

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fall of Roof or Back
December 17, 2006

Prime No 1
Dana Mining Company Inc
Maidsville, Monongalia County, West Virginia
(I.D. No. 46-04387)

Accident Investigators

Ronald T. Tulanowski
Coal Mine Safety & Health Inspector (Roof Control)

Jason Rinehart
Acting Staff Assistant

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

John Cook
Mining Engineer, Technical Support

Paul Tyrna
Mining Engineer, Technical Support

Originating Office
Mine Safety and Health Administration
District 3
604 Cheat Rd.
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Bob E. Cornett, Acting District Manager

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OVERVIEW

On December 17, 2006 at approximately 7:30 p.m., John Elliott, a 26-year old mechanic was fatally injured in a roof fall. The victim and 2 co-workers were traveling through the No. 18 block intersection (No. 2 entry) on a rubber tire personnel carrier when the top began to work and fall. The fall was approximately 28 feet long, 20 feet wide and 5.5 feet thick. (see Appendix A).

The roof fall appears to have resulted from several geological conditions present in the No. 18 crosscut area of the mains. First, ground water inflow over time weakened the rock in the immediate roof susceptible to moisture. The roof fall appears to have started on the inby side of the intersection where moisture had caused weathering or weakening of the immediate roof and progressed along a vertical fracture that cut through the intersection, parallel with the entry.

GENERAL INFORMATION

The Prime No 1, I.D. 46-04387, is located near Maidsville, Monongalia County, West Virginia. Dana Mining Company Inc. operates the underground coal mine, which employs 63 people working two production shifts and one maintenance shift six days a week. The mine produces 4,000 tons of coal daily from two continuous mining machine sections.

The mine accesses the Sewickley coal seam through four drift openings. The mine is ventilated with one exhausting main mine fan. The mine liberates 94,128 cubic feet of methane every 24 hours. Miners enter the mine by battery powered rubber tire personnel carriers. Supplies are transported throughout the mine with battery scoops. Coal is transported from the working section to the surface via conveyor belts.

A regular safety and health inspection by 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. The Non Fatal Days Lost (NFDL) incidence rate during the previous four quarters was 4.35 compared to the national average of 4.94 for the same period.

The principal officers for the Prime No. 1 Mine are:

James Laurita Jr.	President
Steve Polce	Superintendent
Curtis Shannon	Mine Foreman
Gary Dixon	Safety Manager

DESCRIPTION OF ACCIDENT

On Sunday, December 17, 2006, Kenneth Losh, Foreman, entered the mine at approximately 6:30 p.m. to conduct a preshift examination. Losh traveled and examined the No. 2 entry from the surface to the South section tail piece. Losh phoned out the results of the preshift examination to another foreman James Brandon. Brandon informed Losh that his crew Gary Mayle, Miner Operator, and John Elliot, Mechanic had arrived for work. The three man crew was scheduled to start early to clean the shuttle cars and water down the roadways prior to the midnight shift arrival. Losh traveled back to the surface to transport Mayle and Elliott to the South Section.

Losh, Mayle and Elliott entered the mine on the No. 12 rubber tire personnel carrier toward the South Section. Losh and Mayle were facing the direction of

travel while Elliott was facing outby (Appendix B). The crew traveled to the No. 18 block intersection, in the No. 2 entry, when they observed the roof working overhead (Appendix C). Mayle yelled the roof was going to come in and Losh put the personnel carrier in reverse in an attempt to escape. Mayle jumped off the ride prior to the roof collapsing. Elliott also jumped off the ride, but was pinned against the back of the personnel carrier. The rock knocked Losh down into the seat, but he was able to crawl out from under the rock. Losh saw Elliott and checked for vital signs, but none were detected.

Losh instructed Mayle to go to No. 2 belt head to get Brandon to assist them. Brandon and Mayle went to the accident scene and left their ride for Losh. Brandon and Mayle then walked outside to notify the state and federal officials of the accident. Brandon and Mayle gathered some posts, saws, blankets and backboard to take back to the accident scene. They attempted to use a battery scoop to remove the rock, but were unsuccessful due to the position of the rock. Losh went back outside to get a track jack while Brandon and Mayle supported the area with posts.

