FAI-6915008-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed, Broken Granite)

Fatal Slip or Fall of Person Accident
June 20, 2022

Explosive Contractors Inc. (6EJ)
Hollister, Missouri

at

3M Little Rock Industrial Mineral Products
3M Company
Little Rock, Pulaski County, Arkansas
ID No. 03-00426

Accident Investigators

Michael Tefertiller
Supervisory Mine Safety and Health Inspector

Dwight Shields
Supervisory Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Dallas District
1100 Commerce Street, Room 462
Dallas, TX 75242
William O'Dell, District Manager

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OVERVIEW

On June 20, 2022, at approximately 11:30 a.m., Donald Saul, a 57 year-old driller with approximately two and a half years of mining experience, died when he fell approximately 30 feet from the lower section of the drill mast over a highwall, landing on broken rock and boulders (shot rock) from previous blasting activities.

The accident occurred because the contractor did not assure that the driller used fall protection while working where there was a danger of falling.

GENERAL INFORMATION

3M Company owns and operates the 3M Little Rock Industrial Mineral Products (3M Little Rock) mine. This mine is a surface granite quarry located near Little Rock, Pulaski County, Arkansas. The mine employs 135 miners and operates one ten-hour shift, five days per week. The processing facility operates various shifts with multiple crews, 24 hours per day, five days per week.

3M Little Rock mines the material in lifts and every lift is approximately 50 feet in depth and has a bench width of approximately 20 feet. Front-end loaders load material from the lifts into haul trucks that transport the material to the processing facility. After the material is crushed and sized, trains transport the material to the final processing area where it is stockpiled and stored for sale to the roofing industry.

3M Company contracted Explosive Contractors Inc. (ECI) to perform drilling and blasting at the 3M Little Rock mine. ECI employs 45 persons and works at multiple mining operations. ECI blasted material at the 3M Little Rock mine before it was loaded into the haul trucks. Saul was an employee of ECI.

The principal management officials at 3M Little Rock at the time of the accident were:

Chris Colley	Quarry Manager
Vincent Varner	Plant Manager
David Loyko	Quarry Supervisor

The principal management officials for ECI at the time of the accident were:

Todd Braden	Operations Manager
George Aday	Drilling Supervisor

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on October 25, 2021. The 2021 non-fatal days lost incident rate for the 3M Little Rock mine was 4.75, compared to the national average of 1.20 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On June 20, 2022, at 6:37 a.m., Saul started his shift by clocking in at the office building at the mine. Saul drove to the quarry area and conducted a pre-operational inspection of the drill, which was located on the lower level of the quarry. Saul transported the drill to the D Lift in the southeast area of the quarry. At 9:13 a.m., Saul called David Loyko, Quarry Supervisor for 3M Company, on his cell phone and asked for a ride from the drill location back to Saul's pickup truck. At approximately 9:15 a.m., Saul called from his cell phone George Aday, Drilling Supervisor for ECI, and informed Aday that he had a dislodged drill steel and needed to know how to hold the carousel gates open manually. According to Aday, as Aday began to explain the procedure, Saul said he remembered and ended the conversation. At approximately 9:20 a.m., Loyko picked up Saul and took him to his pickup truck. When Loyko arrived at Saul's pickup truck, Saul asked Loyko to help him get a drill steel back into the drill rack, and both returned to the drill location. Loyko stated that Saul shook the mast with the hydraulics and moved the drill steel back into the drill rack. Loyko left after observing the drill steel in the drill rack. Saul began positioning the drill for the first hole in the drill pattern. Loyko left the D Lift at approximately 10:10 a.m. to return to his office.

