FAI-6915440-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Limestone)

Fatal Powered Haulage Accident
December 3, 2021

Brooksville Quarry
CEMEX Construction Materials Florida, LLC
Brooksville, Hernando County, Florida
ID No. 08-00024

Accident Investigators

Jarvis Westery
Supervisory Mine Safety and Health Inspector

Scottie Sizemore
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Birmingham District
1030 London Drive, Suite 400
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Mary Jo Bishop, District Manager

TABLE OF CONTENTS

OVERVIEW

On December 3, 2021, at 9:19 a.m., Richard Crum, a 62 year-old ground man with 27 years of mining experience, died when he became entangled in a belt conveyor return idler.

The accident occurred because the mine operator did not: 1) assure that equipment was de-energized and blocked against hazardous motion before engaging in maintenance or repairs, 2) have guards in place to prevent miners from becoming entangled in moving machine parts, and 3) assure that adequate pre-operational inspections on equipment were conducted prior to operating equipment.

GENERAL INFORMATION

CEMEX Construction Materials Florida, LLC owns and operates Brooksville Quarry, which is a surface limestone mine located in Brooksville, Hernando County, Florida. Brooksville Quarry employs 103 miners and operates two ten-hour shifts, five days per week. Miners extract limestone from an open pit and put it into a portable crushing plant (portable plant), consisting of a portable crusher and belt conveyors powered by a diesel engine. The portable plant crushes the limestone and conveys the material to a stockpile. Miners load the material from the stockpile into trucks to transport it off the mine property.

The principal management official at the Brooksville Quarry at the time of the accident was:

Bryan Lane	Area Manager/Plant Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on June 11, 2021. The 2020 non-fatal days lost incident rate for Brooksville Quarry was 0.79, compared to the national average of 1.21 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On December 3, 2021, Crum started his regular shift at 3:00 a.m. Crum was a member of the Soft Rock Crew at the Lykes West Pit. Crum's duties as a ground man were to ready the portable plant, and to operate it. Crum's duties also included maintenance and repair of the equipment when necessary, and to move material from the stockpile under the stacker belt conveyor discharge (stockpile) using a front-end loader.

The remaining members of the Soft Rock Crew working around the portable plant, Julie Pankow, Excavator Operator, and Edward LaFleur, Bulldozer Operator, joined Crum and began crushing at approximately 4:00 a.m. After the initial startup of operations, Crum began moving material from the stockpile with the front-end loader. When not operating the front-end loader, Crum walked around the portable plant area, monitoring operations, and looking for process issues caused by damp material.

At 8:45 a.m., Crum determined that he needed to remove carry-back material (damp, fine material that sticks to the belt of the conveyor) on the portable crusher's belt to prevent build-up that causes belt alignment and housekeeping issues. Crum used hand signals to tell Pankow, who was operating an excavator on a mining bench above the portable crusher, to de-energize the portable crusher's feeder mechanism (wobblers) because he intended to go under the portable crusher. From inside her excavator, Pankow used a remote control to de-energize the wobblers. This action did not de-energize the rest of the portable plant, including the belt conveyors, the portable crusher, and the diesel engine powering the portable plant. Pankow then saw Crum walk toward the back of the crusher with a shovel in his hand.

At 8:59 a.m., Crum had not returned, so Pankow radioed LaFleur and requested that he check on Crum. LaFleur parked his bulldozer and walked to the portable crusher. When LaFleur looked under the portable crusher, he saw Crum entangled in the return idler on the portable crusher's feed belt. (The return idler is the roller which supports the belt conveyor after the load has been dumped.) LaFleur flagged Pankow with hand signals to de-energize the entire portable plant. Pankow engaged the emergency stop on the remote control and drove the excavator down from the mining bench to the crusher below. When Pankow got to the portable crusher, she also observed Crum entangled in the return idler. LaFleur called over the radio for Michael Millen, Soft Rock Crew Lead Man, to come to the portable crusher and to call 911.

Erica Fields, Soft Rock and Load-Out Manager, overheard the request for 911 via the company radio and called 911 at 9:09 a.m. Fields then arranged for employees to meet emergency crews at the gate to escort them to the Lykes West Pit. Millen called Erin Waldron, Production Manager Supervisor, by phone to report the accident. When Millen and Waldron arrived at the portable crusher, Millen took the ignition key out of the power source on the portable crusher. Millen used a knife to cut the conveyor belt, to recover Crum. Millen and LaFleur then began to perform cardiopulmonary resuscitation on Crum.

