

BUREAU OF MINES AND MINE SAFETY

FINAL REPORT

MARCH 3, 2008

**FATALITY REPORT FROM
AUGUST 10, 2007**

**FRONTIER KEMPER CONSTRUCTORS, INC.
GIBSON COUNTY COAL SHAFT PROJECT**



**PREPARED BY DONALD "BLINK" McCORKLE
DEPUTY COMMISSIONER**

Authority for Inspection

The Bureau of Mines and Mine Safety (hereinafter the “Bureau of Mines”) exists as a bureau within the Indiana Department of Labor by virtue of Ind. Code 22-1-1-4(1). Ind. Code 22-1-1-5(a)(4) requires the Bureau of Mines to investigate all fatalities occurring in underground mine operations for the purpose of data collection. Ind. Code 22-10-3-6 grants to the director of the Bureau of Mines the authority to enter, examine, and inspect all commercial coal mines and facilities.

Pursuant to 30 U.S.C. 801 *et. seq.*, (the Federal Mine Safety and Health Act of 1977 , hereinafter “the Act”), the Interagency Agreement Between the Mine Safety and Health Administration U.S. Department of Labor and the Occupational Safety and Health Administration U.S. Department of Labor dated March 29, 1979, the Mine Safety and Health Administration (hereinafter “MSHA”) has jurisdiction over coal mines and each operator of a coal mine. “Operator” is defined at 30 U.S.C. 802(d) (section 3(d) of the Act) and includes independent contractors performing construction at mines. 30 U.S.C. 802(h) (section 3(h)(1) of the Act) gives MSHA jurisdiction over lands, structure, facilities, equipment, and other property used in, to be used in, or resulting from mineral extraction. This includes the authority to regulate the construction of such facilities or structures.

The investigation of this accident was done by the federal office of MSHA District #7 offices in Kentucky. MSHA was the lead investigator, with the Indiana Bureau of Mines accompanying MSHA pursuant to Indiana law for the purpose of collecting data. District #7 officers in Kentucky were used rather than District #8 of Indiana pursuant to MSHA policy that if there are more than 2 fatalities, an independent district conducts the investigation.

Indiana Code 22-1-1-5 provides that the investigation of the Bureau of Mines shall not interfere with the investigations by MSHA. As nothing in state law gives the Bureau of Mines authority to assess fines, issue

citations, or enforce abatement orders, the doctrine of preemption clearly accords federal MSHA the primary role as investigator.

Description of Accident

At approximately 10:43 a.m. on August 10, 2007, three persons were fatally injured at the mine shaft sinking project of Gibson County Coal, LLC's Gibson County Mine due to falls. Two of the victims were management employees of the shaft sinking contractor, Frontier-Kemper Constructors, Inc. The third was a retiree of Frontier-Kemper Constructors, Inc.

The victims were: Todd Richardson, age 38,
 Job Title: Mining Operations Manager
 Activity at time of accident: Touring mine shaft construction
 Contractor employee: Yes
 Years of experience: 15

 Jarred Ashmore, age 23
 Job Title: Project Engineer
 Activity at time of accident: Touring mine shaft construction
 Contractor employee: Yes
 Years of experience: 1 year 2 months

 Dan McFadden, age 66
 Job Title: Retiree
 Activity at time of accident: Touring mine shaft construction
 Contractor employee: No
 Years of experience: 30

The mine is an underground coal mine located in Gibson County, Princeton, Indiana. The victims were employed by, or guests of, Frontier-Kemper Constructors, Inc., whose corporate headquarters are located in Vanderburgh County, Evansville, Indiana.

The victims were being lowered into a shaft under construction in a mucking or sinking bucket when the bucket tipped, causing the victims to fall down the shaft. The shaft is approximately 575 feet in depth and has intersected the Springfield No. 5 coal seam, but has not yet been connected to the existing underground

workings. There were five other employees of Frontier-Kemper working in the shaft bottom area, but none were injured.

Description of Investigation

The investigation commenced immediately on August 10, 2007 upon initial descent into the shaft with federal MSHA officers, Ron Stahlhut and Mike Rennie from District #8, Gibson County Mine, mine rescue team members, Terry Phegley and Rod Dilbeck and the Deputy Commissioner of the Bureau of Mines, Donald “Blink” McCorkle. Each participated in the recovery of the bodies, and clean up of the area.

The Indiana Bureau of Mines spent approximately one week conducting its investigation in tandem with MSHA investigators, and was present for all substantive components of the accident investigation.

After meticulous and detailed inspections at the accident site, by a team of specialists on structural forms, hoisting ropes, lifts, motors, and controls, the hoisting ropes were tested for compliance for tensile strength and load tested. Motors were tested for electrical and mechanical defects. The shaft opening was inspected for any safety violations that could have contributed to the accident. The hoisting controls were checked and tested for proper functioning. Brake drums were inspected and tested for proper operation. The entire shaft and work decks were inspected for any defects. The collar doors were inspected and tested for proper operation. Workers on site were interviewed to ascertain that human error was not a factor.