Steve Polce, Superintendent, and James Laurita Jr., President, arrived at the accident scene. Polce sent Losh and Mayle outside when Curtis Shannon, Mine Foreman, and Brian Friend, Foreman, arrived at the accident scene to assist in the recovery. Polce sent Shannon and Friend outside to borrow airbags from the Emergency Medical Services (EMS) to use to lift the rocks off of Elliott. The crew began using the jacks and airbags to lift the rock while setting crib blocks and posts to support the rock to recover Elliott. The victim was transported from the mine and reached the surface at approximately 10:45 p.m. The victim was examined by a paramedic from the Monongalia County EMS, who in consultation with Dr. Sean Smith, Ruby Memorial Hospital, pronounced Elliott dead at 10:46 p.m. The victim was taken to Ruby Memorial Hospital in Morgantown, West Virginia where he was examined by James Laird, Medical Examiner.

INVESTIGATION OF THE ACCIDENT

Greg Fetty, Acting Assistant District Manager for Inspection Programs, was notified of the accident by the MSHA Emergency Call Center, Datatrac, at 7:48 p.m. Fetty notified the mine operator that a 103 (k) order was being issued.

The investigation 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 the assistance of mine management. Photographs, measurements and sketches were made of the area.

On December 19 and 21, 2006 persons having knowledge of the facts surrounding the accident were interviewed by MSHA, WVOMHST and company officials. Documents and other relevant information were gathered during the investigation. A list of those persons who participated in the investigation is contained in Appendix D of this report.

DISCUSSION

General

The No. 2 entry at the No. 18 block intersection (accident scene) was a four-way 90 degree intersection that was developed in 1996. The No. 2 entry was part of a six entry mains developed on 70 foot centers. Overburden at the accident site was approximately 131 feet. Mining height averaged 53 inches through the area. Although roof rock is not typically mined, mine height was greater than that of the coal seam in some places due to deterioration of the immediate roof.

Roof Control

Entry widths immediately inby and outby the failed intersection were 17 ft. 2 in. and 16 ft. 6 in., respectively. Prior to the accident there were concrete piers set in the connecting crosscuts and entry to reduce the width. The investigation revealed that on Friday, December 15, 2006 a rock fell out between the bolts approximately 1 foot thick at the No. 18 block intersection. There were two wood cribs built across the mouth of the No. 1 to No. 2 crosscut and one crib built across the mouth of the No. 2 to No. 3 crosscut on Saturday, December 16, 2006 to reduce the entry width. After the accident, the cribs did not appear to be taking weight. Although cribs were built, no additional support was added to the entry.

The roof in this area was supported with $\frac{3}{4}$ inch diameter, 4 foot-long, fully grouted rebar bolts installed 3 per row through 6 inch square bearing plates. The approved roof control plan at that time allowed for entries to be developed to a maximum width of 16 feet.

Geological Conditions

At the accident site, the fallen immediate roof consists of a black thinly bedded claystone (less than 2 inches) overlain by several feet of laminated, silty, micaceous gray shale. Fall debris consisted primarily of 3 to 12 inch thick tabular slabs. Many of the slabs were laterally continuous from the left rib line to a

prominent N50°W trending, oxide stained joint that intersected the fall cavity parallel with the entry approximately 5½ feet from the right rib line.

Undermining

The interburden between the Sewickley coal seam and the underlying worked out Pittsburgh coal seam is approximately 100 feet. The Pittsburgh seam was mined many years prior to the development of the Prime No 1 mine. Room and pillar development in the Pittsburgh seam resulted in various sized pillars and multiple room orientations and thus, pillars in the Prime No. 1 mains are not stacked on those below. However, no evidence of structural failure or ground deterioration in the Prime No 1 mains resulting from undermining was observed in the vicinity of the accident.

Equipment

The rubber tired personnel carrier was a four wheeled battery powered vehicle. The personnel carrier was rated to transport 2-3 persons.

Training Records

An examination of the training records revealed training was not a contributing factor to the accident.

