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UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Powered Haulage Accident
May 16, 2016

Leer Mine
ACI Tygart Valley
Grafton, Taylor County, West Virginia
I.D. No. 46-09192

Accident Investigators

John Hall
Coal Mine Safety and Health Specialist, Electrical

Jason Rinehart
Coal Mine Safety and Health Specialist, Roof Control

Originating Office
Mine Safety and Health Administration
District 3
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Carlos T. Mosley, District Manager

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OVERVIEW

On Monday, May 16, 2016, at approximately 4:00 a.m., Eric Meddings, a 50-year-old motorman with over 14 years of mining experience, was fatally injured when the rail-mounted diesel locomotive he was operating, coupled to six drop-deck rail cars, crashed through a closed airlock door near the slope bottom. No persons witnessed the accident and there was a lack of conclusive evidence to determine why Meddings traveled through the closed airlock door.

GENERAL INFORMATION

The Leer Mine is located near Grafton, Taylor County, West Virginia. ACI Tygart Valley operates the underground mine in the Kittanning coal seam. The mine opened in 2011 and employs 456 persons, 419 of which work underground. The mine operates two production shifts, seven days a week, and produces 16,751 tons of raw coal per day from four continuous-mining machine sections and one longwall mining unit. A slope belt and conveyor system transport the raw coal to the surface and a slope track and rail system are used to transport supplies. An elevator transports the miners in and out of the mine. The mine is ventilated with a blowing fan and one exhausting bleeder fan. The mine liberates over 4.5 million cubic feet of methane in a 24-hour period and is on a 5-day spot inspection schedule in accordance with Section 103(i) of the Mine Act.

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

Gaither Frazier……General Manager
Tim Runyan……Mine Manager
Larry Gore……...Superintendent
James Dotson……..General Mine Foreman
Jon Hensley…….Safety Manager

At the time of the accident, a regular (E01) safety and health inspection was in progress. The previous E01 inspection was completed on March 30, 2016. The Non-Fatal Days Lost (NFDL) injury incidence rate for the mine operator in 2015 was 0.74 compared to the national NFDL rate of 3.17 for mines of this type.

DESCRIPTION OF ACCIDENT

On Sunday, May 15, 2016, motormen Eric Meddings and Tom Beeman Jr., started their shift at 11:00 p.m. They were assigned to get two rail-mounted diesel locomotives (Company No. 4 and No. 5) and two drop-deck cars loaded with face conveyor chain near the slope bottom and take them to the 2-D longwall setup. They performed the equipment pre-operational checks and traveled to the 2-D longwall setup where the chain was unloaded. The men then used the No. 5 (outby) locomotive and coupled the

two unloaded cars to four additional drop-deck cars already on the section. Three of the six cars contained empty chain boxes. Beeman said he and Meddings discussed stopping at the slope bottom switch and separating two cars from the train before leaving 2-D longwall setup. They had no other communication after they left the section and started hauling the six cars to the slope bottom.

Meddings was the lead motorman and Beeman was operating the No. 4 (inby) locomotive following the train, but was not coupled to the cars. They both arrived at the slope bottom. Beeman could not see the No. 5 locomotive due to a turn in the track entry (see Appendix A).

Beeman dismounted the locomotive to check the coupler alignment. The two cars had to be separated from the train due to space requirements between the airlock doors. Beeman said he was attempting to align the couplers between his locomotive and the last drop-deck car when the train unexpectedly moved away from him. He was not able to couple the locomotive to the cars. The train then traveled out of Beeman's sight.

Beeman re-entered the No. 4 locomotive and traveled towards the slope bottom where he encountered dust and increased air movement. He stopped at the first (inby) airlock door which was open and he could see that the outby airlock door was damaged. He exited his locomotive and walked through the damaged door towards the slope. Beeman observed the train had stopped and he discovered Meddings unresponsive and leaning sideways in the operator's seat. He checked Meddings for a pulse but there was none. Beeman immediately went to a nearby mine phone to call for help.

