CAI-2003-06

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Surface Coal Mine

Fatal Fall of Person Accident
Occurred: February 20, 2003
Date of Death: February 25, 2003

Black Thunder Mine
Thunder Basin Coal Company, L.L.C.
Wright, Campbell County, Wyoming
ID No. 48-00977

Accident Investigators

Lester Coleman
Coal Mine Safety and Health Inspector

Art C. Gore
Coal Mine Safety and Health Inspector

Elsa A. Montoya
Health and Safety Specialist (Training)

Originating Office
Mine Safety and Health Administration
District 9
P.O. Box 25367
Denver, Colorado 80225-0367
Allyn C. Davis, District Manager

Release Date: May 20, 2003

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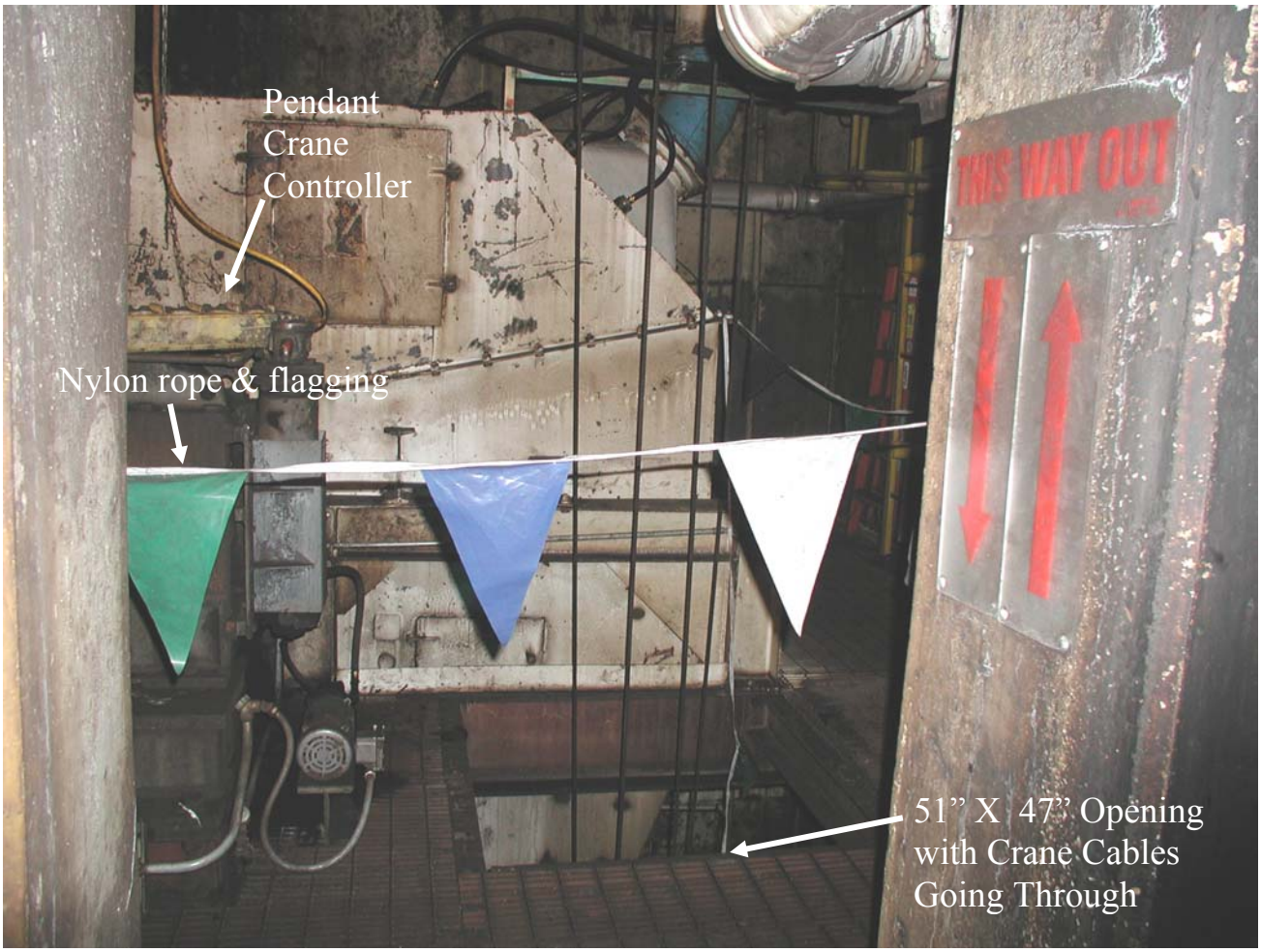
FATAL FALL OF PERSON ACCIDENT
BLACK THUNDER MINE, ID NO. 48-00977
THUNDER BASIN COAL COMPANY, L.L.C.
WRIGHT, CAMPBELL COUNTY, WYOMING
OCCURRED: FEBRUARY 20, 2003
DATE OF DEATH: FEBRUARY 25, 2003



