CAI-2009-09

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Surface Coal Mine

Fatal Powered Haulage Accident
July 28, 2009

Hawkeye Contracting, LLC
Robinson Creek, Pike County, Kentucky
I.D. No. F843

at

Samples Mine
Catenary Coal Company LLC
Eskdale, Kanawha County, West Virginia
I.D. No. 46-07178

Accident Investigators

Vincent L. Nicolau
Coal Mine Safety and Health Inspector

Michael D. Boggs
Coal Mine Safety and Health Inspector

James L. Angel
Mechanical Engineer
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Mine Safety and Health Administration
District 4
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Mt. Hope, West Virginia 25880
Robert G. Hardman, District Manager

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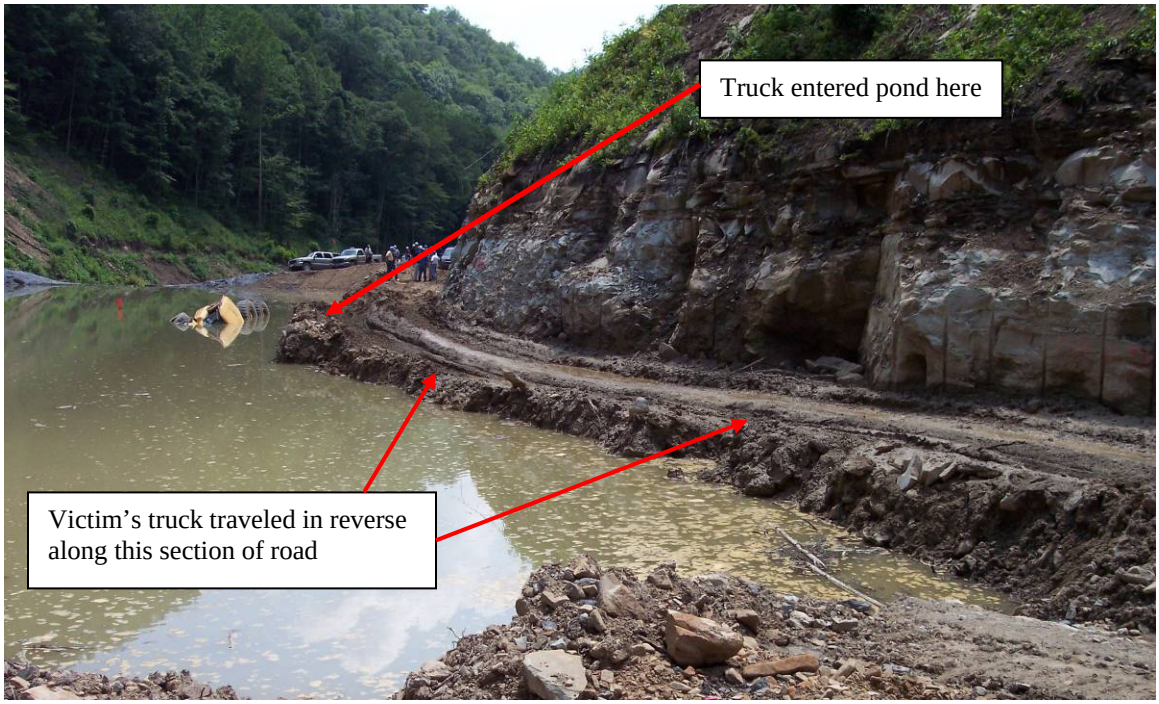

OVERVIEW

At 9:45 a.m., on Tuesday, July 28, 2009, a 27 year-old Equipment Operator employed by Hawkeye Contracting, LLC, with six years mining experience was fatally injured when the loaded articulated dump truck he was operating overturned into a newly constructed sediment pond. The driver was traveling in reverse along a narrow road adjacent to the pond. The truck rolled onto its top, trapping the driver under water.

The accident occurred because the equipment operator failed to maintain full control of the articulated truck while it was in motion.

