CAI-2005-01

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Surface Coal Preparation Facility Construction

Fatal Slip or Fall of Person Accident
February 16, 2005

BOSS Industrial Construction, Inc. (QFJ)
Clay, Alabama

at

Kellerman Preparation Plant
Greenfuels Processing I, LLC
Tuscaloosa County, Alabama
I.D. No. 01-00563

Accident Investigators

Raymond C. Dorton
Mine Safety and Health Specialist

David H. Allen, Jr.
Mining Engineer

Ronny E. Jones
Mine Safety and Health Educational Field Services

Originating Office
Mine Safety and Health Administration
District 11
135 Gemini Circle, Suite 213, Birmingham, Alabama 35209
Richard A. Gates, District Manager

TABLE OF CONTENTS

OVERVIEW

At approximately 5:20 p.m. on Wednesday, February 16, 2005, a 28-year old laborer for BOSS Industrial Construction, Inc., fell from the second floor of a preparation plant construction site, sustaining injuries that resulted in his death on February 24, 2005. The victim had worked at the Greenfuels Processing I, LLC, Kellerman Preparation Plant construction site for one week.

The accident occurred because management failed to ensure that openings, through which men or material could fall, were protected by railings, barriers, covers or other protective devices.

GENERAL INFORMATION

Greenfuels Processing I, LLC, (Greenfuels) was formed as a coal recovery and preparation company on March 19, 2004, and subsequently acquired the abandoned Kellerman Preparation Plant, I.D. No. 01-00563, which is located approximately eight miles from the city of Brookwood in Tuscaloosa County, Alabama. Greenfuels, which employed four people at the Kellerman site, was in the process of having a preparation plant facility constructed so that it could be used to process coal the company plans to dredge from nearby settling ponds. The company also plans to provide, by contract, coal preparation for local surface mines.

Greenfuels entered into a contractual agreement with BOSS Industrial Construction, Inc., (BOSS) contractor I.D. QFJ, for the construction of the Kellerman Plant. BOSS, which has up to 26 employees working at the Kellerman site, dismantled a coal preparation facility in Kentucky and started transporting portions of the plant to the Kellerman site. Materials first arrived at the Kellerman site on September 7, 2004. There were only a few people working at the site at that time. Full crews began work at the Kellerman site on September 28, 2004.

Construction work is performed seven days per week with one 10-hour shift per day.

The principal officers for both entities at the time of the accident were:

Greenfuels Processing I, LLC

Richard Strickland	Plant Manager
Tom Bryan	President
Jeff Green	Chairman, Principal Owner
John Averett	Chief Financial Officer, Principal Owner
Barr Linton	Principal Owner

BOSS Industrial Construction, Inc.

Dave Beaucar	Manager/Foundry Operations
Sam Bowen	Safety Director
Don Bradley	Owner

A Safety and Health Inspection was completed by the Mine Safety and Health Administration (MSHA) on July 7, 2004, and another was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for Greenfuels for the previous quarter was 0.00 compared to a national NFDL rate of 1.82 for preparation plants. For the same quarter, the NFDL incidence rate for BOSS was 0.00 compared to a national NFDL rate of 1.02 for contractors working at preparation plants.

DESCRIPTION OF ACCIDENT

On Wednesday, February 16, 2005, the work shift started at 7:00 a.m. as usual. Two BOSS employees, Joshua Spivey (victim) and Kenneth Peterson, were assigned the task of installing hand-rails and toe-boards around the second floor perimeter of the Kellerman Preparation Plant.

The two men loosened and removed the two wire ropes that encircled the second floor of the plant. These wire ropes were a fall barrier, and removing the wire ropes made it easier to position hand-rails so that they could be welded in place. For fall protection, the two men wore harnesses and tied themselves off to the floor grating while they were installing the hand-rails and toe-boards.

Spivey and Peterson welded hand-rails around the second floor except for an area at the fresh water pumping station installation area at the rear of the plant. During the latter half of the shift, materials were hoisted, via crane, to the second floor at this opening.

At approximately 5:15 p.m., Spivey and Peterson stopped working and started putting away tools. The installation of hand-rails was complete except for the opening at the fresh water pumping station installation area. Peterson walked across the second floor and descended to the first floor to turn off the oxygen and acetylene bottles. At approximately 5:20 p.m., prior to reaching the bottles, Peterson saw Spivey lying on the concrete surface below the second floor opening. Peterson did not see Spivey fall and did not hear anything due to surrounding noise.

Peterson saw a service consultant, Tom West, and told him to call 911. The Brookwood Police Department, Brookwood Fire and Rescue, and Life-Saver Helicopter responded to the scene. The victim was transported to the UAB Hospital in Birmingham, Alabama, via Life-Saver Helicopter. Spivey passed away at 3:46 a.m. on February 24, 2005, due to post-operative brain death following massive head injury.

