

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION  
(UNDERGROUND COAL MINE)

MULTIPLE FATAL EXPLOSIVES ACCIDENT

No. 1 Mine (ID 15-12590)  
Frank Crawford, Jr., Coal Company  
Woodbine, Whitley County, Kentucky

October 27, 1980

by

Clifford E. Ellis  
Coal Mine Safety Specialist

Charles E. Luxmore  
Coal Mine Safety Specialist

Originating Office - Mine Safety and Health Administration  
4015 Wilson Boulevard, Arlington, Virginia 22203  
Joseph A. Lamonica, Acting Administrator for Coal Mine Safety and Health

REPORT OF INVESTIGATION  
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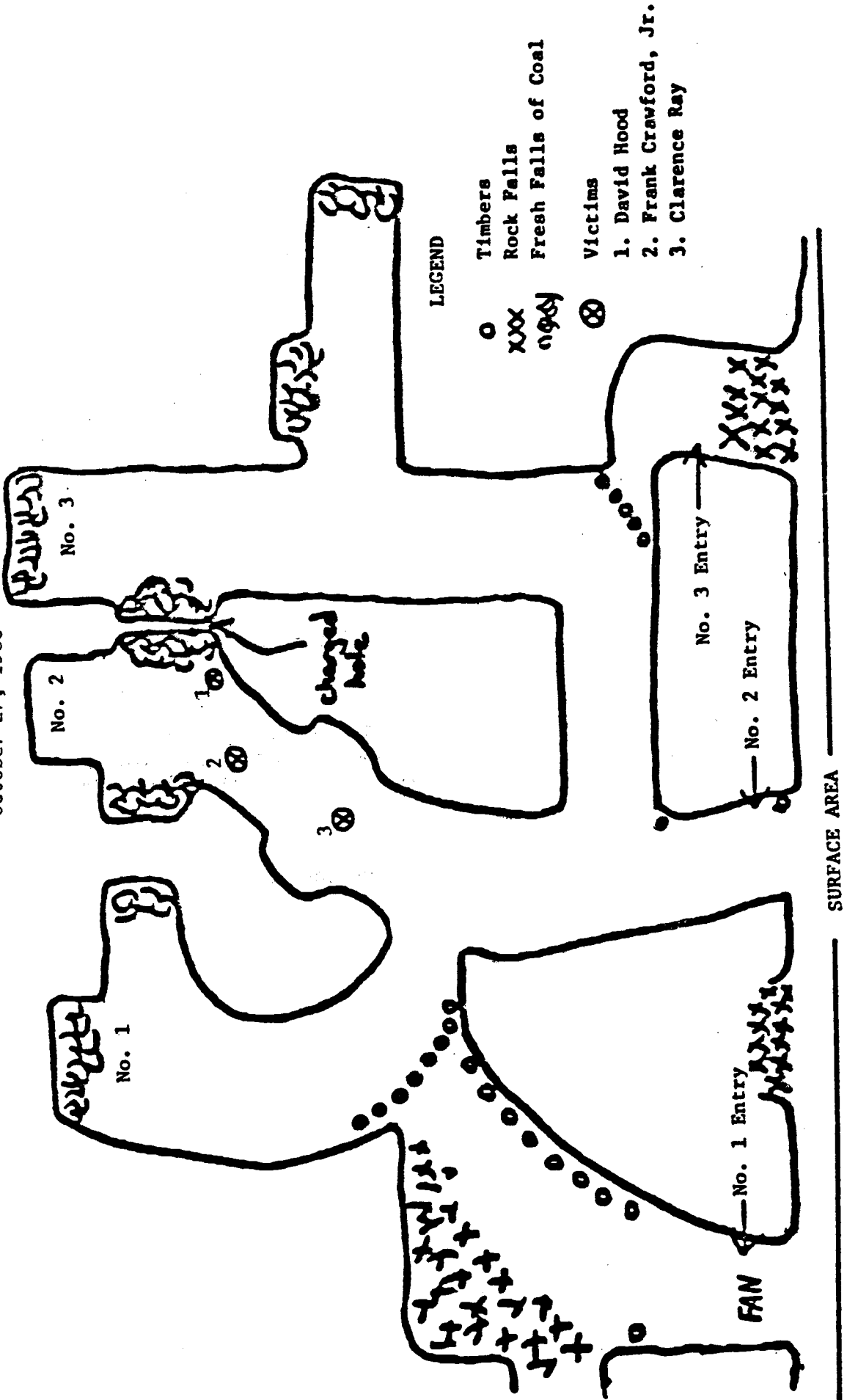
MULTIPLE FATAL EXPLOSIVES ACCIDENT

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SKETCH OF MULTIPLE FATAL EXPLOSIVES ACCIDENT  
 MINE NO. 1 (ID. 15-12590)  
 FRANK CRAWFORD, JR., COAL COMPANY  
 WOODBINE, WHITELY COUNTY, KENTUCKY

October 27, 1980



NOTE: Sketch is not to scale.