Examinations

A preshift examination of the area where the accident occurred was conducted at approximately 6:20 p.m. No hazardous conditions were observed by the foreman during the examination. The operator failed to make a record of a hazardous conditions observed on the 15th and/or 16th and the corrective action taken to abate these conditions. On Friday, December 15, 2006, a piece of rock approximately one foot thick fell out from between the bolts across the No. 18 block intersection in the No. 2 entry. The No. 2 entry serves as the travel way for rubber tired mobile equipment. On Saturday, December 16, 2006, a scoop was used to remove the material from the roadway. Additionally, two cribs were installed across the No. 2 to No. 3 crosscut and one crib was installed across the No. 1 to No. 2 crosscut.

ROOT CAUSE ANALYSIS

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

Root Causes: The standards, policies and administrative controls in use at the mine did not equip mine management or miners to recognize the geological conditions (ground water inflow, alternating layers of weathered and fragmented rock, N 50oW trending joint) which contributed to the roof failure.

Corrective Action: Examiners and miners were provided additional training in the recognition of adverse geologic conditions. The approved roof control plan was updated to supplement roof support in the regularly traveled haul road intersections from the No. 1 belt head to the No. 2 belt tail piece. Supplemental support consists of a minimum six cable bolts, 8-14 feet and 6 foot fully grouted roof bolts will be installed with 18 inch by 18 inch roof mats. The provision of supplemental support also was extended to all regularly traveled haul road intersections in the travel entry where adverse geologic conditions are recognized.

CONCLUSION

The accident was caused by failure to adequately support the mine roof. Examiners and miners were not equipped to recognize geologic anomalies and conditions that resulted in the fatal roof fall. Therefore, the presence of hazardous conditions was not adequately recognized and communicated. An effective management system was not in place to assure the effectiveness of these functions.

Bob E. Cornett
Acting District Manager

Date

ENFORCEMENT ACTIONS

1. **103 (k) Order** No. 6602910 was issued to Dana Mining Company Inc to ensure the safety of the miners until an investigation was completed and the area deemed safe.
2. **104 (a) Citation** No. 6602914 was issued to Dana Mining Company Inc for the violation of 30 CFR 75.202(a).

Condition or Practice: the mine operator failed to adequately support or otherwise control the mine roof where miners are required to work or travel. On December 17, 2006 at approximately 7:30 p.m. a 26-year old mechanic was fatally injured in a roof fall that occurred at the No. 18 crosscut section of the mains in the no. 2 entry.

