CAI-2010-34 & 35

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Mine

Double Fatality Fall of Roof Accident
April 28, 2010

Dotiki Mine
Webster County Coal, LLC
Nebo, Hopkins County, Kentucky
ID No. 15-02132

Accident Investigators

William Barnwell
Coal Mine Inspector

Archie Coburn
Coal Mine Inspector

Michael Gauna
Mine Safety and Health Administration
Technical Support, Roof Control Division

Originating Office
Mine Safety and Health Administration
District 10
100 YMCA Drive
Madisonville, KY, 42431-9010
Carl E. Boone II, District Manager

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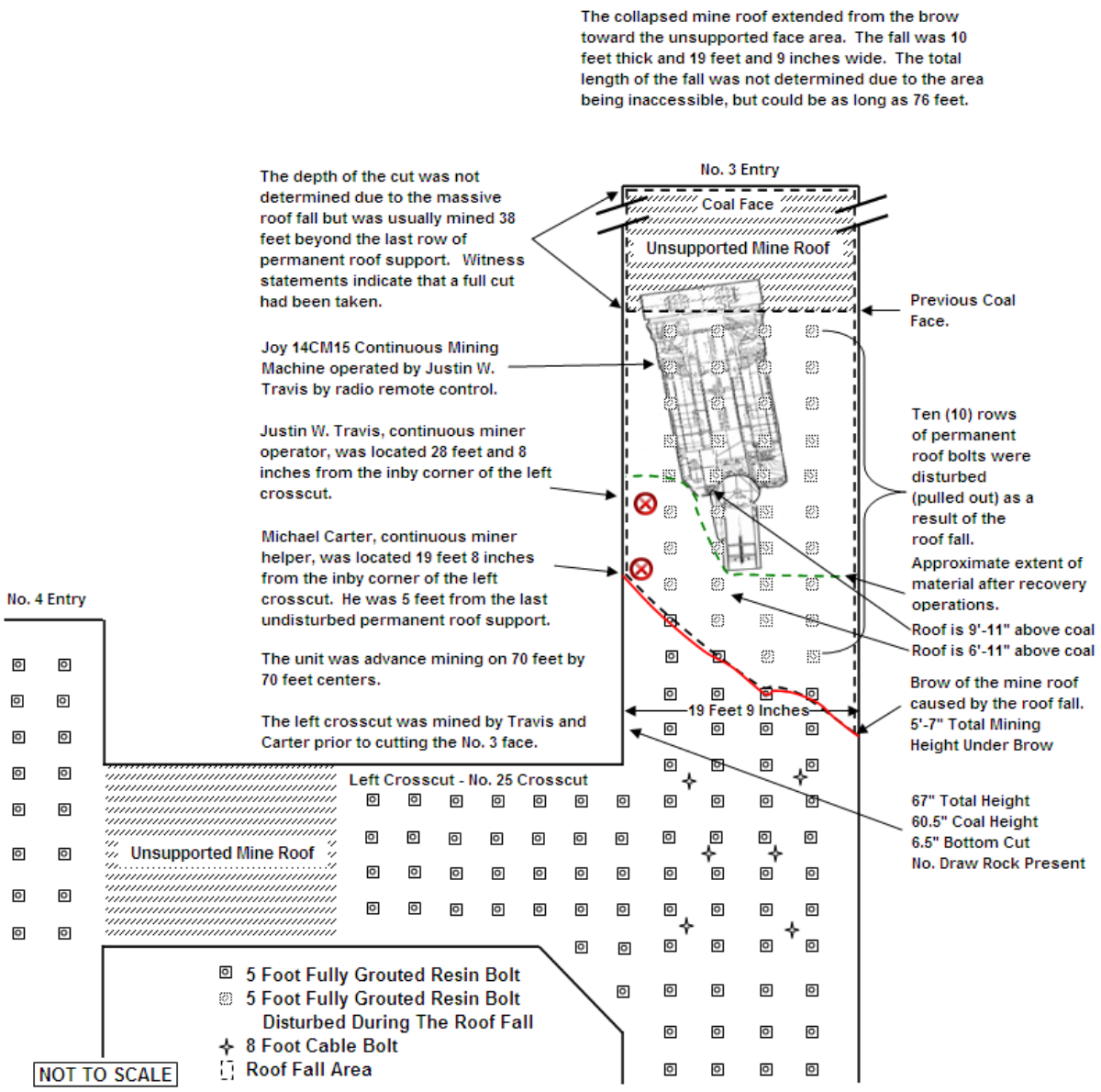
OVERVIEW

On April 28, 2010, at approximately 10:00 p.m., Michael W. Carter, a Continuous Mining Machine Helper with 2 years mining experience, and Justin W. Travis, a Continuous Mining Machine Operator with 3 ½ years mining experience, received fatal injuries from a roof fall in the face area of the No. 6 Working Section. Travis was operating the mining machine in the No. 3 entry cleaning up loose rock as Carter assisted when the roof fall occurred.

Drawing of the Accident Site



GENERAL INFORMATION

Dotiki Mine is operated by Webster County Coal, LLC and the parent company is Alliance Resource Partners LP. The mine is located one mile and six tenths north of the intersection of US Hwy 41A and State Hwy 502. At the time of the accident, the mining operation employed 413 employees, with 362 underground miners; 34 at the preparation plant; and 17 on the surface. The mine is opened by one slope and four shafts. The mine operates two shifts per day, five days per week, from the KY No. 9 and KY No. 11 Seams. The No. 11 Seam is accessed via an inseam slope constructed through a fault zone in the No. 9 Seam. The mine produces coal during a 10 hour day shift and a 9 hour afternoon shift. The 9 hour maintenance shift overlaps the two production shifts each day. The daily production averages 26,000 tons from 10 mechanized mining units (MMU).

