

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Machinery Accident
April 18, 2008

Little Toby Mine
Rosebud Mining Company
6227 Route 219
Brockport, Elk County, Pennsylvania
ID No. 3608847

Accident Investigators

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Mine Safety and Health Inspector

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Mine Safety and Health Inspector

Richard Feigh
Mine Safety and Health Inspector, Electrical Specialist

Patrick Retzer
MSHA, Electrical Engineer

Frank Prebeg
MSHA, Electrical Engineer

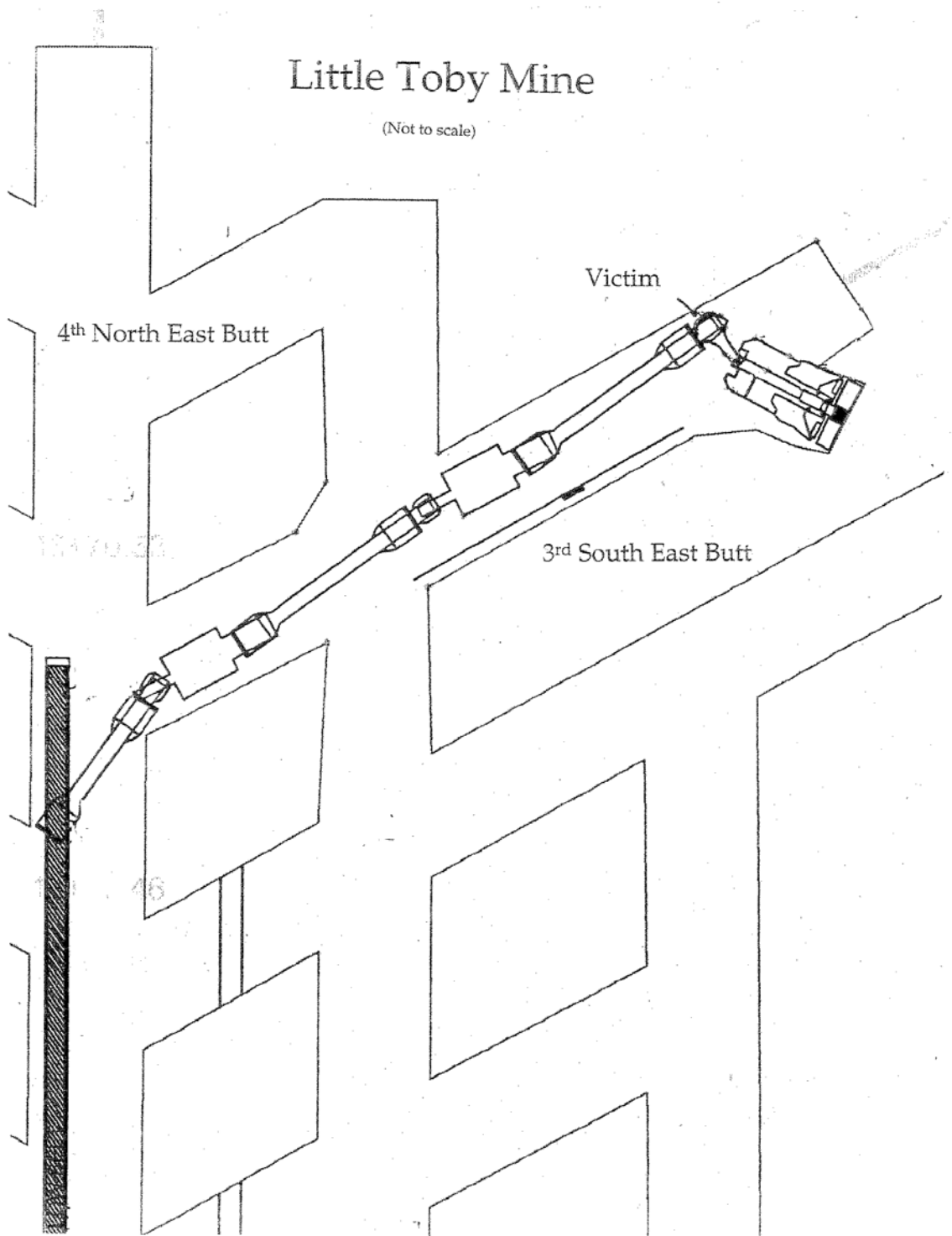
Originating Office
Mine Safety and Health Administration
District #2
319 Paintersville Road
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William Ponceroff, District Manager

