

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

REPORT OF INVESTIGATION

Surface Mine
(Coal)

Fatal Machinery Accident
October 9, 2020

Puckett Creek Hydroseeding (C1419)
Middlesboro, Kentucky

at

Mine #3
Double Mountain Mining, LLC
Fonde, Bell County, Kentucky
MSHA I.D. No. 15-19268

Accident Investigator

Dannie W. Lewis
Mine Safety and Health Inspector

Originating Office
Mine Safety and Health Administration
Central Region
Barbourville District
3837 S. U.S. Hwy 25E
Barbourville, Kentucky 40906
Samuel R. Creasy, District Manager

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OVERVIEW

On October 9, 2020, Douglas Slusher, a 48-year-old Hydroseeder Operator with eight years of experience operating a hydroseeder, died from striking his neck on the hydroseeder railing. Slusher completed the process of changing the discharge nozzle on the hydroseeder and engaged the clutch with the discharge nozzle pointing directly toward him. Hydroseed slurry sprayed from the discharge nozzle onto Slusher, causing him to fall backward and hit the hydroseeder railing.

The accident occurred because the hydroseeder operator was not instructed to power off the engine of the hydroseeder prior to changing the discharge nozzle, nor had the miner received refresher training as required.

GENERAL INFORMATION

Double Mountain Mining, LLC owns and operates Mine #3, a surface coal mine in Fonde, Bell County, Kentucky. Mine #3 has 51 employees, and operates two production shifts, five to six days per week. The coal extraction process involves loaders, haul trucks, and bulldozers. Contract trucking companies transport coal from the mine to off-site processing facilities. Puckett Creek Hydroseeding was an independent contractor hired by Mine #3 to hydroseed reclaimed areas of the mine to establish vegetation to prevent excessive erosion. The area in which Puckett Creek Hydroseeding was working, where the accident occurred, was in Step 1 of the reclamation process.

The principal officer for Double Mountain Mining, LLC at the time of the accident was:

Michael Blubaugh

Member

The Mine Safety and Health Administration (MSHA) completed the last regular safety and health inspection (E01) on September 2, 2020. The non-fatal days lost (NFDL) incidence rate for the mine in 2019 was zero compared to the national NFDL rate of 0.76 for mines of this type.

DESCRIPTION OF THE ACCIDENT

On October 9, 2020, at 8:30 a.m., Tommy L. Spade, Owner of Puckett Creek Hydroseeding, along with James Asher, Hydroseeder Truck Driver, and Slusher arrived at the reclaimed area of Mine #3, near sediment pond #14 (see Appendix A).

Asher and Slusher began performing general maintenance of the truck and hydroseeder at approximately 9:00 a.m. Asher and Slusher filled the tank with water and seed mixture when maintenance was completed.

At approximately 11:30 a.m., Asher, Spade, and Slusher began hydroseeding a portion of the reclaimed slope. Work continued for a short time before Spade told Slusher to change to a long-range discharge nozzle which would spray to the uppermost section of the reclaimed slope.

While standing on the ground near the rear of the truck, Spade observed Slusher in the process of changing the discharge nozzle while the hydroseeder engine was running at full throttle. After changing the discharge nozzle, Slusher engaged the clutch with the end of the discharge nozzle pointing directly at him. Immediately, the hydroseeder unit began spraying the mixture at a force of approximately 106 pounds per square inch (psi). The ejected mixture pushed Slusher into the railing located around the top of the hydroseeder unit.

Spade observed Slusher strike the railing and slump down near the railing as the uncontrolled discharge boom assembly spun around striking the clutch handle, stopping the release of the mixture. Spade motioned to Asher notifying him something was wrong. Asher turned off the truck and exited. Spade instructed Asher to assess the condition of Slusher. Asher ascended the access ladder and was unable to get a response from Slusher.