At approximately at 10:30 a.m., Aday started trying to contact Saul and continued several other times to see if Saul had gotten the problem fixed but Saul did not answer the calls. Aday called Rickey Boyd, Driller for ECI, to see if he had talked to Saul. Boyd, who was not working at the 3M Little Rock mine at the time, said that he had not spoken to Saul. At 11:30 a.m., Boyd called Loyko to ask if he had heard from Saul and told Loyko that he (Boyd) and Aday had been unable to reach Saul on his cell phone. From his office computer, Loyko maneuvered a surveillance camera located on the main crusher frame toward the D Lift. Loyko was able to see the drill in

the surveillance camera but was unable to determine if the drill was in operation. Loyko panned the surveillance camera out and noticed something orange below the highwall on the muck pile. Loyko immediately gathered Ted Walker, Quarry Crew Lead for 3M Company, and Michael Hart, Lean Leader, and drove to the area. According to interviews, Saul was laying on shot rock, resulting from previous blasting activities, at the E Lift location. Hart climbed the muck pile and remained with Saul, and at 11:40 a.m., Loyko directed Walker to call 911. Walker also contacted Sharm Rodger, Miner, to wait at the gate and lead Emergency Medical Services (EMS) to the location of the accident.

At 11:50 a.m., emergency medical services (EMS) arrived at the gate and were led to the accident scene by Chris Colley, Quarry Manager for 3M Company. When EMS reached Saul, they discovered he was no longer breathing and began cardiopulmonary resuscitation (CPR). EMS transported Saul to the University of Arkansas for Medical Science where Brian Hohertz, M.D, pronounced Saul dead at 12:48 p.m.

INVESTIGATION OF THE ACCIDENT

On June 20, 2022, at 12:23 p.m., Steven Srebalus, Environmental, Health, and Safety Manager, called the Department of Labor National Contact Center (DOLNCC) to report the accident. The DOLNCC contacted Brett Barrick, Assistant District Manager, who contacted Dwight Shields, Supervisory Mine Safety and Health Inspector, and sent him to the mine. At 3:07 p.m., Shields issued an order under the provisions of Section 103(k) of the Mine Act to assure the safety of the miners and preservation of evidence. Shields then secured the accident scene and collected witness statements. At approximately 6:00 p.m., Nicholas Gutierrez, Assistant District Manager, contacted Michael Tefertiller, Supervisory Mine Safety and Health Inspector, sent him to the mine, and assigned him as the lead accident investigator. Brent Shelby, Mine Safety and Health Training Specialist, assisted with reviewing the mine and contractor training plans and records.

On June 21, 2022, at 1:00 p.m., Tefertiller arrived at the accident scene. The accident investigation team examined the accident scene, interviewed miners, mine management, contractor company management, other relevant personnel, and reviewed conditions and work practices relevant to the accident. See Appendix A for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred on the D Lift of the southeast quarry (see Appendix B). Saul's pickup truck and a water trailer were parked on the D Lift away from the drill. Based on the examination of the accident scene, investigators determined that Saul fell from the D Lift down to the "E Lift" when he was positioned between the drill steel carousel and the edge of the highwall.

Equipment Involved

The drill involved in the accident was a Epiroc Smart ROC D65 Rock Drill, purchased by ECI in 2020. The drill consists of a diesel engine-powered main body and a hydraulically manipulated drill mast that houses the drill steel carousel and drill steel. When the drill operator needs to increase the drilling depth, while the drill is in the automatic setting, the drill steel carousel rotates, and the rod handling gripper system picks up the next steel and positions it on top of the previously loaded drill steel. The two drill steels are then connected and drilling resumes. From within the enclosed operator's cab, the drill operator can drill holes in manual mode or in automatic mode and operate all controls. The drill cannot be operated when the drill operator is not sitting in the driver's seat, as the controls automatically lock out when no one is seated there. The investigators, Aday, and Todd Braden, Operations Manager for ECI, performed functionality tests on the drill and determined that there were no defects that contributed to the accident.