OVERVIEW

On Thursday, February 20, 2003, at approximately 2:10 p.m., Rick E. Richardson, Special Projects Supervisor, age 44, fell approximately 19 feet at the transfer tower of the slot storage facility. He was transported by Life Flight to the Wyoming Medical Center in Casper, Wyoming. Following intensive medical care at the hospital, Richardson was pronounced dead at 12:25 p.m., Tuesday, February 25, 2003.

At the time of the accident, Richardson, who was in charge of special projects at the plant, was leaving the transfer tower after monitoring the work of two contractors at the 614 level (lower level). While leaving, he fell through an opening, 51 inches by 47 inches, in the floor on the 612 level down to the 614 level. The opening had been made earlier in the shift when two sections of metal floor grating were removed to allow steel parts for a new dust control hood to be lowered to the 614 level. Warning flags had been installed across all three access routes to the opening. Richardson had to cross under this flagging to access the area.

The cause of the accident was the failure to replace the floor grating or protect the opening with a railing, barrier, cover, or other protective device after the initial work of lowering the steel dust control hood parts to the 614 level was completed. A contributing factor was Richardson not using a safety belt and lanyard or other type of fall protection when traveling near the opening.

GENERAL INFORMATION

The Black Thunder Mine is a surface sub-bituminous coal mine located 12 miles southeast of Wright, Campbell County, Wyoming. The mine opened in 1977 and is currently operated by Thunder Basin Coal Company, L.L.C. (TBCC), a subsidiary of Arch Coal, Inc. of St. Louis, Missouri. The mine is the second largest surface coal mine in the United States, with an average production of 179,000 tons per day. The mine produced 65 million tons of coal in 2002, with 596 employees, 484 of which worked in the pits and 62 in the surface facilities. The mine works two 12-hour shifts per day, seven days per week.

The overburden ranges from 100 to 230 feet and consists primarily of unconsolidated, discontinuous lenses of clay, silt, sand, mudstone, and sandstone. The Wyodak coal seam has an average thickness of 68 feet and dips one degree to the west-southwest.

The mine has four pits. Both the overburden and coal are blasted. Four draglines and one to three shovels are the primary equipment used for removing overburden. Four to six shovels are the primary equipment used for removing coal. Shovels load the coal into haul trucks, which transport the coal to truck dumps, where it is crushed, and then conveyed by belt to two train loadout facilities. These facilities load an average of 14 unit trains per day.

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection at the mine prior to the accident on September 5, 2002. The Non-Fatal Days Lost (NFDL) injury incidence rate, excluding office and contract workers, for the mine in 2002 was 0.80 compared to a National NFDL rate of 2.26.