Spade radioed Earl Miracle, Superintendent, and asked him to call an ambulance. Working nearby, Garry Mays, Excavator Operator, observed something was wrong and came to assist. Mine Emergency Technicians arrived from the nearby highwall miner, used an automated external defibrillator, and performed cardiopulmonary resuscitation until Bell County Emergency Services arrived at 12:32 p.m. Donald Horton, Assistant Bell County Coroner, arrived and pronounced Slusher deceased at 1:30 p.m.

INVESTIGATION OF THE ACCIDENT

On October 9, 2020, at approximately 12:05 p.m., Otis Mullins, General Manager of Mine #3,

called Dennis J. Cotton, Assistant District Manager. Cotton contacted Samuel R. Creasy, District Manager.

Creasy contacted Dannie W. Lewis, Mine Safety and Health Inspector, at approximately 12:15 p.m. and assigned Lewis as the lead accident investigator. Lewis traveled to the accident scene to conduct an accident investigation and gather preliminary information. Lewis issued a 103(k) Order at 2:20 p.m. to ensure the safety of the miners and to preserve the accident scene. MSHA conducted the investigation in conjunction with the Kentucky Division of Mine Safety (KDMS).

The Department of Labor National Contact Center (DOLNCC) received notification of the accident at 2:28 p.m., on October 9, 2020. At 2:42 p.m., the DOLNCC notified the Barbourville District of the accident.

Investigators conducted interviews on October 12, 2020, at the KDMS office in Harlan, Kentucky. See Appendix B for a list of persons participating in the accident investigation.

Creasy contacted the MSHA Approval and Certification Center (Technical Support), who dispatched Mark Kvitkovich and Gary Rethage, Mechanical Engineers, from the Mechanical Engineering Safety Division, to assist with the investigation. Kvitkovich and Rethage conducted their investigation and testing work at the accident site on October 14, 2020.

DISCUSSION

Definition of Hydroseeding

Hydroseeding is the process whereby seed, fertilizer or lime, and wood fiber mulch is mixed with water to create a slurry that is sprayed onto the soil to establish vegetation.

Equipment Information

Finn Corporation was the manufacturer of the hydroseeder unit that Puckett Creek Hydroseeding mounted on the rear chassis of a Mack tandem axle truck. The hydroseeder slurry tank had a capacity of approximately 2,500 gallons. The hydroseeder is designed to spray the slurry at a flow rate of 400 gallons per minute, with a maximum discharge pressure of 130 psi. The hydroseeder operator pumps the slurry mixture through the discharge nozzle and onto the soil.

The operator's controls and discharge boom assembly are located on the top surface of the hydroseeder unit and are surrounded by safety railing. Steps and handrails at the rear of the truck provide access to the hydroseeder operator location. The mechanical clutch lever and engine control throttle lever are located side-by-side within reach of the discharge boom assembly (see Appendix C). The discharge boom assembly is capable of left-to-right and up-or-down movements during operation through swivel joints in the assembly.

The discharge nozzle is interchangeable via fittings on the discharge boom assembly. An increase of slope distance near the accident site resulted in the need for a long-range discharge nozzle to reach and effectively cover the slope with the seed mixture.

Weather

Weather data, obtained for the mine location at the approximate time of the accident, indicated the temperature was 65 degrees Fahrenheit, the relative humidity was 54 percent, there was no wind, and the visibility was 10 miles. Investigators determined that weather was likely not a factor in the accident.

Technical Support Investigation

The investigation by Technical Support indicated that there was no damage to the hydroseeder discharge pipe prior to the accident and there were no obstructions limiting the flow to the nozzle or the system. With the hydroseeder engine at full throttle, a pressure measurement of slurry in the system was 106 psi.

Training and Experience

There were no training records indicating Slusher had received annual-refresher training or experienced miner training. Slusher had eight years of experience as a hydroseeder operator and received his permanent certified surface miner card in 1995.

ROOT CAUSE ANALYSIS

MSHA conducted an analysis to identify the fundamental cause of the accident. Investigators identified a root cause that, if eliminated, would have either prevented the accident or mitigated its consequences.

The root causes identified during the analysis and the contractor's corresponding corrective actions, implemented to prevent a recurrence, are listed below.

