REPORT OF INVESTIGATION
(UNDERGROUND COAL MINE)

MULTIPLE FATAL ROOF FALL ACCIDENT

Stillhouse Run No. 1 Mine (ID No. 46-06306)
Elk River Sewell Coal Company, Incorporated
Bergoo, Webster County, West Virginia

December 3, 1981

Elk River Sewell Coal Co., Inc.
Stillhouse Run No. 1 Mine
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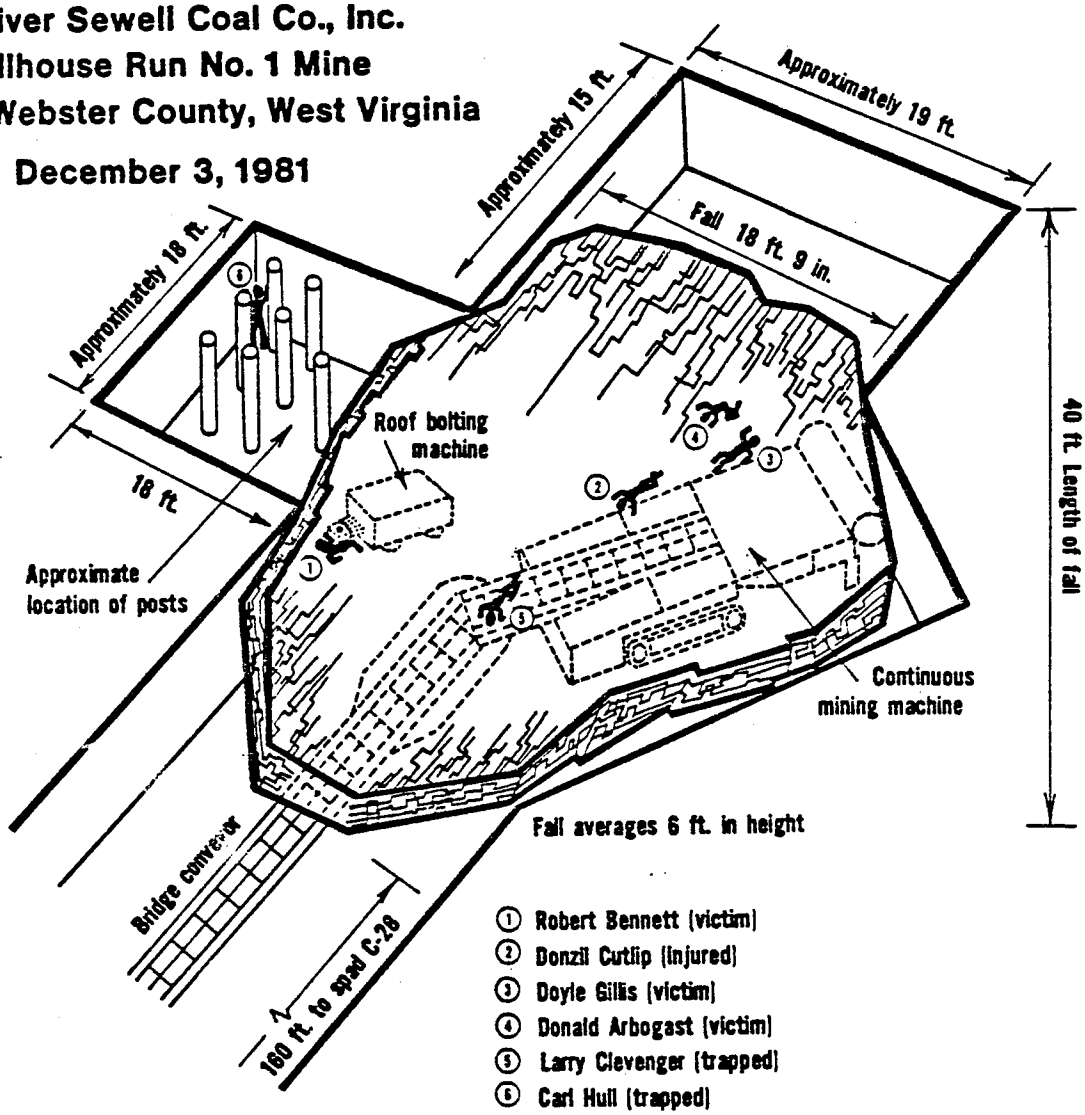

ABSTRACT OF INVESTIGATION

Title of Investigation: Fatal Fall of Roof Accident

Report Release Date: FEB 26 1982

Mine: Stillhouse Run No. 1

Mine ID Number: 46-06306

Company: Elk River Sewell Coal Co., Inc.