The 911 dispatcher sent members from Hernando County Fire and Emergency Service-Rescue 14 and the Sheriff's Department to the mine. They arrived at the mine at 9:12 a.m., and Jacqueline Vazquez, Paramedic, pronounced Crum dead at 9:19 a.m.

INVESTIGATION OF THE ACCIDENT

On December 3, 2021, at 9:26 a.m., David Thompson, Health and Safety Manager Florida Region, CEMEX Construction Materials Florida, LLC, called the Department of Labor National Contact Center (DOLNCC). The DOLNCC contacted David Allen, Assistant District Manager. Allen contacted Brian Thompson, Assistant District Manager, who sent Jason Wakefield, Mine Safety and Health Inspector, and Kevin Hardester, Supervisory Mine Safety and Health Inspector, to the mine. Rory Smith, Staff Assistant, contacted Jarvis Westery, Supervisory Mine Safety and Health Inspector, and assigned him as the lead accident investigator. Smith also sent Scottie Sizemore, Mine Safety and Health Inspector, to assist in the investigation. Additionally, Smith called Norberto Ortiz, Mine Safety and Health Training Specialist, to assist in the accident investigation.

On December 3, 2021, at 11:45 a.m., Wakefield arrived at the mine and 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.

On December 4, 2021, at 10:00 a.m., Westery, Sizemore, and Ortiz arrived at the mine. MSHA's accident investigation team conducted an examination of the accident scene, interviewed mine management and miners, and reviewed conditions and work procedures 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 under the portable crusher located in the Lykes West Pit (see Appendix B). Crum went through a nine-foot-wide opening under the portable crusher that was 54-inches high on the right side tapering down to 30-inches high on the track (left) side. The ground conditions were observed to be rough and irregular, with loose rock present.

Weather

The weather at the time of the accident was 76 degrees Fahrenheit with sunny skies. There was some fog earlier, but it had lifted by the time of the accident. Investigators determined that weather was not a contributing factor to the accident.

Equipment Involved

The portable plant involved in the accident was an MGL Engineering Wobbler Portable Crusher, consisting of a portable crusher and belt conveyors powered by a diesel engine (see Appendix C). The portable crusher was equipped with emergency stop buttons and a remote control that functioned properly when tested. The portable crusher was not de-energized and blocked against

hazardous motion before Crum entered the area underneath, which investigators determined contributed to the accident.

The portable crusher had visible warning signs on the frame, alerting miners of the multiple hazards present, and instructing miners that "absolutely no maintenance or cleaning to be performed while the machine is in operation or while the engine is running." The warning signs also instructed miners that "all guards must be kept in place." Based on Crum's normal duties, as well as information gathered during the investigation, investigators determined that Crum entered this area to check on the belt alignment and clean material from the return idler. The mine operator did not provide a guard for the return idler on the portable crusher feed belt, which investigators determined contributed to the accident. This condition existed for the eight months that the portable crusher was in operation at the mine.

Training and Experience

Richard Crum had 27 years of mining experience, including 11 months of experience as a ground man at the Brooksville Quarry mine. Investigators reviewed the mine's training plan and Crum's training records. Crum received training, including task training for performing maintenance on the portable plant, in accordance with MSHA Part 46 training regulations.

Equipment Pre-Operational Inspections

Crum was responsible for conducting equipment pre-operational inspections on the portable plant and recording the results of those inspections. No safety defects were recorded on the crusher, such as the missing idler guard. There were no indications that efforts had been made to correct the safety defects or to remove the crusher from service. Based on a review of inspection records, investigators determined that inadequate pre-operational inspections of the crusher had been performed, which allowed hazards to go unreported and uncorrected.

Work Practices

Investigators determined that the mine operator allowed a work practice of not de-energizing and blocking equipment against hazardous motion before engaging in maintenance or repairs. Based on interviews, Crum routinely accessed the area underneath the portable crusher while the equipment was running to remove spillage carried back by the belt conveyors. In each case, the equipment was not de-energized and blocked against hazardous motion.

Michael Millen, Soft Rock Crew Lead Man, who worked around the area, had opportunity to know about the work practices and unguarded return idler, and had assisted in maintaining the portable crusher. Millen related a situation where the belt conveyor had tracking issues from the spillage of material and miners had to remove the spillage periodically.

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 assure that equipment was de-energized and blocked against hazardous motion before engaging in maintenance or repairs.