**ABSTRACT OF INVESTIGATION**

<p><b>Title of Investigation:</b> Multiple Fatal Explosives Accident</p> <p><b>Report Release Date:</b></p> <p><b>Mine:</b> No. 1 Mine</p> <p><b>Mine I.D. Number:</b> 15-12590</p> <p><b>Company:</b> Frank Crawford, Jr., Coal Company</p> <p><b>Town, County, State:</b> Woobine, Whitley County, Kentucky</p> <p><b>Author(s):</b>  Clifford E. Ellis Charles E. Luxmore</p>	<p align="center"><b>Mine Information</b></p> <p><b>Daily Production</b>.....30 Tons.....</p> <p><b>Surface Employment</b>.....<sup>1</sup>.....</p> <p><b>Underground Employment</b>.....<sup>4</sup>.....</p> <p><b>Name of Coalbed</b>.....Blue Gem.....</p> <p><b>Thickness of Coalbed</b> 8 foot average...<sup>22</sup> inches</p> <hr/> <p><b>Last Quarter Injury Incident Rate (HSAC) for:</b></p> <p>    <b>Industry</b>.....13.75.....</p> <p>    <b>This Operation</b>...UNKNOWN.....</p> <p><b>Training Program Approved</b>....NO.....</p> <p><b>Mine Profile Rating</b>....AS. Df. ....NONE.....</p>
<p><b>Originating Office - Mine Safety and Health Administration, Coal Mine Safety and Health, Office of the Administrator</b> <b>Address:</b> 4015 Wilson Boulevard Arlington, Virginia 22203</p>	<p><b>Authority - This report is based on an investigation made pursuant to the Federal Mine Safety and Health Act of 1977 (Public Law 95-173, as amended by Public Law 95-164)</b></p>

*Abstract*

On Monday, October 27, 1980, about 7:45 p.m., a multiple fatal explosives accident occurred in the face area of the No. 2 entry of the No. 1 Mine, Frank Crawford, Jr., Coal Company. The accident resulted in the death of Frank Crawford, Jr., President, David Hood, Scoop Operator, and Clarence G. Ray, Driller. Reportedly, Crawford and Hood had six weeks mining experience and Ray had 20 years. At the time of the accident, Hood was apparently lighting fuses that were the means of detonating blastholes when a previously lit blasthole in the crosscut left in No. 3 entry shot through injuring him. Crawford and Ray attempted to aid Hood, and because of the lack of adequate ventilation, all three were overcome by noxious gases emitted by the detonated explosives.

Information for this report was compiled through a MSHA investigation that was started .....

<b>Company Officials:</b>	<u>Name</u>	<u>Address</u>
<b>President</b> .....	Frank Crawford, Jr.	Woobine, Kentucky.....
<b>Superintendent</b> .....		
<b>Safety Director</b> .....		
<b>Principle Officer - M&amp;S</b> .....		
<b>Labor Organization</b> .....		
<b>Chairman - M&amp;S Committee</b> .....		

## Commentary

The mine was being developed by three parallel entries that had been driven about 200 feet from the drift mouth, with one open connecting crosscut, at the time of the accident. The coalbed height averaged about 22 inches. Blasting from the solid using fuse, blasting caps and permissible explosives was the method utilized to prepare the coal for loading. Information revealed during the investigation indicated the following sequence of events and activities.

