

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed Limestone)

Fatal Explosives and Breaking Agents Accident
March 5, 2025

Calhoun Quarry #1
Calhoun Quarry Inc
Fieldon, Jersey County, Illinois
ID No. 11-00111

Accident Investigators

Rexdon Boliard
Mine Safety and Health Inspector

Steven Harris
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Vincennes District
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OVERVIEW

On March 5, 2025, at approximately 4:15 p.m., Anthony Sievers, a 67-year-old owner/vice president with over fifty years of mining experience, died when a piece of fly rock from a blast struck him.

The accident occurred because the mine operator did not: 1) ensure miners were in a blast shelter while initiating a shot in the blast area, 2) test the blasting circuit prior to detonating the shot, and 3) maintain the blasting lines in good repair.

GENERAL INFORMATION

Calhoun Quarry Inc owns and operates the Calhoun Quarry #1 mine, a surface limestone mine in Fieldon, Jersey County, Illinois. The mine employs eight miners and operates one eight-hour shift, five days per week, and one four-hour shift on Saturday. Calhoun Quarry Inc blasts limestone from multiple benches in the pit. The limestone is sorted using the front-end loader (FEL) and transported by haul trucks to the wash plant. A FEL loads the limestone into the plant, where it is crushed and washed. The limestone exits the plant and is stockpiled for sale to various customers.

The principal management official at Calhoun Quarry #1 at the time of the accident was:

Anthony Sievers

Owner/Vice President

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on February 5, 2025. The 2024 non-fatal days lost incident rate for Calhoun Quarry #1 was zero, compared to the national average of 0.92 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On March 5, 2025, A. Sievers arrived at the scale house to start his shift at approximately 8:00 a.m. A. Sievers planned on initiating a blast on the lower bench (N2) in the open pit (see Appendix A). The weather early in the day was wet and windy. A. Sievers talked to Jerry Sievers, Equipment Operator/Co-owner, who recommended that they wait until later in the day hoping weather conditions would improve. A. Sievers agreed, and the miners started their shift performing their normal duties. A. Sievers sent Kevin Slone, Blaster Helper, to finish drilling the holes for the planned blast on the N2 Bench.

After lunch, the miners headed to the pit to help with the blast. Slone and Bruce Sievers, Co-owner/Equipment Operator, worked on blowing the holes out with air from the drill. Jace Blackwell, Plant Operator; Tyler Davidson, Stockpiler; Curtis Smith, Haul Truck Driver; and J. Sievers, all helped to load the holes with explosives. At approximately 4:00 p.m., all the miners left the blast area except for Slone. Slone went to the blast shelter, a spare FEL bucket located on the cap rock bench, with the detonator box to initiate the blast.

When Slone attempted to use the detonator box it would not set off the blast. Slone believed the battery in the detonator box was dead and called A. Sievers to bring him another nine-volt battery. A. Seivers could not find a nine-volt battery and told Slone he would bring the FEL to use its battery. Because the roadway leading to the blast shelter was too muddy and narrow for the FEL to travel safely, he instructed Slone to move the blasting line to the North Road. A. Seivers drove the FEL to the North Road so Sloan could use the electrical system batteries on the FEL to initiate the blast (see Appendix B).

Slone repositioned the blasting line to the North Road and met A. Sievers who drove the FEL. Slone made visual contact with A. Sievers who was in the cab of the FEL before initiating the shot. Upon initiation, Slone saw fly rock in the air and yelled to warn A. Sievers. Slone dove underneath the rear of the FEL and when he crawled out, he saw A. Sievers lying on the ground next to the ladder of the FEL.

Slone called the Scale House and told Pamela Blackwell, Scale House Operator, that A. Sievers had been injured and to call 911. J. Sievers was at the Scale House and called 911 at 4:17 p.m. Smith and Davidson traveled up the North Road to where the FEL was parked. Smith and Slone performed cardiopulmonary resuscitation until paramedics arrived. Kevin Ayres, Jersey County Coroner, pronounced A. Sievers dead at the scene at 5:05 p.m.