1. Root Cause: The owner of Puckett Creek Hydroseeding allowed repairs or maintenance involving changing the discharge nozzle on the discharge boom assembly while the engine was running.

Corrective Action: The owner of Puckett Creek Hydroseeding established a written plan of action for safety procedures to ensure blocking and securing mobile equipment or components prior to repairs or maintenance and trained all the employees in accordance with the plan.

2. Root Cause: The owner of the Puckett Creek Hydroseeding did not ensure that machinery and equipment was operated only by persons trained in the use of and authorized to operate such machinery or equipment.

Corrective Action: Puckett Creek Hydroseeding established a written training plan and trained all miners.

CONCLUSION

On October 9, 2020, Douglas Slusher, a 48-year-old Hydroseeder Operator with eight years of experience operating a hydroseeder, died from striking his neck on the hydroseeder railing. Slusher completed the process of changing the discharge nozzle on the hydroseeder and engaged the clutch with the discharge nozzle pointing directly toward himself. Hydroseed slurry sprayed from the discharge nozzle striking Slusher, causing him to fall backward and hit the hydroseeder railing.

The accident occurred because the hydroseeder operator was not instructed to power off the engine of the hydroseeder prior to changing the discharge nozzle, nor had the operator received refresher training as required.

Approved By:

Samuel R. Creasy
District Manager

Date

ENFORCEMENT ACTIONS

1. A 103(k) Order, No. 9233059, was issued to Puckett Creek Hydroseeding.

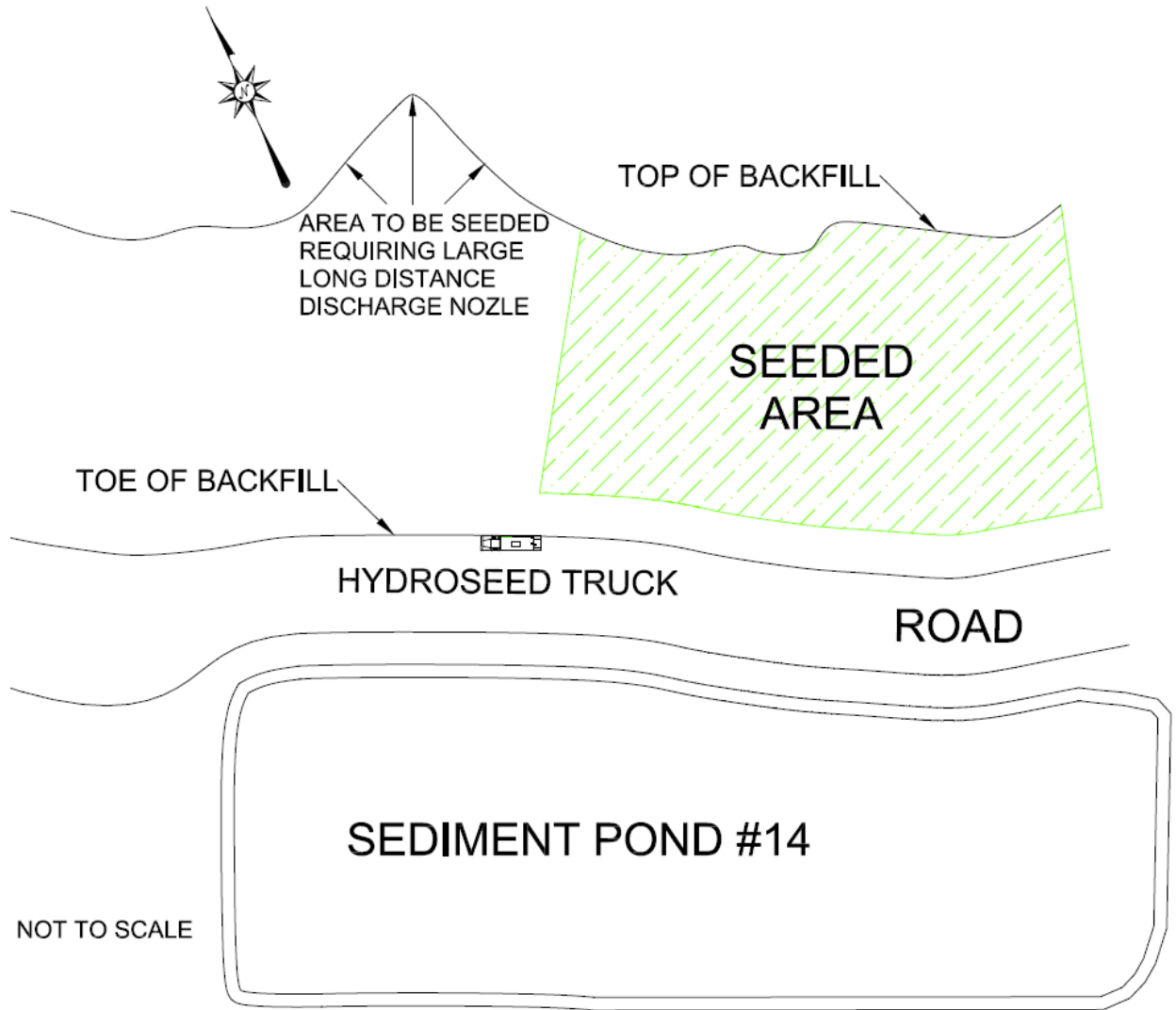
This mine has experienced a fatal accident along the roadway beside Pond # 14 while hydroseeding operations were being conducted. This order is issued to ensure the safety of any person on this mine until an examination or investigation is made to assure the safety of all persons at this operation. It prohibits all activity at this mine until MSHA has determined that it is safe to resume normal mining operations at this mine. The mine operator shall obtain prior approval from an authorized representative for all actions to recover and/or restore operations to the affected area.