The principal officials at the mine were:

Paul A. Lang	General Manager
Kevin L. Hampleman	Mine Manager
Paul B. Barber	Plant Superintendent
Michael A. Hannifan	Manager of Safety

DESCRIPTION OF THE ACCIDENT

On Thursday, February 20, 2003, Rick E. Richardson (victim), Special Projects Supervisor, worked dayshift at the plant facility. He normally worked an eight-hour shift starting at 6:00 a.m. At the time, improvements to the dust collection and ventilation systems at the plant facility were his primary projects. During the daily managers' meeting at the beginning of the shift, Richardson asked for some "down" time at the transfer tower of the slot storage facility. During "down" time, a

facility is idled so that work can be done on equipment. This was needed at the transfer tower to work on the 614 conveyor belt dust control hood. William Baumberger, Transportation Coordinator, checked the train schedule for the day and approved the down time.

At approximately 6:45 a.m., Richardson met with Kelly Smith, owner of Industrial Maintenance and Repair (IMR), to discuss the day's work. IMR contracted with TBCC to work on the dust control hood for the 614 belt conveyor. Richardson told Smith that the plant would be down for awhile and he wanted him to work on the 614 belt conveyor dust hood. This was a change from Smith's intended work on handrails and catwalks at the near pit hoppers, which IMR did as a subcontractor to Interstate Bearing Technologies (Interstate). Smith took his two employees, Shawn Ralls and Larry Carroll, to the transfer tower and dropped them off with their tools and they went down to start on the project. Smith left the mine at approximately 7:30 a.m. for a meeting at another mine.

Richardson also met with Interstate employees Joseph Borrego and Tony Deimling. Interstate was contracted by TBCC to improve the dust suppression system for the coal handling facilities at the plant. He told them about the down time and asked them to go to the 614 conveyor belt tailpiece area in the transfer tower to install pipe and tubing.

Carroll and Ralls prepared to work on the hood but were delayed by millwrights who had to work on the 614 conveyor belt. At approximately 9:00 a.m., Richardson met them at the site, showed them how he wanted the hood to fit, and gave them a "burn" permit for the welding that they needed to do. The millwrights were done at that time and Carroll and Ralls were able to start working on the hood. They installed two steel plates on the hood that were already at the 614 level of the transfer tower. At approximately 10:15 a.m., they went to the 612 level to lower more steel parts for the dust hood. After dragging parts to the overhead crane, they removed two sections of metal floor grating on the 612 level to allow the parts to be lowered to the 614 level with the overhead crane. They removed these grates by hand and stored them out of the way in an upright position against the 612 belt conveyor hood so as not to cause a tripping hazard. This was at approximately 10:30 a.m.

Prior to removing the grating, Carroll placed flagging across all three access routes to the area. He used flagging that had been left in the area for that purpose (see Picture on page 1 for view of flagging). Carroll, working within the flagged area and in close proximity to the opening in the floor, used the crane to lower the steel parts to Ralls who unhooked them on the 614 level. After lowering the parts, Carroll joined Ralls. He left the hole open with the crane ropes down through it, as they still

had additional parts to lower. These parts were on the surface and not available to be lowered at that time.

At approximately 11:00 a.m., Smith returned to the mine and joined Carroll and Ralls at the 614 level. They needed additional tools so Smith left to get them. After Smith left, Richardson came down the 614 belt conveyor walkway from the surface and asked for Smith. Richardson also talked to Deimling and Borrego, the Interstate workers in the 614 belt conveyor tailpiece area. Since it was approximately 11:30 a.m., Deimling and Borrego left the building with Richardson to eat lunch. They climbed the steps to the 612 level and proceeded to the elevator. Deimling and Borrego went left at the top of the stairs on a direct route to the elevator. Richardson went right under the flagging in the doorway and around to the elevator through the 612 belt drive area (see Appendix C for these routes of travel). In taking this route, Richardson traveled within two to four feet of the opening in the 612 floor.

Smith, Carroll, and Ralls left the transfer tower to take a lunch break at approximately 12:30 p.m. When exiting the building, they traveled past the doorway to the 612 level. Smith observed the opening in the floor with the crane cables going through it and also saw the flagging around the area. This group took the direct route to the elevator and did not enter the flagged area. After returning from lunch, the three continued to work on the hood at the 614 level.