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Little Toby Mine

(Not to scale)



OVERVIEW

At approximately 1:30 p.m. on Friday, April 18, 2008, a 43-year old continuous miner operator with 3 years 10 months of mining experience was fatally injured at Rosebud Mining Company's Little Toby Mine. The accident occurred while the victim was positioning a remote controlled continuous mining machine with an attached bridge conveyor system in a crosscut to the right. As the victim was attempting to position the continuous mining machine, the inby mobile bridge operator felt an unusual bouncing of the bridge conveyor and attempted to make radio contact with the miner operator. When no radio response was received the mobile bridge operator shut the unit down with the emergency stop switch. The inby mobile bridge operator crawled toward the face and discovered the victim pinned between the basket of the inby mobile bridge and the mine rib.

The accident occurred because the mine operator failed to adequately implement existing policy and procedures designed to ensure that miners did not enter dangerous areas that presented pinch hazards such as the "Red Zones" established around remote controlled mining machines and mobile bridge conveyor systems.

GENERAL INFORMATION

The Little Toby Mine, operated by Rosebud Mining Company, was located at 6227 Route 219, Brockport, Elk County, Pennsylvania. The mining operation utilized a continuous haulage system and produced coal from the Lower Kittanning Seam. The average mining height was 40 inches. Total employment at the mine was 32 of which 27 were underground miners. The mine operated two production shifts per day working 5 ½ days per week. The mine operated one advance mining section that produced an average of 1140 tons per day. A system of conveyor belts transported the coal from the working section to the surface where it was trucked to the preparation plant.

The principal officers for the mine at the time of the accident were:

J. C. Forrest.....	President
Gerald Heffran.....	General Superintendent
Brian Burkett.....	Mine Manager
Mark McCracken.....	Superintendent
Robert Penigar.....	Manager of Safety

Prior to the accident, the Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection on February 19, 2008. A regular safety and health inspection was started on April 1, 2008 and was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine in 2007 was 2.84 compared to a National NFDL rate of 4.64 for mines of this type.

DESCRIPTION OF ACCIDENT

On the morning of April 18, 2008, the 4th Northeast Butt crew arrived for work and entered the mine at 6:00 a.m. The crew arrived on the section at approximately 6:30 a.m. and began preoperational examinations of the machinery and workplaces. After the examinations were completed the continuous mining machine operator, Randy Huey, began tramming the mining machine into the first workplace.

Normal mining was conducted with seven cuts of coal mined during the first seven hours of the shift. At approximately 1:10 p.m. Huey began mining in the bowtie cut of the No. 5 entry at the intersection of 4th Northeast Butt and 3rd Southeast Butt. This is a routine cut turned to the right at a 60 degree angle. After mining approximately 19 feet on the left side (first sequence of the cut), Huey flagged the inby mobile bridge carrier (MBC), operator, Tucker Smith to move the MBC toward the face. Smith trammed the MBC forward providing all available free travel of the front bridge/MBC slide stopping just short of contacting the stop blocks.

Shortly after moving the MBC, Smith felt an unusual vibration of the bridge. After an unsuccessful attempt to make radio contact with Huey, Smith shut down the mining machines with the emergency stop switch. As Smith crawled toward the face to investigate, he discovered Huey pinned between the basket of the bridge and the mine rib. Wayne Shoemaker, section foreman and roof bolter operator, John Skarbek were in the adjacent entry when they heard the machines shut down and immediately went to the face to investigate the shut down. Shoemaker and Skarbek, both emergency medical technicians (EMTs), arrived at the face and learned that Huey was pinned. Shoemaker checked the victim for vital signs and found none. It was determined that CPR would not be effective due to the physical position of the victim.

A call was made to the surface reporting the accident and requesting emergency medical assistance. In efforts to free Huey a spare remote control box was brought from the section power center. Roof bolter operator, Raymond Briggs, who had previously received continuous miner operator training, was summoned and the continuous mining machine was moved forward enough to free the victim. The victim was placed on a stretcher and transported to the surface where he was pronounced dead at 2:45 p.m. by Elk County Coroner, Louis Radkowski. The Brockway Ambulance Service transported the victim to Erie Hospital, Erie, Pennsylvania.