Town, County, State: Bergoo, Webster Co., WV

Author(s): Gene B. Fuller
James D. Carter

Mine Information

Daily Production ..... 300 tons

Surface Employment 2

Underground Employment 18

Name of Coalbed ..... Sewell "A" Seam

Thickness of Coalbed ..... 40 inches

Last Quarter Injury Incident Rate (HSAC) for:

Industry 12.29

This Operation 30.53

Training Program Approved ..... Yes

Mine Profile Rating ..... NA

Originating Office - Mine Safety and Health, Administration, Coal Mine Safety and Health, Office of the Administrator
Address: 4015 Wilson Boulevard
Arlington, Virginia 22203

Authority - This report is based on an investigation made pursuant to the Federal Mine Safety and Health Act of 1977 (Public Law 91-173, as amended by Public Law 95-164)

Abstract

On December 3, 1981, at approximately 9:20 p.m., a roof fall (40 feet by 20 feet by 6 feet) occurred in an intersection of No. 2 entry 3 left panel of the Elk River Sewell Coal Company's Stillhouse Run No. 1 Mine, that resulted in the deaths of Robert Bennett, roof-bolter operator, Doyle Gillis, scoop operator, and Donald Arbogast roof-bolter helper, and the injury of Donzil Cutlip, continuous mining machine operator. The miners had 2-1/2, 4, 6 and 4 years mining experience, respectively. The roof fell in an area in which permanent roof support had been installed. The cause of the fall was undetected fractures in the roof.

Information for this report was compiled through a MSHA investigation that was started ... December 9, 1981

Company Officials:	*Name*	*Address*
President	Joseph W. Post	Box 811, Bergoo, WV 26288
Superintendent	Ward Cogar	Webster Springs, WV 26288
Safety Director	Arnett R. Williams	Rt. 11, Webster Springs, WV 26288
Principle Officer - H&S	Phillip J. McClung	Rt. 11, Box 11, Webster Springs, WV 26288
Labor Organization	None	
Chairman - H&S Committee	None	

Commentary

On Thursday, December 3, 1981, at approximately 4 p.m., the afternoon (second) shift crew entered the mine and traveled to the newly established 3 left section.

The preceding shift had completed a move into the area at about 1 p.m. and had advanced the face of No. 2 entry approximately 1-1/2 cuts. When the second shift crew, under the supervision of John Cochran, section foreman, arrived on the section, they completed the second cut started by the day shift. After performing roof-bolting operations, another cut of coal was removed from the No. 2 entry before any coal was removed from the left or right crosscuts off No. 2 entry.

While the roof was being bolted for the second time during the afternoon shift, the left crosscut of No. 2 entry was mined to a depth of approximately 18 feet. Because of the height of the coalbed, several inches of coal (headcoal) had been left attached to the roof and an attempt was made to cut this coal down by traming the miner upon timbers to increase the cutting height. Approximately 10 minutes passed during the attempt to remove the headcoal before a "widening cut" was made to the right in preparation to start mining the right crosscut and to provide clearance for the roof-bolting machine to begin installing roof bolts in the left crosscut.

At approximately 9:20 p.m., the mining machine was shut down to reposition previously installed posts and to move the roof-bolting machine into position. Soon after the roof-bolting machine was positioned near the left side of the left crosscut, the roof collasped on 5 miners and 1 miner was trapped behind the fall. The fall was approximately 40 feet in length, 20 feet in width and 6 feet in height.

Three miners received fatal injuries, one miner was seriously injured and the other two miners were uninjured. The last miner was recovered and transported to the surface at approximately 7:05 a.m., December 5, 1981.