At approximately 1:00 p.m., Michael Lucy, a millwright who worked for Richardson, started painting a newly installed waterline located on the floor along the wall inside the flagged area on the 612 level (see Appendix C for waterline location). Lucy worked in the area approximately 30 minutes. He was within a few feet of the opening and did not wear any fall protection or restraint system. Lucy also washed down the area at the beginning of the shift for the “burn” permit, but this was prior to the floor grating being removed on the 612 level.

At approximately 1:50 p.m., Richardson traveled down the walkway from the surface along the 614 belt conveyor. He spoke with Smith and his employees and told them they were doing a good job on the hood. They were located approximately 20 feet from the 614 belt conveyor tailpiece. He asked if they could work until 7:00 p.m. to finish. Richardson then went to talk with Borrego and Deimling at the 614 belt conveyor tailpiece. He also asked them if they could work until 7:00 p.m. He then left and went up the stairs to the 612 level. A few minutes later at approximately 2:10 p.m., Deimling heard something. He looked up and saw Richardson falling from the 612 level to the 614 belt conveyor tailpiece. He did not see Richardson fall through the opening but only observed the last of his fall.

Borrego and Deimling yelled at Smith to call a "Mayday" on his mine radio and Borrego jumped onto the belt to check Richardson. He was laying face down and not breathing. Borrego turned Richardson and laid him on his back. Richardson began to gasp for air but was not breathing well. He had chewing tobacco in his mouth and Borrego did a finger sweep to remove it. Richardson's tongue was lacerated and swollen. Smith arrived and they decided to move Richardson off the belt to a flat surface to help him breath easier. They moved him to the floor at the bottom of the stairs and Smith tilted his head back to help him breath. According to the TBCC emergency response report, Richardson had an open skull fracture to the occipital lobe of his head, abrasions around the face, abrasions to the thoracic region of the back, and deformity of the right scapula.

The Mayday call was made at 2:17 p.m., and the first trained responders arrived at 2:22 p.m. Lance Wheeler, an EMT with the Safety Department, also arrived and assisted. Richardson was secured on a backboard, placed in a Stokes basket, and transported out of the building at 2:47 p.m. Several attempts to intubate Richardson were unsuccessful. Wright Ambulance Service personnel met them at the top of the elevator. Richardson was taken by company ambulance to the helicopter pad to await the Life Flight helicopter. Dr. Scott Johnston from Wright, Wyoming met them at the pad. Paramedics from Gillette, Wyoming arrived at the pad and assisted. The Life Flight arrived at 3:14 p.m. and left at 3:40 p.m. Richardson was taken to the Wyoming Medical Center in Casper, Wyoming where he was placed on life support. He never regained consciousness and was pronounced dead at 12:25 p.m., February 25, 2003.

INVESTIGATION OF THE ACCIDENT

On Thursday, February 20, 2003, at 3:00 p.m., Michael Hannifan, Manager of Safety, called the MSHA Denver, Colorado, District Office and advised William Denning, Staff Assistant, that a serious fall of person accident had occurred. He said that the victim was semiconscious and was being attended by emergency medical personnel. He also advised that Life Flight had been summoned and the victim would be taken to Casper, Wyoming for treatment. William Younkin, MSHA Surface Mine Inspector in Gillette, Wyoming, was dispatched to the mine and arrived at 4:45 p.m. He started an investigation and issued a Section 103(k) order at 5:00 p.m. Younkin left the mine at 8:30 p.m. The last call from the hospital indicated that the victim was in very serious condition and would have trouble surviving the night.

On Friday, February 21, 2003, Larry Keller, MSHA Supervisor, and Younkin returned to the mine and investigated the accident. Younkin issued Section 104(a) citations to TBCC and IMR for a violation of 30 CFR 77.204 for failing to protect the opening on

the 612 level where Richardson fell. In the afternoon, the victim's condition was reported as serious with little improvement.

