FAI-6914020-1

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Facility
(Cement)

Fatal Machinery Accident

July 21, 2022

Giant Cement Company
Giant Cement Company
Harleyville, Dorchester County, South Carolina
ID No. 38-00007

Accident Investigators

Bryan Deaton
Mine Safety and Health Inspector

Cody Miner
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Birmingham District
1030 London Drive Suite 400
Birmingham, AL 35211
Mary Jo Bishop, District Manager

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OVERVIEW

On July 21, 2022, at approximately 10:00 a.m., Travis Cason, a 43 year-old shift utility worker with approximately 47 weeks of mining experience, received fatal injuries when his right arm became entangled in an auger conveyor. Cason died later that day from his injuries.

The accident occurred because the mine operator did not: 1) assure that the guard for the auger conveyor was in place while the conveyor was in operation; 2) de-energize and block machinery and equipment against hazardous motion before performing maintenance; 3) perform adequate workplace examinations; and 4) provide adequate training to miners for tasks in which they have no previous experience.

GENERAL INFORMATION

Giant Cement Company owns and operates the Giant Cement Company facility (Giant) located in Harleyville, Dorchester County, South Carolina. Giant employs 214 miners and operates three eight-hour shifts, seven days per week. The United Steelworkers Local 216 represents the miners at Giant. Marl (an unconsolidated sedimentary rock consisting of clay and lime) is removed by bulldozers in the pit and loaded by front-end loaders into haul trucks for transport to the plant. The marl is dumped into a double-roll crusher where over-land belt conveyors

transport it to various parts of the plant for further processing during the manufacturing of cement.

The principal management officials at Giant at the time of the accident were:

Timothy Kuebler	Country Manager
Roberto Polit	Vice President of Operations
Stephen Holt	Vice President of Environmental Health and Safety
Scarth McDonald	Plant Manager

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at this mine on May 4, 2022. The 2021 non-fatal days lost incident rate for Giant was 4.34, compared to the national average of 1.70 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On July 21, 2022, at 6:46 a.m., Cason arrived at Giant and started his shift. Cason's regular duties as a shift utility worker included housekeeping and walking through the #2 Finish Mill to make sure the machinery was working properly. Shift utility workers were also assigned monitoring of the SC01 auger conveyor to confirm it was functioning properly. This was due to this auger conveyer's history of breaking at the couplings and bolts (gudgeons) of the auger.

At approximately 9:30 a.m., Cason and Kensey Shealy, Process Engineer/Fill-in Shift Foreman, traveled to the west side of the #2 Finish Mill. Shealy instructed Cason to verify that the air compressor was operating properly, and to air-lance dust from underneath the feeders. According to interviews, approximately 20 minutes after Shealy left Cason, Shealy and Richard Elmore, Shift Maintenance Repairman, heard a distress call over the radio. Shealy called Cason on the radio, but Cason did not answer. Ronnie Huff, Supervisor for Palmetto Industrial Services, a contractor working at the mine, and his crew working in the #2 Finish Mill, heard someone scream and stopped working to investigate. Huff saw Cason lying on the ground in front of the doorway to the #2 Finish Mill, having apparently descended the stairway from the third floor of the facility. Huff ran outside and flagged Edward Kizer, Miners' Representative/Electrician, to alert the mine operator the emergency. Huff returned to Cason and Huff and his crew began administering first aid. There were no witnesses to the accident.

At 10:02 a.m., Thomas Mack, Senior Production Coordinator, called 911. At 10:22 a.m., Dorchester County Emergency Medical Services (EMS) personnel arrived at the #2 Finish Mill and assessed Cason, whose right arm was amputated as a result of the injuries sustained from entanglement in the auger of the SC01 auger conveyor.

EMS transported Cason to Trident Regional Medical Center where he succumbed to his injuries. Brent Jewett, M.D., pronounced Cason dead at 11:31 a.m.