Investigators found the carousel drill steel securing gates open, and a drill steel leaned out of the carousel from the top against the lower railing on the mast. Investigators believe Saul intentionally open the gates by way of the emergency rod handling device, in an effort to relocate the drill steel. The drill steel was in place in the bottom of the carousel, even with both securing gates open (see Appendix C). The winch cable on the drill mast was approximately ¾ of the way down the mast and there was a small ratchet style webbed strap tied to the winch manual control located at the drill mast. Based on the location of the winch and associated rigging, investigators concluded that Saul was attempting to move the dislodged drill steel with the winch cable. There was a webbed lifting strap hanging over the upper rail on the drill mast that appeared to be ready to be used in the process as well (see Appendix D). Based on interviews, it was not a common occurrence for the drill steel to come out of the carousel. Investigators believe that Saul was in the process of attempting to relocate a drill steel back into the drill carrousel by hand when he fell from the drill mast and over the highwall.

Fall Protection

ECI provided Saul with a fall protection harness and a single five-foot lanyard. Investigators found Saul's harness and lanyard inside his pickup truck and found no deficiencies on either the harness or the lanyard. Investigators determined that Saul was not wearing fall protection at the time of the accident. Investigators determined that this contributed to the accident.

Training and Experience

Investigators reviewed the training records and determined that Saul received new miner and annual refresher training in accordance with MSHA Part 46 training regulations. ECI's new miner and annual refresher training included fall hazards, the proper use of fall protection, and how to tie off. ECI provided training on fall hazards and when to use fall protection. Saul was hired by ECI on February 24, 2020, as a driller and all of his experience was with ECI at this mine site. Saul's task training on the drill began February 27, 2020, and documents show that all of it was completed on April 15, 2020. 3M Little Rock's site-specific hazard awareness training also addressed fall hazards, fall protection, and how to tie off.

Examinations
Investigators reviewed the mine operator's workplace examination records and did not find any hazards that contributed to the accident. Investigators determined that the workplace examination was conducted in accordance with MSHA's regulations.

Saul performed the pre-operational inspection of the drill on the day of the accident and did not note any deficiencies. Investigators determined that pre-operational inspection was adequate and did not find any deficiencies.

ROOT CAUSE ANALYSIS

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

Root Cause: The contractor did not assure the driller used fall protection while working where there was a danger of falling.

Corrective Action: The contractor developed and implemented new written procedures that address the use of fall protection and fall restraint systems at drill sites. These new written procedures include when drill operators have to leave the cab of the drill they must first 1) contact their supervisors and the 3M representative by two-way radio before any work on the drill begins; 2) assess any potential hazards, to include condition of the highwall, distance to the crest of the bench, moving equipment, trip/fall hazards or any other possible hazards that may be noticed by them; and 3) if fall protection is required, drillers must contact their supervisors and 3M representative. The contractor trained all miners on these procedures.

CONCLUSION

On June 20, 2022, at approximately 11:30 a.m., Donald Saul, a 57 year-old driller with approximately two and a half years of mining experience, died when he fell approximately 30 feet from the lower section of the drill mast over a highwall, landing on broken rock and boulders (shot rock) from previous blasting activities.

The accident occurred because the contractor did not assure that the driller used fall protection while working where there was a danger of falling.

Approved By:

_____ _____

William O'Dell Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to 3M Company.

   A fatal accident occurred on June 20, 2022, at approximately 11:30 a.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(a) citation was issued to Explosive Contractors Inc. for a violation of 30 CFR 56.15005.

   On June 20, 2022, at approximately 11:30 p.m., a fatal accident occurred when a contract driller fell approximately 30 feet from the lower section of the drill mast over a highwall, landing on shot rock resulting from previous blasting activities. The contract driller was attempting to relocate a dislodged drill steel in the drill mast close to the edge of the highwall, without the use of fall protection. The contractor did not assure that the driller used fall protection while working where there was a danger of falling.