GENERAL INFORMATION

The Samples Mine, I.D. No. 46-07178, is owned and operated by Catenary Coal Company, LLC. The mine is located in Eskdale, Kanawha County, West Virginia. The mine is a surface operation; it utilizes a combination of mountaintop removal, area mining and contour mining methods. The mine uses typical drill and blast methods to break the overburden. The overburden is removed by an electric shovel, end loaders, dozers, and heavy-duty rock trucks. Once the overburden is removed, the coal is extracted using front-end loaders, and contract coal haulage trucks. The mine operates two ten-hour shifts per day, Monday through Friday. The mine's personnel consists of 201 hourly and 62 supervisory/administrative employees. The primary coal beds being mined are the Stockton, Coalburg & No. 5 Block seams. The daily production rate is 7,000 tons.

The most recent regular safety and health inspection (E01) was completed by MSHA on May 14, 2009. The Non-Fatal Days Lost (NFDL) injury incidence rate at the mine for the previous quarter was 0.00 compared to the national NFDL rate of 1.38 for surface coal mines.

The principal officials of the mine at the time of the accident were:

Greg Boggs…… President & General Manager
Larry Hood…….Superintendent
Mitch Kalos……Engineering Manager
Terry Tolley……Safety Manager

Hawkeye Contracting, LLC, (Hawkeye), MSHA I.D. F843, is an independent contractor, located in Robinson Creek, Pike County, Kentucky. Hawkeye was contracted by Samples Mine to construct two sediment ponds at the base of the Valley Fill One pond of Three Mile Branch of White Oak Creek, located in Boone County, West Virginia. The principal operating official is Mitch Potter, Manager.

DESCRIPTION OF THE ACCIDENT

On Tuesday, July 28, 2009, six out of seven employees of Hawkeye Contracting, LLC arrived for work at approximately 5:45 a.m. The employees routinely arrived early to examine their equipment so that work could begin promptly at 6:00 a.m. Equipment operators were normally assigned equipment to operate as follows:

Shawn Legg……Caterpillar D8R Bulldozer
Aly Hill……...John Deere 200DLC Excavator with Hydraulic Hammer
Kermal Sanders……..Hitachi 450 Excavator
Gordon Hanson……...Volvo A30D Articulated Dump Truck
Mark Gray……...Volvo A30D Articulated Dump Truck
Richard Bentley……..Lube/Maintenance Truck

Prior to the start of the shift, Phillip Rife, Foreman, was assisting Shawn Legg in adjusting the tracks on his bulldozer. The other employees were busy examining and starting their equipment.

Mark Gray (victim) arrived for work at approximately 6:00 a.m. Rife noted Gray's arrival and saw him park his personal vehicle adjacent to the bulk diesel fuel tank and proceed directly to his dump truck. Rife picked up Kermal Sanders and took him to the excavator, which was at the pond construction area where he began his pre-shift examination. Rife spoke with Sanders concerning the removal of mud from the road adjacent to Pond #2 (lower pond). Rife completed his pre-shift inspection and left the pond construction area to meet Richard Bentley to retrieve a key for another articulated truck. Upon returning to the pond construction area, Rife noticed that Sanders had removed the mud from the road and had begun loading rock into the articulated trucks operated by Gordon Hanson and Mark Gray.

Rife observed the dump trucks being loaded and traveling forward from the rock loading area, around the upstream end of Pond #1 (upper pond), then along the highwall downstream to the spillway (See Appendix B). The trucks were turning on the spillway level and backing down the road toward Pond #2 where they were dumping their loads. Shawn Legg was spreading the rock delivered by the trucks, in order to grade the road surface at Pond #2. Rife traveled down the road to Pond #2. Gray and Hanson continued to haul rock, passing at the upstream end of Pond #1. While being loaded, Hanson noticed that Gray was no longer traveling forward toward the spillway and had begun backing down the road along the highwall, in reverse. After dumping his load, Gray passed Hanson (loaded) who gave him a hand signal to turn around. Gray acknowledged the signal. Hanson dumped his load and passed Gray again. While backing up to get loaded by Sanders, Hanson noticed Gray backing down the road a second time.

