

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface
(Crushed, Broken Limestone)

Fatal Electrical Accident
May 8, 2024

Belt Tech Industrial Inc (VIT)
Washington, Indiana

at

US Aggregates-Flat Rock Plant
US Aggregates Inc
Flat Rock, Shelby County, Indiana
ID No. 12-00016

Accident Investigators

Tracy Judy
Mine Safety and Health Inspector

Keith Duncan
Mine Safety and Health Specialist

Originating Office
Mine Safety and Health Administration
Vincennes District
2300 Willow Street, Suite 200
Vincennes, IN 47591
Mary Jo Bishop, Acting District Manager

TABLE OF CONTENTS

OVERVIEW	1
GENERAL INFORMATION	1
DESCRIPTION OF THE ACCIDENT	2
INVESTIGATION OF THE ACCIDENT	4
DISCUSSION	4
Weather	4
Location of the Accident	4
Equipment Involved	5
Examinations	5
Training and Experience	5
ROOT CAUSE ANALYSIS	5
CONCLUSION	7
ENFORCEMENT ACTIONS	8
APPENDIX A – Overview of Flat Rock Plant	10
APPENDIX B – Persons Participating in the Investigation	11
APPENDIX C – Photo of Roll of Belt Positioned under High-Voltage Powerlines	12



OVERVIEW

On May 8, 2024, at approximately 11:20 a.m., Sean Marek, a 44 year-old crew member of Belt Tech Industrial Inc (Belt Tech) with over two years of mining experience, received a fatal electric shock as a result of a crane contacting high-voltage powerlines.

The accident occurred because US Aggregates Inc did not: 1) conduct an adequate workplace examination of the PB9 Belt Conveyor Take-Up area, 2) provide adequate site-specific hazard awareness training, and 3) conspicuously mark and install warning devices for restricted clearances. Additionally, US Aggregates Inc, Belt Tech, and Muck's Crane & Contracting LLC did not ensure work was conducted at least ten feet away from high-voltage powerlines.

GENERAL INFORMATION

US Aggregates Inc owns and operates the US Aggregates-Flat Rock Plant (Flat Rock Plant) located in Flat Rock, Shelby County, Indiana. The surface limestone mine employs 12 miners and operates one shift, 12 hours per day, five days per week. The Flat Rock Plant uses the multi-bench mining method. The mine operator drills and blasts the limestone material before loading haul trucks for transporting to the crusher. From the crusher, the mine operator uses belt conveyors to transport the limestone material out of the pit and place it into stockpiles. The mine

operator contracted Belt Tech to change the PB9 belt. The mine operator also contracted Muck's Crane & Contracting LLC to provide crane service for the PB9 belt change. See Appendix A for an overview of the mine.

The principal management officials for US Aggregates Inc at the Flat Rock Plant at the time of the accident were:

Nicholas Ulerick	Plant Manager
Brandon Roll	Lead Man

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

Christopher Kimball	Chief Operating Officer
Adam Roark	Safety Director
Jansen Shake	Crew Boss

The principal management official for Muck's Crane & Contracting LLC at the time of the accident was:

Michael Muck	Owner/Operator
--------------	----------------

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on April 18, 2024. The 2023 non-fatal days lost injury rate for the Flat Rock Plant was zero, compared to the national average of 1.6 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On May 8, 2024, at approximately 9:30 a.m., Marek arrived at the mine office. Marek and Jansen Shake, Crew Boss for Belt Tech, were escorted by Ethan Eckert, Primary Plant Operator for the mine operator, to the PB9 Belt Conveyor Take-Up area. According to interviews, Shake performed his examination and discussed the job of replacing the PB9 belt with the Belt Tech crew, which included Marek, Jeffrey Decker and Marvin Graber, Crew Members for Belt Tech.