INVESTIGATION OF THE ACCIDENT

On July 21, 2022, at 10:28 a.m., Justin Lagina, Safety Manager, called the Department of Labor National Contact Center (DOLNCC). The DOLNCC contacted David Allen, Assistant District Manager, who called Brian Thompson, Assistant District Manager. Thompson called Rory Smith, Staff Assistant, who contacted James Fields, Mine Safety and Health Inspector, to respond to the mine. Smith contacted Bryan Deaton, Mine Safety and Health Inspector, and assigned him as the lead accident investigator, and then contacted Cody Miner, Mine Safety and Health Inspector, and assigned him to assist in the investigation.

On July 21, 2022, at 1:00 p.m., Fields arrived on-site, and the mine operator informed him that Cason had passed away from his injuries. Fields 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. Deaton and Miner arrived at the mine at 6:25 p.m. to investigate the accident. MSHA's accident investigation team, along with members of United Steel Workers Local 216, conducted an examination of the accident scene, interviewed miners and mine management, and reviewed conditions and work procedures relevant to the accident. Brett Chiccarello, Mine Safety and Health Training Specialist, reviewed the mine's training records. See Appendix A for a list of persons who participated in the investigation.

DISCUSSION

Location of the Accident

The accident occurred along the west side of the SC01 auger conveyor located on the third floor of the #2 Finish Mill. An outside aerial view of the Giant Cement Company facility can be seen in Appendix B.

Weather

The weather at the time of the accident was clear and 80 degrees Fahrenheit. Investigators determined that weather did not contribute to the accident.

Equipment Involved

The SC01 auger conveyor is over 28 feet long and consists of a ten-inch diameter auger, which rotates inside a trough, and conveys material as the auger turns. The auger conveyor was installed horizontally, 48 inches above the floor. The entire length of the conveyor is designed to be covered by guards held in place by spring clamps. The auger is made up of sections joined by gudgeons and supported by bearings and metal fixtures inside the conveyor trough (see Appendix C).

According to interviews, this SC01 auger conveyor had a history of breaking at the gudgeons. Additionally, material would clog at or in the discharge pipe, so an air lance was installed for shift utility workers to use to clear blockages. Investigators learned through interviews that the mine operator had planned to replace the entire SC01 auger conveyor in August 2021, but afterwards decided not to replace it. Instead, the mine operator decided to repair the gudgeons each time they broke. In June of 2022, Marion Gaskins, Maintenance Manager, put a work order in to fully replace the SC01 auger conveyor but this work had not commenced.

Training and Experience

Cason had over 47 weeks of mining experience, all at Giant. According to training records, Cason was assigned duties as a laborer and completed new miner training in accordance with MSHA Part 46 training regulations on September 7, 2021.

Cason completed seven weeks of task training for his shift utility worker position on June 2, 2022. The mine operator's MSHA Part 46 training plan contained a task labeled "D43 Workplace Exams." Records indicated Cason received 30 minutes of training for this task; however, during his interview, Lagina stated the focus of task training for workplace examinations was dedicated to correctly filling out the inspection forms. Adequate task training would have included training on hazard recognition techniques, requirements to alert others to hazards found, and to document hazards not immediately corrected. Investigators determined that inadequate task training contributed to the accident.

Guarding

The SC01 auger conveyor had metal guards which enclosed the auger in the trough. The guards were normally held in place by spring clamps placed over the lip of the conveyor trough and the top of the guard to hold it in place. Investigators observed several of these spring clamps lying loose on top of a guard and generally inconsistent spring clamps spacing. During interviews, investigators determined that over time, the spring clamps loosened from use and as a result, removing the clamps from the guard required less effort. When MSHA's accident investigation team arrived, two of the guards were off. With the guards off, the rotating auger of the conveyor created an entanglement hazard to miners working in the area. According to interviews, miners placed warning tape up in various areas around the mine as a warning to prevent miners from entering areas where guards were not secured, damaged or missing. However, miners continued to access those areas and be exposed to the hazard from unguarded machinery. Investigators did not find warning tape in the area around the SC01 auger conveyor when they arrived to conduct the investigation.