During this time, Legg had exited his bulldozer and approached Rife to discuss the desired elevation of the road. At approximately 9:40 a.m., both men walked up the road and onto the spillway level, between the two ponds. Rife spoke with Legg about the deep ruts that had developed in the road alongside Pond #1. While Rife and Legg were talking, they noticed a truck backing down the road toward the spillway. The truck was being operated in reverse at a high rate of speed. Rife and Legg ran toward the truck, attempting to get the attention of the operator. Gray's truck powered through the road ruts, over the berm and rolled into Pond #1, coming to rest on its top.

When the truck stopped moving, only portions of the truck's tires were visible above the water. Legg quickly removed his boots and entered the water in an initial attempt to free Gray. Hanson noticed the truck on its top, called out for help on the CB and moved his truck out of the way of the excavator. Rife called for assistance and the other equipment operators were quickly on the scene. Sanders moved the Hitachi excavator around to the truck and used its bucket to grab the truck's front tire, turning the cab of the truck over to gain access to Gray. Legg used a rock to break the driver's window, and Gray was removed from the truck by Legg and Hanson. Hill and Legg administered CPR until emergency medical personnel arrived.

INVESTIGATION OF THE ACCIDENT

Scott Sebok, Engineer, notified MSHA of the accident at 10:17 a.m. on 7/28/2009, via a telephone call to the MSHA notification hotline. MSHA accident investigators were immediately dispatched to the mine and a 103(k) Order was issued to ensure the safety of all persons at the mine. The investigation was conducted with the assistance of mine and contractor management and employees, the West Virginia Office of Miners' Health Safety and Training (WVOMHST), Rudd Equipment Company and Appalachian Security, Inc.

MSHA's accident investigation team traveled to the mine, conducted a physical inspection of the accident scene, interviewed employees and reviewed documents and work procedures relevant to the accident. Photographs and measurements were taken and an evaluation of the accident scene was made. Formal interviews were subsequently conducted at the Samples Mine office with persons who had knowledge of the accident. Those persons who furnished information and/or participated in the investigation are listed in Appendix A of this report. The physical portion of the investigation was completed on 8/12/2009, and the 103(k) Order was terminated.

DISCUSSION

Equipment Related Physical Factors

An evaluation of the Volvo A30D truck involved in the accident was performed on August 6, 2009 at Rudd Equipment Co. in Nitro, WV to determine the presence of equipment related defects and factors which could have contributed to the accident.

PHYSICAL FACTORS:

1) GENERAL MACHINE INFORMATION: The machine involved in the accident was a Volvo articulated, off-road, dump truck Model A30D, Serial Number A30DV73150. The truck was manufactured in 2004. The hour meter did not operate due to water damage, but from mine operator information the truck was estimated to have had approximately 8072 operating hours at the time of the accident. The truck was approximately 34 feet long, 10 feet wide and 11 feet high. The truck's approximate gross vehicle weight (GVW) was 113,000 pounds and its maximum load capacity was approximately 62,000 pounds. The mine operator indicated that the truck was loaded at the time of the accident.

The truck sustained minor damage during the accident and recovery. A portion of the right side fender was torn off, the compressed air system air dryer was torn off, the windows and mirrors were damaged, and the truck sustained water damage.

The truck's electronic control unit (T-ECU) was damaged by water/mud and a functional test of the unit could not be performed. It was found that pin 5 on the T-ECU apparently had shorted and melted the pin connection. It could not be determined if this occurred

before or after the accident. However, Volvo information provided by Rudd Equipment showed that this pin provided input from a hydraulic fluid level sensor, which is not critical to its functional drivability and is not considered to have contributed to the accident.

2) OPERATOR'S COMPARTMENT: The operator controls: transmission selector, accelerator pedal, brake pedal, and retarder pedal were moved by hand without difficulty. No problems with the movement of the controls were observed. The position of the controls are not specified (at the time of this investigation), since they likely changed during rescue, recovery and initial investigations.

The accelerator pedal provided an electronic signal input to the engine. Volvo specifies that the electrical resistance of the pedal is designed to vary between approximately 2.5 kilohms (at idle) and 0.8 kilohms (at full throttle) as it is activated from the released position to fully depressed. When tested, the accelerator pedal's resistance varied between 2.48 kilohms and 1.02 kilohms. The resistance changed smoothly as the pedal was depressed. No spikes in acceleration were observed. The pedal was installed in a similar machine (Model A25D, S/N A25DV72341) and the accelerator pedal controlled the engine speed between 710 revolutions per minute (rpm) and 2185 rpm (idle to full throttle) with no problems observed.