INVESTIGATION OF THE ACCIDENT

On March 5, 2025, at 4:49 p.m., J. Sievers called the Department of Labor National Contact Center (DOLNCC) to report a fatality. The DOLNCC contacted Christopher Persinger, Supervisory Mine Safety and Health Inspector. Persinger contacted David Stepp, Assistant District Manager, and Stepp notified Nicholas Lands, Supervisory Mine Safety and Health Inspector. Lands sent Rexdon Boliard and Steven Harris, Mine Safety and Health Inspectors, to the mine. Lands assigned Boliard as the lead investigator.

At 7:40 p.m., Boliard arrived at the mine and issued an order under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners and the preservation of evidence. The MSHA accident investigation team conducted an examination of the accident scene, interviewed miners and mine management, and reviewed conditions and work procedures relevant to the accident. The MSHA Pittsburgh Safety and Health Technology Center assisted the investigators by testing blast system components. See Appendix C for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred along the North Road on the cap rock bench where the FEL was parked. The shot consisted of 29 holes in three rows. The FEL was parked approximately 140 feet from the shot site (see Appendices A and D). Investigators determined that A. Sievers was struck by a piece of fly rock from the blast after exiting the cab of the FEL. Neither A. Sievers nor Slone were in a safe location or adequately protected from fly rock when the shot was initiated. The blast shelter that Slone originally tried to detonate from was located approximately 105 feet from the blast site. Investigators determined the close proximity to the blast contributed to the accident.

Weather

The weather at the time of the accident was approximately 33 degrees Fahrenheit and overcast. There was no precipitation at the time that the shot was initiated. Earlier in the day the weather conditions were rain changing over to snow/rain mix with winds approximately 26 miles per hour. Investigators determined that the weather did not contribute to the accident.

Equipment Involved

The detonator box involved in the accident was a Scorpion HB-SBS Electric Initiator. Following directions listed on the detonator, investigators tested the detonator at the accident site, and it functioned properly. The detonator and the blasting line were taken into custody and sent to MSHA Technical Support for further investigation and testing. The detonator box manufacturer was present and involved in the testing of the detonator box and blasting line.

The FEL involved in the accident was a Caterpillar 972G. The electrical system on the FEL used to initiate the shot were two, Interstate 950 Cold Cranking Amp batteries connected in series. The company used a 200-foot-long, heavy-duty No. 16 AWG, two-wire, stranded thermoplastic cord. The manufacturer of the detonator box recommends the wire be solid core, not stranded. When testing the blasting line, MSHA Technical Support found that the continuity of the blasting line was intermittent and highly dependent on the wire's position. Resistance of the blasting line ranged anywhere from about four ohms to above the meter scale with slight changes in position of

the wire. This indicated the blasting line could have suffered a loss of electrical continuity (open circuit) when they tried to use the detonator box in the field to originally initiate the blast. The blasting line contained three in-line splices, two with wires twisted together, and one using non-weatherproof automotive crimped wire connectors. All were exposed to the elements and showed signs of corrosion and some broken strands. The conditions of the blasting line should have been noticed when it was installed for the shot. The poor condition of the blasting line caused a total misfire and led the certified blaster to believe the cause of the misfire to be the detonator box battery. Investigators determined this contributed to the accident.

Examinations

According to records and interviews, no workplace examinations had been recorded. Investigators determined a lack of workplace examinations did not contribute to the accident because these examinations do not require electrical testing. The mine operator did not conduct any electrical tests on any blasting equipment prior to detonation of the shot. The lack of blast circuit testing contributed to the accident.

Training and Experience

A. Seivers had over 50 years of mining experience, all at the Calhoun Quarry #1 mine. A. Seivers received annual refresher training on November 27, 2024. A. Seivers was also a certified blaster through the Illinois Department of Natural Resources Mines and Minerals Division. A. Seivers renewed his blasting certification on July 1, 2022, in accordance with the five-year renewal requirement. To receive certification as a blaster in the state of Illinois, applicants must have experience and training in blasting machines, circuit testing equipment, control of fly rock, and blast zone security and safety. No task training records were found relating to drilling and blasting. However, the lack of training records did not contribute to the accident.

Slone received new miner training on January 8, 2024, after an absence from the mine. Slone received annual refresher training on November 27, 2024. Slone was also a certified blaster through the Illinois Department of Natural Resources Mines and Minerals Division. Slone received his certification on October 25, 2024. No task training records were found relating to drilling and blasting. However, the lack of training records did not contribute to the accident.

