

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH
REPORT OF INVESTIGATION

Preparation Plant

Fatal Machinery Accident
March 12, 2008

Workman Repair Services (E619)
Winfield, West Virginia

at

Alloy Preparation Plant #1
Appalachian Fuels, LLC
Boomer, Fayette County, West Virginia
46-07968

Accident Investigators

Andrew J. Sedlock
Coal Mine Safety and Health Inspector

Vincent Nicolau
Coal Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
District 4
100 Bluestone Road
Mt. Hope, West Virginia, 25880
Robert G. Hardman, District Manager

TABLE OF CONTENTS

OVERVIEW.....	1
GENERAL INFORMATION	1
DESCRIPTION OF THE ACCIDENT	2
INVESTIGATION OF THE ACCIDENT	3
DISCUSSION	3
Fuel System Removal Procedures	3
Bottom Guard (Belly Pan).....	4
Chain Hoist Placement.....	4
Training	5
ROOT CAUSE ANALYSIS	5
CONCLUSION.....	6
ENFORCEMENT ACTIONS	7
Appendix A- Persons participating in the investigation.....	8
Appendix B - Victim Information.....	9



OVERVIEW

At approximately 12:10 p.m. on Wednesday, March 12, 2008, John G. Workman, a 47-year old self employed contract mechanic with 20 years of total mining experience, and one month of experience at this mine, was fatally injured as he was removing a belly pan from a Caterpillar D10N bulldozer, to access engine components. The belly pan was supported by a chain tensioned by a truck-mounted crane. When the victim removed the belly pan mounting bolts, the chain slipped, causing the pan to trap the victim, resulting in fatal injuries.

The accident occurred because the belly pan was not properly supported before removal of the mounting bolts. Additionally, the front hinge of the belly pan was broken, which allowed the belly pan to rotate as it fell, causing the chain support to slip.

GENERAL INFORMATION

The Alloy Preparation Plant #1 is located near Boomer, Fayette County, West Virginia and is owned by Appalachian Fuels, LLC, Ashland, Kentucky. The plant employs 27 miners and operates two production shifts and one maintenance shift. The plant prepares coal from two underground mines and one surface mine.

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

John C. Smith, Jr.President
Keith SmithSafety Director
Bob BarkerPlant Superintendent

The victim was the owner and operator of Workman Repair Services, Winfield, West Virginia. Workman Repair Services provides contract mechanical repairs services for mobile equipment.

The last regular inspection by the Mine Safety and Health Administration (MSHA) of this operation was completed August 2, 2007. A regular safety and health inspection was started on March 4, 2008 and was ongoing at the time of the accident. The mine Non Fatal Days Lost (NFDL) incidence rate in 2007 was 0.00, compared to the national average of 1.80 for mines of the same type.

DESCRIPTION OF THE ACCIDENT

On Tuesday March 11, 2008, Steve Taylor, maintenance supervisor, met John G. Workman, contract mechanic, at the adjacent Fourmile Fork Surface Mine. They traveled to the preparation plant in order to discuss a Caterpillar D10N bulldozer, serial number 2YD01165, which was having power loss problems. Taylor and Workman concluded that the dozer's low revolutions per minute (RPM) and hard starting condition was caused by a fuel system problem. Taylor instructed Workman to remove the fuel system, and send it to Whayne Supply, Inc. to be rebuilt. At approximately 2:30 p.m., Taylor left the area.

On March 12, 2008, Workman arrived at the surface mine at approximately 5:00 a.m. and reported to Frank Suttle, superintendent. Workman traveled along the mine haulage road and arrived at the preparation plant at approximately 6:00 a.m. Workman walked into the preparation plant office, introduced himself to Bob Barker, plant superintendent, and indicated he would be working on the D10N bulldozer.