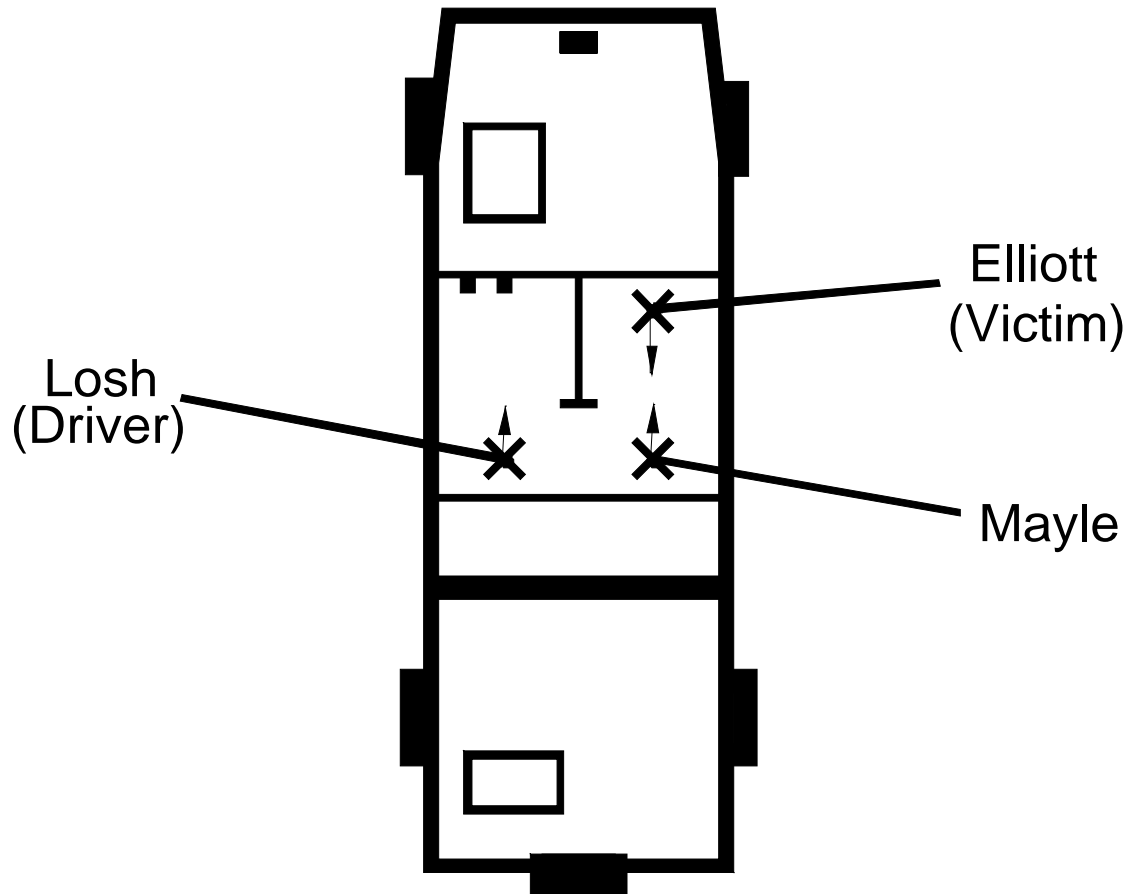
APPENDIX A

Picture of the Accident Scene



APPENDIX B

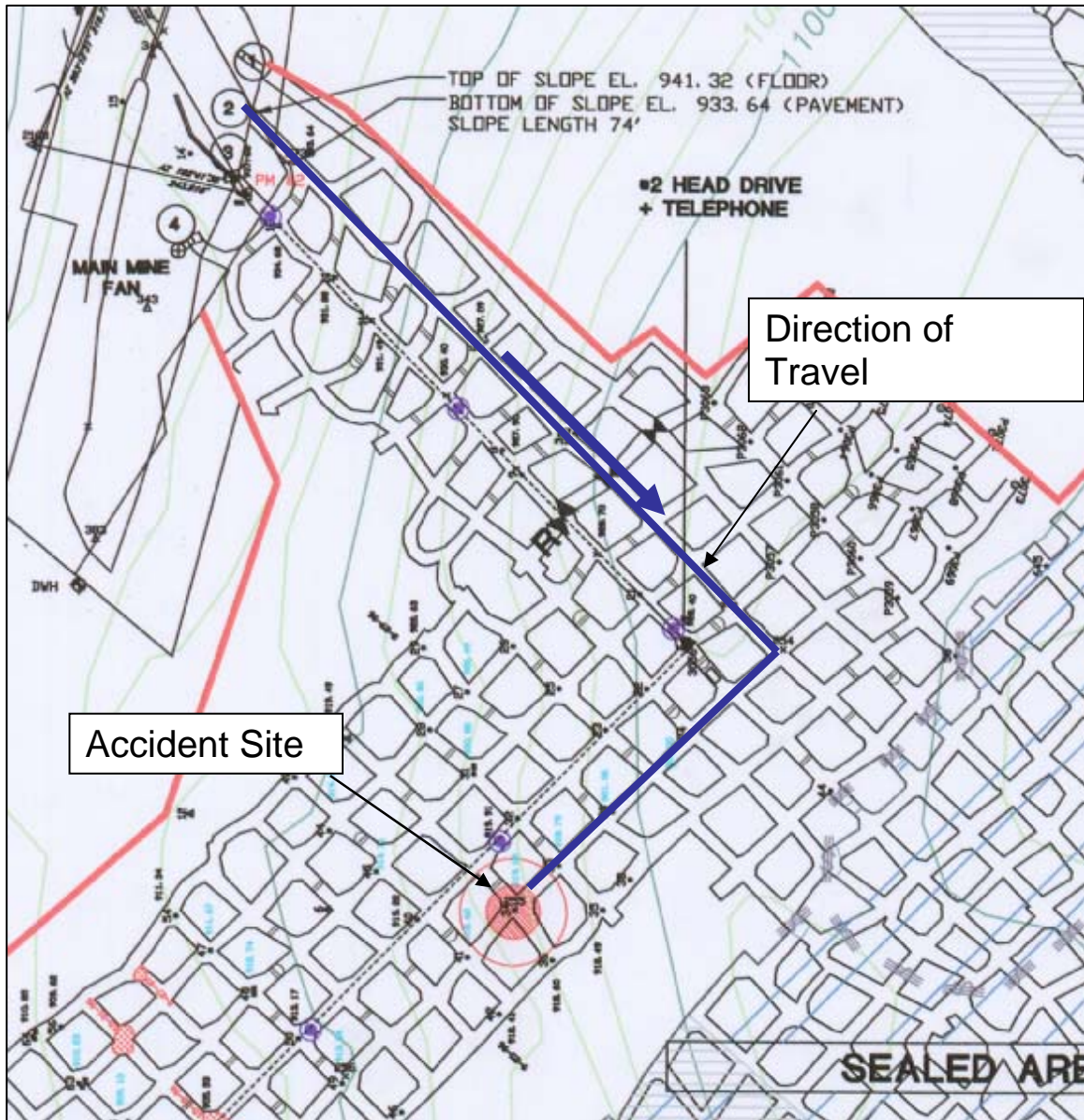
Diagram of the Personnel Carrier

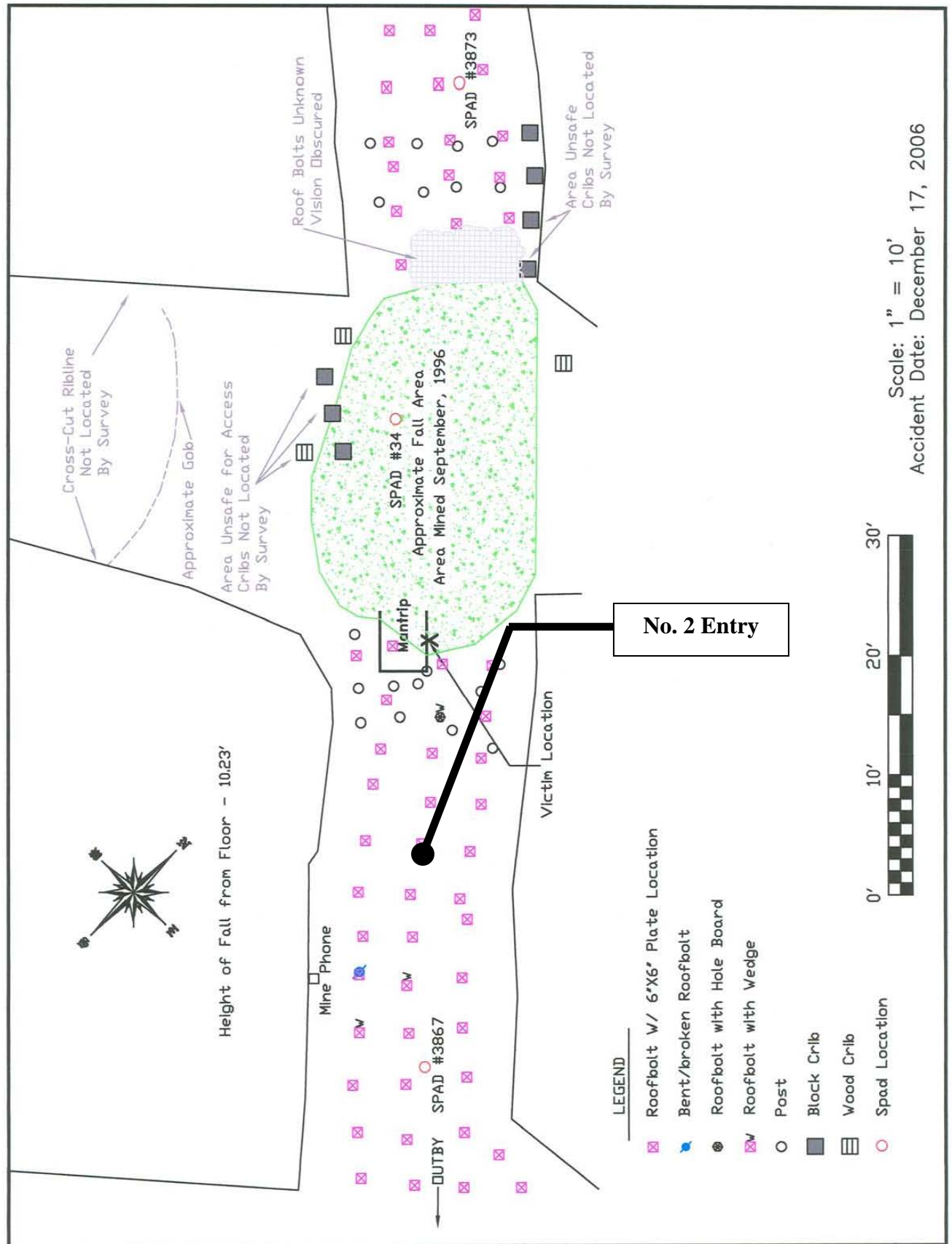


↑ = the direction the miners were facing

APPENDIX C

Mine Map & Accident Scene Drawings





APPENDIX D

Persons Participating in the Investigation

Dana Mining Company Inc.

James Brandon Section Foreman
Richard Croasmun.....Outside Man
Gary DixonSafety Director
Vaughn Forman..... Maintenance Foreman
Brian Friend..... Outby Foreman
Tony Johnson II.....Outside Man
John Lacey..... Laborer
James Laurita Jr. President/Owner
Kenneth Losh..... Section Foreman
Gary Mayle..... Miner Operator
R. Kevin O'Dell Human Resource Director
Steve Polce..... Superintendent
Mark Riley..... Scoop Operator
Curtis Shannon..... Mine Foreman
Steve SimmsMechanic/Electrician

Spillman, Thomas & Battle

David Hardy..... Attorney

Mine Safety & Health Administration


Nelson Blake..... Chief, Roof Control Section