The principal officials for Webster County Coal, LLC were:

Mark Evans .....General Manager
Gary Thweatt ..... Assistant General Manager
Charles Kittinger ..... Underground Mine Superintendent
Bruce Taylor ..... Safety Manager

The principal officers for Alliance Resource Partners, LP were:

Joseph W. Craft III .....President and Chief Executive Officer
Brian L. Cantrell .....Senior Vice President and Chief Financial Officer
R. Eberley Davis .....Senior Vice President, General Counsel and Secretary
Robert G. Sachse.....Executive Vice President
Charles R. Wesley ..... Director and Executive Vice President
Thomas M. Wynne.....Senior Vice President and Chief Operating Officer

A regular safety and health inspection by MSHA was in progress at the time of the accident. The previous inspection was completed on March 30, 2010. The Non Fatal Days Lost (NFDL) incidence rate for the mine in 2009 was 3.68, compared to a national NFDL incidence rate of 4.16 for underground mines.

DESCRIPTION OF ACCIDENT

On Wednesday, April 28, 2010, at approximately 3:00 p.m., prior to entering the mine, the second shift crew for the No. 6 Working Section met with the rest of the second shift miners in a group safety meeting held by mine management. After the meeting, the second shift crew entered the mine and traveled to the section located in the 2nd Southeast Panel to relieve the day shift crew. Brian Perdue, Section Foreman, held another safety meeting with the crew at the dinner shack prior to the miners starting production. Production began at approximately 3:45 p.m. Travis and Carter assumed

their normal duties of operating the right side continuous mining machine in entries 0 through 3 Left Crosscut. This is a split air working section with a mechanized mining unit set up on both the left side and right side of the working section. Each side has one continuous mining machine, one roof bolting machine and two shuttle cars. Travis and Carter had cut 1 Left Crosscut when the 36 B Belt pulled apart, interrupting production at approximately 4:29 p.m. Personnel from the section, including Carter, were sent to help with the belt repair. After the belt was repaired, production resumed at approximately 6:22 p.m. Travis and Carter mined a 20 foot cut in the No. 0 Entry, opened 3 Left Crosscut and mined the face of No. 3 Entry approximately 38 feet in depth.

Travis and Carter were in the process of moving to the next proposed cut in No. 2 Left Crosscut when draw rock (approximately 6 to 12 inches thick) fell in the unbolted face of the No. 3 Entry. The fall was reported by Jeremy Teague and James Gibson, Shuttle Car Operators on the right side. Travis informed both Teague and Gibson that he was going to clean up the rock to help the roof bolting machine operators. Travis and Carter cleaned up the right side of the No. 3 Entry and had set up to complete loading rock on the left side when the accident occurred at approximately 10:00 p.m. Meanwhile, Gibson left the feeder and stopped two crosscuts outby the face in No. 3 Entry to allow Teague to enter the entry with his shuttle car from the crosscut between the No. 2 and No. 3 Entries. Gibson stated that he was looking at the face when he saw the methane monitor on the mining machine and the two cap lights of the miner operator and helper go "black." Teague proceeded into the No. 3 Entry, where he encountered dust from an apparent roof fall. He got out of his shuttle car and observed the roof fall on the continuous mining machine cable. Teague ran to the No. 3 Left Crosscut, in hope that Travis and Carter had escaped to safety. After not seeing Travis or Carter, Teague called for Perdue to come to the No. 3 Entry. Gibson observed Teague running and calling for Perdue over the radio. Gibson, along with R.J. Oliver and Quentin White, the Right Side Roof Bolting Machine Operators, ran toward the face of the No. 3 Entry, where they observed Teague pulling rock from the fall by hand. White notified the other section crew members of the accident (See Drawing of Accident Site, Page 1).

David Brown, Mine Foreman, had just arrived on the section, when he was notified of the accident. Brown instructed Jason Bratcher, Section Mechanic, to call outside and have someone notify all appropriate authorities and company officials. Bratcher was then assigned to monitor the mine phone and all communication systems on the section to relay accurate information and to facilitate the rescuers' needs.

INVESTIGATION OF THE ACCIDENT

At 10:28 p.m. Abel DeLeon, MSHA District 10 Field Office Supervisor was notified by the Mine Safety and Health Administration (MSHA) Hotline operator of an accident at the Dotiki Mine. The caller indicated there were two people entrapped by a roof fall on the No. 6 Section. A 103(j) Order was issued over the phone. MSHA District 10 personnel, including Carl E. Boone II, District Manager, Ted Smith, Assistant District

Manager and Troy Davis, Staff Assistant/Accident Coordinator were alerted to the mine emergency. At 11:20 p.m. William Barnwell and Archie Coburn, District 10 Coal Mine Inspectors, were dispatched to the mine to initiate the accident investigation and assist as needed with rescue operations.

On Friday April 30, 2010, Barnwell and Coburn, along with David Winebarger, District 10 Roof Control Specialist, Mike Gauna, from MSHA's Technical Support Roof Control Division, plus Greg Goins and Tim Fugate, Kentucky Office of Mine Safety and Licensing (OMSL) Accident Investigators, traveled to the accident scene to take measurements and photographs. Interviews were held at the Dotiki III Training Center on Saturday, May 1; Tuesday, May 4; and Wednesday, May 5. A total of 31 miners and mine management officials were interviewed.

DISCUSSION

Initial Accident Response:

Winebarger and James Hackney, District 10 Roof Control Supervisor, were dispatched to assist with ongoing rescue operations. Boone reported to the command center, located at the Dotiki IV training room, to assist in directing the rescue operation. Secure communication from the No. 6 Section had already been established. Alliance management and OMSL personnel were also present in the command center. MSHA, OMSL, and company personnel participated in monitoring and direction of the rescue operation. Robert Gray, District 10 Family Liaison, was dispatched to the Family Center, located at the Nebo Baptist Church in Nebo, KY. The mine operator had Melody Wilson and Eric Anderson, company employees, as their family liaisons at the Family Center. The entrances to the mine and Family Center were secured by KY State Police and Hopkins County Sheriff personnel.