INVESTIGATION OF THE ACCIDENT

At approximately 6:30 a.m. on Thursday, February 17, 2005, Joe O'Donnell, MSHA Supervisory Coal Mine and Health Inspector at the Bessemer Field Office, received a call from Richard Strickland of Greenfuels. Strickland reported the accident and indicated that there was no answer at the MSHA Field Office in the evening of February 16, 2005, and that the voice mail did not function to allow him to leave a message. Upon arrival at the site, an order pursuant to §103(k) of the Federal Mine Safety & Health Act of 1977 was issued to ensure the safety of miners until an investigation could be conducted.

After the investigation at the accident site was completed, the 103(k) order was modified to allow extraneous materials to be removed from around the second floor opening and to allow installation of the hand-rails at the second floor opening. Four persons were interviewed during the investigation.

DISCUSSION

Work Activities and Accident Scene Information:

Spivey and Peterson removed the two 5/8-inch wire ropes from the perimeter of the second floor. These wire ropes were a temporary barrier to protect against the fall of men or materials until hand-rails and toe-boards could be installed. The upper wire rope had been installed at the same approximate height as the hand-rails being installed. The other wire rope had been installed approximately one-half way between the floor and the upper wire rope. According to testimony, the procedure of removing the wire rope barrier and tying off to the floor grating was a standard work practice while installing hand-rails and toe-boards.

Spivey and Peterson started welding hand-rails and toe-boards in place around the second floor perimeter. They completed installation of the hand-rails except for one location at the back of the plant referred to as the fresh water pumping station installation area. The wire rope barrier had been removed and no other protective device had been used to protect against the fall of men or materials at this location, leaving an opening measuring 75-1/2 inches across at a height of 16-feet 9-inches above a concrete surface.

During the latter half of the shift, materials were hoisted to the second floor at the opening at the fresh water pumping station installation area. These materials consisted of toe-board plating material, a pump and motor assembly, a sheet of 1/4-inch steel plating, and a 6-foot long section of 6-inch diameter steel pipe. These extraneous materials were not removed from the travelway and were still present during the initial accident investigation. The materials were located approximately 30 inches from the edge of the second floor at the opening. Visual evidence indicated that the wire rope barrier was not in place at the time of the accident. The wire ropes were slack and lying on the floor grating with steel toe-board plating material lying across them. It could not be determined that the extraneous materials contributed to the accident since there were no eye-witnesses. It is likely that the opening was left unprotected to facilitate the hoisting of materials to the second floor.

Spivey and Peterson were approximately 60 feet away from, and out of sight of, the opening when they stopped working, detached their lanyards, and started picking up tools in preparation to leave for the day. Peterson went to turn off the oxygen and acetylene bottles used for welding and cutting. The bottles were located on the first floor and long hoses were used to reach the work areas on the second floor. The bottles were located such that a person at the unprotected second floor opening could lean out over the edge and look to the right to see them. Prior to reaching the bottles, Peterson saw Spivey lying on the concrete surface directly below this opening. Peterson knew of no reason for Spivey to walk back to the unprotected area, particularly since they had finished the shift working away from the area and there were no tools to be picked up in the area.

Spivey was still wearing his tie-off harness when Peterson found him and it had to be cut off of Spivey for emergency medical treatment.

Greenfuels employees regularly visited the construction site to monitor work progress and to conduct workplace examinations. Additionally, Greenfuels employees would sometimes be required to work at the construction site.

Weather Conditions:

It had rained early in the shift on the date of the accident, but by noon the sun and wind had dried the floor grating surface on the second floor. The grating was not slippery at the time of the accident. The weather was clear and windy at the time of the accident.

Work History and Training:

The victim had worked intermittently for BOSS Industrial Construction, Inc., since December, 1999, and was called to work on an as-needed basis. He began his most recent employment for BOSS in May, 2004. Records indicate that Spivey had received all required training. No training deficiencies were found that would have contributed to the cause of the accident.

Plausible Accident Scenario:

While preparing to leave at the end of the shift, Peterson descended to the first floor to turn off the oxygen and acetylene bottles. Spivey likely waited until he thought Peterson should have had time to turn the bottles off before disconnecting the hoses from the torch head. However, he likely disconnected the torch head before the bottles were turned off. Spivey likely went to the unprotected area to tell Peterson to hurry in turning the bottles off or to see if something was wrong. It is likely that Spivey walked to the edge of the second floor, leaned over, and looked to the right toward the bottles and lost his balance, causing him to fall to the concrete surface below.