Discussion and Evaluation

1. The mining system consisted of a continuous mining machine, bridge conveyors and a chain conveyor that dumped onto a conveyor belt system for transportation to the surface. A roof-bolting machine was used to install resin-grouted rods.

2. The immediate roof material was bone that ranged from 4 to 15 feet in thickness. The structure of the roof in the accident area shows cleavage planes or lines that run vertically and horizontally throughout the immediate roof. Hairline cracks or separations in the roof were observed at numerous locations in the mine. Each miner questioned during the investigation stated that, at the time of the accident, no cracks or separations were observed in the immediate area of the accident prior to the fall. However, large separations were observed in the roof after the fall. Also, bone (undisturbed during the recovery) located along the right rib and under the fractured roof indicates that the fracture planes extended to the bottom of the bone roof. These fractures were along the edge of the widening cut.

3. Due to the increased thickness of the coalbed, all of the roof coal was not removed in the left crosscut and intersection. This prevented an examination of the bone roof. It could not be determined if the uncut coal covered any fractures that may have been in the roof. However, after the roof fall, large fractures were observed in the roof near the right rib where the widening cut of coal was removed.

4. While attempting to cut the coal from the roof, one roof bolt located in the intersection near the right corner of the left crosscut in No. 2 entry was damaged. However, miners stated that this bolt was replaced prior to positioning the roof-bolting machine at the approximate location shown on the sketch.

5. After the move was completed into the 2 left section, approximately 60 feet of coal was mined from the No. 2 entry and the roof was supported after each 20-foot cut.

6. According to statements by the miners, examinations of the roof were generally conducted visually because the roof usually sounded drummy. They also stated that the roof appeared to be a little soft, but that it was a little better than normal.

7. The maximum widths permitted in the entries and crosscuts were 20 feet. Examination of the accident area and nearby entries did not reveal any areas that exceeded this width.

8. When questioned about test holes drilled on the day of the accident, each of the roof-bolting machine operators stated that they did not recall specifically drilling a test hole during bolting operations. However, they stated that one was usually drilled in proximity to where the first bolt was installed. Several test holes were observed at this location and in other areas of the mine.

9. The roof control plan requires a minimum of 4 rows of resin-grouted rods to be installed on 4-foot centers lengthwise and 4- to 5-foot centers crosswise. Rods are required to be at least 48 inches long and at least 80 percent of the rods are to be grouted or additional support shall be provided. Rods taken from the accident area showed that, in some instances, only 23 inches of the bar was grouted.

10. The area where the fall occurred was considered to be supported in accordance with the roof control plan. However, examination of the fallen roof rock indicated that part of the resin had migrated from around the rods into cracks adjacent to the holes, causing the rods to be grouted less than 80 percent of their length.

11. Mine management and the roof-bolting machine operators stated that two resin cartridges were being used to grout each of the 48-inch rods in holes drilled with a 1-inch bit. Normally, this amount of resin inserted into a hole with the 3/4-inch diameter rod would have been excessive and cause the hole to be overfilled. However, none of the installed roof bolts examined indicated excessive resin.

12. The fall of roof was approximately 40 feet in length, 20 feet in width and 6 feet in height. Only the amount of rock necessary to recover the miners and mining equipment was removed from the fall area.

Finding of Fact

Approximately 50 percent of the length of the 48-inch rods used for roof support in the No. 2 entry was grouted. None of the rods examined were grouted the required 80 percent of their length as required by the roof control plan, a violation of Section 75.200, Title 30, Code of Federal Regulations, Part 75.

Conclusion

The cause of the accident was undetected fractures in the roof near the right rib of No. 2 entry where the widening cut was mined. Failure to properly grout the rods installed for roof support may have been a contributing factor.

James D. Carter
Mining Engineer

Gene B. Fuller
Coal Mine Safety Specialist

Approved by:

Joseph A. Lamonica
Administrator
for Coal Mine Safety and Health

Appendix

List of persons furnishing information and/or present during the investigation.