According to interviews, Shake and his crew had concerns regarding the low-hanging 480-volt cable and 480-volt quadraplex (grouped insulated electrical conductors with no outer jacket) over the entrance to the PB9 Belt Conveyor Take-Up area as to whether the crane would fit under them. To enter and exit the work area next to the PB9 belt conveyor, the crane and other mobile equipment were required to drive under these cables.

At approximately 9:45 a.m., Shake, Marek, Graber, and Decker removed power from the PB9 belt conveyor and locked it out. Decker drove the truck with the belt winder on the trailer into the area and positioned it next to the belt conveyor.

At 10:50 a.m., Muck, who was contracted by the mine operator, arrived at the mine office and signed in. Muck transported his crane, arriving at the PB9 Belt Conveyor Take-Up area at approximately 11:05 a.m. According to interviews, Shake met with Muck and advised him to

look at the area, including the low hanging 480-volt cable and quadraplex. Muck determined that the crane would fit under the 480-volt cable and quadraplex and entered the area. Marek moved the telehandler into the area and parked it under the PB9 belt. Muck pulled his crane into position and began setting up the crane by extending the outriggers. At this point, Shake asked him to back the crane up because the crane was blocking the telehandler. The telehandler was needed to switch out the cable reel for the belt winder. Muck moved the crane to a new location, and Marek assisted Muck in setting the crane back up.

According to interviews, Graber backed the truck and trailer with the roll of belt into position. He remained in the truck so he could pull it out of the way once the crane lifted the roll of belt off of the trailer. Shake began removing the bolts from the top belt rollers on the PB9 belt conveyor to make room to splice the belt. Marek climbed onto the trailer and attached the rigging for the roll of belt to the crane hook. Decker stood between the PB9 belt conveyor and the trailer to help either Marek or Shake if needed. Muck began winching the rigging off the floor of the trailer with Marek holding onto the rigging to prevent it from binding up. At this point, Muck began to move the crane boom to center it over the roll of belt and realized he needed to telescope the boom out. While vertically telescoping the boom out, the crane boom contacted the 12,470-volt overhead powerlines.

Based on interviews, Marek had both hands on the rigging when the crane boom contacted the high-voltage powerlines. Shake, Graber, and Decker stated they heard Marek yell, and turned to see smoke coming from the crane and sparks on the trailer. Marek fell to the trailer floor and then to the ground.

According to interviews, Muck stated he had taken his eyes off Marek to look up at the telescoping boom. He looked back down and saw what he thought was Marek jumping from the trailer. Muck heard the other crew members yelling. At that point, he got out of the operator's station of the crane and asked what was going on. Graber told Muck he was in the powerlines at which point Muck asked, "What powerlines?" Muck stated in his written statement and his interview that the sun was on the other side of the high-voltage powerlines, blurring them out.

Muck called Ulerick on his cell phone to inform him of the accident. There were two calls made to 911. The first was from Graber at 11:22 a.m. The second call was from Elizabeth Lamb, Scale Clerk, at the mine office at Ulerick's direction at 11:23 a.m.

Ulerick got on the company radio and informed all employees that there had been an accident and everyone needed to respond to the accident scene. Donald Ford, Operator/Laborer, and Adam Chandler, Operator/Laborer, were the first to arrive on the scene and began cardiopulmonary resuscitation. Eckert; John Ash, Secondary Plant Operator; Joseph Havens, Operator/Laborer; and Jonathan Arthur, Operator/Laborer, gathered the automated external defibrillator and other emergency medical supplies and traveled to the scene.

Ford and Chandler assisted in providing first aid along with Scott Debaun, Sheriff Deputy for Shelby County, until Emergency Medical Services (EMS) arrived. At 11:34 a.m., EMS placed Marek on a backboard and carried him to the ambulance. Kara Bogemann, Coroner, pronounced Marek dead at 12:12 p.m.