APPENDIX A – Persons Participating in the Investigation

3M Company

Steven Srebalus	Environmental, Health, and Safety Manager
Chris Colley	Quarry Manager
Vincent Varner	Plant Manager
David Loyko	Quarry Supervisor
Ted Walker	Quarry Crew Lead
Hal Shillingstad	Attorney
Michael Hart	Lean Leader
Sharm Rodger	Miner

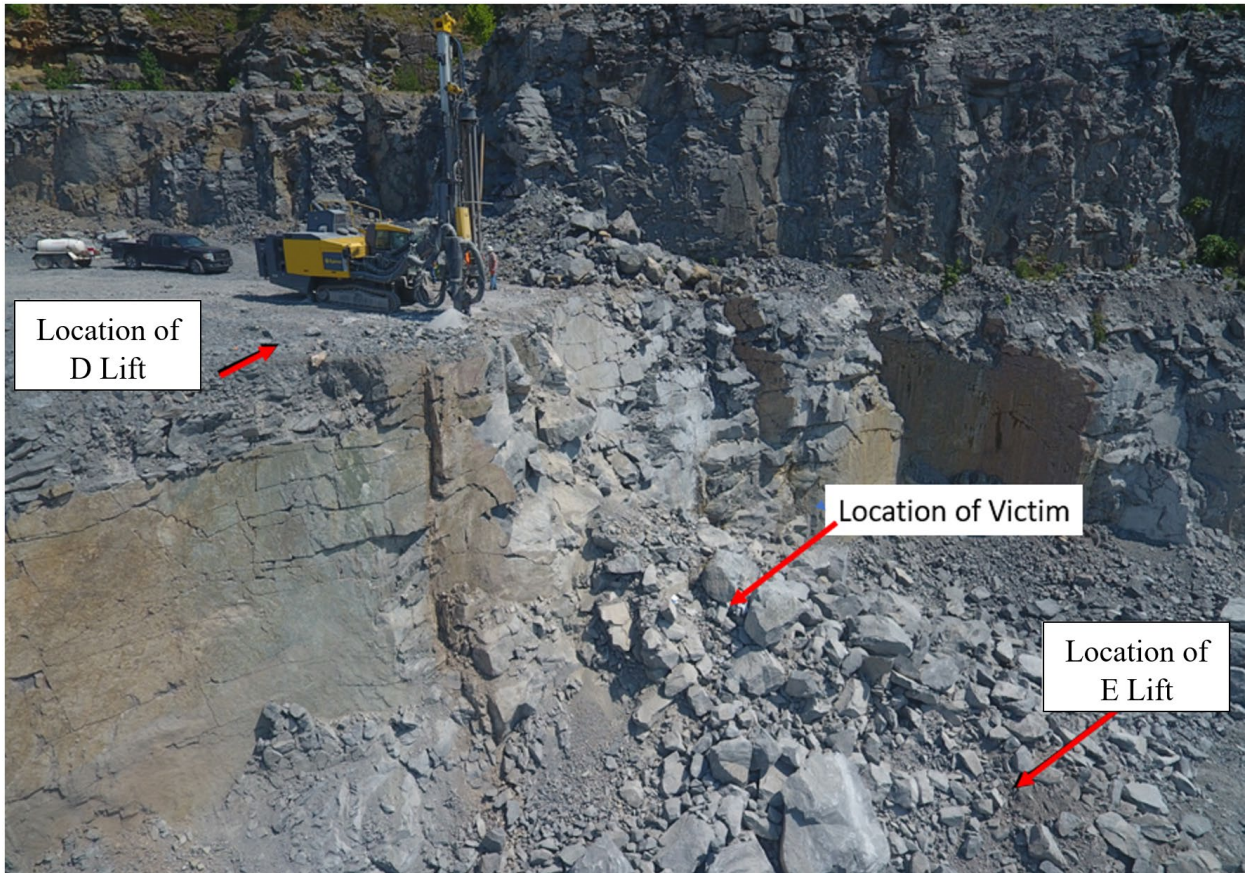
Explosive Contractors Inc.