James Beafore, Fireboss and Emergency Medical Technician (EMT), was near the slope bottom and said he heard a noise and went to the mine phone. He was informed a man was down on the slope bottom. Beafore went to the scene and found Meddings unresponsive in the locomotive seat. Beeman returned and helped Beafore remove Meddings from the locomotive and place him on the mine floor. Cardiopulmonary resuscitation (CPR) was started and continued while he was placed on a backboard and transported outside via the slope car to an awaiting Taylor County Emergency Medical Service ambulance. Meddings was transported to the Grafton City Hospital where he was pronounced deceased by Dr. Joseph Duvert, M.D. at approximately 5:37 a.m.

INVESTIGATION OF ACCIDENT

The MSHA Emergency Call Center was notified of the accident at 4:52 a.m. on May 16, 2016. The call center notified Tom McCort, Supervisory Coal Mine Safety and Health Inspector. McCort called Michael Stark, Staff Assistant, who notified the mine that they had to preserve the accident scene and an investigator was traveling to the mine. Stark assigned John Hall, Coal Mine Safety and Health Specialist, Electrical, to investigate the accident. Hall and Doug Moyer, Coal Mine Inspector (Trainee), traveled to the mine and issued a 103(k) order upon arrival. They were briefed on the circumstances of the accident. A noncontributing citation was issued for a violation of 30 CFR § 50.10 because the mine operator did not report this accident immediately, at once, without delay, and within fifteen minutes.

The accident investigation was conducted by MSHA personnel in conjunction with the West Virginia Office of Miners Health Safety and Training (WVOMHS&T) and mine management. Preliminary interviews were conducted with persons having knowledge of the facts and circumstances surrounding the accident. The team then traveled to the accident site. A survey crew was used to obtain elevations and precise locations of all equipment and structures involved in the accident. Photographs were also taken of the equipment and accident scene. The 103(k) order was then modified to allow testing of the No. 5 locomotive.

Formal interviews were conducted on May 23, 2016, at the MSHA District 3 office. Appendix B lists the persons interviewed and those participating in the accident investigation. The WVOMHS&T afforded the family the right to participate in the formal interviews but they declined.

On May 24, 2016, a re-enactment of the accident was conducted using the No. 5 locomotive and six similarly loaded drop-deck cars.

DISCUSSION

Accident Site

Tests for stray current were conducted on all electrical circuits, equipment, and structures at the accident scene that could have been contacted by Meddings. No electrical shock hazards were found at the scene.

Tests for harmful gases and oxygen were also conducted in the area. No air quality hazards were found.

The investigation revealed no evidence to indicate Meddings struck the mine roof or any other structure prior to the No. 5 locomotive crashing through the outby airlock door.

Track

The steel rails were inspected and found dry with no irregularities. There is an approximately 4.8 percent drop in elevation from the slope track switch to the location where the train stopped. There was no evidence on the rails leading up to the closed outby airlock door that the brakes had been applied. The investigation team determined the train stopped on its own because of the rolling resistance of the track in the "S" curve and the fact that the grade in the track leveled out.

Locomotive

The Company No. 5 locomotive is a 25-ton Brookville track-mounted diesel locomotive. The braking system uses air pressure to release the hydraulic brakes on four internal brake packs. There are two brake packs on each of the two axles. The manufacturer reported there is no field adjustment to these brakes. The locomotive is also equipped with a man-in-position foot switch. The brakes will not release unless this switch is depressed and apply automatically if the switch is released during operation.

The investigation team tested the brakes, accelerator control, air pressure, sanders, emergency stop, and the man-in-position switch on the locomotive. All tested devices functioned as designed and were adequate for the conditions in the mine at the time of the accident. The exhaust gas and emissions were also checked with no issues found.