INVESTIGATION OF THE ACCIDENT

On May 8, 2024, at 11:27 a.m., Eric Reno, Safety Manager, called the Department of Labor National Contact Center (DOLNCC) to report a serious accident. The DOLNCC notified Kevin Hirsch, Assistant District Manager. Hirsch notified David Stepp, Assistant District Manager. Stepp contacted Reno who informed him that the miner was deceased. Stepp contacted Christopher Persinger, Supervisory Mine Safety and Health Inspector. Hirsch contacted Keith Duncan, Mine Safety and Health Specialist, and told Duncan to go to the Flat Rock Plant to secure the scene. Persinger contacted Tracy Judy, Mine Safety and Health Inspector, and instructed him to travel to the mine to begin the accident investigation as the lead accident investigator.

At 1:16 p.m., Duncan arrived at the mine, began work to secure the area, and issued an order under the provisions of Section 103(k) of the Mine Act to ensure the safety of the miners and preservation of evidence. At 2:34 p.m., Judy arrived at the mine and began gathering information. At 2:54 p.m., Stepp; Dustin Galloway, Staff Assistant; and Bub Whitfield, Supervisory Mine Safety and Health Inspector, arrived at the mine.

MSHA's accident investigation team conducted an examination of the accident scene from a distance for safety. Approximately ten minutes after the crane boom contacted the high-voltage powerlines, one of the crane's tires ruptured. Due to concerns that additional tires may rupture, a tire company consulted by the mine operator advised waiting 24 hours and then deflating the tires. The accident investigation team also interviewed miners and mine management and reviewed conditions and work practices relevant to the accident. See Appendix B for a list of persons who participated in the investigation.

DISCUSSION

Weather

The weather at the time of the accident was fair to partly cloudy and wind was south southeast from zero to nine miles per hour with temperatures in the upper 70s. Muck stated that he could not see the high-voltage powerlines because of the sun's glare. Investigators could not determine if this was a contributing factor.

Location of the Accident

The accident occurred just inside the entrance to the PB9 Belt Conveyor Take-Up area. There are three separate powerlines in the area, ranging in height from 12 feet, six inches to 46 feet, three inches above the ground. The ground was wet due to overnight precipitation. Shake, Graber, and Decker stated in interviews that they were aware of the overhead high-voltage powerlines. Shake and members of the Belt Tech Crew positioned the roll of belt directly under the energized high-voltage powerlines (see Appendix C). Shake instructed Muck where to set up the crane to lift the roll of belt. Muck positioned the crane, as instructed by Shake which resulted in the crane operating within ten feet of high-voltage powerlines. Investigators determined that these conditions contributed to the accident.

There were no warning devices to conspicuously mark the restricted clearance in advance of the

PB9 Belt Conveyor Take-Up area. Investigators determined that this contributed to the accident.

Equipment Involved

The crane involved was a National Crane, Series 1800, Model 18103. The manufacturer's manual, which was in the crane at the time of the accident, contains a warning statement regarding electrical hazards. Investigators also found decals on the crane warning of electrical hazards. Investigators tested the crane's controls and determined that all controls functioned properly. Investigators inspected the crane on May 10, 2024, and found no defects that contributed to the accident.

Examinations

The mine operator conducted the workplace exam between 5:30 a.m. and 6:00 a.m. with no hazards recorded on the examination record for the PB9 Belt Conveyor Take-Up area. US Aggregates Inc's examination did not identify or document the hazard of the energized overhead powerlines. Additionally, US Aggregates Inc did not promptly notify miners in the affected area of the hazard presented by the energized overhead powerlines or the absence of warning devices for restricted clearances below the high-voltage powerlines. Investigators determined that the inadequate examination was a contributing factor to the accident. Muck provided an examination record for the crane listing no defects on the date of the accident.

Training and Experience

Marek had over two years of experience with Belt Tech. Marek received annual refresher training on November 2, 2023. Investigators determined Marek received training in accordance with MSHA Part 46 training regulations.

