**CAI-2006-41**

**UNITED STATES**
**DEPARTMENT OF LABOR**
**MINE SAFETY AND HEALTH ADMINISTRATION**

# COAL MINE SAFETY AND HEALTH REPORT OF INVESTIGATIOIN

**Underground Coal Mine**

**Fall of Face, Rib, Pillar, or Highwall**
**October 20, 2006**

**Whitetail Kittanning Mine**
**Kingwood Mining Company LLC**
**Fellowsville, Preston County, West Virginia**
**(I.D. No. 46-08751)**

**Accident Investigators**

**Jan B. Lyall**
**Coal Mine Safety & Health Inspector (Roof Control)**

**Jerry W. Vance**
**Mine Safety & Health Specialist (Training)**

**Michael Gauna**
**Mining Engineer, Technical Support**

**Originating Office**
**Mine Safety and Health Administration**
**District 3**
**604 Cheat Road**
**Morgantown, West Virginia 26508**
**Carlos Mosley, Acting District Manager**

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## OVERVIEW

On October 20, 2006, at approximately 2:20 p.m., Thomas Channell, a 49 year old continuous mining machine operator, was fatally injured when he was struck by a rib roll and pinned against a shuttle car. The accident occurred as the victim was using the remotely controlled continuous miner to clean up the second cut in the number 40 crosscut between the number 5 and 6 entries on the East Section. The fallen coal-rock rib measured approximately 8 ½ feet long, 4 feet high and 4 feet thick. The height in the area of the accident is approximately 102 inches from the mine floor to the existing mine roof.

## GENERAL INFORMATION

The Whitetail Kittanning Mine, I.D. No. 46-08751, is located on State Route 26, 1.5 mile North of Fellowsville, Preston County, West Virginia. It is operated by Kingwood Mining Company LLC, a subsidiary of Alpha Natural Resources LLC. The mine employs 255 persons working two production shifts and one maintenance shift six days a week. The mine also contracts an additional 30 underground miners through Garrett Mine Service. The mine produces 12,000 tons of coal daily from four super sections utilizing two continuous mining machines on each section.

The mine accesses the Lower Kittanning coal seam by a slope, and is ventilated by the slope, one intake shaft, and two exhausting shafts. The mine liberates approximately two million cubic feet of methane every 24 hours. Miners and supplies enter the mine by a hoist car located in the slope. Personnel and supplies are transported throughout the mine by battery powered rail-mounted vehicles. Coal is transported from the working sections to the surface via conveyor belts.

A regular safety and health inspection by the Mine Safety and Health Administration (MSHA) was ongoing at the time of the accident. The previous regular safety and health inspection of the mine was completed on September 29, 2006. During the previous four quarters the mine NFDL rate was 3.85 compared to a national average of 4.92 for the same period.

The East section face area is positioned approximately 14,500 feet northwest of the portal and consists of ten-entries. The section development width is approximately 737 feet with pillars established on 80 by 80 foot centers, developed on a N40°W orientation.

The principal officers at this mine at the time of the accident:

Frank J. Matras, President/General Manager
Perry Ryan, Superintendent
Max Burgoyne Sr., Mine Foreman
Joe Pervola, Safety Manager

## DESCRIPTION OF ACCIDENT

On Friday, October 20, 2006, the day shift East crews entered the mine at approximately 7:00 a.m. under the direction of Fred Watson, right-side foreman, and Arthur Wilt, left-side fill-in foreman. The crews arrived on the section between 7:45 and 7:50 a.m., and assembled at the section power center. The foremen held a brief safety meeting with the miners discussing the roof bolt spacing section of the roof control plan. The foremen then conducted an examination of the section prior to mining activities.

At approximately 8:20 a.m. normal mining activities began. The left side continuous mining machine began mining in the crosscut between the No. 3 and No. 2 entries. After this cut, the mining cycle included the No. 2 face, No. 3 face, the first cut of the crosscut between the No. 5 and No. 6 entries, No. 4 face, and the first cut of the crosscut from No. 2 entry to No.1 face.

At approximately 1:50 p.m. Thomas Channell, victim, moved the continuous mining machine into the No. 5 to No. 6 crosscut and began mining the second cut. At approximately 2:10 p.m., Wilt conducted an examination of the place and talked to Channell. After mining 27 feet, Channell was in the process of cleaning up loose coal from the cut. Channell backed the machine up and walked behind the line curtain near the intersection and began loading loose coal from the bottom. Ben Belanger, shuttle car operator, stated that he heard something give way. Belanger turned the shuttle car off and yelled for Channell but did not get any response. He then looked behind the line curtain and saw that a large piece of rib had fallen and pinned Channell against the shuttle car.