INVESTIGATION OF THE ACCIDENT

MSHA was notified by the national call center at 1:36 p.m. on April 18, 2008 that a serious accident had occurred at the Little Toby Mine. MSHA inspectors were dispatched to the mine. A 103(k) order was issued to insure the safety of all persons during the accident recovery and investigation. Two Electrical Engineers from MSHA's Approval and Certification Center were assigned to assist in the investigation. The accident investigation was conducted in cooperation with Pennsylvania Bureau of Deep Mine Safety with assistance from the mine operator and the employees. Fourteen miners were interviewed during the course of the investigation. A reenactment of the machine movements prior to and up to the time of the accident was conducted to establish possible cause(s) of the accident.

DISCUSSION

Mining Type and Equipment

Continuous haulage systems are commonly referred to in the mining industry as mobile bridge conveyors. These systems consist of a series of mobile bridge carriers (MBC) and chain bridge conveyors (bridges) used to convey the coal from the continuous mining machine to the section conveyor belt. The system at Little Toby Mine consisted of a continuous mining machine two MBCs and three bridges.

<u>Equipment Type</u>	<u>Mfg.</u>	<u>Model</u>	<u>Serial Number</u>
Continuous Mining Machine	EIMCO	DASH ZERO,	70880261
MBC (inby)	Long Airdox	#1	53-344
MBC (outby)	Long Airdox	#2	53-345
Bridge	Long Airdox	#1	44-1183
Bridge	Long Airdox	#2	44-582
Bridge	Long Airdox	#3	44-1182

The continuous miner cut the coal from the face and conveyed the coal, via a conveyor boom (or tail) to the bridge conveyor. The coal is dumped from the boom of the mining machine onto a widened portion of the front of the inby bridge called the bridge basket. This bridge basket measured 59 inch long by 62 inch wide. The inby bridge is attached to the continuous mining machine at an articulation point above the basket. The basket is designed to catch the coal that is dumped from the mining machine boom and direct it onto the conveyor chain. A skid plate located underneath the bridge basket, on the

bottom of the conveyor frame, is designed to slide along on the mine floor as the machines are moved.

The MBCs are typically track-mounted self-ropelled machines used to transport the bridges as the continuous miner moves. Two slides are provided on the inby end of each MBC at the MBC/bridge juncture. The slide consists of a pair of steel skids on which the outby end of the bridge is mounted. These skids slide on a matched pair of rails on the MBC. The slide allows inby or outby movement of the bridges as the continuous mining machine, which is attached to the inby bridge, maneuvers within the workplace. Each slide provides approximately 56 inches of movement of the bridge before the MBC operator is required to advance or retreat to provide additional slide (bridge movement). Coal is conveyed by chain conveyor on the bridges, loaded onto the section conveyor belt and transported out of the mine.

All electrical, mechanical and hydraulic systems of the continuous haulage mining system functioned properly when tested. Each mobile bridge operator and continuous miner operator was equipped with a voice communication system consisting of a hand-held radio. All communication devices functioned properly when tested.

Three remote control units for this continuous mining machine were available at the mine, one was in use in the section, one was kept on the section power center as a spare and an additional unit was kept in the surface shop. Control functions were identical on all three units. The remote control units functioned properly when tested.

Physical Factors

The height in the area of the accident was 41 inches. The mine floor in the area was solid and dry. The mine roof was supported with resin grouted roof bolts. A sight mark was visible on the mine roof just over the boom of the continuous mining machine.

Reenactment of Events

A reenactment of the accident was conducted. Although the continuous mining machine was moved approximately two feet to free the victim, the mining machine was repositioned in its pre-accident position. The repositioning of the continuous mining machine was derived from interview testimony that identified the positioning of the slide of the inby bridge just prior to the accident and the observation of visible machine tracks on the mine floor.

The pre-accident position of the boom and bridge basket (swung outby) provided 24 inches of clearance between the edge of the bridge basket and the mine rib. When the boom and bridge basket were in the post-accident position (swung inby) the clearance

between the edge of the bridge basket and the rib was 7 inches. The measurements were taken at the exact location of the accident pinch point.