John Cook Mining Engineer – Technical Support
Jason Rinehart Acting Staff Assistant
Ronald T. Tulanowski Mine Safety & Health Inspector – Roof Control
Jerry Vance Mine Safety & Health Specialist (Training)
Paul Tyrna Mining Engineer – Technical Support

West Virginia Office of Miners' Health, Safety and Training

Jeff Bennett District Mine Inspector
Barry Fletcher District Mine Inspector – Roof Control
Brian Mills District Inspector-at-Large
Mark Wilfong Assistant District Inspector-at-Large

APPENDIX E

Victim Information

Accident Investigation Data - Victim Information										U.S. Department of Labor		
Event Number: 4 3 5 8 7 5 2										Mine Safety and Health Administration		
Victim Information: 1												
1. Name of Injured/Ill Employee: John Elliott			2. Sex M		3. Victim's Age 26		4. Last Four Digits of SSN:		5. Degree of Injury: 01 Fatal			
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 12/17/2006 b. Time: 19:30							7. Date and Time Started: a. Date: 12/17/2006 b. Time: 19:00					
8. Regular Job Title: 002 Electrician/Mechanic					9. Work Activity when Injured: 062 Riding on Mantrip					10. Was this work activity part of regular job? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
11. Experience a. This			Years		Weeks		Days		b. Regular			
Work Activity:			1		20		1		c. This			
									d. Total			
									Mining: 1 20 1			
12. What Directly Inflicted Injury or Illness? 090 Roof Fall							13. Nature of Injury or Illness: 170 Crushing					
14. Training Deficiencies:												
Hazard: New/Newly-Employed Experienced Miner: <input checked="" type="checkbox"/> Annual: Task:												
15. Company of Employment: (If different from production operator) Operator Independent Contractor ID: (if applicable)												
16. On-site Emergency Medical Treatment:												
Not Applicable: First-Aid: CPR: EMT: <input checked="" type="checkbox"/> Medical Professional: None:												
17. Part 50 Document Control Number: (form 7000-1) 220063620026 18. Union Affiliation of Victim: 9999 None (No Union Affiliation)												