Some debris such as broken glass, dirt, water, and small rocks were found in the cab. At the time of the investigation, no debris was found in the cab that would have mechanically interfered with the operation of the vehicle.

An operator's manual for the vehicle and an empty beer can were found in the operator's compartment.

The truck's self-retracting seat belt latched and unlatched without difficulty. It could not be determined if the victim was wearing the seat belt at the time of the accident.

In addition to the door on the left side of the operator's compartment for normal ingress/egress, an emergency exit was provided through the rear right side window. To exit through the emergency exit, the backrest of the trainer seat must be lowered and the window pane broken with an emergency hammer. The trainer seat backrest was in the down position at the time of the investigation. The emergency hammer was found in its holder. It was removed and replaced without difficulty.

2) ENGINE: The truck was powered by a Volvo D9AACE2 engine rated at 340 horsepower. The engine had six cylinders, a turbocharger, an intercooler, and electronically controlled fuel injection. The engine was equipped with an exhaust retarder. The exhaust retarder is controlled by a switch on the dashboard. With the switch in the "ON" position the exhaust retarder activates when the accelerator pedal is fully released and the engine speed exceeds 1100 rpm. Due to the water damage to the ECU, the engine could not be started and the exhaust retarder could not be tested during the investigation.

3) TRANSMISSION: The truck had an electronically controlled, automatic transmission with six forward speeds, neutral, and two reverse speeds. A single-lever shift control, with a 1, 2, 3, D, N, R pattern, provided automatic shifting through the highest forward gear selected and automatic shifting through the two reverse gears. The transmission had an integrated retarder consisting of a hydraulic brake acting on the turbine shaft of the transmission. The transmission retarder is controlled by a switch on the dashboard. With the switch in the "ON" position, the transmission retarder would activate when the brake pedal is depressed and the engine speed exceeds 1100 rpm.

The machine was traveling in reverse at the time of the accident. It could not be determined what gear the truck was in at the time of the accident. It is noted that the Volvo Operator's Manual specifies that the maximum speed for 1st reverse is 5 miles per hour (mph) and that the maximum speed for 2nd reverse is 8.1 mph. The engine is protected from overspeed by automatically up shifting the transmission. When 2nd gear reverse is reached, the retarder engages if the engine speed exceeds 2400 rpm.

The truck can be used in 4 or 6 wheel drive and is provided with differential locks.

4) STEERING: Steering was provided by hydro-mechanical, articulated frame steering. The hydraulic steering and dumping systems have common hydraulic pumps, however the steering system has priority over the dumping system to ensure steering control at all times. The steering system includes a ground driven pump, which provides steering control if the engine stops and the truck is traveling forward. The ground driven pump is not designed to provide steering control if the engine stops and the truck is traveling in reverse. There was no information from witnesses that the engine was not running immediately prior to the accident.

Tests of the ground driven pump indicated it functioned as designed, providing steering function when a drive wheel was rotated in the forward position and providing no steering function when the wheel was rotated in reverse.

No defects were found with the steering system.

5) BRAKE SYSTEM: The truck was equipped with service, parking, and load and dump brake systems. As previously noted, the truck was also equipped with an integral transmission retarder and an engine exhaust retarder to assist with braking.

SERVICE BRAKE SYSTEM: The service brakes consisted of air over hydraulic actuated, dry caliper disc-type brakes at each wheel. The truck had 5 air-over-hydraulic master cylinders that controlled a total of 10 brake calipers. The service brakes were actuated by a foot pedal in the operator's compartment. The foot pedal connects to a dual circuit air valve with one circuit providing air pressure to the 2 master cylinders on the tractor and the other circuit providing air pressure to the 3 master cylinders on the trailer. Each of the tractor's 2 master cylinders supply pressure to individual brake calipers on the left and right side wheels. Two of the 3 trailer master cylinders provided hydraulic

pressure to the rear first axle in the same arrangement as on the tractor. The trailer's third master cylinder provided hydraulic pressure to single brake calipers on each wheel of the rear second axle.