Investigators determined that Muck watched a site-specific hazard awareness training video on June 20, 2023. This video did not address the electrical hazards presented by overhead high-voltage powerlines in this area. Also, the area in which Muck was working on June 20, 2023, was a different location from the accident site. The checklist used to satisfy the documentation of the site-specific hazard awareness training did not list electrical on the list of hazards they may encounter. The mine operator did not have a representative escort Muck to the site; therefore, site-specific hazards could not have been pointed out to Muck. Investigators determined that these training deficiencies contributed to the accident.

Muck had been certified by the National Commission for the Certification of Crane Operators. Muck had approximately 18 years of experience operating cranes on and off mine properties. During interviews, Muck stated that he stays at least 20 feet away from powerlines and would determine the powerlines' voltage and distance requirements before working closer than 20 feet. However, in this case, he did not take these precautionary measures, and he operated within ten feet of energized overhead powerlines.

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 and contractors implemented the corresponding corrective actions to prevent a recurrence.

1. Root Cause: US Aggregates Inc did not conduct an adequate workplace examination of the PB9 belt take-up area.

Corrective Action: US Aggregates Inc retrained all miners on conducting workplace examinations and promptly notifying miners in the affected area of any hazards found during the examination.

2. Root Cause: US Aggregates Inc did not provide adequate site-specific hazard awareness training.

Corrective Action: US Aggregates Inc revised the Safety Program for Surface Mobile Equipment under Best Practices for Operating Cranes on the Mine Site section to include the following:

- A. Do not operate any machinery that can come within 15 feet vertically and horizontally of energized powerlines.
- B. Place markers such as cones, barrels, or other visible markers 20 feet away from energized powerlines and use an additional spotter(s) to warn the operator if the machine begins to come within 15 feet of the energized lines.
- C. Use radios or other audible warnings for communication.
- D. If working within 15 feet of powerlines, they shall be de-energized.
- E. The mine operator will conduct checks on contractors to verify that they are following federal and company policies while on the mine site.

3. Root Cause: US Aggregates Inc did not conspicuously mark and install warning devices for restricted clearances.

Corrective Action: US Aggregates Inc placed two warning signs at the entrance to the PB9 Belt Conveyor Take-Up area as well as a visual indicator on the powerlines.

4. Root Cause: US Aggregates Inc, Belt Tech, and Muck's Crane & Contracting LLC did not ensure work was conducted at least ten feet away from high-voltage powerlines.

Corrective Action: US Aggregates Inc included Best Practices for Operating Cranes on the mine site addressing working around high-voltage powerlines into their Safety Program for Surface Mobile Equipment and trained all mine employees and contractors.

- A. Do not operate any machinery that can come within 15 feet vertically and horizontally of energized powerlines.
- B. Place markers such as cones, barrels, or other visible markers 20 feet away from energized powerlines and use an additional spotter(s) to warn the operator if the machine begins to come within 15 feet of the energized lines.
- C. Use radios or other audible warnings for communication.
- D. If working within 15 feet of powerlines, they shall be de-energized.
- E. The mine operator will conduct checks on contractors to verify that they are following federal and company policies while on the mine site.

Muck's Crane & Contracting LLC and Belt Tech both developed written procedures for operating near high-voltage powerlines and trained their employees on the written procedures.

CONCLUSION

On May 8, 2024, approximately 11:20 a.m., Sean Marek, a 44 year-old crew member of Belt Tech Industrial Inc (Belt Tech) with over two years of mining experience, received a fatal electric shock as a result of a crane contacting high-voltage powerlines.

The accident occurred because US Aggregates Inc did not: 1) conduct an adequate workplace examination of the PB9 Belt Conveyor Take-Up area, 2) provide adequate site-specific hazard awareness training, and 3) conspicuously mark and install warning devices for restricted clearances. Additionally, US Aggregates Inc, Belt Tech, and Muck's Crane & Contracting LLC did not ensure work was conducted at least ten feet away from high-voltage powerlines.

Approved By:

Mary Jo Bishop
Acting District Manager

Date

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to the US Aggregates Inc.