On Saturday, February 22, 2003, Hannifan called Keller's home and reported that Richardson was stable and improving. On Monday, February 24, 2003, Hannifan called Younkin at 7:00 a.m. and advised that Richardson had improved a small amount over the weekend. On Tuesday, February 25, 2003, at 7:00 a.m., Younkin was advised that Richardson had lost all brain functions during the night. At 1:00 p.m., Younkin was told that the family and attending physician were discussing how long to leave Richardson on life support.

On Wednesday, February 26, 2003, Hannifan called Younkin and reported that the victim had been removed from life support at 3:00 a.m. At 11:20 a.m., Hannifan called the District Office and advised that Richardson had died. A subsequent review of the Certificate of Death determined that Richardson was pronounced dead at 12:25 p.m., Tuesday, February 25, 2003. This disagrees with information initially provided by the company that Richardson died on February 26, 2003. Since the Certificate of Death is an official record, it was used in this report to establish the time and date of death.

Although an investigation of Richardson's accident, which initially appeared to be very serious but nonfatal, had been conducted by Younkin and Keller, a formal fatal accident investigation was initiated after his death. Lester Coleman, Coal Mine Safety and Health Inspector from Castle Dale, Utah; Art C. Gore, Coal Mine Safety and Health Inspector from Craig, Colorado; and Elsa A. Montoya, Health and Safety Specialist (Training) from Lakewood, Colorado, were assigned to investigate the accident. Coleman was designated as the Lead Investigator.

On February 28, 2003, the MSHA accident investigation team arrived at the mine. The team conducted a physical examination of the accident site, interviewed persons, and reviewed training records, conditions, and work procedures relevant to the accident. MSHA conducted the investigation with the assistance of mine management and miners. The investigation was conducted jointly with officials from the Wyoming Office of the State Inspector of Mines.

DISCUSSION

1. The accident occurred in the transfer tower of the slot storage facility. Two sections of metal floor grating were removed on the 612 level to allow steel parts for the dust control hood to be lowered to the 614 level. This resulted in an opening approximately 51 inches by 47 inches in the

floor. An electric rail mounted overhead crane was used to lower the steel parts through the opening to the 614 level.

2. Prior to removing the floor grating, flagging was installed waist to chest high across all three access routes to the area. These routes were: the doorway from the stairway area, the walkway at the back of the 612 belt transfer chute hood, and the walkway along the 612 belt conveyor (see Appendix C for location of flagging). The access doorway was approximately 4.5 feet from the opening. The flagging consisted of a single length of white plastic roping with multi-colored triangular flags attached. It was stored in the area and was routinely used for that purpose.

3. After steel parts for the hood were lowered to the 614 level, the crane was left in the lowered position. The four crane ropes went through the center of the opening and the sheave block was left approximately four feet above the 614 belt conveyor tailpiece. The hole was left open because more steel hood parts needed to be brought down from the surface and lowered to the 614 level.

4. In July 2002, TBCC awarded contracts and work started on the installation of improvements to the dust collection and ventilation systems in the plant.

5. On July 15, 2002, Richardson was placed in charge of special projects at the plant and promoted to Special Projects Supervisor. Previously, he had been a Plant Operator. He reported to Paul Barber, Plant Superintendent.

6. On the day of the accident, Richardson assigned and monitored the work of IMR and Interstate employees at the 614 belt conveyor tailpiece area in the transfer tower. He visited the work site twice that morning. When he left the second time at approximately 11:30 a.m., the Interstate employees accompanied him out of the building. They observed Richardson duck under the flagging that was across the doorway on the 612 level as he proceeded to the elevator. In taking this route, Richardson traveled within two to four feet of the opening. The Interstate employees took a different, more direct route to the elevator, which did not require traveling through the flagged area (see Appendix C for travel routes). The elevator terminated at the 612 level and a stairway accessed the lower 614 level.