The investigation team interviewed the workers on site, both above and below ground, for their accounts of what happened. The five workers at the shaft bottom reported that they heard something falling down the shaft and did not know at the time what it was, but that they knew to take cover in openings provided at the shaft bottom. This was brought out by the testimony of the lead man at the bottom of the shaft that was interviewed. The workers on top who were interviewed included the toplander, one laborer, who had made the last trip up before the accident, the maintenance foreman, hoisting operator, and the supervisor on that shift. All

who were interviewed maintained that all standard procedures were followed prior to the trip at issue. The first indication that something was amiss was when the hoisting operator noticed slack in the hoisting rope and he immediately stopped the descent of the hoist. The toplander, once the men were lowered, did not see the action of the bucket nor did any of the others who were on the surface.

The investigating team tried to recreate the accident conditions by raising and lowering the bucket with the sling attached. After numerous attempts, the team was never able to get the sling and clevis to wedge or get stuck in the channel of the door.

Cause

The cause was determined to be a 20 ft. nylon sling that was attached to the bottom of the mucking or sinking bucket by a clevis and on the free end of the nylon sling was another clevis. This sling was used to raise or lower parts and supplies to the work platforms and workers in the shaft. It was not always taken off when men were transported up and down the shaft. This was confirmed by interviews with the men on site. The sling, used for raising and lowering supplies, should have not been on the bucket as men were being transported in the bucket.

The mucking or sinking bucket has to be raised out of the shaft through two hydraulic operated collar doors. As the bucket is raised to the height needed to clear the doors, then the doors are closed and the bucket is then lowered to the ground and sits on the collar or landing. When men are to travel down in the shaft they enter the bucket, the bucket is then raised to the height to clear the doors, which have to open to let the bucket descend down the shaft. This is the proper operating procedure used in transporting men to and from the work place at that work site.

The day of the accident, the bucket brought a person up from the shaft and was raised to the proper height for the bucket and the nylon sling to clear the doors and then the doors were closed and the bucket was lowered to the landing or collar. The person exited the bucket and it was ready for the next trip. The three

victims entered the mucking bucket, without fall protection, and were raised up to the proper height to clear the doors and then were lowered down the shaft. As the bucket began to be lowered, the clevis on the nylon sling's free end looped in a metal channel on the inside of the hydraulic collar door and wedged itself. Once the bucket descends through the doors, the bucket is out of visible sight, when standing in front of the collar doors. The toplander was not in proper position to observe the bucket as it was being lowered nor was there constant communication with the hoisting engineer, who cannot see the bucket once it is lowered in the shaft. The nylon sling had only 20 feet of travel when it wedged itself in the collar door channel and once it reached the end of the travel and did not free itself, it tipped the bucket at a sufficient angle that all the victims were tipped out of the bucket and fell approximately 550 feet. The nylon sling is rated for 11,000 pounds and the mucking bucket only weighed 6000 pounds, which made the nylon sling adequate to tip the bucket.

When the bucket was raised immediately following the accident, the sling and clevis loosened and were pulled out of the channel by hand, by an employee on the surface.

Abatement and Corrections

Frontier-Kemper has submitted a supplement to the Shaft Sinking Plan dated August 17, 2007 and it has been approved by MSHA District #8 office. These changes are as follows:

1. All persons shall use a suitable full harness and be tied off when riding in the shaft sinking bucket.
2. When entering and exiting the shaft sinking bucket at the work deck, all persons shall be tied off. All persons must remain tied off to the bucket until they are tied off to the deck.
3. Adequate fall protection shall be in place or used when personnel are working on the work deck, such as a third cable rail.
4. A means shall be provided for safe footing when persons are embarking or disembarking from the sinking bucket at the work deck, such as a chain securing the bucket to the deck.

5. Permissible wireless emergency communication devices shall be required between persons riding the bucket, the hoistman, and the toplander.

6. Straps, lanyards, or rigging shall not be attached to the bottom of the bucket when transporting persons.

7. When transporting personnel in the shaft, the toplander or other personnel will be stationed at the collar, in communication with the hoistman and be able to visually observe the bucket until it descends past the collar doors.

8. The speed of the buckets transporting persons shall not exceed 500 feet per minute and not more than 200 feet per minute when within 100 feet of any stop per Title 30 Code of Federal Regulations, Part 77, Subpart T, Section 1908, Paragraph (j).

9. The means for preventing these speeds shall be provided automatically by Lilly controls or other similar means.

10. Training shall be provided regarding these items and 5000-23 forms shall be completed for the training.

Essentially, had the victims that were riding in the bucket been tied off or secured to the bucket, despite it tipping over, they would not have fallen. Likewise, had the sling been removed from the bucket before transporting people, it would not have gotten caught, causing the bucket to tip. The supplemental plan submitted by the contractor is adequate to eliminate a reoccurrence.

Conclusion

The Indiana Department of Labor's Bureau of Mines concurs with the Federal Mine Safety and Health Administration's findings that the accident occurred as a result of failure to ensure that the hoist was under control of the hoistman at all times when persons were in the shaft. The toplander was not at his proper station as the bucket was being lowered through the shaft collar doors and the hoistman had no visual contact with the bucket at this point. The hoistman lost control of the bucket when the nylon sling and clevis wedged in the

collar door. No fall protection was being utilized to protect persons who were transported in the sinking or mucking bucket.