On Monday, about 3:45 p.m., October 27, 1980, Donald C. Brown, David Hood, Clarence Ray and Frank Crawford, Jr., entered the mine. The necessary equipment and supplies such as coal shovels, coal drill and explosives including fuse and blasting caps were transported to the active working places by a battery-powered scoop tractor that was also used to load and transport the coal mined to the surface. The work of loading, hauling, drilling and charging of blast holes continued in the active workings until an undetermined time. When the loading of the coal that had been blasted prior to this shift was completed, the tools and supplies were loaded in the scoop and taken to the surface. Reportedly, at this time, all of the miners also traveled to the surface. Frank Crawford, Jr., operating the scoop, and Hood, crawling, reentered the mine to light the fused primers so that coal would be blasted for the next day's production. Apparently, one or both of the men went to the No. 3 entry and lit the fuses in the face of the entry and the crosscut left, then traveled to the No. 2 entry. While Hood was lighting the fuses in the crosscut right of the No. 2 entry, a previously lit blasthole from the crosscut left in the No. 3 entry shot through injuring Hood. Ray and Brown, who were on the surface in the cab of Hood's truck, heard the shots detonate. When Frank Crawford, Jr., and Hood did not immediately come to the surface, Ray got out of the truck and walked to the rear of it where he met Frank Crawford, Jr., who had arrived on the surface. After a discussion, Frank Crawford, Jr., reentered the mine. Ray instructed Brown to go to Frank Crawford, Jr.'s, home and call the rescue squad and the Crawford family; then Ray also entered the mine.

According to statements of Ray and Lawrence Crawford, brothers of Frank Crawford, Jr., upon being informed of the situation, they arrived at the mine about 8:30 p.m. They went underground, and upon approaching the face of the No. 2 entry, located Ray's body about 30 feet outby the face. The body of Frank Crawford, Jr., was located partially in the operating deck of the scoop near the outby corners of the crosscuts, and the scoop was positioned crossways in the entry and stuck on top of loose coal. The body of Hood was found near the outby corner of the right crosscut. The Crawfords attempted to remove Frank Crawford, Jr.'s, body from the deck of the scoop; however, they could not pull the victim out of the deck. At this time, the Crawfords realized they were about to be overcome and decided to return to the surface because of the contaminated

air. On their way out, they tried to drag the body of Ray with them; however, due to their condition, the task was too great. Upon arriving on the surface, a determination was made to obtain a battery-powered tractor from a nearby mine to use in recovering the victims.

The body of Ray had been brought to the surface when persons from the Mine Safety and Health Administration (MSHA) Barbourville Subdistrict Office arrived at the mine. After being informed of the conditions that were present underground, Mr. T. R. Mark, Subdistrict Manager, took charge of the recovery operation. The Crawfords had obtained a mine fan and line curtain material that were used in the recovery. Ray Crawford and Albert R. Helton, Coal Mine Inspector, installed roof supports in areas where the mine roof was questionable, and the line curtain was attached to these supports to clear the smoke and gases from the accident area. After the accident site had been cleared of the smoke and tests made to assure that the mine atmosphere was safe, the other two victims were recovered.

#### Discussion and Evaluation

The investigation revealed the following factors relevant to the occurrence of the accident:

1. The mine was operating illegally in that the operator had not notified the Mine Safety and Health Administration of the intent to reopen a mine.
2. The operator failed to submit for approval any of the required plans before the mine went into operation.
3. There were no certified persons making examinations of the mine as required by Title 30, Code of Federal Regulations, Part 75, Subpart D.
4. Fuse and blasting caps were being used to detonate explosives in an underground coal mine.
5. The miners working at the mine had not been provided with an approved self-rescue device.
6. A mechanical means was not provided to ventilate the mine and there were no ventilation controls such as line brattice or other approved devices.
7. The miners employed at the mine had not received training and two of the victims had only six weeks of mining experience.

8. An accurate and up-to-date mine map was not available and there were no means provided (survey stations) for determining the course developing entries were being driven. This contributed to the cause of the accident in that the distance between the No. 2 and No. 3 entries was apparently less than the victims anticipated.
9. There had not been an inspection made at the mine because the local office of MSHA did not know the mine had reopened.
10. An autopsy was performed on the victims and the report stated that the following was the cause of death:

Frank Crawford, Jr. - Inhalation of noxious gases  
David Hood - Blast injuries and inhalation of noxious gases  
Clarence Ray - Inhalation of noxious gases