Upon arrival at the Dotiki Mine, Smith, Hackney and Winebarger traveled to the accident scene to assess the rescue efforts and assist with measures taken to protect the miners working to reach Travis and Carter. The efforts were hampered by the orientation of the loose rock from the roof fall and other hazards of the roof outby the fall. Additional roof support was installed and specialized equipment was constructed and utilized to remove loose rock as remotely as possible (See Appendix B, Exhibit 1). The second shift crew of No. 6 Section departed at about 5:30 a.m. Thursday, April 29, 2010, while other rescuers continued efforts to reach the miners. As rock was removed, Michael Carter was located and recovered at 2:05 p.m. and taken to the surface. At 2:24 p.m. Justin Travis was located. Travis was recovered at 5:25 p.m. and taken to the surface.

Dotiki Mine Layout:

Most of the mine personnel access the mine via the Dotiki IV Portal, located approximately 2 miles north of Nebo, in Hopkins County, Kentucky. The portal is a 685 feet shaft situated off Balls Hill Road (State Route 502) at 37.4049° north latitude and

87.6332° west longitude. There are 10 MMUs in the Dotiki Mine. Coal is extracted from the West Kentucky No. 9 Coal Seam (also known as the Springfield Coal Seam) and from the West Kentucky No. 11 Coal Seam (also known as the Herrin Coal Seam). Six MMUs (Section Nos. 1, 3 and 6) operate in the No. 9 Seam and four MMUs (Sections No.s 2 and 4) operate in the No. 11 Seam.

No. 6 Section:

The entries are numbered from right-to-left, with the far right entry designated "No. 0" and the far left entry "No. 8." Mining is conducted with two radio remote control continuous mining machines operating independently on two separate air splits. The right side machine is used to mine the No. 0 to No. 3 Entries, and typically the crosscut between the No. 3 and No. 4 Entries. The mining machine on the left side of the section is used to mine the No. 4 to No. 8 Entries. Two coal transporter cars, a dual boom roof bolting machine, and a scoop are assigned to each mining machine. The accident involved the right side continuous mining machine and occurred in the No. 3 Entry at the projected position for Crosscut 26 (no crosscut had been turned).

The No. 6 Section was mining the 2nd SE Panel off 2nd NE Sub-Mains. The 2nd SE Panel is oriented approximately S70°E and is being developed in the southeastern direction. The section is nine entries wide with the entries on 70 foot centers and crosscuts on 70 foot centers. Overall development width of the panel is approximately 580 feet. Overburden across the face area inby the feeder ranges from 875 to 900 feet. Overburden was gradually decreasing to the southeast. The No. 9 Coal Seam in the area dips to the northeast (N33°E) at 3.4% grade. No under mining or over mining with older workings exists in the vicinity of the No. 6 Section.

The No. 6 Section (2nd SE Panel) is bordered to the northeast by the recently completed nine-entry 3rd SE Panel and bordered to the southwest by the projected ten-entry 1st SE Panel. At the time of the accident, the 2nd SE panel had completed approximately 1,400 feet of the projected 2,280 feet of development. Approximately 13 crosscuts remained to be mined and the panel was to terminate at the mined out old No. 3 Section (now sealed). The previous 3rd SE panel had completed its entire 2,800 feet projected distance and had terminated at the sealed old No. 3 Section. (See Appendix B, Exhibit 2) After the fatal roof fall accident, a decision was made by the mine operator to relocate the No. 6 Section outby the roof fall area.

Physical Description of the Accident Site:

The fatal accident site is located in the No. 3 Entry, approximately 83 feet inby Spad (survey station) 78566 and approximately 223 feet inby the No. 6 Section belt feeder (set in No. 4 Entry, Crosscut 22). The outby edge of the roof fall along the right side of the No. 3 Entry was 2 feet inby the intersection of Crosscut 25. The outby edge of the roof fall along the left side of the No. 3 Entry was 18 feet inby the intersection of Crosscut 25. The outby edge of the roof fall was oriented diagonally across the entry at approximately N70°E. Prior to the accident, Crosscut 25 had been completed by mining

into the No. 4 Entry (See Appendix B, Exhibit 3, Location of Miners and Equipment at Time of Accident). The No. 3 Entry at the accident site had been mined approximately 19.8 feet wide. The mining height was approximately 60 inches (See Drawing of Accident Site, Page 1).

The maximum visible portion of the roof fall cavity extended approximately 10 feet above the coal. The roof fall extended rib-to-rib across the entry. During the rescue activity, roof fall rubble had been removed to where approximately 24 feet of cavity length was exposed, as measured along the entry center line. The fall rubble obstructed viewing the roof fall cavity walls beyond the exposed 24 feet length of the fall. The roof fall cavity was approximately 10 feet maximum height, 19.8 feet width, and up to 76 feet in length, assuming the fall extended the full length of the reported cut depth (See Appendix B, Exhibit 4).

At the time of the accident, the continuous mining machine was positioned to clean draw rock from the left side of the cut and awaiting the next shuttle car. The head of the continuous mining machine was positioned inby the last row of roof bolts. The mining machine operator and helper were last observed by Gibson to be positioned and working under the third row of roof bolts outby the unbolted cut, approximately 8 feet from last row of roof bolts. This location referenced by Gibson was after his (Gibson's) shuttle car had been loaded and he was en route to the feeder. The two miners were recovered approximately 7 feet and 16 feet, respectively, outby their last observed work positions.