Workman left the preparation plant and traveled to the bulldozer, located at the clean coal stockpile area, in his mechanic's truck and began repair work on the dozer. At approximately 8:30 a.m., Larry Whitt, area manager, traveled to the bulldozer to speak with Workman because he needed a part number for another machine. Workman had removed the fuel filter housing on the bulldozer and had found a check valve that he thought was the problem. Whitt left the area at approximately 8:45 a.m.

At approximately 10:30 a.m. Suttle traveled to the bulldozer to see if Workman needed anything. As Suttle arrived, Workman emerged from beneath the dozer and they spoke for approximately five minutes. Suttle noticed the truck-mounted crane

and a chain were in use to support the belly pan. The belly pan was in the raised position, and the hoist cable was stretched tight. Workman indicated that he was going to pin the flywheel on the machine to ensure the machine's timing would not get out of sequence. Suttle left the area at approximately 10:35 a.m.

At approximately 12:00 p.m., Donald Ellis, loader operator, decided to check on Workman. Ellis had been working in the area of the preparation plant and realized he had not seen Workman for some time. Ellis drove his loader to the dozer, and yelled for Workman. Ellis then walked around the dozer, and discovered the belly pan lying on Workman.

Ellis ran to his loader and called for Clayton Sargent, emergency medical technician, by radio. Ellis instructed Sargent to call Barker and get an ambulance because someone had been injured at the D10. Jan Care Ambulance received the emergency call at 12:16 p.m.

Ellis returned to the victim and attempted to get him out. Sargent arrived at the scene, and discovered the victim did not have a pulse. Ellis called the preparation plant and asked Shannon Jones and Aaron Childers to bring a come-along and crib blocks to the bulldozer. The come-along was used to lift the belly pan, and wooden crib blocks were installed for support. Workman was removed from beneath the machine and at 12:30 p.m. ambulance personnel attached a heart monitor and attempted to revive the victim without success. The victim was pronounced dead on-site by the county coroner.

INVESTIGATION OF THE ACCIDENT

MSHA was notified at 12:25 p.m. on March 12, 2008, that a serious accident had occurred at the Alloy Preparation Plant #1. Inspectors from the Mt. Carbon Field Office traveled to the site and issued a 103(k) order to ensure the safety of all persons during the investigation. The accident investigation was conducted with the assistance of the West Virginia Office of Miners Health, Safety and Training (WVOMHST), the mine operator, and mine employees. A list of those persons participating in the investigation can be found in Appendix A.

DISCUSSION

Fuel System Removal Procedures

Caterpillar, the manufacturer, has published procedures for this repair. Caterpillar Service Information System (SIS), Disc 8, Media # SENR2095-01, Steps 16-17 and 18, Fuel Injector Pump Housing and Governor, Remove and Install Fuel Injector Housing and Governor, contains instructions for the removal of the dozer's fuel system. The steps provided by the manufacturer include removal of the fuel injector lines, removal of the hood and muffler, and the installation of a pin to lock the

injector timing. During the investigation the victim's laptop computer was found in the seat of his mechanic truck. The laptop computer display was showing the required steps from the Caterpillar SIS, which indicates the victim was attempting to pin the flywheel.

Bottom Guard (Belly Pan)

A belly pan is a hinged steel door on the bottom of a bulldozer that serves as a skid plate for protection of critical engine components. The belly pan for a D10N bulldozer is 42 inches long, 52 ½ inches wide, and weighs 475 pounds (clean). The belly pan involved in the accident had accumulated dirt, oil, grease and debris. Due to the extra material, the belly pan weighed 1,360 pounds.

The belly pan is provided with two hinges, located on the right side of the pan. The hinge located closest to the front of the machine was broken away from the bulldozer frame. The hinge located closest to the rear of the machine appeared to have been previously fabricated in the field, likely to repair a previous break.

Information provided by the Caterpillar SIS for the removal of bottom guards specifies the use of a hydraulic jack, Caterpillar catalog part number 5P3050, to be put into position under the belly pan assembly. While this tool is recommended for both shop and field applications, is not well suited for most conditions found in the field due to uneven ground surfaces.