After recovery of the truck, it was reported that the service brake pedal was pushed and released 57 times before the air reservoirs ran out of air pressure. This indicates that the service brakes had sufficient air pressure at the time of the accident to activate fully the air side of the service brake master cylinders.

No defects could be identified with any of the service brake lines, calipers, or disks.

The overstroke indicators of the five master cylinders were inspected at the time of the investigation. The overstroke pins on the two master cylinders on the tractor were found to be extended approximately 66 millimeters (mm) to 69 mm out of the master cylinder and the extension of the overstroke pins on the 3 trailer master cylinders ranged from 31 mm up to 44 mm. Volvo specifies that the normal stroke (extension of the pin) is 41 mm up to 42 mm. An extension of 63.5 mm is a warning indication of an overstroke condition, and that the maximum stroke is 75 mm. From these measurements, there is no indication that any of the master cylinders reached their maximum stroke and would have failed to activate the service brakes.

All of the overstroke pins were pushed in, the service brake air system was pressurized to approximately 120 pounds per square inch (psi) with air from a service truck, and the service brake pedal was applied (Volvo specifies a compressor minimum cut-in pressure of 106 psi and a minimum cut-out pressure of 126 psi). The pin extensions were then re-measured. The pins extended out from the master cylinder between 30 mm and 35 mm. This indicated, that although at some time the master cylinder stroke of the tractor's master cylinders had exceeded the normal stroke, the stroke of all of the master cylinders were within Volvo's specification for a properly operating service brake system at the time of the accident.

The truck's air reservoirs were again pressurized using air supplied from a service truck and the service brake pedal fully applied. The hydraulic pressure from each of the 5 master cylinders was measured with the supplied air pressure at approximately 120 psi. The resulting hydraulic pressures measured ranged from 2725 psi to 2810 psi. Volvo specifies that the ratio of hydraulic pressure to air pressure should be 24.3:1. The resulting ratios between 22.7:1 and 23.4:1 indicate that the air-over-hydraulic master cylinders were operating within Volvo's specifications.

The hydraulic and air lines were observed for leaks. No air leaks were observed. A slight brake fluid leak was observed on the rear master cylinder (between the air and hydraulic sections) for the first axle. Drops of fluid were observed. It was noted that the overstroke indicator for this master cylinder was initially found to extend out 38 mm, which indicates that an overstroke condition from loss of fluid at the time of the accident did not occur.

The service brake system's brake fluid reservoirs were inspected. Each of the 5 master cylinders had individual brake fluid reservoirs. The reservoirs were all at least half full of brake fluid and none appeared over-filled (which could indicate that a lot of water had gotten into the reservoirs). The brake fluid was not clear, but gray/brown in appearance. Some water could have gotten into the reservoirs through small breather holes in fill caps. The brake fluid level at the time of the accident could not be determined. Previous inspections and tests do not indicate that there was insufficient brake fluid in any of the reservoirs that would have prevented activation of the brakes at the time of the accident.

No defects in the service brake system were found that are considered to have contributed to the accident.

PARKING BRAKE SYSTEM: The parking brake system consisted of an air released, spring applied, dry caliper disc brake on a driveshaft mounted disc. The parking brake can be used for emergency braking in the event of the failure of the service brake system. The parking brake is applied by a switch on the dashboard. Activating the parking brake shifts the transmission into neutral. The parking brake automatically applies when the key is turned to the off position and when the air pressure is lost in both service brake circuits. The parking brake switch was found in the "OFF" position at the time of the recovery of the truck. However, the parking brake was reportedly found applied and had to be manually backed off to tow the truck. Since air pressure to release the parking brake is dependent on an electrical signal from the parking brake switch, electrical sensors, and electrically operated control valves, water could have affected the electrical signals and caused the application of the parking brake.

No defects with the parking brake were observed.

LOAD AND DUMP BRAKE: The load and dump brake applies the service brakes on the trailer unit by activating a control on the dashboard. The load and dump brake is intended ". . . to avoid unnecessary use of the parking brake . . ." When activated, the load and dump brake automatically shifts the transmission into neutral.