Geology:

At the accident site, the immediate mine floor consisted of claystone. The two nearest core holes (2,150 feet northwest and 5,400 feet northeast of the accident site) indicate that the claystone is at least 2.5 feet thick. In the western portion of the roof fall, the coal seam is approximately 5.0 feet thick with roughly 0.5 foot of claystone floor removed. At the outby perimeter of the roof fall, the immediate black shale roof had not been mined. The strata exposed in the fall cavity indicates that the immediate roof consisted of approximately 1.3 feet of black shale, (common for the No. 9 Seam, locally referred to as "black slate") overlain by 3.4 feet of gray shale containing pyrite nodules, and then overlain by at least 5.3 feet of gray shale and sandy shale with slickensides (also referred to as "slips") evident in the overlying gray shale and sandy shale (See Appendix B, Exhibit 5). The slickensides were randomly oriented, discontinuous, and curvilinear (represented by a curved line). They appear to be features formed from the deposition, then later compaction, of the shale/sandy shale sequence. The gray shale/sandy shale beds exposed in the fall rubble range from 1 foot, to 2.5 feet thick and were intersected by the randomly oriented slickensides. At least six different slickenside orientations at various dip angles were noted in the roof fall cavity walls. The general trend of the slickensides was S25°E to S50°E at dip angle from near vertical to flat lying. The slickensides, in the portion of the roof fall cavity that could be investigated, did not project into or through the black shale above the coal seam. The slickensides cut through and dismembered the gray shale and sandy shale beds in the

horizon above the coal seam (area above the black shale), for a distance of 1.3 feet, up to 10 feet. The slickenside features were noted to the top of the roof fall cavity. No water was evident either in the roof fall rubble or in the fall cavity walls.

Roof Control Plan Requirements for No. 6 Section:
The remote controlled continuous mining machine cycle uses a 40-foot deep cut plan, where the furthest penetration inby the last full row of permanent roof support shall be no greater than 40 feet. Reportedly, the operation typically mines a 38-foot deep cut depth. A minimum of two cuts are required to mine the crosscuts with the 70-foot crosscut centers on No. 6 Section. Pillar recovery is not conducted. Mining width is a maximum of 20 feet, and is normally between 19 to 20 feet. Primary roof support consisted of 3/4-inch diameter, grade 40, 5-foot fully-grouted, deformed bar roof bolts installed with 2 x 8 x 24-inch wood header boards and 6 x 6-inch bearing plates. Roof bolt spacing distance is 4.5 to 5 feet between bolts within the row, with a minimum of four bolts per row. Spacing between the outside bolts and the pillar rib is a maximum 3.5 feet. The rows of bolts are installed on a 4-foot, row-to-row spacing. The mine's roof control plan required additional roof support in areas with overburden greater than 800 feet, consisting of a minimum 8-foot cable bolts, installed in a "star pattern" (See Appendix B, Exhibit 6) in all intersections. Primary support in the No. 5 Entry supply road consisted of 5-foot, fully-grouted roof bolts and 8-foot cable bolts installed in every other row of bolts on an "in and out pattern" (See Appendix B, Exhibit 7).

Drilling of roof test holes was not required in the mining area where the roof fall accident occurred. Test holes were required for areas where adverse roof conditions were being encountered, or in areas that had been idled for more than 14 calendar days. The mine operator was installing cable bolts as supplemental roof support. The eight foot cable bolt holes were considered a test hole, because the holes were three feet longer than the primary roof bolts required by the approved plan. Six cable bolts were installed in the section intersections according to the approved roof control plan.

Roof Conditions and Roof Support on No. 6 Section:
A traverse of the No. 6 Section face areas revealed five slickenside features visible in the black shale immediate roof, one in each of the No. 0, No. 2, No. 4, No. 5, and No. 7 Entries. No slickenside features were noted in the No. 3 Entry accident site outby the roof fall. The slickenside features in the No. 2, No. 4, No. 5, and No. 7 Entries did not resemble the features noted in the roof fall cavity. They were oriented at N42°E to N78°E and consistently dipped to the southeast. They were tight, singular features, and oriented diagonally across the entry. As a result, there was not a potential for roof failure to propagate along the entry. The slickenside in No. 0 Entry was a singular feature, oriented S45°E, an orientation that could propagate roof failure along the entry. The mine operator reportedly reduced the No. 0 Entry cut depth to approximately 20 feet and the slickenside feature was supported and controlled with supplemental 8-foot cable bolts installed on both sides of the feature. Miners also stated during the accident investigation interviews that the cut in No. 0 Entry was reduced to approximately 20 feet. The slickenside feature in the No. 0 Entry had been supported with supplemental

8-foot cable bolts installed on both sides of the feature. Reportedly, supplemental roof support had not been installed in the No. 3 Entry roof fall area.

After the roof fall and during the rescue/recovery operation, the roof in the No. 3 Entry outby the roof fall deteriorated gradually. A fracture propagated along the right rib from the fall cavity for roughly 25 feet. Roof buckling was evident for approximately 70 feet outby the fall cavity. Roof control was maintained in the No. 3 entry outby the fall by installing 0.6-inch-diameter x 8-foot-long cable bolts with 8-inch x 8-inch bearing plates at the vicinity of the fall cavity. Wood posts, wood cribs and Heintzmann 100-Ton Alternative Crib Support (ACS) were installed along the No. 3 Entry and roof trusses were installed across the entry outby, to the four-way intersection at Spad 78566.

The mine site roof fall map indicated that the four closest roof falls were situated 1,100 to 1,430 feet from the accident site. Two of these roof falls were southeastward 1,125 to 1,430 feet away, located in the old No. 3 Section (now sealed) and two roof falls were southwestward 1,200 to 1,380 feet away in the 1st NW Sub-Mains. The mine operator sealed old No. 3 Section, 920 feet to the southeast of the accident site because of wet roof conditions and roof falls associated with these conditions. No wet roof conditions existed in the No. 6 Section face area where the roof fall occurred. No wet roof conditions were reported in the nine previously mined No. 6 Section panels surrounding the 2nd NE Sub-Mains. Additionally, no reportable roof falls had occurred in the No. 6 Section mining area since late summer 2008. The mine roof fall map indicated that because of the addition of the intersection supplemental support plan (installed in a "star pattern" at depths greater than 800 feet); there was a decrease in reportable roof falls. Since the intersection support plan has been implemented in this portion of the reserve, one roof fall has been reported (See Appendix B, Exhibit 2).