7. Richardson visited the work site a third time just prior to the accident. He traveled to the area down along the 614 belt conveyor from the surface and spoke with the IMR and Interstate employees. He took the stairway up to the 612 level when he left. Smith was at the work site briefly

after his return to the mine at approximately 11:00 a.m. and shortly thereafter when he returned with additional tools for his employees. At that time, he stayed and worked with his employees on the dust control hood at the 614 level.

8. The vertical distance from the 612 level floor where the opening was located to the top of the 614 belt conveyor tailpiece was approximately 19 feet.

9. Ventilation pipes were located approximately four feet above and to the side of the 614 belt conveyor tailpiece. There was no indication that Richardson hit these pipes during his fall.

10. There was no visible sign that Richardson hit the crane sheave block that was located in the center of the opening and approximately four feet above the 614 belt conveyor tailpiece.

11. Richardson's safety hat was found on the 612 level floor. It was located against the far wall approximately six feet away from the opening (see Appendix C for location of safety hat). His safety glasses were found on the 614 belt conveyor.

12. All of the floor grating on the 612 level can be removed to make openings to lower and raise materials to/from the 614 level for necessary repair work. Statements indicated that openings in the floor were made infrequently and that they were not left unattended on previous occasions. The same opening that Richardson fell through was made about nine days earlier to remove the old dust control hood from the 614 level. This work was done by two TBCC millwrights with Carroll assisting. Carroll worked on the 614 level while the millwrights operated the crane. Carroll stated that the millwrights used the same flagging that he used on February 20, 2003, to flag the area on the 612 level. Carroll had previously worked as a millwright for TBCC at the Black Thunder Mine for 17 years.

13. Richardson started at the Black Thunder Mine in May 1991. He previously worked at non-coal mines and was hired as a newly employed inexperienced miner. He completed the required Part 48 training for newly employed inexperienced miners on May 29, 1991. Recently, he received annual refresher training on January 17, 2003, and refresher training for various tasks on February 13, 2003. No deficiencies were found concerning Richardson's required training.

14. In February 1995, Richardson was certified by the Mine

Safety and Health Administration (MSHA) to make examinations and tests for hazardous conditions according to 30 CFR 77.100. He was qualified by MSHA in November 1994, to make tests for methane and for oxygen deficiency according to 30 CFR 77.101.

15. According to the TBCC emergency response report, Richardson had an open skull fracture to the occipital lobe of his head, abrasions around the face, abrasions to the thoracic region of the back, a lacerated tongue, and deformity of the right scapula.

16. Kelly Smith, owner of IMR, had previously worked for TBCC as an employee at the Black Thunder mine for approximately 20 years. Smith is certified by the State of Wyoming as a Surface Mine Forman.

17. George DeLong, Shift Supervisor, conducted an on-shift examination of the surface facility at the beginning of the dayshift on February 20, 2003. The opening in the floor grating on the 612 level had not yet been created at the time of his on-shift examination. Records indicated that no hazardous conditions were found on the 612 and 614 levels during the examination.

18. TBCC's Plant Operations and Maintenance Safety Task Training Program addresses the operation of the overhead crane in Section 6.1. These written safety procedures do not address removing floor grating to create an opening for use of the crane.

19. Carroll stated that he had a safety harness and lanyard available but that he did not use it while working near the opening in the floor on the 612 level. TBCC provided fall arrest protection for its employees. Lucy, TBCC millwright, stated that he did not use fall protection when he painted the waterline on the 612 level adjacent to the floor opening, but he acknowledged that it was available for his use. Lucy was one of three TBCC millwrights who worked for Richardson.

20. While Carroll lowered parts with the crane, the pendant controller was placed on the 612 belt drive gearbox, which was located approximately one foot from the opening. Carrol used this controller to operate the crane. When attaching parts to the crane, Carrol was required to reach over the opening to grab the sling attached to the hook. These operations required Carroll to work dangerously close to and over the opening.

21. The waterline on the 612 level was painted at approximately 1:00 p.m., the day of the accident. Richardson was

responsible for this work and may have entered the flagged area while exiting the transfer tower at the end of his shift to check this work. This would have placed him in close proximity to the opening.