7) MAINTENANCE RECORDS: The contractor provided 4 maintenance records for the truck. These records covered the period from the initial rental/purchase in 9/7/2005 to 10/1/2008. The following brake system maintenance was performed:

Date	Description
10/31/2006	Right, rear, rear brake heads found to be bad and replaced.
10/1/2008	Installed new brake lines and bled all brakes.

No re-occurring brake problems are indicated by the maintenance records. There were no reports of problems with the operation of the truck's brakes, steering or engine. Inoperative lights were the only defects reported by another operator of the truck.

Summary of Findings
The inspections and tests did not identify any physical factors with the truck that are considered to have contributed to the accident.

Training

Mark A. Gray received the following required training while employed by Hawkeye Contracting, LLC:

- Experienced Miner training in accordance with Title 30, Code of Federal Regulations (CFR), § 48.26 on 06-02-2009;
- Task Training - Volvo A30D Truck in accordance with 30 CFR, § 48.27 on 06-02-2009; and,
- Annual Refresher Training in accordance with 30 CFR, § 48.28 on 06-06-2009.

Location and Description of Ponds

The two ponds constructed by Hawkeye Contracting, LLC are located at the base of Valley Fill One of Three Mile Branch (job site) of White Oak creek, located in Boone County, West Virginia. The depth of Pond #1 at the accident location is approximately 9.5 feet.

The upper pond (Pond #1) is approximately 1 acre in size and the water elevation is approximately 1038.6'. The lower pond (Pond #2) is approximately 1 acre in size and is approximately 24' lower in elevation than Pond #1. A grouted rock spillway connects the outlet of Pond #1 to the inlet of Pond #2. The ponds were constructed to prevent sediment, produced by the mining process, from entering the natural drainage downstream.

Construction Haul Road

Upon entering the pond construction area (traveling upstream), an access/haul road exists along the left side of Pond #2, then up to and along the left side Pond #1, extending around the upstream end of the Pond #1 and ending at the material loading area. The road is approximately 12 feet in width.

The haul road used by the pond construction equipment was developed during the construction of both ponds. The road was also intended to provide post construction access to the environmental protection zone located upstream. Due to rainfall prior to the date of the accident, the road was muddy and had become rutted by the tires of the articulated trucks. The road was made up of mud, soil and rock. Ruts had developed in the road because of use by the loaded haul trucks. The development of road ruts is a normal part of the road development and construction process as the road base material 'pumps' beneath the tires of the trucks. The pond side berm was intended to provided both a visual road edge identifier as well as a steering input 'feel' road edge identifier. The road was periodically maintained and the ruts were filled in so that the trucks would not drag

while negotiating the road. The road ruts were also observed upstream of the accident scene, along the highwall. Following the accident, downstream of the accident site, the road ruts were filled-in and the road was graded to provide ambulance access. Upon arrival to the accident scene, the height of the berm could not be determined and no measurement could be taken, due to displacement of the berm and road material during the rescue efforts. An examination of the haul road showed evidence of the berm becoming displaced when the articulated truck traveled through it, pulling berm material into the pond. The road was cut from existing ground and was stable. Rescue equipment and tracked equipment traveled this road without incident following the accident.

A drawing of the pond and road arrangement is provided in Appendix B of this report.

Report of Death Investigation and Post-Mortem Examination Findings

According to an autopsy and toxicological examination performed by the State of West Virginia's Department of Health and Human Resources Office of the Chief Medical Examiner, Mark Allen Gray was found to have a blood alcohol/ethanol concentration of 0.08%. An inactive metabolite formed from the consumption of marijuana was also found in the blood.

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, causal factors were identified that, if eliminated, would have either prevented the accident or mitigated its consequences.

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

1. *Causal Factor:* The equipment operator failed to maintain full control of the equipment operations while it was in motion.

   Corrective Action: The contractor has implemented a company policy regarding proper use of company equipment. All employees are being re-trained with respect to this policy.

2. *Causal Factor:* The equipment operator's blood alcohol/ethanol level was 0.08% while operating heavy equipment.

