

MAI-2011-01

**UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
Metal and Nonmetal Mine Safety and Health**

REPORT OF INVESTIGATION

**Surface Nonmetal Mine
(Phosphate Rock)**

**Fatal Machinery Accident
February 12, 2011**

**McDonald Construction Co.
Contractor I.D. No. BA3**

at

**Hardee Phosphate Complex
C.F. Industries Inc.
Bowling Green, Hardee County, Florida
Mine I.D. 08-00903**

Investigators

**Billy R. Randolph
Supervisory Mine Safety and Health Inspector**

**Robert W. Morris
Mine Safety and Health Inspector**

**Alan Coburn
Supervisory Mine Safety and Health Specialist**

**Originating Office
Mine Safety and Health Administration
Southeastern District
135 Gemini Circle, Suite 212, Birmingham, Alabama 35209
Michael A. Davis, District Manager**



OVERVIEW

Jose A. Soto, contract road grader operator, age 41, was killed on February 12, 2011, when he was struck by a road grader. Soto had conducted a pre-operational inspection on his road grader. He dismounted the road grader and traveled by foot into a buffer zone that was designated for foot traffic only. The buffer zone was located between the employee parking lot and the ready line for mobile equipment. Another road grader backed into the buffer zone and struck and ran over Soto as he and another equipment operator were exchanging safety glasses.

The accident occurred because contract management policies, procedures, and controls were inadequate and failed to protect persons in the buffer zone. Although it was designated for foot traffic only, the buffer zone was not kept free of mobile equipment. Contract management did not monitor this area to ensure that mobile equipment was not permitted to travel in this area.

GENERAL INFORMATION

Hardee Phosphate Complex, a surface operation, owned and operated by C.F. Industries Inc., (C.F. Industries), is located in Bowling Green, Hardee County, Florida. The principal operating official is Stephen R. Wilson, chief executive officer. The mine operates two 12-hour shifts, seven days per week. Total mine employment is 330 persons.

Phosphate rock is removed by a wet extraction process. Before mining the material, approximately 15 to 20 feet of soil overburden is removed using excavators and haul trucks. After the water in the pit is pumped and lowered, a bench is exposed about 8 to 10 feet above the water level. The phosphate material is soft enough to be removed by a dragline without drilling and blasting. The material is dumped into a pitcar which pumps the slurried material to the plant where it is screened and processed. The finished product is shipped by rail to a chemical plant.

McDonald Construction Corporation, (McDonald), contractor, located in Lakeland, Florida is contracted by C.F. Industries, to construct roads and dams and perform reclamation work. The principal operating official is Wiley Johnson, vice-president of operations. McDonald works at this operation six days per week, one ten hour shift per day. The contractor had 136 miners present on the day of the accident. Jose Soto was an employee of McDonald.

The last regular inspection at this operation was completed on September 3, 2010.

DESCRIPTION OF ACCIDENT

On the day of the accident, Jose A. Soto (victim) arrived at the mine's east employee parking area. He had driven to work with his son, Thomas Soto, miner, and Jacob Hansen, miner. They arrived at approximately 6:45 a.m. Jose Soto conducted a pre-shift inspection on his road grader. He had Hansen's safety glasses and walked into the buffer zone to switch safety glasses with Hansen. At that time, Daniel Perez, road grader operator, was driving his road grader from the parking area to deliver his pre-operational inspection report to a box located in the buffer zone. Perez drove the road grader into the buffer zone and backed it up toward the box. Jose Soto was struck with the right rear tires of the road grader.

David Corbin, construction supervisor, McDonald, then called the Internal Response Team of C. F. Industries at 7:01 a.m., and for local Emergency Medical Services (EMS) at 7:08 a.m. Emergency crews arrived at approximately 7:22 a.m. and the victim was pronounced dead at 7:35 a.m. The cause of death was attributed to blunt force trauma.

INVESTIGATION OF ACCIDENT

The Mine Safety and Health Administration (MSHA) was notified of the accident at 7:05 a.m. on February 12, 2011, by a telephone call from George Wooten, safety superintendent, McDonald, to Samuel K. Pierce, acting assistant district manager. An investigation was started the same day. An order was issued under the provisions of Section 103(j) of the Mine Act to ensure the safety of the miners. This order was later modified to Section 103(k) of the Mine Act when the first Authorized Representative arrived at the mine.

MSHA's accident investigation team traveled to the mine, conducted a physical inspection of the accident scene, interviewed employees, and reviewed documents and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine and contract management and employees, Hardee County Sherriff's Office, EMS, and the local rescue station.

DISCUSSION

Location of the Accident

The accident occurred in the east buffer zone adjacent to the east employee parking area located approximately four miles from the mine entrance. The east buffer zone is located between the employee parking area and the mobile equipment ready line.

East Buffer Zone

The east buffer zone is an area approximately 54 feet wide and 400 feet long, located between the employee parking lot and the mobile equipment parking area (ready line). The buffer zone is restricted to foot traffic and service vehicles by berms and normally by signs. The equipment ready line, where 15 load graders and 11 off road haul trucks were parked, is located on one side of the buffer zone. The employee parking is located on the other side. The terrain of the buffer area is flat. No barricades or gates were being used to restrict traffic at the North and South ends of the buffer zone at the time of the accident. No portable lighting systems or traffic control signs were in place. The parking area and buffer zone were located near the work/project area and would be in place for several weeks until the work was completed in that area. These areas would then be cleared and moved to the next location and a new parking area and buffer zone would be established near the next work area.

