CAI-2010-44

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
September 3, 2010

National Coal of Alabama, Inc.
Kansas Mine
Carbon Hill, Walker County, Alabama
I.D. No. 01-03398

Accident Investigators

Harry E. Wilcox
Electrical Specialist

Jarvis Westery
Surface Safety and Health Inspector

James Angel
Mechanical Engineer
Mine Safety and Health Technical Support
Mechanical and Engineering Safety Division

Originating Office
Mine Safety and Health Administration
District 11
135 Gemini Circle, Suite 213
Birmingham, Alabama 35209
Richard A. Gates, District Manager

TABLE OF CONTENTS

OVERVIEW

At approximately 1:20 a.m. on September 3, 2010, a 37-year old truck driver was killed when the Komatsu HD785 rigid frame dump truck he was operating struck the back of a stopped Komatsu HD785 rigid frame dump truck. The victim was driving down the haul road into the active pit to be loaded by the Komatsu PC-1800 hydraulic excavator. Loading operations had been halted temporarily to allow clean up of the dig face by a dozer. The lead dump truck had stopped along the haul road, waiting to be loaded. The victim was pinned in the cab of the truck he was operating and beneath the truck dump body (bed) of the stopped truck. The victim received crushing injuries from the accident. The accident occurred because full control was not maintained of the equipment being operated. Driver drowsiness, most likely resulting from the effects of a prescription narcotic drug, and a change in the work routine are the primary contributing factors.

GENERAL INFORMATION

The Kansas Mine, ID No. 01-03398, is owned and operated by National Coal of Alabama, Inc. The mine is located in Carbon Hill, Walker County, Alabama. The mine is a surface operation, utilizing typical drill and shoot methods to break the overburden. The overburden is removed by excavators, dozers, and heavy-duty dump trucks. Once the overburden is removed, the coal seam is mined using front-end loaders, excavators, and coal haulage trucks. The mine operates a 9 ½ hour day shift, Monday through Friday, and an 8 hour day shift on Saturdays. The mine operates a 9 ½ hour night shift, Monday through Friday, and an 8 hour night shift on Saturdays. The mine personnel consist of 28 hourly and 2 management employees. The primary coal beds being mined are the Mary Lee seam and the Blue Creek seam, which average a total of 50 inches in thickness. The height of the highwall at the time of the accident was 160 feet. The daily production rate is 500 tons.

The most recent semi-annual safety and health inspection (E01) was completed by MSHA on June 29, 2010. The Non-Fatal Days Lost (NFDL) injury incidence rate at the mine for the previous quarter was 0.0 compared to the national NFDL rate of 1.11 for surface coal mines.

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

Scott Deppe…..……President
Danny Ingle..……Mine Superintendent
Don Williams……Mine Foreman
Michael Hicks...……Mine Foreman

DESCRIPTION OF THE ACCIDENT

The normal work hours, Monday through Friday for the day shift, are 6:00 a.m. until 3:30 p.m. with the night shift beginning at 4:15 p.m. and ending at 1:45 a.m. This leaves an idle period each day between the hours of 1:45 a.m. and 6:00 a.m. At the end of each shift, the three Komatsu HD785 dump trucks, used for overburden removal, are brought to a level parking area located adjacent to the haulage road. In the parking area, the drivers for the on-coming shift conduct pre-operational checks on the trucks prior to traveling to the working pit.

On Thursday, September 2, 2010, the night shift, which included John Tittle (victim), started work at the normal time. Throughout the night shift, rock overburden removal was being done at the southeast end of the active pit. A fuel truck driver rode with the victim from 10:00 p.m. to 11:00 p.m. The fuel truck driver stated that the victim was alert and drove without incident during this time. The fuel truck driver stated that during this period, the lead dump truck tail lights were visible and there were no

apparent issues with the brakes. At midnight, a planned shut down of rock removal was performed to conduct preventative maintenance on the excavator, located in the pit. During this time, the rock truck drivers helped the mechanic and excavator operator clean and lubricate the machine. The crew indicated that the victim said that he was tired during this maintenance down time.