The No. 6 Section pillars and floor showed no evidence of unusual pillar or floor stress. MSHA calculations employing the National Institute of Occupational Safety and Health (NIOSH) Analysis of Retreat Mining Pillar Stability (ARMPS) software, using a 5.5-ft. mining height, 900 ft. of overburden, and ARMPS default physical properties, resulted in a development mining ARMPS pillar stability factor of 1.77, which meets NIOSH guidelines for stable pillars.

The No. 6 Section crosscuts showed a tendency for horizontal stress induced roof fractures, which are typical for No. 9 Seam roof when oriented near to north-south. The operator was controlling the roof in the crosscuts by installing the additional 8-foot cable bolts in conjunction with the 5-foot fully-grouted bolts. The regional maximum principle horizontal stress is oriented at N80°E. The NIOSH Analysis of Horizontal Stress in Mining (AHSM) program indicates that the crosscuts have a moderate to difficult orientation for horizontal stress fractures. The entries have a moderate to good orientation for horizontal stress fractures. This explains the general lack of horizontal stress fractures in the entries, compared to the crosscuts.

Summary:

1) Hidden slickensides (slips) were present in the face of the No. 3 Entry of No. 6 Section.
2) The unsupported area above the fresh cut, mined in the No. 3 Entry face, allowed the overlying roof that was weakened by slickensides ("slips") to break the layers of strata.
3) A massive section of roof, up to 76 feet long, 19 feet wide, and a maximum 10 feet thick, fell on the area that included the continuous mining machine and its operators.
4) The Approved Roof Control Plan was being complied with at the time of the accident.

Training:
Joe Fritz, Mine Safety and Health Training Specialist, of MSHA Educational and Field Services (EFS), conducted an examination of the miners' training records. All training was current and met MSHA Part 48(a) requirements for underground training.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic cause of the accident that was correctable through reasonable management controls. During the analysis, a root cause was identified that, if eliminated, may have either prevented the accident or mitigated its consequences.

The root cause listed below was identified during the analysis and the corresponding corrective actions proposed by mine management to prevent a recurrence of the accident:

Root Cause: The mine operator failed to detect the presence of slickensides, which dismembered the overlying shale and sandy shale beds and caused the roof to fall.

Corrective Action: In areas where the overburden is greater than 750 feet, mine management proposed and will install a robust support system, in the vicinity of the last row of bolts, to prevent a roof fall that initiates in the unbolted cut from extending outby and exceeding the capacity of the roof support system. This corrective measure and other roof support measures designed to bolster the existing support system were approved by MSHA in a supplement to the mine operator's Approved Roof Control Plan, including:

- Four 10-foot cable bolts will be installed between the last two rows of bolts to supplement the primary roof support system.
- Entry width reduced to 19 feet.
- Cut depth measured from last 10-foot cable bolt.
- Newly exposed roof will be bolted within 3 hours of coal removal.

CONCLUSION

The two fatalities occurred when the mine encountered an anomaly of multiple hidden intersecting slickensides, commonly referred to as "slips," which were not detected by the mine operator. The most likely fall propagation mode was roof failure in the unbolted cut that had the momentum to pull down the roof in the bolted portion of the entry where the miners were working. The bolted portion of the entry also had non-visible or hidden slickensides in the overlying bolted strata that weakened the overlying rock beds and allowed the bolted roof to be pulled down where the miners were working. The absence of any sign of "slips" in the immediate roof gave no warning for the need to install supplemental or additional support.

Approved By:

Carl E. Boone II
District Manager

10/4/2010
Date

ENFORCEMENT ACTIONS

A 103(j) Order, No. 8496659, was issued to Dotiki Mine: A 103(j) Order is issued via telephone to cease all work on the No. 6 Section, MMU 033 and MMU 036. This is in the 2nd South East Panel. Only work to support the roof and load out rock is allowed for rescue/recovery of two miners trapped in the No. 3 Entry, inby station No. 78567." The 103(j) Order was later modified to a 103(k) Order and required the withdrawal of all miners from the mine, except those needed to conduct roof support and rescue/recovery operations on the No. 6 Section.

104(a) Citation, No. 8498475, was issued to Dotiki Mine, for a violation of 30 CFR § 75.202(a): The roof was not adequately supported or otherwise controlled to protect persons from hazards related to falls of the roof. On April 28, 2010, two miners received fatal injuries from a roof fall in the face area of the No. 3 Entry, inby Crosscut 25, on the No. 6 Working Section, 2nd SE Panel off 2nd NE Sub-Mains. The unsupported area above the deep cut allowed the overlying roof that was weakened by slickensides (slips) to break the layers of strata. A massive section of roof, up to 76 feet long, 19 feet wide, and a maximum 10 feet thick, fell on the area that included the two miners and the continuous mining machine. Ten rows of bolts were disturbed (pulled out) because of the roof fall. Overburden across the face area inby the feeder ranges from 875 to 900 feet. Reportedly, no supplemental support had been installed in the roof fall area. The roof support was installed according to the approved roof control plan. This citation is being issued as enforcement action based upon the fatal accident investigation.

Appendix A

Persons Participating in the Investigation

Persons Interviewed

Management Personnel Webster County Coal, LLC

Mark Evans .....General Manager
Gary Thweatt ..... Assistant General Manager
Charles Kittinger ..... Underground Mine Superintendent
James Parish.....Mine Foreman
David Brown.....Mine Foreman
Brian Perdue .....Section Foreman
Gregory Gates.....Section Foreman

Miners from the Dotiki Mine

Jeremy Teague ..... Shuttle Car Operator
R.J. Oliver ..... Roof Bolter Operator
Quentin White ..... Roof Bolter Operator
Taylon Polk ..... Roof Bolter Operator
Nathan Fletcher ..... Roof Bolter Operator
James Gibson ..... Shuttle Car Operator
Jason Bratcher .....Section Mechanic
Jared Hargrove .....Continuous Miner Helper
Terry Pendley ..... Shuttle Car Operator
Danny Blue..... Shuttle Car Operator
Bradley Higgs ..... Roof Bolter Operator
Malcolm Smith .....Continuous Miner Operator
William Elkins .....Scoop Operator
Murray Vandiver ..... Roof Bolter Operator
Dwight McBride.....Scoop Operator
John Mendoza.....Scoop Operator
Brenda Belt ..... Shuttle Car Operator
Brendon Teague ..... Roof Bolter Operator
Harold Wright .....Continuous Miner Operator
Andrew Robinson.....Continuous Miner Operator
Matthew Jent..... Roof Bolter Operator
Travis Fox ..... Roof Bolter Operator
Lonnie Spurlin ..... Roof Bolter Operator
Jeremy Hackney ..... 3rd Shift Set-up Crew