   Corrective Action: The contractor has reinforced an existing company policy regarding substance abuse. All employees have been re-trained with respect to this policy, including the hazards of drug and alcohol abuse. The company safety program has been revised with the following three addendums:

1. The foreman shall have personal contact with each employee prior to the beginning of each work shift.

2. The operator shall at frequent (weekly) intervals, search or cause to be searched, any person, including his clothing and material belongings, entering or about to enter the mine, to prevent such person from taking or carrying therein intoxicants. Results of these searches will be recorded in a book that will be kept on-site and available for inspection by representatives of MSHA and the WV Office of Miners' Health, Safety and Training. If during these searches any illegal drugs, drug paraphernalia or alcohol is found, the material will be immediately removed from the mine site and employee(s) involved will be immediately removed from mine property.

3. Pre-employment drug/alcohol testing will be conducted of all employees of Hawkeye Contracting Company LLC. Unannounced drug testing without management's knowledge will be conducted on a frequent basis. Such drug/alcohol testing shall be administered in a manner that will ensure that the specimen tested is the individual's. If anyone fails the drug/alcohol test, he or she will be immediately removed from mine property.

material will be immediately removed from the mine site and the employee(s) involved will be immediately removed from mine property.

3. Pre-employment drug/alcohol testing will be conducted of all employees of Hawkeye Contracting Company LLC. Unannounced drug testing without management's knowledge will be conducted on a frequent basis. Such drug/alcohol testing shall be administered in a manner that will ensure that the specimen tested is the individual's. If anyone fails the drug/alcohol test, he or she will be immediately removed from mine property.

CONCLUSION

The accident occurred because the equipment operator failed to maintain full control of the Volvo A30D articulated dump truck, Company No. 4033, he was operating while it was in motion. The victim over-traveled the berm and overturned the truck into the pond. No equipment safety defects were found which contributed to the accident.

Approved By:

Robert G. Hardman

Robert G. Hardman
District Manager

02/24/2010
Date

ENFORCEMENT ACTIONS

1. A 103(k) Order, No. 8083535, was issued to Catenary Coal Company, LLC on 7/28/2009, stating: A fatal accident occurred at this operation on July 28th, 2009, when a contract construction crew was constructing two ponds located on 3 Mile Hollow Road. This order is issued to assure the safety of all persons at this operation. It prohibits all activity at Ponds 1 & 2 until MSHA has determined that it is safe to resume normal mining operations in the area. 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(a) citation, No. 8083556, was issued to Hawkeye Contracting Co., LLC , for a violation of 30 CFR § 77.1607(b) stating: The equipment operator of the Volvo A30D articulated dump truck, Company No. 4033, operating at the pond construction area, did not maintain full control of the equipment operations while it was in motion. The operator overturned the truck into the newly constructed pond. This condition is a contributory factor to a fatal accident which occurred on July 28, 2009.

Appendix A
Persons Furnishing Information and/or Participating In the Investigation

Samples Mine

Name	Title
Greg Boggs	General Manager
Terry Tolley	Safety Manager
John Opperman	Safety Technician
Jim Aleshire	Representative of Miners
Chris Buchanan	Surveyor
Jeff Buchanan	Surveyor

Hawkeye Contracting, LLC

Name	Title
Mitch Potter	Manager
Jeff Sands	Vice President
Phillip Rife	Foreman
Bobby Tucker	Maintenance Supervisor
Shawn Legg	Equipment Operator
Kermal Sanders	Equipment Operator
Gordon Hanson	Equipment Operator
Aly Hill	Equipment Operator
Richard Bentley	Mechanic/Service Technician

Appalachian Security, Inc.

Name	Title
John Daniels	Supervisor
JoEtta Bowling	Security Guard

Rudd Equipment

Name	Title
Robert Conley	Equipment Maintenance Technician
David Goins	Technical & Training Advisor

West Virginia Office of Miners' Health Safety & Training

Name	Title
Terry Farley	Administrator
Steve Snyder	Inspector at Large
Garry Wolfe	Surface Mine Inspector
Gerald Ellison	Surface Mine Inspector

Mine Safety & Health Administration

Name	Title
Vincent Nicolau	Coal Mine Safety & Health Inspector
Michael Boggs	Coal Mine Safety & Health Inspector
James Angel	Mechanical Engineer

Appendix B
Map of the accident scene