   Corrective Action: The mine operator developed a new written procedure for cleaning and performing maintenance on belt conveyors. The procedure requires that the belt conveyor be de-energized, locked and tagged out, tested to assure it is de-energized, and blocked against hazardous motion, before removing guards or performing cleaning or maintenance. The mine operator trained all miners in the procedure and provided locks and tags for each miner.

2. Root Cause: The mine operator did not guard moving machine parts to prevent miners from becoming entangled.

   Corrective Action: The mine operator installed guards on the portable crusher to prevent entanglement with moving machine parts.

3. Root Cause: The mine operator did not assure that adequate pre-operational inspections on equipment were conducted prior to operating equipment.

   Corrective Action: The mine operator developed and implemented a procedure concerning pre-operational inspections. The procedure explained the purpose of pre-operational inspections, which equipment must be inspected, the items on the equipment to be inspected, and how to address safety defects. The mine operator trained the miners on this procedure.

CONCLUSION

On December 3, 2021, at 9:19 a.m., Richard Crum, a 62 year-old ground man with 27 years of mining experience, died when he became entangled in a belt conveyor return idler.

The accident occurred because the mine operator did not: 1) assure that equipment was de-energized and blocked against hazardous motion before engaging in maintenance or repairs, 2) have guards in place to prevent miners from becoming entangled in moving machine parts, and 3) assure that adequate pre-operational inspections on equipment were conducted prior to operating equipment.

Approved By:

_____ _____

Mary Jo Bishop Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to CEMEX Construction Materials Florida, LLC.

   A fatal accident occurred at this operation on December 3, 2021, at 9:19 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(d)(1) citation was issued to CEMEX Construction Materials Florida, LLC for a violation of 30 CFR 56.14105.

   A fatal accident occurred at this operation on December 3, 2021, when a miner became entangled in unguarded moving machine parts of the MGL Engineering Wobbler Portable Crusher. The mine operator allowed a work practice of not de-energizing and blocking machinery against hazardous motion before maintenance or repairs were performed. This work practice allowed the miner to become entangled in the idler roller of the crusher belt conveyor resulting in his death. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by allowing this work practice. This violation is an unwarrantable failure to comply with a mandatory standard.

3. A 104(d)(1) order was issued to CEMEX Construction Materials Florida, LLC for a violation of 30 CFR 56.14107(a).

   A fatal accident occurred at this operation on December 3, 2021, when a miner became entangled in unguarded moving machine parts of the MGL Engineering Wobbler Portable Crusher. Guards were not provided on the crusher feeder belt conveyor return idler or the crusher discharge belt conveyor tail pulley. This condition allowed the miner to become entangled in the return idler of the crusher feeder belt conveyor. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not providing a guard to protect persons from becoming entangled in moving machine parts. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(a) citation was issued to CEMEX Construction Materials Florida, LLC for a violation of 30 CFR 56.14100(a).

   A fatal accident occurred at this operation on December 3, 2021, when a miner became entangled in unguarded moving machine parts of the MGL Engineering Wobbler Portable Crusher. Equipment was not adequately inspected before placing the equipment into operation, to identify and correct any defects affecting safety. Unguarded moving machine parts, including belt conveyor tail pulleys and conveyor belt return idler, were present on the portable crusher. The mine operator provided no evidence that the defects had been

corrected or recorded, or that the crusher had been removed from service. Based on a review of inspection records, investigators determined that an inadequate pre-operational inspection of the crusher had been performed, which allowed hazards to go unreported and uncorrected.

APPENDIX A – Persons Participating in the Investigation

CEMEX Construction Materials Florida, LLC

Bryan Lane	Area Manager/Plant Manager
David Thompson	Health and Safety Manager Florida Region
Michael Cimino	Attorney
Erin Waldron	Production Manager Supervisor
Erica Fields	Soft Rock and Load-Out Manager
Michael Millen	Soft Rock Crew Lead Man
Julie Pankow	Excavator Operator
Edward LaFleur	Bulldozer Operator

Hernando County Sheriff's Department

Jill Morrell	Deputy Sheriff

Hernando County Fire and Emergency Service-Rescue 14

Jacqueline Vazquez	Paramedic

Mine Safety and Health Administration

Jarvis Westery	Supervisory Mine Safety and Health Inspector
Scottie Sizemore	Mine Safety and Health Inspector
Norberto Ortiz	Mine Safety and Health Training Specialist

APPENDIX B – Aerial View of the Accident Scene

APPENDIX C – Photograph of the Equipment Involved