Adequate blocking material was available and located adjacent to the preparation plant. The blocking material was used in the recovery of the victim.

Chain Hoist Placement

The chain used to support the belly pan was 0.27 inches in size, and was strong enough to hold the belly pan. Additionally, the chain was tensioned by the truck-mounted crane, IMT Model 5525, which also was strong enough to support the weight of the belly pan. The hoist chain was placed inside the left track, beneath the belly pan of the bulldozer, and terminated at the right push arm. No problems were found with the chain termination point.

When the belly pan was supported by the hoist chain, the broken front hinge allowed the front of the pan to drop causing the chain to slide from its original position. The excessive weight of the pan, due to the accumulated material, and the broken hinge caused the pan to drop immediately as the last support nut was removed by the victim. The victim's position beneath the supported load contributed to the cause of the accident.

Training

John G. Workman had provided contract mechanic work at the nearby Jarrett Branch Powellton Deep Mine, MSHA ID 46-09237, the Fourmile Fork Surface Mine, MSHA ID 46-07537, and the Alloy Preparation Plant #1 since February 14, 2008. From February 14 to March 12, 2008, the victim was regularly exposed to mine hazards, and performed maintenance and service work for the mine operator.

Training was not provided before the victim began contract repair services at the Alloy Preparation Plant #1. The victim did not receive instruction in the health and safety aspects of the tasks assigned and did not receive experienced miner training prior to the commencement of work. Given the victim's expertise as a professional mechanic, the lacking training did not contribute to the accident.

ROOT CAUSE ANALYSIS

An analysis was conducted to determine the most basic causes of the accident that were correctable through reasonable management controls. Listed below are root causes identified by the analysis and their corrective actions were implemented to prevent a recurrence of the accident.

Root Cause: Safe work practices were not followed in that the belly pan was not blocked against motion prior to the commencement of repair work.

Corrective Action: Training was revised to require mechanics to block machinery components against motion where there is a hazard of falling or moving.

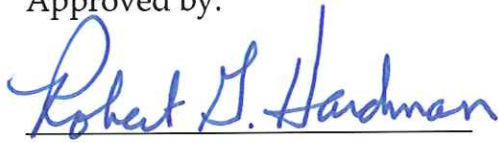
Root Cause: An effective procedure was not in place to identify damaged or broken parts, such as the belly pan hinges, to ensure safe working condition prior to the commencement of repair work.

Corrective Action: Training procedures were revised to require all mechanics performing work on belly pans to inspect the belly pan assembly including nuts, bolts and hinges to ensure all components are intact prior to any further work being conducted.

CONCLUSION

John G. Workman, contract mechanic, was fatally injured while attempting to remove a belly pan from a Caterpillar D10N bulldozer. The accident occurred because proper work procedures were not followed. The victim was located beneath the belly pan which was not securely blocked during removal. Additionally, the damaged belly pan hinges were not identified prior to the commencement of repair work, which allowed the belly pan to move unexpectedly during its removal.

Approved by:



Robert G. Hardman
District Manager



Date

ENFORCEMENT ACTIONS¹

1. A 103 (k) Order, Number 7236427 was issued to Alloy Preparation Plant #1 to ensure the safety of all persons at the plant until the investigation of the accident was completed.
2. A 104(a) Citation, Number 7207714, was issued to Appalachian Fuels, LLC for a violation of 30 CFR 77.405(b) stating work was performed underneath the D10N Caterpillar bulldozer, serial number 2YD01165, in the stockpile area of the preparation plant, with the belly pan raised and not securely blocked in position, resulting in a mechanic becoming pinned to the ground when the belly pan fell inflicting fatal injuries.

¹ Because the victim was the sole proprietor of the contracting entity, no enforcement actions were issued to the contractor.