Todd Braden	Operations Manager
George Aday	Drilling Supervisor
Kurt Oaks	Technical Services
Rickey Boyd	Driller
Michelle Boulware	Office Manager

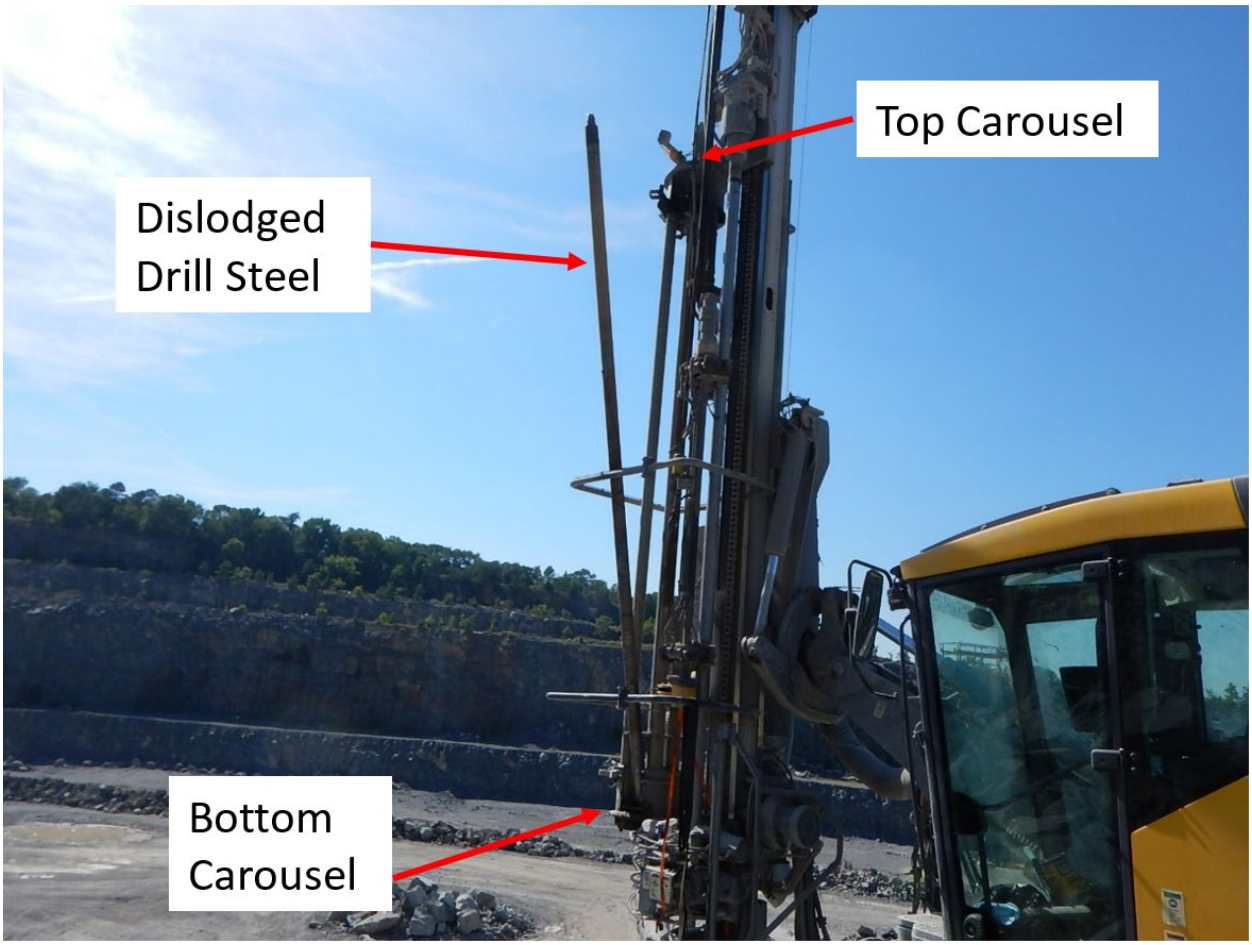
Mine Safety and Health Administration

Michael Tefertiller	Supervisory Mine Safety and Health Inspector
Dwight Shields	Supervisory Mine Safety and Health Inspector
Brent Shelby	Mine Safety and Health Training Specialist

APPENDIX B – Location of Accident



APPENDIX C – Drill Mast with Dislodged Drill Steel



APPENDIX D – Webbing Strap on Lower Railing of Mast