Elk River Sewell Coal Company, Inc., Officials

Joseph W. Post	President
Arnett R. Williams	Mine Foreman
John A. Cochran	Foreman (Second Shift)
Charles A. Sinsel	Attorney

Elk River Sewell Coal Company, Inc., Employees

Denny A. Neal	Panhead Man
Larry L. Palmer	Roof-Bolter Helper
Lowell P. Carpenter	Roof-Bolter Operator
Larry K. Clevenger	General Laborer (Trainee)
Bert S. Cochran	Bridge Operator
Carl L. Hull, Jr.	Roof-Bolter Helper

West Virginia Department of Mines

Grant King	Inspector-at-Large
Carl Kinty	Assistant Inspector-at-Large
Ronald Petrucci	Roof Control Inspector
Chester K. Taylor	District Inspector

Mine Safety and Health Administration

James W. Rutherford	Acting District Manager
Fred H. Ryan	Supervisory Coal Mine Technical Specialist (Roof Control)
Wade S. Ross	Coal Mine Inspection Supervisor
Leighton C. Farley, Jr.	Coal Mine Technical Specialist
James D. Carter	Mining Engineer
Gene B. Fuller	Coal Mine Safety Specialist

DATA SHEET

Victim Data:

Name Robert Bennett Sex Male SSN 235-72-6586

Age 34 Job Classification Roof Bolter Experience at this Classification 3 months Total Mining Experience 3 mos. w/Co.

What activity was being performed at time of accident? Roof bolting

Victim's experience at this activity 3 months

Was victim trained in this task? Yes

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Annual Refresher	9/26/81
Newly Employed Experienced Miner Training	8/31/81

Supervisor Data: (Supervisor of Victim)

Name John Cochran Certified: Yes X No

Experience as Supervisor 7 years Total Mining Experience 16 years

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Instructed in provisions of Approved Roof Control Plan	10/05/81

When was the supervisor last present at accident scene prior to accident?

What did he do when he was there?

When was he last in contact with victim?

Did he issue instructions relative to the accident?

Was he aware of or did he express an awareness of any unsafe practice or condition?

BENNETT, ROBERT

Section I (Coal Only)

MSHA and/or State Certification and/or Qualification Mine ID _____

	Date Training Plan Approved	Date Training Received		Date Training Received
* ☐	Certified Person (Underground)		☐ Dust	
* ☐	Certified Person (Surface)		☐ Dust (Calibration)	
* ☐	Methane & Oxygen Deficiency Testing		☐ Noise	
* ☐	Electrical		* ☐ Impoundments	
* ☐	Energized Surface High Voltage		* ☐ Hoisting Engineer	

*Annual Retraining Required

Section II (Metal/Non-Metal and Coal)
MSHA Training Programs Completed

Date of Hire *August 31, 1981* Date Training Plan Approved *April 3, 1981*

	Required Training (Victim)	Date Training Received		Required Training (Victim)	Date Training Received
☐	New Miner (U.G.)		☐	Hazard Training (U.G.)	
☐	New Miner (Sur.)		☐	Hazard Training (Sur.)	
☒	Newly Employed Experienced (U.G)	*August 31, 1981*			
☐	Newly Employed Experienced (Sur.)			Task Training Specify Type:	
☒	Annual Refresher (U.G.)	*Sept. 26, 1981*		*Bolter Helper*	
☐	Annual Refresher (Sur.)			*Setting Posts*	
				Operating Machine	

Section III

Company Training Program Completed:

Training	OJT/Formal	Instructor	Date Completed

Section IV

Did victim have training specifically related to the task being performed at the time of the accident?

[x] YES [ ] NO WHEN? *August 31, 1981*

By Whom: *Ward Cogar & Arnett Williams* How was training given? *Instructed & OJT*

Section V

Recommend Training Plan Evaluation by Education and Training Office?