The only damage noted by the investigation team was a broken flip-up windshield and a damaged metal guard located in the operator's deck. These may have been damaged during the accident. A review of the pre-operation log indicated Meddings conducted a pre-operational check on the locomotive at the beginning of the midnight shift and no deficiencies were identified.

Drop-Deck Cars

The six drop-deck cars in the train were made by Irwin Car and Equipment Inc. An empty car weighs 28,300 pounds and the empty chain boxes (three in total) weigh approximately 2,000 pounds each. The estimated weight of the No. 5 locomotive, the six drop-deck cars, and the three chain boxes was 225,800 pounds.

Re-enactment

The investigation team wanted to conduct a re-enactment to determine if the train would drift away from the slope bottom switch. They also wanted to evaluate the speed the train would obtain if it would drift away.

The locomotive and cars were parked at the slope bottom switch. The locomotive transmission was placed in neutral, the service brake was released, and the man-in-position switch was depressed. The locomotive drifted toward the airlock doors without assistance from the diesel engine. The speed increased due to the

approximately 4.8 percent drop in elevation, and the service brakes were applied before reaching the inby door to prevent the train from crashing into the closed outby door. The locomotive and six cars came to a quick and controlled stop. The locomotive braking capacity was determined to be adequate.

Airlock Doors

Krist Door Service Inc. manufactured and installed the steel airlock doors. They were installed in a pair. The door openings measured seven feet high and fifteen feet wide. The manufacturer estimates each door weighs 630 pounds. Each door is hinged horizontally at the top with two hydraulic jacks mounted to the door sides. The doors are opened and closed by depressing a remotely located "up" or "down" switch. This starts an electrically powered hydraulic pump that causes the hydraulic jacks to open or close the door. The doors are electrically interlocked to prevent both doors from being opened at the same time. This could not be tested initially due to the extent of the damage to the door, but was subsequently tested and determined to work as designed.

The airlock doors are mounted with the door bottom slightly inby the top hinge and they open inby so less force is required to open them against the ventilation system pressure. The locomotive crashed through the closed door in a direction opposite to the direction the door opens. This caused significant damage to the door and frame, but the door was not dislodged from the roof or ribs (see Appendix C).

Communication

The method of communication at this mine is portable radios assigned to each miner. Jeff Underwood, Dispatcher, said Meddings called for clearance so that he could tram the locomotive and train from the slope bottom switch to the slope bottom. He told Meddings that he could proceed to the slope bottom. Underwood had no further communication with the motor crew until Beeman called on the mine phone to say there was a man down at the airlock doors.

Tracking System

The tracking system was inspected and the logs were reviewed. The review helped verify approximate time frames as reported by persons interviewed, but no other information could be gathered to determine the cause of the accident.

Equipment Examinations

Records of the pre-operation examinations conducted on the No. 5 locomotive were reviewed for the seven days preceding the accident and no deficiencies were recorded.

Training

Eric Meddings worked as a motorman at this mine for more than three years. His training records indicate he received eight hours training for the Brookville diesel 25-ton locomotive on February 2, 2016. Meddings' annual refresher training was up to date.

Location of Injuries

The autopsy performed by the West Virginia State Medical Examiner showed Meddings sustained blunt force trauma injuries to the mid chest and above areas of his body. This is consistent with the body parts that are unprotected by the locomotive deck.

ROOT CAUSE ANALYSIS

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

Listed below is a root cause identified based on the investigation and the operator's implemented corrective actions that could prevent a recurrence of this type of accident.

Root Cause: The mine operator did not have an effective policy, program, procedure, or controls in place to protect miners from associated hazards of traveling through the airlock doors when the trip length exceeds the distance between the doors.

Corrective Action: The mine operator developed and implemented procedures for separating the supply train and traveling through the airlock doors when the train length exceeds the distance between the airlock doors. The new procedures require the locomotive operators to use their hand-held radio to communicate with each other during the car separation procedure, and the motorman passing through an airlock must open and close the airlock door for themselves.