Supervisors stated that shift utility workers were told to look at the ends of the auger shafts to ensure that the shaft was rotating. The SC01 auger conveyor had a two-piece solid metal drive guard located on the drive end which prevented visual observation when closed. Investigators observed that during the investigation, the guard was separated, exposing the keyed shaft, pulleys, and belts.

According to Shealy's interview, it was a common practice to remove the clamps and slide the guard to the side to see if material was in the auger conveyor and to assure it was rotating without de-energizing the equipment or blocking the equipment against hazardous motion. Shealy also stated that she had observed guards off while the auger conveyors were in operation. Other shift utility workers also stated that management told the shift utility workers to remove the guards from the auger conveyors and look inside while the auger conveyors were in operation, and that it was common practice to run the auger conveyors without the guards in place. Investigators determined that inadequate guarding contributed to the accident.

Workplace Examinations

Investigators reviewed the mine operator's workplace examination records and determined that the mine operator designated the shift utility workers as the competent persons to conduct the

workplace examinations. For the #2 Finish Mill Building, workplace examinations were either not conducted or not recorded and miners were not notified of uncorrected hazards, as numerous days were unaccounted for on all shifts over the six months preceding the accident. During interviews, two shift foremen stated that records are not turned in for daily review. Additionally, Nathan McKelvey, Shift Foreman, stated that he did not receive the workplace examinations records every shift. During interviews, miners stated that they documented hazards on the workplace examinations, but the conditions remained uncorrected, so the miners would often stop documenting them. Investigators determined that inadequate workplace examinations and inadequate correction of hazards identified during examinations contributed 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 assure that the guard for the auger conveyor was in place while the conveyor was in operation.

   Corrective Action: The mine operator permanently removed the auger conveyor from service. The auger conveyor and associated equipment will not be replaced. Additionally, the mine operator trained all miners to secure all guards in place while equipment is in operation.

2. Root Cause: The mine operator did not de-energize and block machinery and equipment against hazardous motion before performing maintenance.

   Corrective Action: The mine operator developed and implemented a new written procedure that requires a supervisor and electrician, if needed, to verify the machinery and equipment is de-energized and blocked against hazardous motion prior to the work beginning. The mine operator trained miners on the new procedure and conducted additional task training to specifically address de-energizing and blocking machinery and equipment against hazardous motion prior to repairs or maintenance.

3. Root Cause: The mine operator did not perform adequate workplace examinations.

   Corrective Action: The mine operator developed and implemented a new written procedure and tracking system to assure: 1) all records of workplace examinations are turned in daily for each working place and shift; 2) miners identify and report hazards to the mine operator; and 3) corrective actions are documented and completed before work begins in an area. The mine operator trained all miners on the new procedures.

4. Root Cause: The mine operator did not provide adequate training to miners for tasks in which they have no previous experience.

   Corrective Action: The mine operator conducted additional task training for all miners for each assigned task. The training included guarding, construction and maintenance of guards,

illumination, safe means of access, safety defects on equipment, machinery and tools, maintenance and repair of equipment and machinery, and workplace examinations. The mine operator will also provide task training for each new task assigned to miners.

CONCLUSION

On July 21, 2022, at approximately 10:00 a.m., Travis Cason, a 43 year-old shift utility worker with approximately 47 weeks of mining experience, received fatal injuries when his right arm became entangled in an auger conveyor. Cason died later that day from his injuries.

The accident occurred because the mine operator did not: 1) assure that the guard for the auger conveyor was in place while the conveyor was in operation; 2) de-energize and block machinery and equipment against hazardous motion before performing maintenance; 3) perform adequate workplace examinations; and 4) provide adequate training to miners for tasks in which they have no previous experience.

Approved By:

_____ _____

Mary Jo Bishop Date
District Manager

ENFORCEMENT ACTIONS

1. A 103(k) order was issued to Giant Cement Company.

   A fatal accident occurred on July 21, 2022, at approximately 10:00 am. 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 any plan to recover any person in the mine or to recover the mine or affected area. This 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)(2) order was issued to Giant Cement Company for a violation of 30 CFR 56.14112(b).