Belanger called for help and informed Steven Chapell, shuttle car operator, that Channell was pinned against his shuttle car. Belanger went to the section feeder where he found Frank Keener, right side shuttle car operator, and informed him of the accident. Keener notified personnel on the surface that an accident had occurred. Personnel on the surface called 911 at this time. Keener was instructed by Perry Ryan, superintendent, to call back to the surface when he had more information.

Chapell went to the accident scene and saw the victim pinned against the shuttle car by a large piece of coal rib. He went for help and found Max Burgoyne Jr., scoop operator, who went to inform Wilt of the accident. Chapell went back to the accident scene where miners from the right side of the section had arrived.

Members of the crew checked for vital signs, but none were detected. The crew gathered crib blocks and lifting jacks to extract the victim. The victim was removed and loaded on a backboard then transported to the surface by mantrip where he arrived at approximately 3:30 p.m. The victim was transferred to emergency personnel from Mountaineer Ambulance Service where a paramedic in consultation with Dr. Lee Smith, Ruby Memorial Hospital, pronounced Channell dead at 4:01 p.m. The victim was taken to Preston Memorial Hospital in Kingwood, West Virginia and examined by Pam Thomas, Medical Examiner.

## INVESTIGATION OF THE ACCIDENT

Thomas Hlavsa, acting assistant District Manager, was notified of the accident by Joe Pervola, mine safety manager at 2:50 p.m. Pervola stated that a miner was pinned against a shuttle car and the accident was believed to be serious. Hlavsa verbally issued a 103 (k) order to Pervola over the telephone and then notified Carlos Mosley, acting District Manager, of the accident. Jan Lyall, Coal Mine Safety and Health inspector (roof control), was assigned to conduct the investigation. Jerry Vance, Education Field Services, was also asked to assist in the investigation and to review the training records.

The team traveled to the accident site and began the investigation in conjunction with the West Virginia Office of Miners Health, Safety, and Training (WVOMHST), and with the assistance of mine management. Photographs, measurements, and sketches were made of the area. On Saturday October 21, 2006, Michael Gauna, mining engineer, MSHA Technical Support was assigned to assist in the investigation. Gauna travel to the mine with Nelson Blake, roof control supervisor, and began a geological evaluation of the section on this day.

On October 23, 2006, persons having knowledge of the facts surrounding the accident were interviewed by MSHA, WVOMHST, and Company officials. A list of those persons who participated in the investigation is contained in Appendix A of this report. Nine persons were interviewed during the investigation. Documents and other relevant information were gathered during the investigation.

## DISCUSSION

### General

The first cut of the No. 5 to No. 6 crosscut was mined head-on (not turned) earlier in the shift. The depth of this cut was approximately 16 feet at normal entry width. In the process of mining the first cut a small portion (approximately 4-feet) of the pillar corner to the southeast (right-side) was trimmed to accommodate future shuttle car haulage.

### Roof-Control

Primary roof support in the area consisted of 6-foot fully grouted resin bolts on four by four foot spacing installed with large round surface control plates (20 inch pans) and 9 inch bearing plates. Intermittently, a short roof strap (brow tender) was installed between the rib-line bolt and the coal rib. The mining width across the section measured between 17 and 18 feet. The currently approved roof control plan permitted a maximum cut depth of 30 feet for this section. The sum of the diagonal distance of the intersection at the accident site was 57 feet. The immediate roof consists of shale with undulating bedding which forms an uneven roof requiring the additional surface control. Rib support was not installed on the section.

## Equipment

Mining on the left side is conducted with a Joy 14 CM 15 radio remote control continuous miner, serial number 531A, company number 7. Two Narco 10 SC 32 shuttle cars, both standard side units (right side operators compartment) are assigned to the mining machine. At the time of the accident, shuttle car company number 14, serial number NO4C012, was situated under the mining machine loading boom.

## Geological Conditions

Overburden across the face area of the East development section ranges from 490 to 710 feet and approximately 620 feet over the accident site. The crosscut was being advanced on a N50°E orientation towards the No. 6 entry. No known mining exists in the coal seams above or below the Lower Kittanning seam near the accident site.

The rib failure mechanism is defined and controlled by geologic features. A pronounced slickenside plane oriented at N22°E, dipping 42°NW, existed at the pillar corner. The slickenside plane is near parallel to the orientation of the crosscut. The base of the plane dips towards the crosscut and "day-lights" in the crosscut just above the floor. This northwest dipping slickenside plane forms the base of the rib fall.