CONCLUSION

The victim received fatal injuries from blunt force trauma to the mid chest and above areas of his body. The investigation did not reveal any conclusive evidence to determine what caused the victim and the trip to move away from the slope bottom switch and crash through the closed airlock door.

Carlos Mosley

Carlos T. Mosley
District Manager

9-27-2016
Date

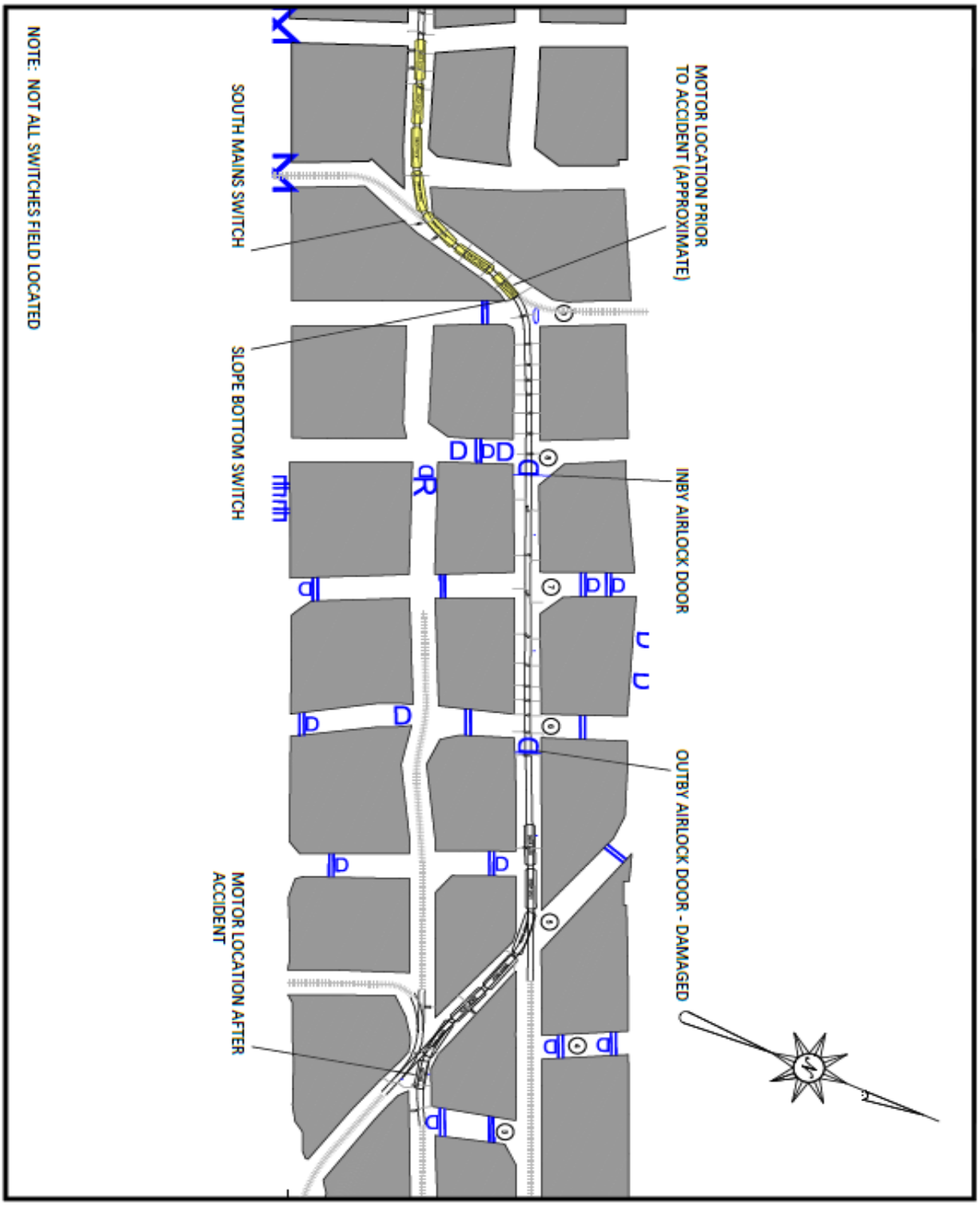
ENFORCEMENT ACTION

1. Section 103(k) Order No. 9087601 was issued to ACI Tygart Valley, Leer Mine to ensure the health and safety of all miners until an examination and investigation could be completed.