Evidence supporting this scenario includes:

- The torch head was found beneath Spivey. A crescent wrench, which was likely used to remove the torch head, was located nearby. Spivey fell prior to Peterson reaching the bottles to turn them off.
- The bottles were located such that they could be seen by a person leaning out over the edge of the second floor and looking to the right.
- There was no apparent horizontal distance between Spivey's body and the structure, such as there would likely have been had he been running or had tripped.
- Spivey landed in a prone position directly below the unprotected portion of the second floor. The left side of his head contacted the concrete surface as if he had been looking to his right toward the bottles.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic causes of the accident that were correctable through reasonable management controls. During the analysis, a causal factor was identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

1. *Causal Factor:* Management failed to ensure that openings, through which men or material could fall, were protected by railings, barriers, covers or other protective devices.

   Corrective Action: Initially, hand-rails were installed at the unprotected area after the site investigation was completed. Additionally, BOSS Industrial Construction, Inc., has developed and implemented an administrative policy requiring wire rope barriers to be installed around all open areas and the perimeter of each floor, above ground level, during the installation of hand-rails and toe-boards. These wire ropes are to remain in place during the installation process. These wire ropes cannot be removed until the field superintendent examines the area and approves of their removal.

CONCLUSION

On February 16, 2005, Joshua Spivey fell through an unprotected opening because of management's failure to ensure that openings, through which men or material could fall, were protected by railings, barriers, covers or other protective devices.

Approved by:

_____ _____

Richard A. Gates — Date
District Manager

ENFORCEMENT ACTIONS

§103(k) Order No. 7681963: Issued to Richard Strickland, Plant Manager, of Greenfuels Processing I, LLC. Note: this order was issued prior to the death of the victim on February 24, 2005.

A non-fatal accident resulting in serious injuries occurred at this operation on February 16, 2005, when a miner fell from the second floor of the preparation plant. This order is issued to assure the safety of all persons at this operation. It prohibits all activity at the second floor fresh water pumping station installation area and the area below until an initial investigation is conducted and the area deemed safe for work.

§104(a) Citation No. 7681964: Issued to Richard Strickland, Plant Manager, of Greenfuels Processing I, LLC for violation of §77.204

The operator failed to assure compliance with the cited regulation by an independent contractor, BOSS Industrial Construction, Inc., contractor ID QFJ. Employees of the contractor removed two 5/8-inch wire ropes used as a barrier around the perimeter of the second floor of the Kellerman Preparation Plant construction site to facilitate the installation of hand-rails and toe-boards. These wire ropes were not re-installed at the fresh water pumping station installation area at the rear of the plant, leaving an opening measuring 75-1/2 inches across at a height of 16-feet 9-inches above a concrete surface. This opening in this surface installation through which men or material may fall was not protected by railings, barriers, covers or other protective devices.

An accident resulting in fatal injuries occurred on February 16, 2005, when an employee of the independent contractor fell from the second floor of the construction site through the unprotected opening. Employees of the operator were also exposed to this condition. Both the operator and the independent contractor are responsible for compliance with all applicable provisions of the Act, standards and regulations.

§104(a) Citation No. 7681965: Issued to Dave Beaucar, Manager/Foundry Operations, of BOSS Industrial Construction, Inc. for violation of §77.204

The independent contractor failed to ensure that an opening in a surface installation through which men or material may fall was protected by railings, barriers, covers or other protective devices. Employees of the contractor removed two 5/8-inch wire ropes used as a barrier around the perimeter of the second floor of the Kellerman Preparation Plant construction site to facilitate the

installation of hand-rails and toe-boards. These wire ropes were not re-installed at the fresh water pumping station installation area at the rear of the plant, leaving an opening measuring 75-1/2 inches across at a height of 16-feet 9-inches above a concrete surface. There were no other protective devices in place to prevent the fall of men or material.

An accident resulting in fatal injuries occurred on February 16, 2005, when an employee of the independent contractor fell from the second floor of the construction site through the unprotected opening. Both the operator and the independent contractor are responsible for compliance with all applicable provisions of the Act, standards and regulations.

APPENDIX A
Persons Participating in the Investigation

GREENFUELS PROCESSING I, LLC

Name	Title
Richard Strickland	Plant Manager

BOSS INDUSTRIAL CONSTRUCTION, INC.

Name	Title
Dave Beaucar	Manager/Foundry Operations
Sam Bowen	Safety Director

ALABAMA DEPARTMENT OF INDUSTRIAL RELATIONS
MINE SAFETY AND INSPECTION

Name	Title
Don Keith	Mine Inspector

MINE SAFETY AND HEALTH ADMINISTRATION

Name	Title
Joe O'Donnell	Supervisory Mine Safety and Health Inspector
Raymond Dorton	Accident Investigation Team Leader, District 11
David Allen	Mining Engineer, District 11
Ronny Jones	Educational Field Services

APPENDIX B
Photograph of Accident Scene