At 12:15 a.m., the victim, along with the two other truck drivers, resumed haulage operations. Approximately 1:15 a.m., the victim's truck received the last load. At approximately 1:20 a.m., the lead truck returned from dumping and stopped short of the excavator. The excavator had backed out of the pit, allowing the dozer to push up material. It was at this time that the victim, returning from dumping, ran into the lead truck (Appendix B and C). The mine operator contacted the appropriate federal, state and local authorities. All mining operations were stopped and the accident scene secured, pending the arrival of local Emergency Management Services (EMS) personnel and the county coroner. The coroner (Walker County) declared the victim dead at the scene.

INVESTIGATION OF THE ACCIDENT

The Mine Safety and Health Administration (MSHA) Call Center was notified of the accident. The Call Center notified Johnny Calhoun, a Coal Mine Safety and Health Supervisor for District 11. MSHA personnel from the District 11 and the Bessemer Field Offices were dispatched and arrived at the mine at approximately 6:20 a.m. A 103(j) Order was issued to the mine verbally and was modified to a 103(k) Order upon MSHA's arrival at the mine, to ensure the safety of all persons during the accident investigation.

The investigation was conducted with the cooperation of MSHA Technical Support, Alabama Department of Industrial Relations Mining and Reclamation Division, state and local law enforcement officials, representatives of the mine operator and miners. Persons participating in the investigation are listed in Appendix A. Fifteen people were interviewed during the investigation.

DISCUSSION OF THE ACCIDENT

Pre-operational Checks and Maintenance

Pre-operational checks were performed by the Komatsu HD785 truck operators on the day of the accident. No deficiencies were noted on this day for company truck No. 10373 (victim's truck). No deficiencies had been reported for victim's truck during the months of August or September of 2010. On the day of the accident, the operator of the company truck No. 10375 (lead truck), noted on the standardized pre-operational check list that the right side lights were inoperative. The check list did not list the specific lights that were inoperative.

Description of Equipment and Post Accident Equipment Condition

Two Komatsu, Model HD785-5LC, trucks were involved in the accident; Serial Number KMIHD008N61A10373, (victim's truck No. 10373) and Serial Number KMIHD008N61A10375 (lead truck No. 10375). These trucks have a rated payload capacity of 100,000 lbs and a "not-to-exceed" weight of 367,000 lbs. Both trucks were empty at the time of the accident.

The trucks are 34.8 feet long by 18.6 feet wide by 17.25 feet high. The top of the operator's compartment is 14.4 feet high and the center rear of the dump bed is approximately 12 feet high. The rear portion of the dump bed (of the lead truck) that would have impacted the operator's compartment of the victim's truck extends down vertically approximately one foot. The bottom of the bed then slopes down toward the rear tires. The horizontal distance from the rear edge of the bed to the rear tires is approximately 6.5 feet. This is the distance the victim's truck would have traveled under the lead truck's bed. The horizontal distance from the victim's truck front bumper to the operator's compartment is approximately 2 feet. After the accident, the lead truck's dump bed would have extended approximately 4.5 feet into the upper portion of the victim's operator's compartment (Overview and Appendix D).

The victim's truck sustained significant damage to the operator's compartment and front walkways and railings. There were rub marks where the victim's truck front bumper contacted the rear tires of the lead truck. The damage appeared to be limited to the operator's compartment and the areas immediately adjacent to it. The dashboard was bent and many of the warning lights and controls (including the front brake "on-off" switch) were pulled out of the dash. The steering wheel was severely bent, the steering column was pushed back toward the operator's seat, and the retarder control valve mounted to the steering column had the control handle broken off, but there was no apparent damage to the internal retarder valve components. The console containing the transmission gear selector, the park brake lever and the emergency brake lever, located immediately to the right of the driver's seat, was bent and the top cover was

broken loose. At the time of the investigation, the position of the controls could not be established due to damage caused by the accident and recovery of the victim. There were many broken components scattered in the operator's compartment but there did not appear to be any debris that would have interfered with the operation of the truck prior to the accident.