ROOT CAUSE ANALYSIS

The accident investigation team conducted an analysis to identify the underlying causes of the accident. The team identified the following root causes, and the mine operator implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: The mine operator did not ensure miners were in a blast shelter while initiating a shot in the blast area.

Corrective Action: The mine operator removed all explosives from mine property. All future blasting will be performed by a company who specializes in blasting. This blasting company will ensure compliance with all drilling and blasting regulations and miners' safety.

2. Root Cause: The mine operator did not test the blasting circuit prior to detonating the shot.

Corrective Action: The mine operator has removed all explosives from the mine property and has submitted a corrective action to contract any future blasting to a blasting specialist company.

3. Root Cause: The mine operator did not maintain the blasting lines in good repair.

Corrective Action: The mine operator has removed all explosives from the mine property and has submitted a corrective action to contract any future blasting to a blasting specialist company.

CONCLUSION

On March 5, 2025, at approximately 4:15 p.m., Anthony Sievers, a 67-year-old owner/vice president with over fifty years of mining experience, died when a piece of fly rock from a blast struck him.

The accident occurred because the mine operator did not: 1) ensure miners were in a blast shelter while initiating a shot in the blast area, 2) test the blasting circuit prior to detonating the shot, and 3) maintain the blasting lines in good repair.

Approved By:

Mary Jo Bishop
Acting District Manager

Date

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Calhoun Quarry Inc

A fatal accident occurred on March 5, 2025, at approximately 4:15 p.m. This order is being issued under the authority of the Federal Mine Safety and Health Act of 1977, under Section 103(k) to insure the safety of all persons at the mine and requires the operator to obtain the approval of an authorized representative of MSHA of any plan to recover any person in the mine or to recover the mine or affected area. This order prohibits any activity in the affected area. The operator is reminded of the obligation to preserve all evidence that would aid in investigating the cause or causes of the accident in accordance with 30 CFR 50.12.

2. A 104(d)(1) citation was issued to Calhoun Quarry Inc for a violation of 56.6306(e)

On March 5, 2025, a fatality occurred at this mine when a miner parked the Front-End Loader (FEL) approximately 140 feet from a 29-hole shot in order to use the electrical system of the FEL as the power source to detonate the shot. The miner was outside the cab of the FEL when the shot was detonated by another certified blaster who was standing at the back of the FEL. This resulted in the miner being struck by a piece of fly rock, causing fatal injuries. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that all miners located in the blasting radius were not protected by a blast shelter. This violation is an unwarrantable failure to comply with a mandatory standard.