#### Findings of Fact

1. Fuse and blasting caps were used to detonate explosives in areas of an underground coal mine, a violation of Section 75.1303, 30 CFR 75.
2. Mechanical ventilation equipment had not been installed and there were no line curtains or other approved devices installed to ventilate the working faces, a violation of Sections 75.300 and 75.302, 30 CFR 75.
3. The active workings were not provided with adequate ventilation sufficient to dilute, render harmless, and to carry away noxious and harmful gases, smoke and explosive fumes, a violation of Section 75.301, 30 CFR 75.
4. An approved self-rescue device was not made available to the miners working at the mine, a violation of Section 75.1714, 30 CFR 75.
5. There were no records indicating that the examinations required by Subpart D - Ventilation, 30 CFR 75, were being conducted, and the investigation revealed that there was not a certified person at the mine and no certified person had been designated to make such examinations, a violation of Sections 75.303, 75.304 and 75.305, 30 CFR 75.
6. Mine management failed to provide an accurate up-to-date mine map drawn on scale with temporary notations locating each working face of each working place, a violation of Sections 75.1200 and 75.1202-1(b)(1), 30 CFR 75.
7. Mine management had not submitted a training plan for approval prior to reopening the mine, a violation of Section 48.3(a)(3), 30 CFR 48.

APPENDIX

The investigation was conducted by members of the Mine Safety and Health Administration, and those persons furnishing information and/or present during the investigation were:

Frank Crawford Coal Company Employees

Donald C. Brown	Laborer
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D & D Coal Company

Ray Crawford	Co-Owner
Lawrence Crawford	Co-Owner

Zonda Lee Coal Company

Kenneth Crawford	Operator
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Kentucky Department of Mines and Minerals

Willard Stanley	Commissioner of Mines
Steve Blevins	Assistant Commissioner of Mines
William E. Clayton	Director of Miner Training and Education and Certification
Dewey Middleton	Mine Inspection Supervisor
Charles Sargent	Coal Mine Inspector
Dill Finley	Coal Mine Inspector
James Ed Gilbert	Coal Mine Inspector

U. S. Department of Labor - Office of the Inspector General

D. L. Farmer	Special Agent
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Mine Safety and Health Administration

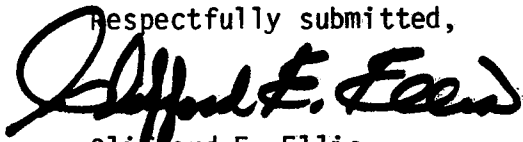
Richard Garcia	Acting District Manager
T. R. Mark	Subdistrict Manager
Clifford E. Ellis	Coal Mine Safety Specialist
Charles E. Luxmore	Coal Mine Safety Specialist
Kenneth T. Howard	Coal Mine Inspection Supervisor
Ed R. Morgan	Coal Mine Inspector
Lawrence Spurlock	Coal Mine Inspector
Albert R. Helton	Coal Mine Inspector



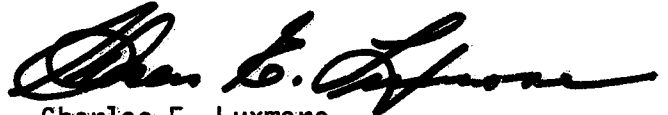
Conclusion

Management's failure to use electric detonators to detonate explosives for blasting coal was the cause of the accident; failure to provide an accurate up-to-date mine map locating each working face was a contributing factor. The lack of adequate ventilation and failure to provide miners with an approved self-rescue device contributed to the severity of the accident.

Respectfully submitted,

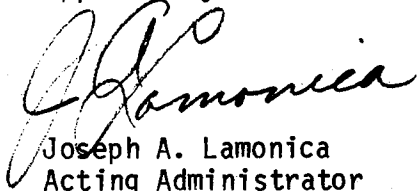


Clifford E. Ellis  
Coal Mine Safety Specialist



Charles E. Luxmore  
Coal Mine Safety Specialist

Approved By:



Joseph A. Lamonica  
Acting Administrator  
for Coal Mine Safety and Health

# Data Sheet



## SECTION A—VICTIM DATA

1. Name: Frank Crawford, Jr. 2. Sex: M  F  3. SSN: 574-20-5152

4. Age: 32 5. Job classification: Mine Operator

6. Experience at this classification: 6 weeks 7. Total mining experience: 6 weeks

8. What activity was being performed at time of accident? Unknown

9. Victim's experience at this activity: Unknown

10. Was victim trained in this task? No

11. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## SECTION B—SUPERVISOR DATA (supervisor of victim)