A less pronounced slickenside plane also exists in the rib-side oriented at N40°E, dipping 32° SE. These two slickenside planes form the wedge-shaped profile of the rib fall with the junction of the two slickenside planes forming the apex of the wedge within the pillar. Typical coal cleats also existed, a face cleat oriented N6-12°E and a butt cleat oriented N72-77°W. The northwest dipping slickenside allowed a sliding rib failure with the southeast dipping slickenside and the coal cleat contributing by allowing the rib material to detach from the pillar. The fallen material was irregular in shape with pronounced intersecting, slickenside edges and measured approximely 8 ½ feet long, 4 feet thick, and 4 feet high.

The slickenside planes at the accident site are isolated geologic features that do not project beyond the accident site. A detailed examination of the section was conducted by an engineer specializing in geology. As a result, other slickenside planes at various orientations, also limited to isolated portions of the pillar rib were noted on the East development. Four rib-side slickenside areas were noted in a 1,500 foot traverse of the face area. These other slickenside planes defined much smaller wedge blocks than the rib fall at the accident site. It was estimated that the rock-coal rib, that fell intact, weighed between 6 and 8 tons. The intersecting planes that resulted in the hazard would have been difficult to recognize without additional specialized training specific to this geologic condition. Training specific to these conditions has since been provided for all examiners and miners.

## Training Records

An examination of the training records revealed that Mr. Channell had the required training in accordance with 30 CFR Part 48.

**Examinations**

A pre-shift examination of the section was conducted between 5:22 a.m., and 6:23 a.m., on the day of the accident prior to the arrival of the crew. The pre-shift examination did not identify any abnormal geological conditions. Additional examinations were conducted in each working place by the section foreman. The last examination of the area where the accident occurred was conducted at 2:10 p.m., approximately 10 minutes prior to the accident. No hazardous conditions were observed by the foreman.

**Communications**

The shuttle car operator was only a few feet from the victim when the accident occurred but since the victim was behind the ventilation curtain there were no eye witnesses.

## ROOT CAUSE ANALYSIS

A root cause analysis was conducted to identify the most basic causes of the accident that may be correctable through reasonable management controls.

Root Cause: Standards, policies or administrative controls were not in place to identify and address corrective action for the hazard which caused the fatality. This was primarily due to the fact that the geologic features identified did not project beyond the accident site. Although similar geologic features were identified by an experienced engineer/geologist within a 1500 foot traverse of the face area, these conditions would have been difficult to recognize without additional specialized training.

Corrective Action: Requisite examinations of the section were conducted which did not detect the slickensided planes. The planes were most likely not recognized due to the condition being isolated. Management has instituted policies providing hazard recognition training of angle slip planes to all underground examiners and employees and if these conditions are found they are to be removed or controlled.

## CONCLUSION

The victim was struck by a large, undetected loose portion of rock/coal rib while standing behind the line curtain between the frame of the shuttle car and the right-side rib. The rib detached and slid from the vertical wall without warning pinning the victim against the shuttle car causing crushing injuries. The material was irregular in shape with pronounced intersecting slickenside edges measuring approximately 8 ½ feet long, 4 feet thick, and 4 feet high. The rib fell due to the material having an angled slip plane (wedge shape dipping on a 42° slope) with slickenside (glass like) edges. Additional specialized training has been provided for underground examiners and miners to ensure that hazards of this type are identified and addressed.

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Carlos T. Mosley Date
Acting District Manager

## ENFORCEMENT ACTION

103 (k) Order, No. 6602191 was issued to Kingwood Mining Company LLC. The order was issued to ensure the safety of the miners.

## APPENDIX A
## Persons Participating in the Investigation

Kingwood Mining Company LLC

Frank Matras.....President/General Manager
Perry Ryan .....Superintendent
Joe Swerbinsky .....Chief Engineer
Joe Pervola.....Safety
Van Born.....Shift Foreman
Earl Insure.....Safety

Dinsmore & Shohl

Robert H. Beatty Jr. .....Attorney
Carol Ann Marunich .....Attorney

Whitetail Kittanning Employees

Arthur Wilt.....Acting Section Foreman
Michael A. Hardy.....Section Mechanic
Max Burgoyne Jr.....Scoop Operator
Steven Chappell .....Shuttle Car Operator
Benjamin Belanger.....Shuttle Car Operator
Brian J. Casteel .....Roof Bolter Operator
Jamie Blaney.....Roof Bolter Operator

Allegheny Surveys Inc.