Typically, the contract employees arrived for work approximately 30 minutes early to conduct a pre-operational inspection of their mobile equipment. All mobile equipment had to be inspected and ready for operation by 7:00 a.m. A mail box had been set up inside the buffer zone for persons to place the pre-operational equipment inspection forms in when they had completed their inspection.

Perez was operating the road grader that struck the victim. He drove the grader approximately four miles from the entrance road, to the east buffer zone area, to deposit his pre-operational equipment inspection form in the mailbox. Perez stated that when he arrived, he saw persons at the north end of the parking area so he continued to the south side of the lot. He drove into the buffer zone and then backed the road grader toward the mail box. Perez stated he was looking over his left shoulder while backing up and did not see Jose Soto. Hansen wore a hooded jacket because the temperature was unusually chilly and hearing protection. He did not see or hear the approaching road grader.

Weather

The weather at the time of the accident was clear sky and breezy, early morning dawn hours and visibility was not a problem. The temperature was 46 degrees Fahrenheit, an unusually low temperature for this area, and was a factor that contributed to the accident. The road grader was in the buffer zone because the road grader operator did not want to walk to the mailbox in the cold weather.

Equipment

The equipment involved in the accident was a Caterpillar 12H Motor Grader. The grader was equipped with a functional back up alarm, tail light and mirrors. An inspection of the equipment brakes, steering, lights, audible warning devices, mirrors, seat belts, windows, windshields, and other safety devices found no violations that would contribute to the accident. A reenactment of the accident showed no visibility problems where the victim was struck.

Training and Experience

Jose A. Soto, victim, had worked for McDonald for 15 years and at this operation for 6 months. He had received training in accordance with 30 CFR Part 48.

Jacob Hansen, had 1 year of mining experience all of which was for McDonald at this operation. He had received training in accordance with 30 CFR Part 48.

Thomas Soto, had 1 year of mining experience all of which was for McDonald at this operation. He had received training in accordance with 30 CFR Part 48.

Daniel Perez, had worked for McDonald at this site for 3 months and had 2 years prior experience. He had received training in accordance with 30 CFR Part 48.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted and the following root cause was identified.

Root Cause: Management policies, procedures, and controls were inadequate and failed to ensure that mobile equipment was being kept out of the buffer zone.

Corrective Action: Contractor management established procedures to have workplace examinations conducted and policy and procedures were posted and being enforced.

CONCLUSION

The accident occurred because contract management policies, procedures, and controls were inadequate and failed to protect persons in the buffer zone. Although it was designated for foot traffic only, the buffer zone was not kept free of mobile equipment. Contract management did not monitor this area to ensure that mobile equipment was not permitted to travel in this area.

ENFORCEMENT ACTION

Issued to C.F. Industries Inc.

Order No. 6097442 was issued on February 12, 2011, under the provisions of Section 103(j) of the Mine Act:

A fatal accident occurred at this operation on, 2011. This order is being issued under section 103(j) of the Mine Act to assure the safety of all persons at this operation. This order is also issued to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at the staging area except to the extent necessary to rescue an individual or prevent or eliminate an imminent danger until MSHA has determined that it is safe to resume normal mining operations in this area. This order was initially issued orally to the mine operator at 7:35 am on the 12th of February and was reduced to writing when an authorized representative arrived at the mine.

The order was terminated on March 30, 2011. Conditions that contributed to the accident no longer exist.

Issued to McDonald Construction Co.

Citation No. 8543590 was issued on April 18, 2011, under the provisions of Section 104(a) of the Mine Act for a violation of 30 CFR 56.9100(a):

On February 12, 2011, a contract grader operator was killed at this operation. The miner was standing in a staging area for mobile equipment and talking to a coworker when he was struck by a grader that was backing up. The rules governing the direction of movement of self-propelled mobile equipment in the staging area were not being followed to ensure the safety of pedestrians.

The citation was terminated on April 18, 2011. Physical barriers and signage was posted that would limit vehicular traffic in the staging area. All persons were trained regarding the restrictions to traffic and contract management will monitor this area.

APPENDICES

- A.** Persons Participating in the Investigation
- B.** Victim Data Sheet

APPENDIX A

Persons Participating in the Investigation

McDonald Construction Co.

Randy Johnson	Vice-President Administration
George Wooten	Safety Superintendent
Dellwood McDonald	Safety Director

C.F. Industries Inc.

Alan A. Pratt, CIH, CSP	Director of Health Services and Safety
Chris Hedges	Supervisor Safety/Training
Chris Anderson CMSP	Supervisor Safety/Training

Hardee County Sheriff's Office

David Drake	Detective/ICAC
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Mine Safety and Health Administration

Billy Randolph	Supervisory Mine Safety and Health Inspector
Robert W. Morris	Mine Safety and Health Inspector
Alan Coburn	Mine Safety and Health Specialist