12. Name: \_\_\_\_\_ 13. Certified: Yes  No

14. Experience as supervisor: \_\_\_\_\_ 15. Total mining experience: \_\_\_\_\_

16. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

17. When was the supervisor last present at accident scene prior to the accident? \_\_\_\_\_

18. What did he do when he was there? \_\_\_\_\_

\_\_\_\_\_

19. When was he last in contact with the victim? \_\_\_\_\_

20. Did he issue instructions relative to the accident? \_\_\_\_\_

21. Was he aware of or did he express an awareness of any unsafe practice or condition? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Data Sheet



## SECTION A—VICTIM DATA

1. Name: Clarence Gerald Ray 2. Sex: M  F  3. SSN: 402-52-7882  
4. Age: 40 5. Job classification: Drill operator  
6. Experience at this classification: unknown 7. Total mining experience: 20 years  
8. What activity was being performed at time of accident? Unknown  
9. Victim's experience at this activity: Unknown  
10. Was victim trained in this task? Unknown  
11. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SECTION B—SUPERVISOR DATA (supervisor of victim)

12. Name: Frank Crawford, Jr. 13. Certified: Yes  No   
14. Experience as supervisor: 6 weeks 15. Total mining experience: 6 weeks  
16. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received \_\_\_\_\_  
NONE  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
17. When was the supervisor last present at accident scene prior to the accident? \_\_\_\_\_  
18. What did he do when he was there? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
19. When was he last in contact with the victim? \_\_\_\_\_  
20. Did he issue instructions relative to the accident? \_\_\_\_\_  
21. Was he aware of or did he express an awareness of any unsafe practice or condition? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Data Sheet



## SECTION A—VICTIM DATA

1. Name: David Hood 2. Sex: M  F  3. SSN: 492-66-6373

4. Age: 22 5. Job classification: Scoop Operator

6. Experience at this classification: Unknown 7. Total mining experience: reportedly 6 weeks

8. What activity was being performed at time of accident? Lighting fuse and caps

9. Victim's experience at this activity: Unknown

10. Was victim trained in this task? Unknown

11. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received  
NONE

## SECTION B—SUPERVISOR DATA (supervisor of victim)

12. Name: Frank Crawford, Jr. 13. Certified: Yes  No

14. Experience as supervisor: 6 weeks 15. Total mining experience: 6 weeks

16. Health and Safety courses/Training received (related to accident) \_\_\_\_\_ Date received  
NONE

17. When was the supervisor last present at accident scene prior to the accident? \_\_\_\_\_

18. What did he do when he was there? \_\_\_\_\_

19. When was he last in contact with the victim? \_\_\_\_\_

20. Did he issue instructions relative to the accident? \_\_\_\_\_

21. Was he aware of or did he express an awareness of any unsafe practice or condition? \_\_\_\_\_

FRANK CRAWFORD JR.  
 CLARENCE GERALD RAY  
 DAVID HOOD

Training Status Unknown

Section I (Coal Only)

MSHA and/or State Certification and/or Qualification

Mine ID 15-12590

Date Training Plan Approved	No plan submitted	Date Training Received	Date Training Received
* <input type="checkbox"/> Certified Person (Underground)	_____	<input type="checkbox"/> Dust (Sampling)	_____
* <input type="checkbox"/> Certified Person (Surface)	_____	<input type="checkbox"/> Dust (Calibration)	_____
* <input type="checkbox"/> Methane & Oxygen Deficiency Testing	_____	<input type="checkbox"/> Noise	_____
* <input type="checkbox"/> Electrical	_____	* <input type="checkbox"/> Impoundments	_____
* <input type="checkbox"/> Energized Surface High Voltage	_____	* <input type="checkbox"/> Hoisting Engineer	_____
* Annual Retraining Required			

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

Date of Hire	_____	Date Training Plan Approved	_____
Required Training (Victim)	Date Training Received	<input type="checkbox"/> Required Training (Victim)	Date Training Received
<input type="checkbox"/> New Miner (U.B.)	_____	<input type="checkbox"/> Hazard Training (U.G.)	_____
<input type="checkbox"/> New Miner (Sur.)	_____	<input type="checkbox"/> Hazard Training (Sur.)	_____
<input type="checkbox"/> Newly Employed Experienced (U.G.)	_____		
<input type="checkbox"/> Newly Employed Experienced (Sur.)	_____	Task Training Specify Type:	
<input type="checkbox"/> Annual Refresher (U.G.)	_____	_____	_____
<input type="checkbox"/> Annual Refresher (Sur.)	_____	_____	_____
		_____	_____
		_____	_____

Section III

Company Training Program Completed:

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