Because of damage to the steering wheel and steering column of the victim's truck, no steering tests were performed. No problem with the truck's steering had been reported prior to the accident. The front tires were found positioned for driving in a straight direction along a line ending at the point of collision.

The lead truck sustained minor damage (broken weld) to a lug under the rear of the bed that was used to pin the bed in the raised position when performing work under the bed.

Braking System

The trucks were equipped with service, parking, emergency, and retarder braking. The service brakes consisted of air over hydraulic, dry caliper disc type brakes at the front wheels with oil-cooled, multiple internal wet disc brakes in the rear axles. The front brakes could be turned off by an electrical switch on the dashboard. By placing the switch in the front brakes "off" position, an electrical signal was sent to a solenoid that activated a front brake cut-off valve. When this valve is activated, air pressure is prevented from activating the front brakes. Because of damage to the operator's compartment, it could not be determined from the switch's position whether the front brakes had been in the "on" or "off" position at the time of the accident. Since mine personnel stated that they were trained to operate the trucks with the front brakes off, unless they were needed, the front brakes are considered to have been off at the time of the accident. The truck is designed to have sufficient braking capability with the front brakes off to meet the requirements for the International Organization of Standards (ISO) 3450, Earth-moving machinery - Braking systems of rubber-tired machines - Systems and performance requirements and test procedures. This standard is typically used by off-road dump truck manufacturers in the design of braking systems on their trucks.

Victim's truck No. 10373: The brake systems were inspected and tested. No damage to the service brake system from the accident was found. Inspection of the front brake fluid reservoir found that the reservoir was empty. The lack of any evidence that the accident damaged the front brake system indicates that the front brakes were not functioning prior to the accident. If the front service brakes had been "on" and functioning, they would have provided additional stopping ability. However, from the approximate 15 feet-long skid marks prior to the collision, observed at the accident scene (Appendix B and D), it is considered that the front brakes would not have

provided sufficient additional stopping force in this distance to have prevented or reduced the severity of the collision.

The rear disc brakes were tested to determine the hydraulic force generated by activating the service brake pedal and the rear disc brakes were checked for excessive wear.
An air leak was heard near in the vicinity of the right rear brake chamber (air over hydraulic brake actuator). No damage was observed in the area of the brake chambers, therefore this leak is considered to have existed at the time of the accident. Since there were skid marks noted at the accident scene, the air leak did not affect the ability of the brake system to lock the wheels of an empty truck. Tests for wear of the left and right disc packs, using the Komatsu specified wear gage, found that the disk packs were within the wear limit specifications.

The valve portion of the parking brake system control appeared to have been damaged during the accident. No defects that would likely have been present, prior to the accident, were observed with the parking brake assembly.

The emergency brake system controlled both the service brakes and parking brakes. The emergency brake control lever was located on the center console in the operator's compartment. The console was severely damaged but the emergency brake control lever could be operated. The emergency brake supplies air pressure to apply both the front and rear service brakes. It overrides the front service brake "off" switch, if activated. It also releases air pressure to apply the parking brake. Activation of the emergency brake lever did not cause the front brakes to apply due to the previously noted lack of brake fluid in the front brake reservoir. Activation of the emergency brake lever did apply the rear wet disc brakes. No defects that would likely have been present prior to the accident were observed with the emergency brake assembly.

The retarder control consisted of a lever and air valve mounted to the right side of the steering column. The retarder appeared to be in the "off" position, but its position could have changed during the accident or recovery. Apparently during the accident, the lever and the top of the valve were broken off. The operation of the retarder system was not tested during the investigation.

The mine operator provided maintenance records for the victim's truck, covering work on the truck for approximately 7 months prior to the accident. No significant or reoccurring defects that would have likely contributed to the accident were noted.

Interviews with mine personnel indicated that it was known that the front brakes on the victim's truck "didn't work." Mine personnel also reported that the rear brakes on the victim's truck "did not work well." This information supports the conclusion that the

loss of brake fluid in the front brake system and the air leak at the rear brakes existed prior to the accident.