   An accident occurred at this operation on 5/16/2016 at approximately 04:15. This order is being issued, under Section 103(k) of the Federal Mine Safety and Health Act of 1977, to prevent the destruction of any evidence which would assist in investigating the cause or causes of the accident. It prohibits all activity at the slope bottom, until MSHA has determined that it is safe to resume normal mining operations in this area. The operator was reminded of the K-order provisions verbally over the phone and the order was issued upon arrival at the mine.

Appendix A
Drawing of Accident Site

(Not to scale)



Appendix B

List of persons who participated in the investigation.

* Persons interviewed.

ACI Tygart Valley

Gaither Frazier……..General Manager
Jon Hensley……...Safety Manager
*Louie Chelli…….Midnight Shift Foreman
Rod Cummings……Dayshift Shift Foreman
Sonny Griffith……...Electrical Supervisor
Lanny Maynard……Maintenance Foreman
*Larry Gore……... Superintendent
James Dotson……General Mine Foreman
Tim Runyan……...Mine Manager
*Tom Beeman Jr.……...Motorman
Stewart Bailey……...Safety Manager
John Lakatos …….Maintenance Foreman
*Thomas Craig Curry…...Maintenance Foreman
*James Beafore……..…Fireboss/EMT
*Ronald Fowler…….Beltman
*Jeff Underwood...……Dispatcher

Arch Coal

Doug Conaway…….Corporate Safety

West Virginia Office of Miners Health Safety & Training

Jeff Bennett……Roof Control Specialist
John Scott…….. Electrical Specialist
Bobbie Harper……..Coal Mine Inspector
Jack Rife…….Esquire

Mine Safety and Health Administration

John Hall…….. Electrical Specialist
Jason Rinehart……..Roof Control Specialist
Michael Stark……Staff Assistant
Douglas Moyer…… Coal Mine Inspector (Trainee)
Phillip Long……..Electrical Specialist

Steptoe & Johnson PLLC

Ben McFarland…….Esquire

Appendix C
Photograph of Outby Airlock Door

Meddings, the locomotive, and six cars crashed through this outby airlock door. This photograph shows the door from the outby side and is opposite to the direction the train was traveling.

Appendix D

Victim Information

Accident Investigation Data - Victim Information

Event Number: 6 2 7 5 0 1 9

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

Victim Information: 1

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Degree of Injury:
Eric Meddings	*M*	*50*	*01 Fatal*

5. Date(MM/DD/YY) and Time(24 Hr.) Of Death:	6. Date and Time Started:
a. Date: 05/16/2016 b.Time: 4:00	*a. Date: 05/15/2016 b.Time: 23:00*

7. Regular Job Title:	8. Work Activity when Injured:	9. Was this work activity part of regular job?
069 Motorman	*073 operating a 25 ton locomotive*	Yes X No

10. Experience	Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days		Years	Weeks	Days
a. This Work Activity:	*3*	*12*	*0*	b. Regular Job Title:	*3*	*12*	*0*	c: This Mine:	*3*	*32*	*0*	d. Total Mining:	*14*	*20*	*0*

11. What Directly Inflicted Injury or Illness?	12. Nature of Injury or Illness:
012 Steel airlock ventilation door	*370 blunt force trama to the chest and head*

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: X | CPR: X | EMT: X | Medical Professional: | None:

16. Part 50 Document Control Number: (form 7000-1) *220161460015*

17. Union Affiliation of Victim: *9999* *None (No Union Affiliation)*