Persons Conducting the Interviews

Mine Safety and Health Administration

Carl E. Boone II ..... District Manager
Troy Davis ..... Staff Assistant/Accident Coordinator
William Barnwell ..... Coal Mine Safety and Health Inspector
Archie Coburn ..... Coal Mine Safety and Health Inspector
Mike Gauna ..... Roof Control Division, Technical Support
Neil Morholt ..... Office of the Solicitor
Chris Barber ..... Office of the Solicitor

Kentucky Office of Mines Safety and Licensing

Greg Goins ..... Accident Investigator
Tim Fugate ..... Accident Investigator

Appendix B

Exhibit 1

No. 3 and No. 6 Sections Overburden

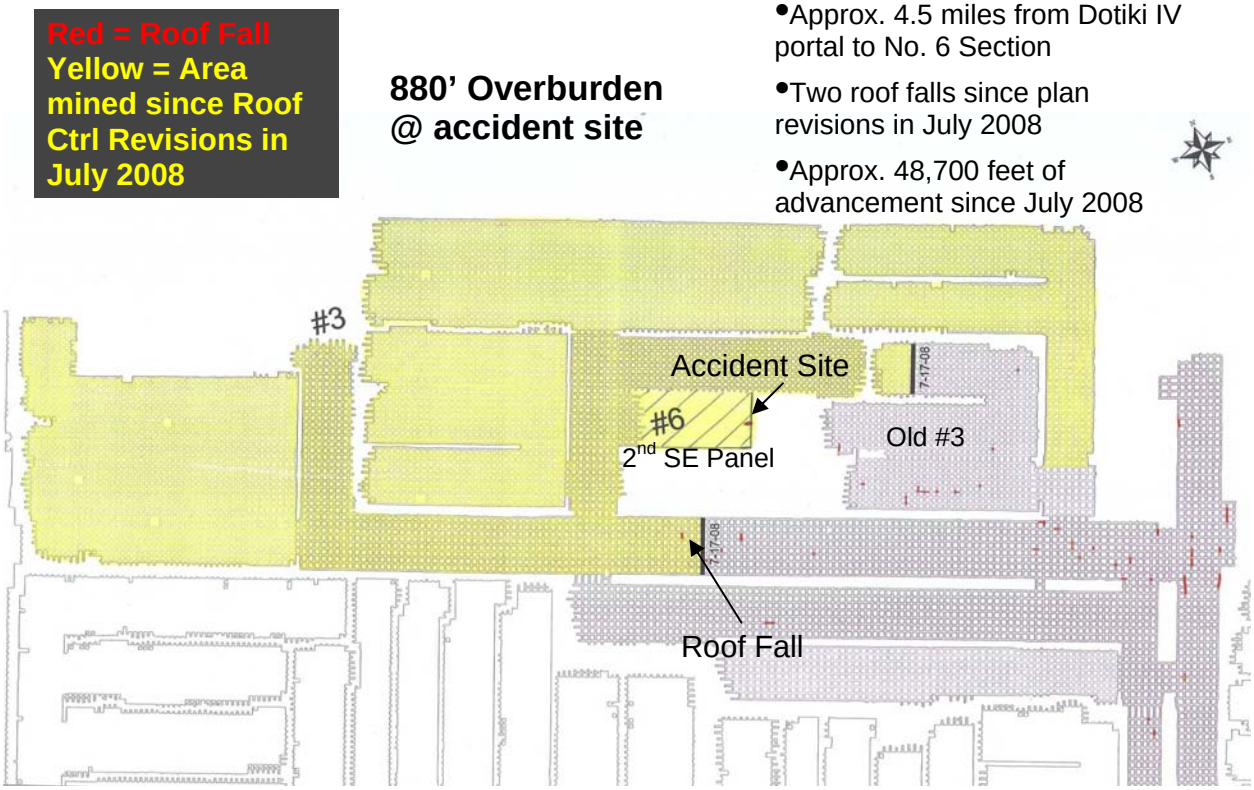
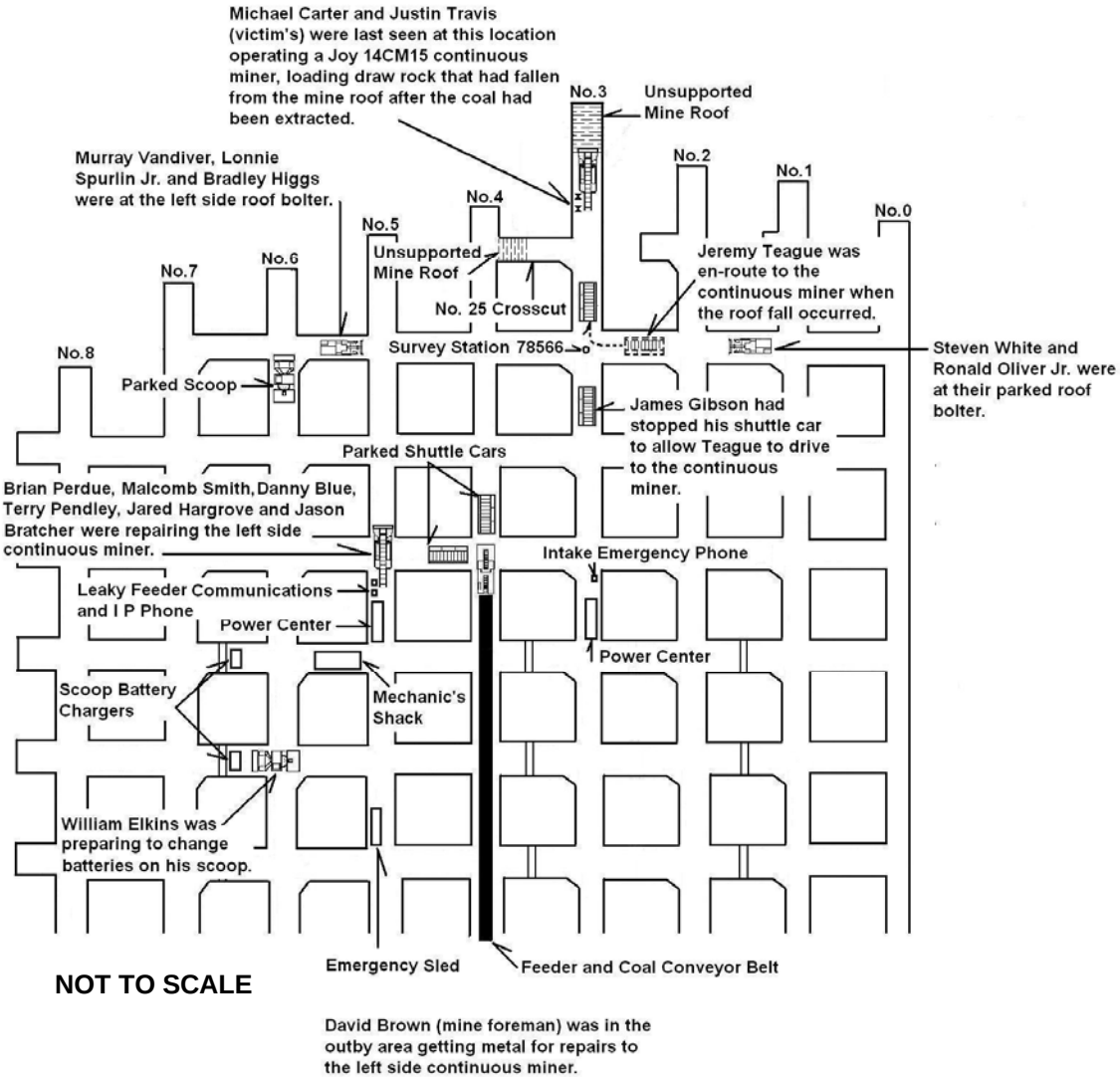