Although maintenance related problems with the braking system were found and the front brakes may have been switched off at the time of the accident, there is no indication that these factors contributed to the accident. The skid marks produced by the victim's truck prior to impact indicated that the coefficient of friction between the tires and the ground was the limiting factor in the deceleration of the truck and not the deficiencies noted with the truck's brake systems (Appendix D).

Lead truck, No. 10375: The operation of the brake systems were evaluated using Komatsu's Start-up brake test (tram through) procedure. The service brakes passed, while the park brake did not. The emergency brake and the retarder functioned as designed.

Lighting

The accident occurred in the early morning hours. The only lighting on the haul road was provided by the trucks. Lighting within the pit was provided by the equipment (excavator and dozer).

Lead truck, No. 10375: The exterior lighting system on the front of the truck consisted of separate high and low beam headlights (70-watts), clear marker lights, and amber turn signal lights. On each side of the truck, mounted on the rear front wheel fender, was a spot light pointing toward the ground at the rear tire (both lights operational). At the rear of the truck was a horizontal panel of five lenses. The two outer lenses were amber turn signal/hazard warning lights. No bulbs were found in these light sockets. When bulbs were installed, they illuminated when the hazard light switch was turned on. They also illuminated when the turn signals were checked. Neither the turn signal lights, nor the hazard lights, flashed as designed. The next two inner red lenses contained two bulbs; a small 3-watt running light and a 2-filament (10-watt and 25-watt) running light/brake light bulb. Neither bulb illuminated, but checks found electrical continuity (complete electrical circuit path) through the elements. The running light filament illuminated, but the brake light element did not have electrical continuity. The center red lens contained a single bulb with one element that illuminated. This light socket had contacts for a two-element light. The front right side high and low beam headlights, front right side turn signal, and both front clear marker lights were inoperative.

Victim's truck No. 10373: No damage to the headlights was observed. The headlights were tested for continuity. The left side outer headlight did not have electrical continuity. The left inside light had continuity. The right side outer headlight did not have continuity and the right side inner headlight had continuity. Apparently, only the

high beam headlights were functional at the time of the accident. The left rear running/brake light bulb had one of the two elements inoperative. The center and left running/brake light bulbs had both elements of the two element bulbs inoperative.

The bulbs on both trucks that were not operational were unlikely to have been damaged by the accident. Rather, the condition of the trucks lighting systems indicates normal wear out and a general lack of maintenance.

In an effort to determine what role lighting may have played in the accident, an accident reenactment was performed on the night shift under similar light and environmental conditions. Three tests were conducted with the lead truck having the following lights functional:

- Test 1, Running / Tail lights only
- Test 2, Running / Tail lights and Brake lights
- Test 3, Running / Tail lights, Brake lights and Hazard / Turn Signal lights

Note: After the accident, the tail lights were the only functional lights found on the back of the lead truck.

During the reenactment, the lead dump truck was parked at the accident scene on the haul road. An MSHA investigator traveled the entire truck travel cycle in the same manner that the victim did, in a truck identical to the victim's.

Test 1, with the rear Running/Tail lights being functional, the distance that the lights of the lead truck could be seen by the driver of a truck traveling down the haul road was 525 feet (Appendix B). The lights were visible for 17 to 23 seconds, based on a truck speed of 15 to 20 miles per hour.

The light intensity for tests 2 and 3 was noticeably brighter and the hazard lights had the effect of enhancing the view of the lead truck. Although having all the lights working improved the visibility of the lead truck, it is considered that, with only the tail lights working (as during the accident), an alert truck operator should have been able to recognize the location of the lead truck and react to prevent the collision.

Work Practices

The active mining work area consisted of the pit area, where the excavator removes the overburden. The connecting haul roads, where the trucks would stage for the next load, had grades up to 13 per cent that connected to a short haul, lower overburden dump area and a long haul, upper overburden dump area (Appendix B).

