mine:

On March 23, 2015, a fatal accident occurred on this property when the operator of the MECO 40 D block saw stumbled backwards falling down an embankment and the running saw landed on him. This order is issued to ensure the health and safety of all on the site. It prohibits all activity at the active stone pad and the MECO 40D block saw, serial number is not available. The mine operator shall

obtain prior approval from an authorized representative for all actions to recover and/ or restore operations in the affected area.

The order was terminated on March 27, 2015, after the accident investigation concluded. The mine operator was a sole proprietor and; therefore, the business terminated at the time of his death.

Citation No. 4437761 – Issued under the provisions of 104(a) of the Mine Act for a violation of 30 CFR 56.9101:

A fatal accident occurred at this operation on March 23, 2015, when a mine owner/operator (victim) and the self-propelled concrete saw he was operating fell over the edge of the active bench in the pit. The victim failed to maintain control of the self-propelled concrete saw while it was in motion. The victim was operating the saw in reverse gear near the edge of the active bench and positioning it to cut stone when he fell approximately 4½ feet to the bench below. The saw fell over the bench on top of him.

Approved: 
Joseph M Denk
Acting District Manager

Date: 7/24/2015

LIST OF APPENDICES

Appendix A: Persons Participating in the Investigation

Appendix B: Victim Information

Appendix C: Accident Scene Photo

APPENDIX A

PERSONS PARTICIPATING IN THE INVESTIGATION

Kane's Quarry

Dylan Acker Miner (Victim's Son)

Pennsylvania Department of Environmental Protection, Bureau of Mine Safety

Donald Lunger Surface Mine Conservation Inspector

Susquehanna County Sheriff Department

Lance Benedict Sheriff

Pennsylvania State Police

Craig Purdum Trooper

Susquehanna County Coroner's Office

Anthony J. Conarton Coroner

Mine Safety and Health Administration

Thomas J. Shilling Mine Safety & Health Inspector
Matthew H. Mattison Mine Safety & Health Inspector
Steven J. Vamossy Civil Engineer
Gregory J. Mehalchick Mine Safety & Health Specialist (Training)

APPENDIX B

VICTIM INFORMATION

Accident Investigation Data - Victim Information

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



Event Number: 6 | 6 | 2 | 2 | 8 | 6 | 6

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|--|--|-------|-------|--------------|----------------------|--|-------|--|------|---|--|---|-------|------|-----------------|---|---|
| Victim Information: 1 | | | | | | | | | | | | | | | | | |
| 1. Name of Injured Employee: Daniel E. Acker | | | | 2. Sex: M | | 3. Victim's Age: 48 | | 4. Degree of Injury: 01 Fatal | | | | | | | | | |
| 5. Date (MM/DD/YY) and Time (24 Hr) Of Death: a Date: 03/23/2015 b Time: 14:39 | | | | | | | | | | 6. Date and Time Started: a Date: 03/23/2015 b Time: 7:00 | | | | | | | |
| 7. Regular Job Title: 199 Sawyer | | | | | | 8. Work Activity when Injured: 099 Operating a walk behind concrete saw | | | | | | 9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> | | | | | |
| 10. Experience a. This | | Years | Weeks | Days | b. Regular Job Title | | Years | Weeks | Days | c. This Mine | | Years | Weeks | Days | d. Total Mining | | |
| Work Activity: | | 20 | 0 | 0 | | | 20 | 0 | 0 | 3 | | 0 | 0 | 20 | | 0 | 0 |
| 11. What Directly Inflicted Injury or Illness? 002 walking backwards near a ledge | | | | | | | | 12. Nature of Injury or Illness: 370 Exsanguination | | | | | | | | | |
| 13. Training Deficiencies: Hazard <input checked="" type="checkbox"/> New/Newly-Employed Experienced Miner: <input checked="" type="checkbox"/> Annual: <input checked="" type="checkbox"/> Task: <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | |
| 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 EMT Medical Professional None | | | | | | | | | | | | | | | | | |
| 16. Part 50 Document Control Number: (form 7000-1) | | | | | | | | 17. Union Affiliation of Victim: 9999 None (No Union Affiliation) | | | | | | | | | |

APPENDIX C

ACCIDENT SCENE PHOTO



Figure 1 – Victim was sawing stone blocks on the upper bench when he fell to the lower bench below (sump area) and the saw fell on top of him.