A fatal accident occurred on May 8, 2024, at approximately 11:20 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 persons 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 US Aggregates Inc for a violation of 30 CFR 56.12071.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. The mine operator hired two companies to move and operate equipment near energized high-voltage powerlines in the PB9 Belt Conveyor Take-Up area on this date but did not de-energize the powerlines or take other precautionary measures. The operator engaged in aggravated conduct constituting more than ordinary negligence by not de-energizing the powerlines or taking other precautionary measures when equipment was moved and operated near energized high-voltage powerlines.

3. A 104(d)(1) order was issued to US Aggregates Inc for a violation of 30 CFR 56.18002.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. During their workplace examination, US Aggregates Inc did not recognize, document or promptly notify miners in the affected area of the hazard presented by the high-voltage powerlines. US Aggregates Inc also did not recognize the absence of warning devices for restricted clearances identifying the high-voltage powerlines. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not informing the crane operator of the high-voltage powerlines and recognize the absence of warning devices. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(d)(1) order was issued to US Aggregates Inc for a violation of 30 CFR 46.11.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. The mine operator did not provide adequate site-specific hazard awareness training to the crane operator before he operated his crane near energized high-voltage powerlines. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not providing adequate site-specific hazard awareness training addressing mine hazards at the location where the mine operator hired the crane operator to

work on May 8, 2024. This violation is an unwarrantable failure to comply with a mandatory standard.

5. A 104(a) citation was issued to US Aggregates Inc for a violation of 30 CFR 56.9306.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. The mine operator did not conspicuously mark and install warning devices in advance of the PB9 Belt Conveyor Take-Up area, where there are three separate powerlines ranging in height from 12 feet, six inches to 46 feet, three inches above the ground, creating a hazard to persons on mobile equipment.

6. A 104(d)(1) citation was issued to Belt Tech Industrial Inc for a violation of 30 CFR 56.12071.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. Equipment was moved and operated near energized high-voltage powerlines in the PB9 Belt Conveyor Take-Up area, and the contract company did not take precautionary measures. The contract company engaged in aggravated conduct constituting more than ordinary negligence by not taking precautionary measures when equipment was moved and operated near energized high-voltage powerlines.

7. A 104(a) citation was issued to Muck's Crane & Contracting LLC for a violation of 30 CFR 56.12071.

A fatal accident occurred on May 8, 2024, at approximately 11:20 a.m., when a contractor received a fatal electric shock while holding onto rigging when a crane contacted high-voltage powerlines. The owner/operator of the crane operated near energized high-voltage powerlines without taking precautionary measures.

APPENDIX A – Overview of Flat Rock Plant



APPENDIX B – Persons Participating in the Investigation

US Aggregates Inc

Eric Reno	Safety Manager
Nicholas Ulerick	Plant Manager
Brandon Roll	Lead Man
Ethan Eckert	Primary Plant Operator
John Ash	Secondary Plant Operator
Jonathan Arthur	Operator/Laborer
Adam Chandler	Operator/Laborer
Donald Ford	Operator/Laborer
Joseph Havens	Operator/Laborer
Elizabeth Lamb	Scale Clerk

Belt Tech Industrial Inc

Adam Roark	Safety Director
Jansen Shake	Crew Boss
Jeffrey Decker	Crew Member
Marvin Graber	Crew Member

Muck's Crane & Contracting LLC

Michael Muck	Owner/Operator
--------------	----------------

Mine Safety and Health Administration

David Stepp	Assistant District Manager
Dustin Galloway	Staff Assistant
Christopher Persinger	Supervisory Mine Safety and Health Inspector
Bub Whitfield	Supervisory Mine Safety and Health Inspector
Keith Duncan	Mine Safety and Health Specialist
Tracy Judy	Mine Safety and Health Inspector

APPENDIX C – Photo of Roll of Belt Positioned under High-Voltage Powerlines