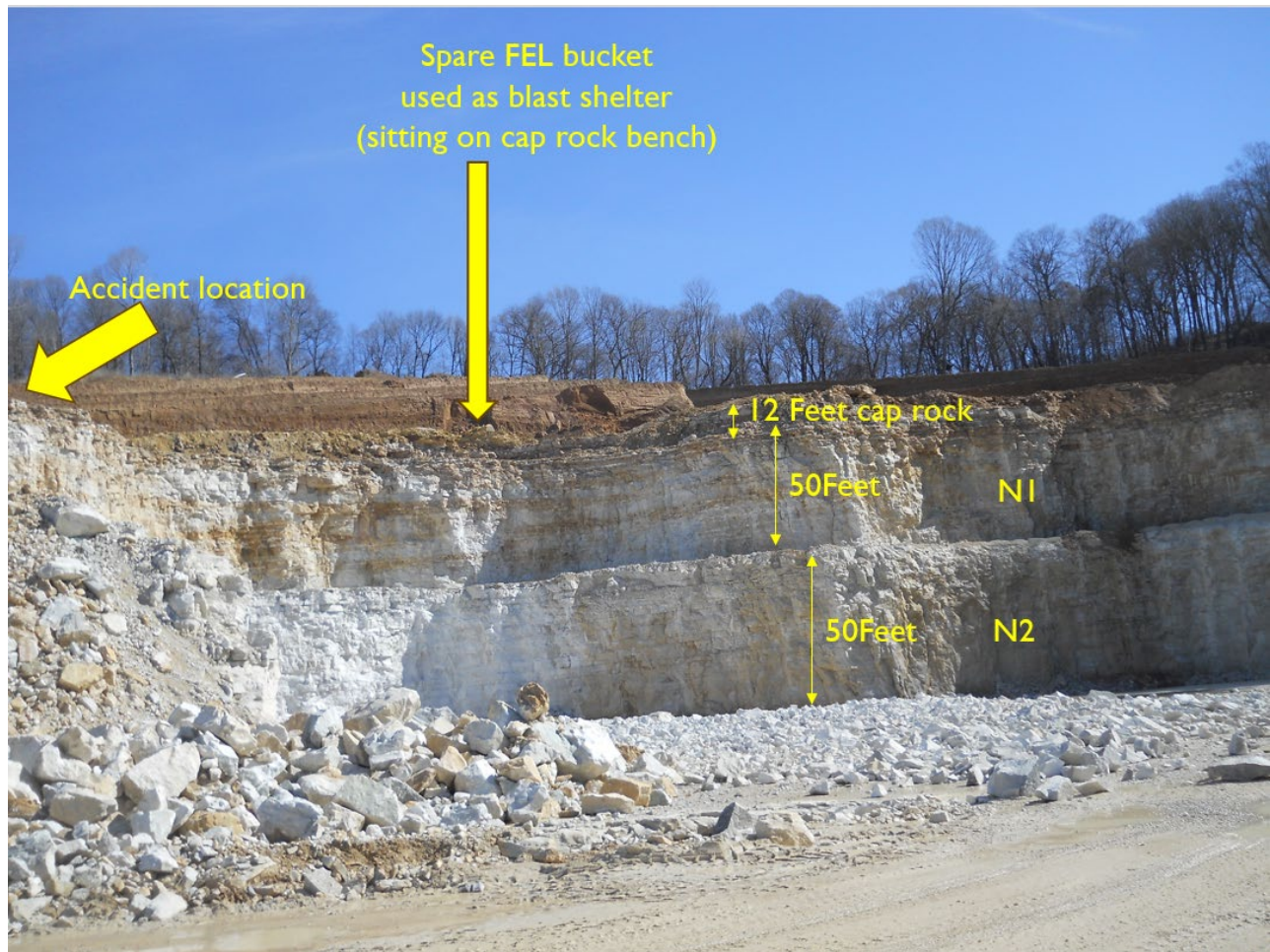
3. A 104(d)(1) order was issued to Calhoun Quarry Inc for a violation of 56.6407

On March 5, 2025, a fatality occurred at this mine when a certified blaster used the electrical system on a Front-End Loader (FEL) to detonate a shot, after the electronic detonator box would not work. Upon investigation it was found that the certified blasters did not perform any of the electrical circuit testing required by this standard on the blasting circuit prior to using the electronic detonator or the FEL electrical system. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that the mine operator did not test the functionality of the detonator box and did not test the continuity of the blasting line prior to use. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(d)(1) order was issued to Calhoun Quarry Inc for a violation of 56.6803

On March 5, 2025, a fatality occurred at this mine when a miner was struck by a piece of fly rock from a pit blast. Upon inspection of the blasting line, it was found to have multiple bare conductors showing signs of corrosion and some broken strands, two splices that were only secured by twisting the wires together, and one splice using non-weatherproof connectors. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that the mine operator did not maintain the blasting line in good repair. This violation is an unwarrantable failure to comply with a mandatory standard.

APPENDIX A – Front-End Loader on Cap Rock Bench with Blast Shelter 224 feet away



APPENDIX B – Front-End Loader Parked on Cap Rock Bench



APPENDIX C – Persons Participating in the Investigation

Calhoun Quarry Inc

Bruce Sievers	Co-owner/Equipment Operator
Jerry Sievers	Co-owner
Jace Blackwell	Plant Operator
Kevin Slone	Blaster Helper
Brenda Sievers	Haul Truck Driver
Curtis Smith	Haul Truck Driver
Tyler Davidson	Stockpiler
Kevin Ringhausen	Front-End Loader Operator
Pamela Blackwell	Scale House Operator

Mine Safety and Health Administration

Nicholas Lands	Supervisory Mine Safety and Health Inspector
Rexdon Boliard	Mine Safety and Health Inspector
Steven Harris	Mine Safety and Health Inspector
Jeffrey McClelland	Technical Support, Supervisory Electrical Engineer
Nicholas Clark	Technical Support, Electrical Engineer
Justin Craig	Technical Support, Electrical Engineer

APPENDIX D – View of Front-End Loader and Blast Area