   A fatal accident occurred at this operation on July 21, 2022, when a shift utility worker became entangled in the auger of an auger conveyor. The guards provided for the auger and the drive section of the SC01 auger conveyor were not securely in place during operation. Testing and adjustments were not being performed at the time of the accident. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that the mine operator did not assure that guards were maintained in place and equipment was not operated with moving components exposed to contact; and that equipment no longer required removal of guards to monitor operations, while equipment was in operation. This violation is an unwarrantable failure to comply with a mandatory standard.

3. A 104(d)(2) order was issued to Giant Cement Company for a violation of 30 CFR 56.14105.

   A fatal accident occurred at this operation on July 21, 2022, when a shift utility worker became entangled in the auger of an auger conveyor. The SC01 auger conveyor located in the #2 Finish Mill was not de-energized or blocked against hazardous motion before performing maintenance. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not de-energizing equipment nor blocking it against hazardous motion. This violation is an unwarrantable failure to comply with a mandatory standard.

4. A 104(d)(2) order was issued to Giant Cement Company for a violation of 30 CFR 56.18002.

   A fatal accident occurred at this operation on July 21, 2022, when a shift utility worker became entangled in the auger of an auger conveyor. Numerous hazards existed in the #2 Finish Mill at the time of the accident and according to interviews, had existed for months. The hazards found were not recorded, nor were examination records available for review for several days across all shifts. The mine operator engaged in aggravated conduct constituting more than ordinary negligence in that workplace exams were not consistently performed to discover hazards when they occurred in the workplace. This is an unwarrantable failure to comply with a mandatory standard.

5. A 104(d)(2) order was issued to Giant Cement Company for a violation of 30 CFR 46.7

   A fatal accident occurred at this operation on July 21, 2022, when a shift utility worker became entangled in the auger of an auger conveyor. The mine operator did not provide adequate task training. A common and accepted practice was to remove the auger conveyor guards while the augur conveyor was in operation to visually observe if the auger was rotating, and if material was in the auger. Miners also placed warning tape up as a barricade to prevent persons from entering the area but would then go into the taped area and continue to operate the component. The mine operator engaged in aggravated conduct constituting more than ordinary negligence by not assuring the miners were conducting their tasks safely and assuring guarding was in place, so miners were exposed to contact/entanglement with moving equipment. This is an unwarrantable failure to comply with a mandatory standard.

APPENDIX A – Persons Participating in the Investigation

Giant Cement Company

Roberto Polit	Vice President of Operations
Stephen Holt	Vice President of Environmental Health and Safety
Scarth McDonald	Plant Manager
Justin Lagina	Safety Manager
Marion Gaskins	Maintenance Manager
Thomas Mack	Senior Production Coordinator
Kensey Shealy	Process Engineer/Fill-in Shift Foreman
John Aragon	Shift Foreman
Nathan McKelvey	Shift Foreman
Stephen Max Green	Process Control Technician/Electrician
Chadwick Williams	Control Room Operator
David Bean	Electrician
Jeffers Holman	Electrician
Dylan Murray	Maintenance Mechanic
John Trippie	Shift Maintenance Mechanic
Richard Elmore	Shift Maintenance Repairman
Steven Schmitt	Shift Repairman
Sanquan White	Production Utility Worker
Trond Husser	Shift Utility Worker

United Steel Workers Local 216 (worked at Giant)

Thomas Snell	President
Edward Kizer	Miners' Representative/Electrician
Ricky Johnson	Miners' Representative