2. A 104(d)(1) Citation was issued to Puckett Creek Hydroseeding, for a violation of 30 CFR § 77.404(b).

As a result of an accident investigation no evidence is available to determine the laborer operating the Finn T-280 hydroseeder unit, S/N -801, was trained in the use of and authorized to operate such machinery or equipment. After changing the Boom Assembly Discharge Nozzle, the laborer engaged the hydroseeder unit with the nozzle positioned toward himself. The discharged mixture struck his upper body and propelled him into the hydroseeder's platform railing resulting in a fatal injury. Machinery and equipment shall be operated only by persons trained in the use of and authorized to operate such machinery or equipment.

The contractor gave instructions to Slusher to change the nozzle on the hydroseeder and then watched Slusher change the nozzle with the engine running at full throttle. Mine management was highly negligent because it did not tell Slusher to turn off the engine at any time during this process. This is an unwarrantable failure to comply with a mandatory standard.

Appendix A - Sketch of Surrounding Area



Appendix B - Persons Participating in the Investigation

Puckett Creek Hydroseeding

Tommy L. Spade	Owner
James Asher	Hydroseeder Truck Driver

Double Mountain Mining, LLC, Mine #3

Otis Mullins	General Manager
Kevin Hoskins	Project Superintendent
Earl Miracle	Superintendent
Garry Mays	Excavator Operator
Kenneth Partin	Loader Operator

Mega Highwall Mining, LLC

Sam Combs	Fork Lift Operator
Chris Woodard	Highwall Miner Operator/Mine Emergency Technician
Leroy Colwell	Foreman

Kentucky Division of Mine Safety

Timothy Fugate	Division Director
Bert Gibbons	Assistant Division Director
Jim Owens	Branch Manager
Jeff Brock	Mine Rescue Coordinator
Jason Roberts	Mine Safety Specialist
Randy Partin	Mine Safety Specialist

Mine Safety and Health Administration

Dannie W. Lewis	Mine Safety and Health Inspector
David A. Faulkner	Mine Safety and Health Inspector
Michael E. Pruitt	Education Field and Small Mine Services
Mark Kvitkovich	Mechanical Engineer
Gary Rethage	Mechanical Engineer
Craig D. Plumley	Assistant District Manager

Appendix C - Sketch of Accident Scene