During the reenactment, it was found that when the boom of the mining machine was in the outby, or pre-accident position, the skid plate underneath the front of the inby bridge was in a hole in the mine floor. The hole measured from 4 ½ to 6 inches in depth and the same length and width of the skid plate.

During the interviews, Tucker Smith, the inby MBC operator, stated that just prior to the accident he was flagged by Huey to tram forward. After Smith trammed the MBC forward he noted he had four or five inches of free slide left. Also during the reenactment, nine inches of free slide was measured when the equipment was positioned in the pre-accident position. Therefore, with this information, the possibility of the MBC pushing the bridge forward was ruled out because it was determined the slide was not against the stop blocks at the time of the accident.

Through the reenactment process it was determined that the skid plate on the front of the inby bridge positioned in the hole in the mine floor inhibited the swinging of the mining machine boom into the desired inby, or post- accident position. As attempts were made to swing the boom, the skid plate came out of the hole allowing the boom to swing abruptly inby to the post-accident position. This abrupt movement reduced the distance between the basket and the rib at the accident pinch point from 24 inches to 7 inches.

Training and Experience

Randy E. Huey, continuous miner operator (victim), had a total of 3 years 36 weeks of underground mining experience with 1 year 40 weeks experience at Little Toby Mine and 36 weeks as a continuous miner operator. Huey possessed a Miner's Certificate of Qualification and a Machine Operator's Certificate from the Commonwealth of Pennsylvania. Huey had received Experienced Miner training upon employment at Little Toby Mine, Annual Refresher training on January 19, 2008, and Task training for the continuous miner on August 2, 2007.

During the investigation all miners interviewed demonstrated knowledge and understanding of the hazards associated with Red Zones (areas established around mobile equipment that present a pinch point hazard).

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.

Listed below are root causes identified during the analysis and their corresponding corrective actions implemented to prevent a recurrence of the accident:

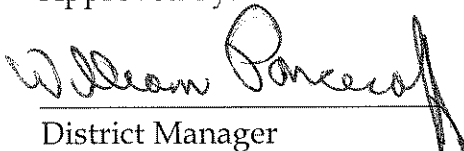
1. *Root Cause:* The mine operator failed to adequately implement existing policy and procedures designed to ensure that miners did not enter dangerous areas that presented pinch hazards such as "Red Zones." While the continuous mining machine was in operation the continuous miner operator entered a pinch point area, Red Zone, between the basket of the inby mobile bridge conveyor and the mine rib.

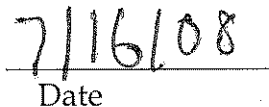
Corrective Action: Although miners had been trained in the dangers of pinch points within Red Zones, all miners including supervisors were provided with additional training to reinforce their understanding of the hazards associated with the operation of all mobile equipment, with emphasis on pinch points within Red Zones and the operator's policy of not entering such areas while equipment is in operation. In addition, the operator is evaluating the feasibility of proximity detection devices for low seam continuous mining machines with attached bridge systems.

CONCLUSION

The accident occurred because the continuous miner operator was in a known hazardous location between the bridge conveyor basket and the mine rib while operating the mining machine. The policy and procedures established by the operator on Red Zones were inadequately implemented to ensure the safety of all miners.

Approved By:


District Manager


Date

ENFORCEMENT ACTIONS

A 103(k) Order No. 7053465 was issued to Rosebud Mining Company, Little Toby Mine to ensure the safety of all persons in the mine during the recovery and investigation of the fatal accident and until MSHA has determined that it is safe to resume normal mining operations.

A 104(a) citation No. 7054947 was issued for a violation of 30 CFR 75.220(a) (1); The mine operator failed to comply with the approved roof control plan at this mine. On April 18, 2008 the remote controlled continuous mining machine operator in 4th North East Butt, MMU 003-0 active section, positioned himself between the basket of the inby bridge conveyor and the mine rib while operating the continuous miner. (This continuous mining machine has an attached continuous haulage system.) The machine operator was fatally injured when the conveyor basket suddenly moved toward the rib pinning him between the basket and the mine rib. The approved roof control plan submitted to, and approved by the District Manager on April 25, 2007, states on page 22 that during mining and place changing, with remote controlled continuous mining machines, no persons shall position themselves where they can be contacted by the continuous miner or other equipment.