Exhibit 2

The No. 6 Working Section
Accident Scene – No. 3 Entry Face Area



Location of Equipment and Employees before the Accident
(According to Statements)

Exhibit 3

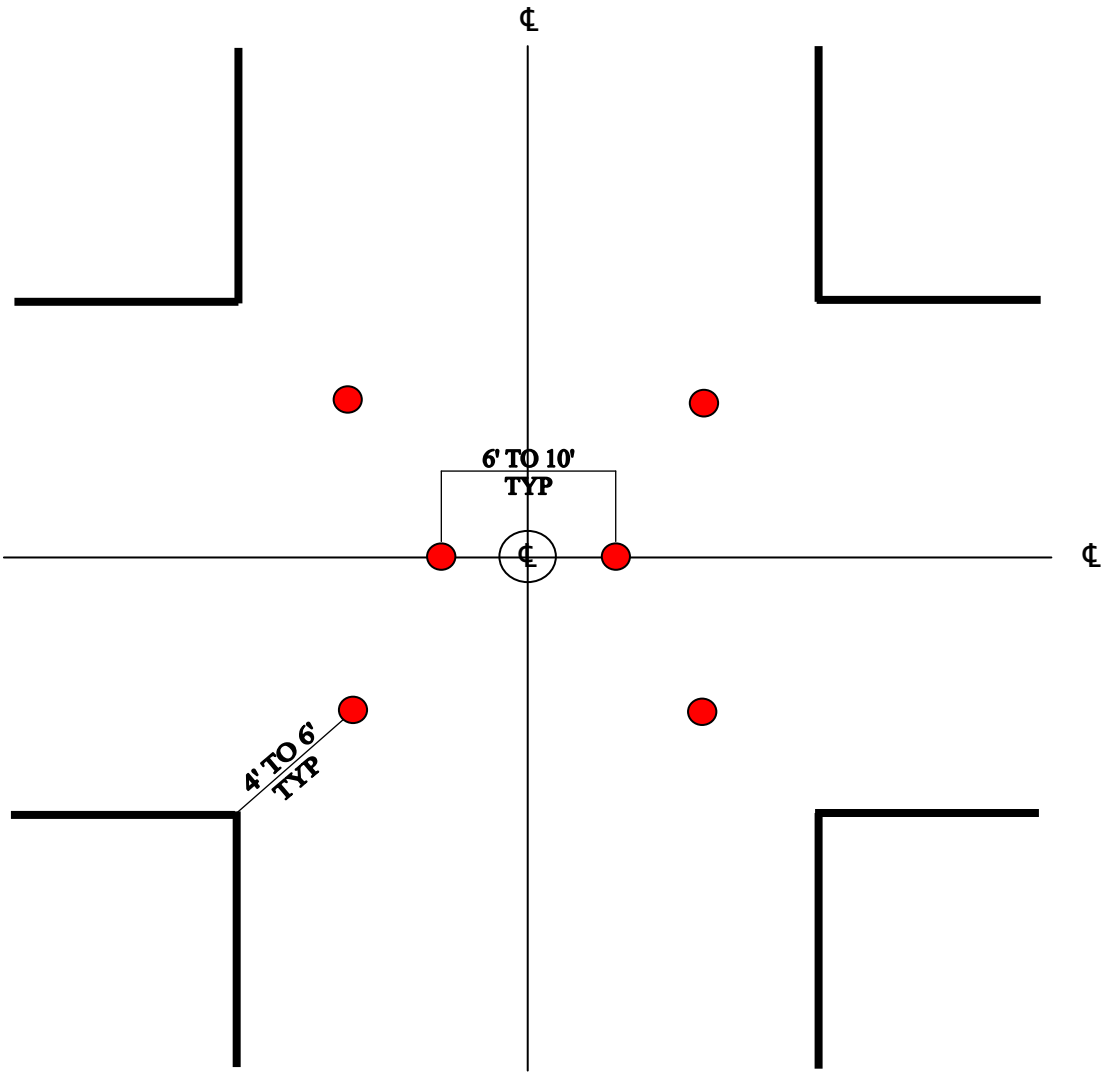
Exhibit 4

Extent of the Visible Portion of the Cavity
Bolted Portion of Cavity
Outby Brow
Left Rib