22. During one of the conversations with Richardson prior to the accident, Carroll warned Richardson about the opening on the 612 level. Carroll stated that he told Richardson not to forget about the hole and Richardson shrugged it off like "he knew that (the) hole was open."

ROOT CAUSE ANALYSIS

A root cause analysis was conducted. The following causal factors were identified that could have averted the accident entirely or mitigated the severity of the accident:

Causal Factor: The opening in the 612 level floor was left unattended and unprotected.

Larry Carroll, after lowering parts to the 614 level, left the 51-inch by 47-inch opening on the 612 level unattended and unprotected by a railing, barrier, cover, or other protective device. Carroll left flagging across all the access routes to the area to warn of the hazard.

Corrective Action: TBCC installed a removable metal railing around the opening on the 612 level as a temporary corrective action until a proper safety assessment could be completed and implemented.

Causal Factor: Management did not take action to correct the hazardous condition that the opening presented.

Prior to the accident, the opening was observed by Richardson and Smith, both certified persons, and neither took action to correct the condition. Smith observed the opening at approximately 12:30 p.m. when he traveled to the surface to eat lunch. Richardson traveled through the flagged area at approximately 11:30 a.m. on his way to the surface for lunch and again just prior to the accident. During one of the conversations with Richardson prior to the accident, Carroll warned Richardson about the opening on the 612 level.

Corrective Action: Practices and procedures should be reviewed and changes implemented to state that flagging is not adequate as a barrier and that openings must be protected with adequate physical barriers. Alternately, grating should be replaced whenever an opening is not in use.

Causal Factor: A safety belt and line was not used by miners when working near the opening where there was a danger of falling.

During the shift, four persons, including Richardson, worked without using a safety belt and lanyard near the floor opening on the 612 level, where there was a danger of falling. Fall arrest gear was available for use at the mine.

Corrective Action: Procedures should be implemented such that miners are trained and required to use a safety belt and lanyard or other type of fall protection when working near openings where there is a danger of falling.

CONCLUSION

The cause of the accident was the failure to replace the floor grating or protect the opening with a railing, barrier, cover, or other protective device after the initial work of lowering the steel dust control hood parts to the 614 level was completed. A contributing factor was Richardson not using a safety belt and lanyard or other type of fall protection when traveling near the opening.

ENFORCEMENT ACTIONS

1. Section 103(k) Order No. 7608597 was issued on February 20, 2003, to ensure the safety of all persons in the 612 belt conveyor and the 614 belt conveyor tailpiece areas until an investigation could be completed and the areas made safe.

2. Section 104(a) Citation No. 7608598 was issued to TBCC on February 21, 2003, for a violation of 30 CFR 77.204. The violation stated, "Two catwalk sections of the 612 belt floor had been removed for hoist access at the transfer tower of the preparation plant. There were no protective railings or barrier structures provided at the four foot square opening. The opening allowed material to be lowered by hoist to the 614 belt chute without providing fall protection." Based on further information obtained by the accident investigation team, this citation was modified on May 7, 2003, to a Section 104(d)(1) unwarrantable failure citation with high negligence. The modification stated, "Rick Richardson, a supervisor for Thunder Basin Coal Company and a certified person, traveled to within two to four feet of the opening at approximately 11:30 a.m., February 20, 2003. He passed under the flagging that had been installed as a warning across the doorway to access the area. Richardson was also warned about the opening by a

miner on the 614 level of the transfer tower. The operator knew of the opening in the floor and failed to correct the hazardous condition."