Timothy M. Broke .....Surveyor
Steve Haskiell .....Surveyor
Dewayne Hall.....Surveyor

## APPENDIX A (con't)

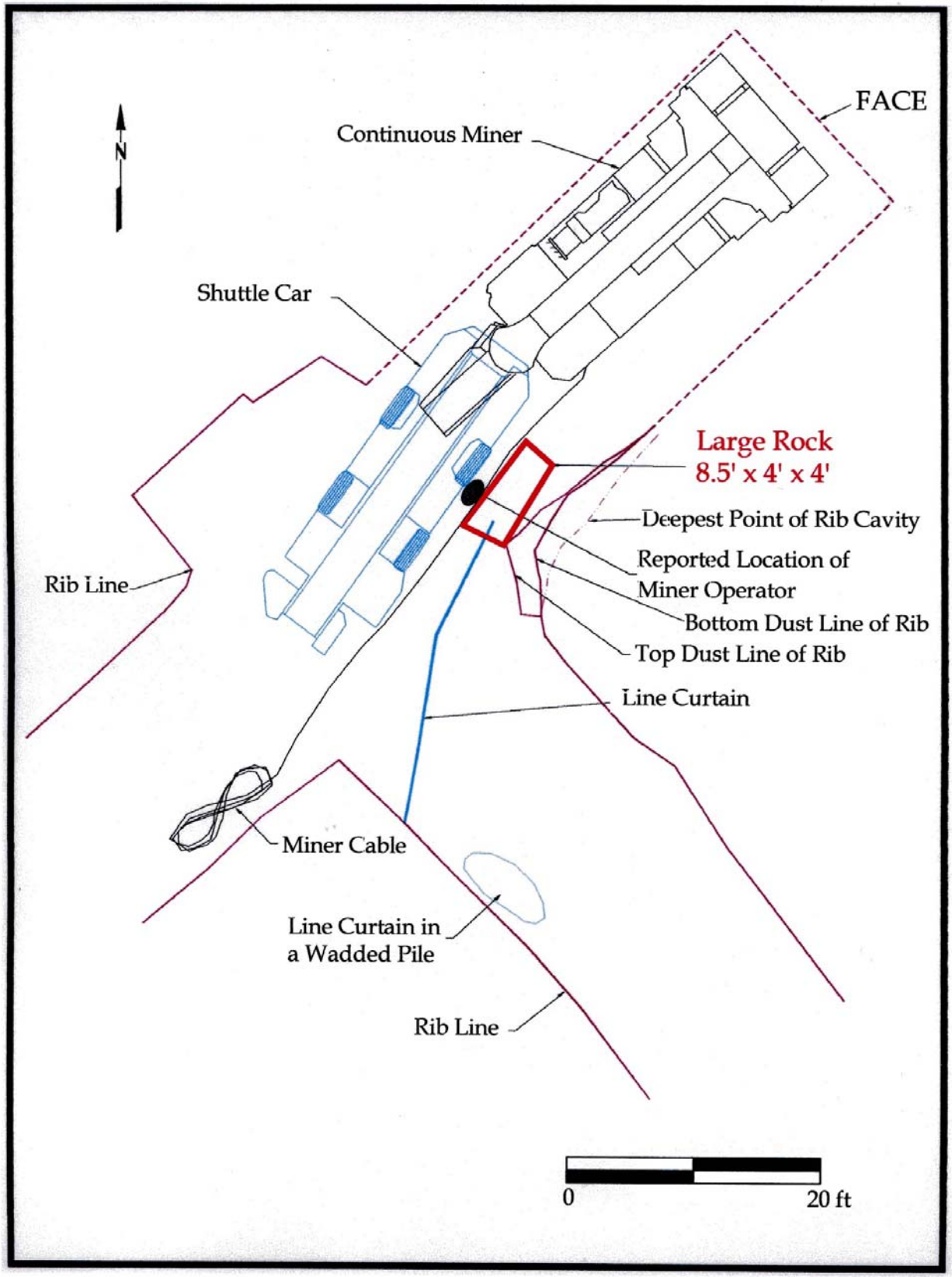
West Virginia Miners Health, Safety & Training

Terry Farley .....Administrator
Brian Mills .....Inspector At Large
Mark Wilfong.....Assistant Inspector At Large
David Barlow .....District Inspector
Barry Fletcher .....Roof Control Inspector
John Scott.....Electrical Inspector
Monty Hieb .....Chief Engineer

Mine Safety and Health Administration

Michael Brooks.....Acting- Chief Ventilation Section
Jeff Maxwell .....Mine Safety & Health Inspector
Michael Gauna .....Mining Engineer-Technical Support- Roof Control
Jerry Vance .....Mine Safety & Health Specialist (Training)
Jan Lyall.....Mine Safety & Health Inspector- Roof Control
Nelson Blake.....Chief, Roof-Control Section

**APPENDIX B**
**Sketch of Accident Site**



**APPENDIX C**
**Section Map**