[ ] YES [x] NO

DATA SHEET

Victim Data:

Name Donald Arbogast Sex Male SSN [redacted]2308

Age 31 Job Classification Cleanup man Roof bolter helper Experience at this Classification 6 months Total Mining Experience 6 years

What activity was being performed at time of accident? Shoveling coal

Victim's experience at this activity 6 months

Was victim trained in this task? Yes

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Annual Refresher	9/26/81
Newly Employed Experienced Training	7/10/81

Supervisor Data: (Supervisor of Victim)

Name John Cochran Certified: Yes X No

Experience as Supervisor 7 years Total Mining Experience 16 years

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Instructed in provisions of Approved Roof Control Plan	10/05/81

When was the supervisor last present at accident scene prior to accident? 10 minutes prior to accident

What did he do when he was there? Asked bolter operator about test holes and made a visual check of roof

When was he last in contact with victim? 10 minutes prior to accident

Did he issue instructions relative to the accident? instructed roof bolter to replace damaged bolt

Was he aware of or did he express an awareness of any unsafe practice or condition? Yes

ARBOGAST, DONALD

Section I (Coal Only)

MSHA and/or State Certification and/or Qualification Mine ID _____

		Date Training Received			Date Training Received
Date Training Plan Approved _____					
*☐	Certified Person (Underground)	_____	☐	Dust	_____
*☐	Certified Person (Surface)	_____	☐	Dust (Calibration)	_____
*☐	Methane & Oxygen Deficiency Testing	_____	☐	Noise	_____
*☐	Electrical	_____	*☐	Impoundments	_____
*☐	Energized Surface High Voltage	_____	*☐	Hoisting Engineer	_____

*Annual Retraining Required

Section II (Metal/Non-Metal and Coal)
MSHA Training Programs Completed

Date of Hire *June 10, 1981* Date Training Plan Approved *April 3, 1981*

	Required Training (Victim)	Date Training Received		Required Training (Victim)	Date Training Received
☐	New Miner (U.G.)	_____	☐	Hazard Training (U.G.)	_____
☐	New Miner (Sur.)	_____	☐	Hazard Training (Sur.)	_____
[X]	Newly Employed Experienced (U.G)	*June 10, 1981*			
☐	Newly Employed Experienced (Sur.)	_____		Task Training Specify Type:	
[X]	Annual Refresher (U.G.)	*Sept. 26, 1981*		*Setting posts*	_____
☐	Annual Refresher (Sur.)	_____		*Cleaning Pan Lines*	_____
				_____	_____
				_____	_____
				_____	_____

Section III

Company Training Program Completed:

Training	OJT/Formal	Instructor	Date Completed
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Section IV

Did victim have training specifically related to the task being performed at the time of the accident?

[X] YES [ ] NO WHEN? *June 10, 1981*

By Whom: *Arnett Williams* How was training given? *OJT*

Section V

Recommend Training Plan Evaluation by Education and Training Office?

[ ] YES [X] NO

DATA SHEET

Victim Data:

Name Doyle Gillis Sex Male SSN [redacted]1412

Age 36 Job Classification Scoop Operator Experience at this Classification 4 years Total Mining Experience 5 years

What activity was being performed at time of accident? shoveling coal (cleanup)

Victim's experience at this activity 3 months

Was victim trained in this task? Yes

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Annual Refresher	9/26/81
Newly employed experienced miner training	8/31/81

Supervisor Data: (Supervisor of Victim)

Name John Cochran Certified: Yes X No

Experience as Supervisor 7 years Total Mining Experience 16 years

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Instructed in provisions of Approved Roof Control Plan	10/05/81

When was the supervisor last present at accident scene prior to accident? 10 minutes prior to accident

What did he do when he was there? Talked with roof bolter about test holes and made visual examination of roof

When was he last in contact with victim?

Did he issue instructions relative to the accident?

Was he aware of or did he express an awareness of any unsafe practice or condition?

DONALD ARBOGAST

Section I (Coal Only)

MSHA and/or State Certification and/or Qualification Mine ID _____

Date Training Plan Approved _____		Date Training Received			Date Training Received
* ☐	Certified Person (Underground)	_____	☐	Dust	_____
* ☐	Certified Person (Surface)	_____	☐	Dust (Calibration)	_____
* ☐	Methane & Oxygen Deficiency Testing	_____	☐	Noise	_____
* ☐	Electrical	_____	* ☐	Impoundments	_____
* ☐	Energized Surface High Voltage	_____	* ☐	Hoisting Engineer	_____

