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UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed and Broken Granite)

Fatal Power Haulage Accident
March 5, 2025

Arrowood
Martin Marietta Materials, Inc.
Charlotte, Mecklenburg County, North Carolina
ID No. 31-00059

Accident Investigators

Kevin Dycus
Mine Safety and Health Inspector

James Fields
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Birmingham District
1030 London Drive
Birmingham, Alabama 35211
Brian Thompson, District Manager

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OVERVIEW

On March 5, 2025, at 10:55 a.m., Juan Maciel, a 57-year-old welder with over seven years of mining experience, died when he became entangled in a belt conveyor tail roller.

The accident occurred because the mine operator did not de-energize and block the No. 12 belt conveyor against hazardous motion.

GENERAL INFORMATION

Martin Marietta Materials, Inc. owns and operates the Arrowood mine. The mine is a surface crushed and broken granite quarry located in Charlotte, Mecklenburg County, North Carolina. The mine employs 27 miners and operates one ten-hour production shift, five days per week. The mine drills and blasts granite in the pit. Front-end loaders and excavators load the blasted granite into haul trucks that transport and dump the granite into the hopper. The hopper feeds the material into the crusher, and belt conveyors transfer the crushed granite to other sizing and crushing locations at the mine. The mine sells the final product for use in the construction industry.

The principal management officials at the Arrowood mine at the time of the accident were:

Robert Severt	Plant Manager
Robert Muncy	Safety Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on January 29, 2025. The 2024 non-fatal days lost incident rate for the Arrowood mine was 3.02, compared to the national average of 1.22 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On March 5, 2025, at approximately 6:00 a.m., Maciel arrived at the mine to start his shift. Throughout the shift, Maciel; Mathew Cook, Lead Man; Orlando Murphy and Kaleb Handcock, Ground Men, performed maintenance and repairs on the plant as needed. At 9:20 a.m., the plant shut down because the incoming power to the water pump that supplied water to the plant was interrupted. Maciel decided that while the plant was down, he would repair the belt skirt rubber on the No. 14 belt conveyor. Maciel went to the motor control center (MCC) and placed his lock on the No. 14 belt conveyor circuit breaker. Then, he traveled 575 feet from the control tower to Tower 3, where he adjusted the belt skirt rubber on the No. 14 belt conveyor.

After Maciel repaired the belt skirt rubber on the No. 14 belt conveyor, he attempted to remove a strip of belt material wrapped around the tail roller for the No. 12 belt conveyor. Maciel removed a piece of guarding from the side of the No. 12 belt conveyor to gain access to the self-cleaning tail roller, where the strip of belt material was located. Maciel entered the enclosed belt conveyor structure and made his way to the tail roller. While Maciel was in the belt conveyor structure, the incoming power was restored to the water pumps, and Robert Cafaro, Control Tower Operator, went through the plant start-up procedures. Cafaro sounded the manual alarm and started the belt conveyors, including the No. 12 belt conveyor. Maciel did not have time to exit the confined space of the belt structure and became entangled between the belt and the self-cleaning tail roller of the No. 12 belt conveyor.

When the plant resumed production after the audible alarm for the belt conveyor start-up sounded, Cafaro tried to reach Maciel on the radio, but did not receive a response. Robert Severt, Plant Manager, drove to Tower 3 and sounded his truck horn to get Maciel's attention, but he did not see him. Severt exited the truck, walked up to the platform on Tower 3, and found Maciel between the belt and the tail roller. Due to the extent of Maciel’s injuries, Severt did not attempt first aid. Severt immediately called 911 at 10:58 a.m. Severt also called Muncy to inform him of the accident. Charlotte Fire Department and Emergency Medical Services arrived on the scene at 11:00 a.m., and Derek Parks, Charlotte Fire Department Battalion Chief, pronounced Maciel dead at 11:06 a.m.

INVESTIGATION OF THE ACCIDENT

On March 5, at 11:09 a.m., Muncy called the Department of Labor National Contact Center (DOLNCC) to report the accident. At 11:33 a.m., the DOLNCC contacted James Earnest, Supervisory Mine Safety and Health Inspector. Earnest contacted Darren Conn, Supervisory Mine Safety and Health Inspector, who sent James Fields, Mine Safety and Health Inspector, to the mine. Conn contacted Thomas Chatham, Staff Assistant, who assigned Kevin Dycus, Mine Safety and Health Inspector, as the lead accident investigator, and Cecil Worrell, Mine Safety and Health Inspector, to assist with the investigation.