Appendix A
Persons Participating in the Investigation

Appalachian Fuels, LLC

Larry Whitt..... Area Manager
Frank Suttle..... Mine Superintendent
Keith Smith Safety Director
Bob Barker..... Plant Superintendent
Donald Ellis..... Equipment Operator
Clayton Sargent..... Equipment Operator

Spilman, Thomas & Battle, PLLC

Brian Warner..... Attorney
Mark Heath..... Attorney

West Virginia Office of Miners' Health, Safety, and Training

Ron Wooten Director
C.A. Phillips Deputy Director
Terry Keen..... Inspector
Garry Wolfe Inspector
Garry Hall Inspector
Gary Snyder Inspector At Large

Mine Safety and Health Administration

Andrew Sedlock..... Coal Mine Safety and Health Inspector
Joseph Mackowiak..... Coal Mine Safety and Health Specialist
Vincent Nicolau..... Coal Mine Safety and Health Inspector (Trainee)
Jim Angel..... Mechanical Engineer
Sharon Cook..... Training Specialist

Appendix B Victim Information

Accident Investigation Data - Victim Information

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



Event Number: 4 | 1 | 1 | 8 | 7 | 1 | 3

Victim Information: 1

1. Name of Injured/III Employee: <i>John G. Workman</i>		2. Sex: <i>M</i>	3. Victim's Age: <i>47</i>	4. Degree of Injury: <i>01 Fatal</i>											
5. Date(MM/DD/YY) and Time(24 Hr.) Of Death: <i>a. Date: 03/12/2008 b. Time: 12:10</i>			6. Date and Time Started: <i>a. Date: 03/12/2008 b. Time: 5:00</i>												
7. Regular Job Title: <i>104 Contract Mechanic</i>		8. Work Activity when Injured: <i>039 Removing belly pan to set time</i>		9. Was this work activity part of regular job? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>											
10. Experience a. This Work Activity:	Years <i>20</i>	Weeks <i>0</i>	Days <i>0</i>	b. Regular Job Title:	Years <i>20</i>	Weeks <i>0</i>	Days <i>0</i>	c. This Mine:	Years <i>0</i>	Weeks <i>4</i>	Days <i>0</i>	d. Total Mining:	Years <i>20</i>	Weeks <i>0</i>	Days <i>0</i>
11. What Directly Inflicted Injury or Illness? <i>076 Belly pan of bulldozer</i>				12. Nature of Injury or Illness: <i>110 Asphyxiation, trapped beneath belly pan</i>											
13. Training Deficiencies Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input checked="" type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
14. Company of Employment: (If different from production operator) <i>Workman Repair Services</i>			Independent Contractor ID: (if applicable) <i>E619</i>												
15. On-site Emergency Medical Treatment Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input checked="" type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
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/III 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 Work Activity:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
11. What Directly Inflicted Injury or Illness?				12. Nature of Injury or Illness:											
13. Training Deficiencies Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
14. Company of Employment: (If different from production operator) Independent Contractor ID: (if applicable)															
15. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
16. Part 50 Document Control Number: (form 7000-1)			17. Union Affiliation of Victim:												

Victim Information:

1. Name of Injured/III 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 Work Activity:	Years	Weeks	Days	b. Regular Job Title:	Years	Weeks	Days	c. This Mine:	Years	Weeks	Days	d. Total Mining:	Years	Weeks	Days
11. What Directly Inflicted Injury or Illness?				12. Nature of Injury or Illness:											
13. Training Deficiencies Hazard: <input type="checkbox"/> New/Newly-Employed Experienced Miner: <input type="checkbox"/> Annual: <input type="checkbox"/> Task: <input type="checkbox"/>															
14. Company of Employment: (If different from production operator) Independent Contractor ID: (if applicable)															
15. On-site Emergency Medical Treatment: Not Applicable: <input type="checkbox"/> First-Aid: <input type="checkbox"/> CPR: <input type="checkbox"/> EMT: <input type="checkbox"/> Medical Professional: <input type="checkbox"/> None: <input type="checkbox"/>															
16. Part 50 Document Control Number: (form 7000-1)			17. Union Affiliation of Victim:												