Exhibit 5

#9 AND #11 SEAM
SUPPLEMENTAL SUPPORT OPTIONS

PLAN E



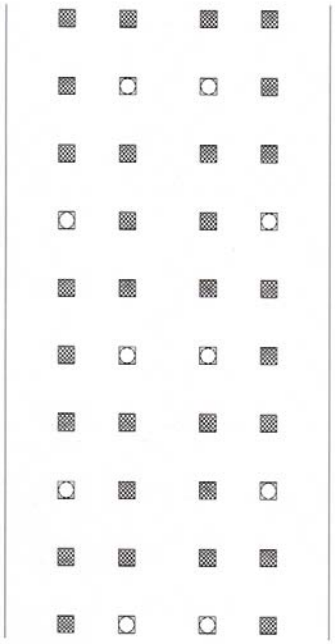
8' MINIMUM VERTICAL CABLE BOLT
WITH 8" X 8" X 3/8" PLATE

HOLE DEPTH 8' MINIMUM

Exhibit 6
(Star Pattern)

#9 SEAM
ADDITIONAL SUPPORT FOR SUPPLY ROAD PILLAR LINES

OPTION #1



STANDARD FULLY GROUTED BOLT
8', 10' or 12' VERTICAL CABLE BOLT
MEGA BOLT
DOUBLE LOCK BOLTS

Exhibit 7
(In and Out Pattern)

Appendix C
MSHA Form 7000-50b

Accident Investigation Data - Victim Information
Event Number: 4 4 8 4 4 3 4

U.S. Department of Labor
Mine Safety and Health Administration

Victim Information: 1

1. Name of Injured/Ill Employee: *Michael W. Carter*
2. Sex: *M*
3. Victim's Age: *28*
4. Degree of Injury: *01 Fatal*
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: *a. Date: 04/29/2010 b.Time: 22:00*
6. Date and Time Started: *a. Date: 04/28/2010 b.Time: 15:00*
7. Regular Job Title: *035 continuous miner helper*
8. Work Activity when Injured: *040 continuous miner helper*
9. Was this work activity part of regular job? Yes [X] No [ ]
10. Experience

	Years	Weeks	Days
a. This Work Activity:	0	39	0
b. Regular Job Title:	0	39	0
c: This Mine:	2	7	0
d. Total Mining:	2	7	0

11. What Directly Inflicted Injury or Illness? *090 roof fall*
12. Nature of Injury or Illness: *110 asphyxia*
13. Training Deficiencies: Hazard: [ ] New/Newly-Employed Experienced Miner: [ ] Annual: [ ] Task: [ ]
14. Company of Employment: (If different from production operator) *Operator* Independent Contractor ID: (if applicable)
15. On-site Emergency Medical Treatment: Not Applicable: [ ] First-Aid: [ ] CPR: [ ] EMT: [ ] Medical Professional: [ ] None: [X]
16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim: *9999 None (No Union Affiliation)*

Victim Information: 2

1. Name of Injured/Ill Employee: *Justin W. Travis*
2. Sex: *M*
3. Victim's Age: *27*
4. Degree of Injury: *01 Fatal*
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: *a. Date: 04/28/2010 b.Time: 22:00*
6. Date and Time Started: *a. Date: 04/28/2010 b.Time: 15:00*
7. Regular Job Title: *036 continuous miner operator*
8. Work Activity when Injured: *049 operating continuous miner*
9. Was this work activity part of regular job? Yes [X] No [ ]
10. Experience:

	Years	Weeks	Days
a. This Work Activity:	1	12	0
b. Regular Job Title:	1	12	0
c: This Mine:	3	29	0
d. Total Mining:	3	29	0

11. What Directly Inflicted Injury or Illness? *090 roof fall*
12. Nature of Injury or Illness: *170 crushing*
13. Training Deficiencies: Hazard: [ ] New/Newly-Employed Experienced Miner: [ ] Annual: [ ] Task: [ ]
14. Company of Employment: (If different from production operator) *Operator* Independent Contractor ID: (if applicable)
15. On-site Emergency Medical Treatment: Not Applicable: [ ] First-Aid: [ ] CPR: [ ] EMT: [ ] Medical Professional: [ ] None: [X]
16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim: *9999 None (No Union Affiliation)*

Victim Information:

1. Name of Injured/Ill Employee:
2. Sex:
3. Victim's Age:
4. Degree of Injury:
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:
6. Date and Time Started:
7. Regular Job Title:
8. Work Activity when Injured:
9. Was this work activity part of regular job? Yes [ ] No [ ]
10. Experience:

	Years	Weeks	Days
a. This Work Activity:			
b. Regular Job Title:			
c: This Mine:			
d. Total Mining:			

11. What Directly Inflicted Injury or Illness?
12. Nature of Injury or Illness:
13. Training Deficiencies: Hazard: [ ] New/Newly-Employed Experienced Miner: [ ] Annual: [ ] Task: [ ]
14. Company of Employment: (If different from production operator) Independent Contractor ID: (if applicable)
15. On-site Emergency Medical Treatment: Not Applicable: [ ] First-Aid: [ ] CPR: [ ] EMT: [ ] Medical Professional: [ ] None: [ ]
16. Part 50 Document Control Number: (form 7000-1)
17. Union Affiliation of Victim:

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