At 12:30 p.m., Fields and Worrell arrived on-site, and Fields 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. Dycus arrived at the mine at approximately 3:00 p.m. The MSHA accident team conducted an examination of the accident scene, interviewed miners and mine management, 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 in the Tower 3 on the No. 12 belt conveyor tail roller (see Appendix B). The No. 14 belt conveyor where Maciel adjusted the belt skirt rubber was also located in Tower 3, approximately six and one-half feet away from the No. 12 belt conveyor tail roller (see Appendix C).

Weather

The weather at the time of the accident was rainy, 63 degrees Fahrenheit, with 16 mile per hour southernly winds. The investigators determined that the weather did not contribute to the accident.

Equipment Involved

The No. 12 belt conveyor had a 24-inch-wide belt and was 254 feet long. A 460-volt Toshiba 25 HP electric motor powered the belt conveyor. The self-cleaning tail roller was 16 inches in diameter, and the area that Maciel accessed had less than 6 inches of clearance from the edges of the belt and the guards he did not remove. While the plant was down, Maciel locked out and tagged out the No. 14 belt conveyor but not the No. 12 belt conveyor. The circuit breakers for both belt conveyors were located in the MCC. Maciel informed Cafaro that he was going to perform maintenance on the No. 14 belt conveyor but did not inform Cafaro of his intention to perform work on the No. 12 belt conveyor. The mine operator did not de-energize and block the No. 12 belt conveyor against hazardous motion, which contributed to the accident.

At the time of the accident, the mine operator had a written procedure for de-energizing, locking out and tagging out, and blocking equipment against hazardous motion before performing repairs or maintenance. The procedure did not require visual or audible confirmation that everyone was clear of the area prior to restarting equipment.

Examinations

Juan Maciel conducted a workplace examination of the plant on the day of the accident and did not record any hazards. Investigators determined the workplace examination was adequate and did not contribute to the accident.

Training and Experience

Maciel had over seven years of mining experience with two years of experience at the Arrowood mine. Maciel received task training for plant maintenance, including the procedures for de-energizing, locking out and tagging out equipment, on July 26, 2024. Investigators determined Maciel received all training in accordance with MSHA Part 46 training regulations.

ROOT CAUSE ANALYSIS

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

Root Cause: The mine operator did not de-energize and block the No. 12 belt conveyor against hazardous motion.

Corrective Action: The mine operator developed and implemented a revision to the Lock and Tag-out procedure. This revision includes labeling all belt conveyors and tailpieces, and visual confirmation of miners working in the areas prior to starting the equipment. The mine operator trained all miners on the revision, which emphasizes verification prior to starting the equipment.

CONCLUSION

On March 5, 2025, at 10:55 a.m., Juan Maciel, a 57-year-old welder with over seven years of mining experience, died when he became entangled in a belt conveyor tail roller.

The accident occurred because the mine operator did not de-energize and block the No. 12 belt conveyor against hazardous motion.

Approved By:

_____ _____

Brian Thompson Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Martin Marietta Materials, Inc.

   A fatal accident occurred on March 5, 2025, at 10:55 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. 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 Martin Marietta Materials, Inc. for a violation of 30 CFR 56.14105.

   On March 5, 2025, a welder died when he became entangled in the No. 12 belt conveyor tail roller. The miner was performing repairs or maintenance and entered the guarded tail roller area before the belt conveyor was started. The mine operator did not de-energize and block the belt conveyor against hazardous motion.

APPENDIX A – Persons Participating in the Investigation

Martin Marietta Materials, Inc

Robert Severt	Plant Manager
Robert Muncy	Safety Manager
Mathew Cook	Lead Man
Robert Cafaro	Control Tower Operator
Kaleb Handcock	Ground Man
Orlando Murphy	Ground Man

Mine Safety and Health Administration

Kevin Dycus	Mine Safety and Health Inspector
James Fields	Mine Safety and Health Inspector
Cecil Worrell	Mine Safety and Health Inspector

APPENDIX B – Aerial View of Plant

APPENDIX C – Belt Conveyors on Tower 3

Note: The belt conveyor labels were added by the mine operator after the accident.