**Appendix A
Persons Participating in the Investigation**

Rosebud Mining Company

<u>Name</u>	<u>Title</u>
Gerald Heffran.....	General Superintendent
Brian Burkett.....	Mine Manager
Mark McCracken.....	Superintendent
Robert Penigar.....	Manager of Safety
Wayne Shoemaker.....	Section Foreman
David D. Macefe.....	Chief Electrician
Patrick Crissman.....	Roof Bolter Operator
Frank Dinger.....	Scoop Tractor Operator
Nathan Synder.....	Extra Man
Michael Brewer.....	Extra Man
John Skarbek.....	Roof Bolter Operator
David M. Macefe.....	Mechanic
Gregory Travis.....	Outby Scoop Tractor Operator
Jack Hicks Jr.....	Outby Scoop Tractor Operator
Raymond Briggs III.....	Roof Bolter Operator
Tucker Smith.....	MBC Operator
Tawn Smith.....	New Miner Trainee

Pennsylvania Department of Environmental Protection

<u>Name</u>	<u>Title</u>
Joseph Sbaffoni.....	Director, Bureau of Mine Safety
Dennis Walker.....	Bituminous Division Program Manager
Jeffry Kerch.....	Underground Mine Inspection Supervisor
Richard Murphy.....	District Inspector
Walter Douglas.....	Electrical Inspector

Mine Safety and Health Administration

<u>Name</u>	<u>Title</u>
Robert Roland.....	Coal Mine Safety and Health Inspector, Accident Investigator
Robert Bodenschatz.....	Coal Mine Safety and Health Inspector
Richard Feigh.....	Coal Mine Safety and Health Inspector, Electrical Specialist
Patrick Retzer.....	Electrical Engineer, Technical Support
Frank Prebeg.....	Electrical Engineer, Technical Support

Appendix B

Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 4 0 4 1 8 1 8

Victim Information: 1														
1. Name of Injured/Ill Employee: <i>Randy E. Huey</i>				2. Sex: <i>M</i>		3. Victim's Age: <i>43</i>		4. Degree of Injury: <i>01 Fatal</i>						
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 04/18/2008 b. Time: 13:30</i>							6. Date and Time Started: <i>a. Date: 04/18/2008 b. Time: 6:00</i>							
7. Regular Job Title: <i>036 remote control miner</i>				8. Work Activity when Injured: <i>049 operating continuous miner</i>				9. Was this work activity part of regular job? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>						
10. Experience a. This			Years			Weeks			Days			b. Regular		
Work Activity:			<i>0</i>			<i>36</i>			<i>0</i>			Job Title:		
c. This			Years			Weeks			Days			d. Total		
Mine:			<i>1</i>			<i>40</i>			<i>0</i>			Mining:		
Mining:			<i>3</i>			<i>36</i>			<i>0</i>					
11. What Directly Inflicted Injury or Illness? <i>077 caught between bridge and mine rib</i>							12. Nature of Injury or Illness: <i>170 crush injury</i>							
13. Training Deficiencies: Hazard: _____ New/Newly-Employed Experienced Miner: _____ Annual: _____ Task: _____														
14. Company of Employment: (If different from production operator) <i>Operator</i> Independent Contractor ID: (if applicable)														
15. On-site Emergency Medical Treatment: Not Applicable: _____ First-Aid: _____ CPR: _____ EMT: <input checked="" type="checkbox"/> Medical Professional: _____ None: _____														
16. Part 50 Document Control Number: (form 7000-1)							17. Union Affiliation of Victim: <i>9999 None (No Union Affiliation)</i>							

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 <input type="checkbox"/> No <input type="checkbox"/>						
10. Experience: a. This			Years			Weeks			Days			b. Regular		
Work Activity:												Job Title:		
c. This			Years			Week			Days			d. Total		
Mine:												Mining:		
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:							

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 <input type="checkbox"/> No <input type="checkbox"/>						
10. Experience: a. This			Years			Weeks			Days			b. Regular		
Work Activity:												Job Title:		
c. This			Years			Week			Days			d. Total		
Mine:												Mining:		
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:							