3. Section 104(a) Citation No. 7608599 was issued to IMR on February 21, 2003, for a violation of 30 CFR 77.204. The violation stated, "Two catwalk sections of the 612 belt floor had been removed for hoist access at the transfer tower of the preparation plant. There were no protective railings or barrier structures provided at the four foot square opening. The opening allowed material to be lowered by hoist to the 614 belt chute without providing fall protection." Based on further information obtained by the accident investigation team, this citation was modified on May 7, 2003, to a Section 104(d)(1) unwarrantable failure citation with high negligence. The modification stated, "Kelly Smith, owner of Industrial Maintenance and Repair and a certified Surface Mine Foreman in the State of Wyoming, observed the opening on the 612 level with the crane cables through it and the flagging across the access doorway at approximately 12:30 p.m., February 20, 2003. Smith knew of the opening in the floor and failed to correct the hazardous condition."

4. Section 104(a) Citation No. 7619598 was issued to TBCC on May 7, 2003, for a violation of 30 CFR 77.1710(g). The violation stated, "Appropriate safety equipment (safety belt) or other type of fall protection was not being used by Rick E. Richardson in an area where there was a danger of falling. Mr. Richardson was working/traveling in the 612 area of the slot storage transfer tower when he fell through an opening in the floor and landed 19 feet below on the 614 belt conveyor tailpiece which resulted in his death."

It should be noted that both TBCC and IMR were also cited for their employees, Lucy, Carroll, and Ralls, not wearing a safety belt or other fall protection when they worked in close proximity to the floor opening on the 612 level on February 20, 2003. Since these violations did not contribute to the cause of the accident, they were not included in this report. These citations were issued under a separate inspection according to MSHA policy.

Approved by:

_____
Allyn C. Davis
District Manager

APPENDIX A

Persons furnishing information and/or present during the investigation were:

THUNDER BASIN COAL COMPANY, L.L.C. OFFICIALS

Paul B. Barber	Plant Superintendent
William Baumberger	Transportation Coordinator
George DeLong	Shift Supervisor
Michael A. Hannifan	Manager of Safety
Lance Wheeler	Safety Department (EMT)

THUNDER BASIN COAL COMPANY, L.L.C. EMPLOYEES

Wade Christensen	Miners Representative
Michael Lucy	Millwright
Chris Reynolds	Millwright

INDUSTRIAL MAINTENANCE AND REPAIR

Kelly Smith	Owner
Larry L. Carroll	Welder/Millwright
Shawn Ralls	Welder

INTERSTATE BEARING TECHNOLOGIES

Michael Ray	Branch Manager
Tony Deimling	Service Technician
Joseph Borrego	Service Technician

WYOMING DEPARTMENT OF EMPLOYMENT
OFFICE OF THE STATE INSPECTOR OF MINES

Tom McDonald	Inspector of Mines
Robert Solaas	Deputy Inspector of Mines

MINE SAFETY AND HEALTH ADMINISTRATION

Lester Coleman	Coal Mine Safety & Health Inspector, Lead Investigator
Bob E. Cornett	Assistant District Manager for Technical Programs
Art C. Gore	Coal Mine Safety & Health Inspector
Elsa A. Montoya	Health and Safety Specialist (Training)
Larry W. Ramey	Acting Assistant District Manager for Inspection Programs

APPENDIX B

Persons interviewed during the investigation were:

THUNDER BASIN COAL COMPANY, L.L.C. OFFICIAL

William Baumberger	Transportation Coordinator
George DeLong	Shift Supervisor
Lance Wheeler	Safety Department (EMT)

THUNDER BASIN COAL COMPANY, L.L.C. EMPLOYEES

Michael Lucy	Millwright
Chris Reynolds	Millwright

INDUSTRIAL MAINTENANCE AND REPAIR

Kelly Smith	Owner
Larry L. Carroll	Welder/Millwright
Shawn Ralls	Welder

INTERSTATE BEARING TECHNOLOGIES

Tony Deimling	Service Technician
Joseph Borrego	Service Technician

APPENDIX C

FATAL FALL OF PERSON ACCIDENT
BLACK THUNDER MINE, ID NO. 48-00977
OCCURRED 2/20/2003; DEATH 2/26/2003
612 BELT – FLOOR PLAN SHOWING OPENING IN FLOOR
NOT TO SCALE