*Annual Retraining Required

Section II (Metal/Non-Metal and Coal)
MSHA Training Programs Completed

Date of Hire *August 31, 1981* Date Training Plan Approved *April 3, 1981*

Required Training (Victim)		Date Training Received	Required Training (Victim)	Date Training Received
☐	New Miner (U.G.)	_____	☐ Hazard Training (U.G.)	_____
☐	New Miner (Sur.)	_____	☐ Hazard Training (Sur.)	_____
☒	Newly Employed Experienced (U.G)	*August 31, 1981*		
☐	Newly Employed Experienced (Sur.)	_____	Task Training Specify Type:	
☒	Annual Refresher (U.G.)	*Sept. 26, 1981*	*Setting Posts*	_____
☐	Annual Refresher (Sur.)	_____	*Cleaning near Miner*	_____
			_____	_____
			_____	_____
			_____	_____

Section III

Company Training Program Completed:

Training	OJT/Formal	Instructor	Date Completed
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Section IV

Did victim have training specifically related to the task being performed at the time of the accident?

[X] YES [ ] NO WHEN? *Aug. 31, 1981*

By Whom: *Ward Cogar & Arnett Williams* How was training given? *Instructed and OJT*

Section V

Recommend Training Plan Evaluation by Education and Training Office?

[ ] YES [x] NO

DATA SHEET

Victim Data:

Name Donzil Cutlip Sex Male SSN [redacted]7256

Age 27 Job Classification Miner Operator Experience at this Classification 3½ months Total Mining Experience 4 years

What activity was being performed at time of accident? Miner Operator

Victim's experience at this activity 3½ months

Was victim trained in this task? Yes

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Newly Employed Training	8/31/81
Annual Refresher	9/26/81
Task Training - Operation of continuous miner and installation of posts	8/31/81

Supervisor Data: (Supervisor of Victim)

Name John Cochran Certified: Yes X No

Experience as Supervisor 7 years Total Mining Experience 16 years

Health and Safety Courses/Training Received (Related to Accident)	Date Received
Instructed in provisions of Approved Roof Control Plan	10/05/81

When was the supervisor last present at accident scene prior to accident? 10 minutes prior to accident

What did he do when he was there? Asked about test holes and made visual examinations of roof

When was he last in contact with victim? Instructed roof bolter to replace damaged belt

Did he issue instructions relative to the accident?

Was he aware of or did he express an awareness of any unsafe practice or condition? Yes

CUTLIP, DONZIL

Section I (Coal Only)

MSHA and/or State Certification and/or Qualification Mine ID _____

		Date Training Received			Date Training Received
Date Training Plan Approved _____					
* ☐	Certified Person (Underground)	_____	☐	Dust	_____
* ☐	Certified Person (Surface)	_____	☐	Dust (Calibration)	_____
* ☐	Methane & Oxygen Deficiency Testing	_____	☐	Noise	_____
* ☐	Electrical	_____	* ☐	Impoundments	_____
* ☐	Energized Surface High Voltage	_____	* ☐	Hoisting Engineer	_____

*Annual Retraining Required

Section II (Metal/Non-Metal and Coal)
MSHA Training Programs Completed

Date of Hire *August 31, 1981* Date Training Plan Approved *April 3, 1981*

Required Training (Victim)		Date Training Received	Required Training (Victim)		Date Training Received
☐	New Miner (U.G.)	_____	☐	Hazard Training (U.G.)	_____
☐	New Miner (Sur.)	_____	☐	Hazard Training (Sur.)	_____
X	Newly Employed Experienced (U.G)	*August 31, 1981*			
☐	Newly Employed Experienced (Sur.)	_____	Task Training Specify Type:		
X	Annual Refresher (U.G.)	*Sept. 26, 1981*	*Operation of Jeffrey Continuous Miner*		_____
☐	Annual Refresher (Sur.)	_____	*Installation of Posts*		_____
			_____		_____
			_____		_____
			_____		_____

Section III

Company Training Program Completed:

Training	OJT/Formal	Instructor	Date Completed
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Section IV

Did victim have training specifically related to the task being performed at the time of the accident?

[x] YES [ ] NO WHEN? *Aug. 31, 1981*

By Whom: *Arnett Williams* How was training given? *Instructed and OJT*

Section V

Recommend Training Plan Evaluation by Education and Training Office?

[ ] YES [x] NO