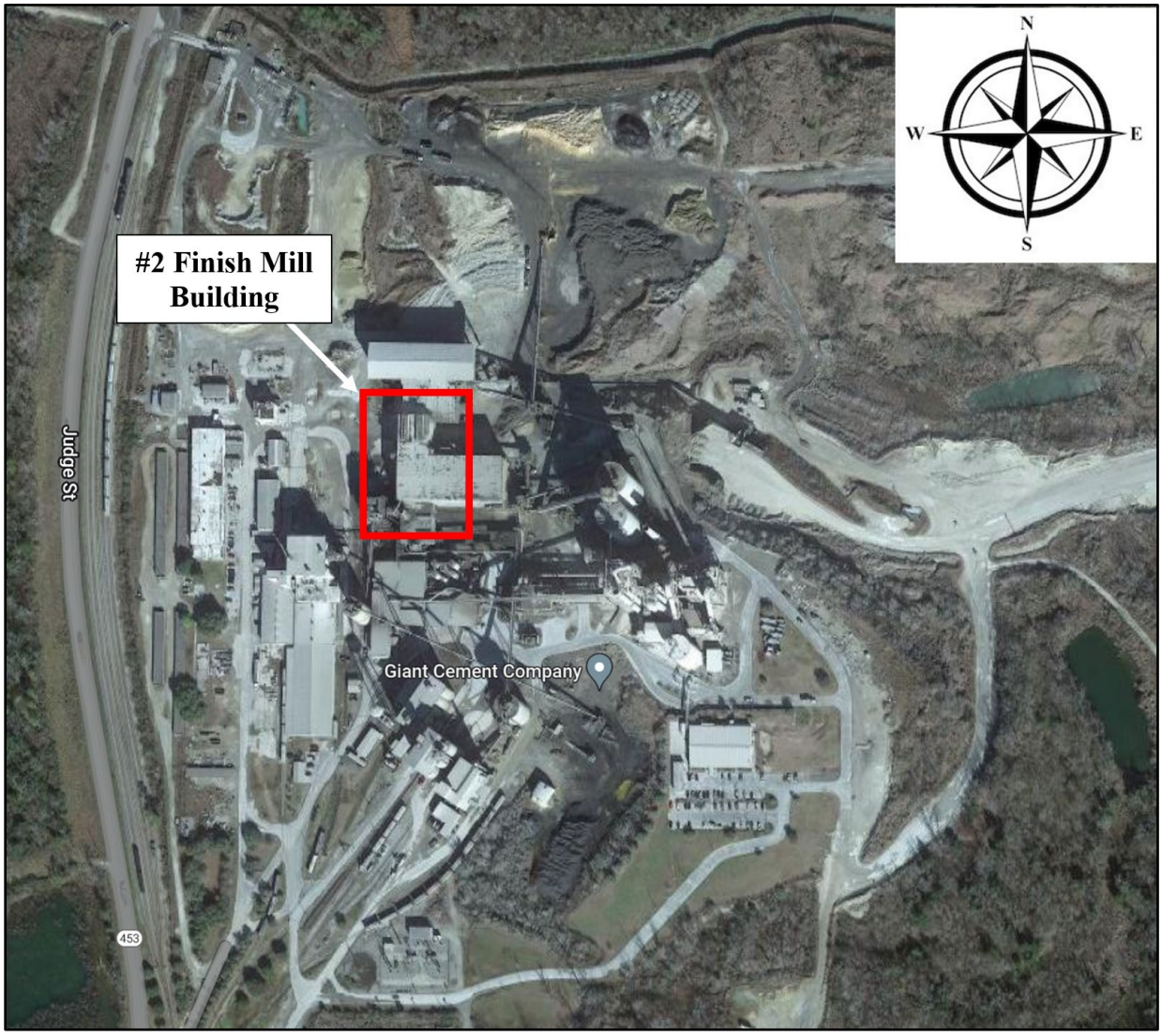
Palmetto Industrial Services

Ronnie Huff	Supervisor

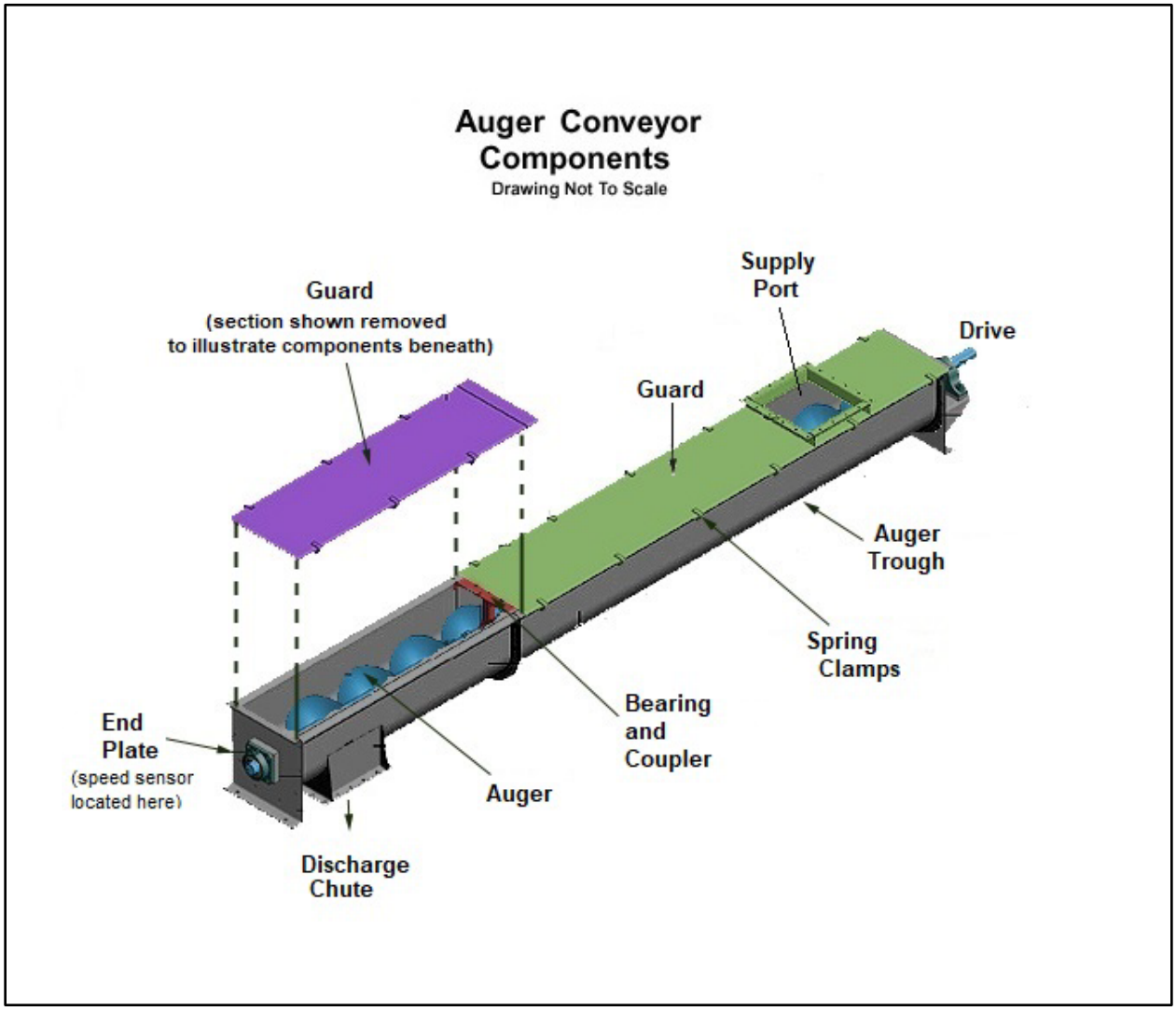
Mine Safety and Health Administration

Bryan Deaton	Mine Safety and Health Inspector
Cody Miner	Mine Safety and Health Inspector
James Fields	Mine Safety and Health Inspector
Brett Chiccarello	Mine Safety and Health Training Specialist

APPENDIX B – Aerial View of Giant Cement Company



APPENDIX C – Auger Conveyor Illustration



APPENDIX D – Plan and Elevation Illustrations