The work area at the time of the accident consisted of the pit, the haul road, and the long dump area, located 0.3 mile from the pit (Appendix B). The average cycling time was approximately 5 minutes for the drivers to receive the load in the pit, drive up the 9 per cent to 13 per cent grade haul road to the long haul overburden dump, dump their load, and return to the pit. Drivers had a pre-determined location for staging when stopped and waiting for the truck ahead of them to clear, then back their truck into the pit for their next load. On the day of the accident, the travel time was a longer interval because of dumping at the upper area of the dump site and two of the three trucks were in transit to or from the long dump as the third truck was being loaded. Trucks would stage in place on the haul road while the dig face of the lower bench was being cleaned and pushed by the dozer (Appendix C).

During the shift, truck loading had stopped five times to allow the dig face area to be leveled and cleaned for the Komatsu PC-1800 excavator. Three of the loading stoppages required the dozer to be on top of the lower highwall to push rock down into the dig face of the lower bench. For such a loading stoppage, the excavator backed away from the dig face with enough room for the haul trucks to stage, with the lead truck located in its normal location on the lower bench. Two loading stoppages required the dozer to push in front of the lower bench dig face. In these instances, the excavator was required to back a greater distance from the dig face to provide safe clearance for the dozer work. The excavator would park in the location where the lead truck was normally staged during routine loading operations. This caused the lead truck to be staged on the 13 per cent grade haul road, instead of the level loading bench area (Appendix B). The accident occurred during the latter part of loading stoppage period.

The mine operator had an established work procedure of turning off the front brakes of the Komatsu HD785 dump trucks during normal driving conditions and allowing the truck drivers to activate the front brakes, when driving conditions required additional braking forces.

The truck drivers on the night shift had developed a work practice of turning off their headlights when trucks passed each other on the haul road and using their hazard/turn signal lights at all times during the hours of darkness. The truck drivers stated that the added light from the flashing lights gave them more visibility when they turned off the headlights as trucks passed each other on the haul road.

Environmental and Human Factors

The weather conditions at the time of the accident were dry with a clear sky. The work area was dark with only the lights from the mobile equipment providing illumination in the work area. The haul road was hard-packed and smooth, and had been watered approximately one hour before the accident, to allay dust generated by the truck traffic.

The haul road was wet at the time of the accident but traction for steering and stopping was not an apparent factor.

The mine operator had established a practice of allowing newly hired, inexperienced miners to accompany experienced miners to enhance their on-the-job training. On the night of the accident, the fuel truck driver had accompanied the victim from approximately 10:00 p.m. to 11:00 p.m. According to the fuel truck driver, he made approximately ten load trips with the victim. During this period, the victim appeared to be in good spirits, was talkative, and did not complain of pain or appear drowsy. Because of the haul length, the dump trucks were separated by several hundred feet and the rear tail lights were readily visible. Braking appeared to be adequate and the victim did not indicate that he had any issues with either braking or visibility.

The miners were working the last hour of their 9 ½-hour shift. The trucks had hauled over 50 loads to the overburden dump prior to the accident. Interview statements from the crew indicated that around midnight, the victim said that he was tired and was showing signs of fatigue. While the victim's truck was being loaded on the last trip before the accident, the excavator operator reported seeing the victim resting his head on the steering wheel.

A blood sample taken by the Walker County Coroner was analyzed by the State of Alabama Department of Forensics Sciences (DFS). DFS reported that Oxycodone was detected in the victim's blood. Oxycodone is an opiate that is a prescription narcotic pain reliever and has the side effect of fatigue/drowsiness. The victim had been given a prescription for OxyContin (trade name for Oxycodone) on August 30, 2010. Witness statements indicated that the victim also used over-the-counter pain relief for a pre-existing back injury, but never mentioned any prescription drug use. The official cause of death, as listed on the official death certificate, was blunt force trauma to the head and torso, due to a mining accident as a result of operator impairment.

Work Experience and Training

The victim had been operating a Komatsu HD785 dump truck at the Kansas Mine for one year six months, since March of 2009. He had six months prior experience as a rock truck driver at another surface coal mine. He had approximately two years of total mining experience (Appendix E).

On March 9, 2009, the victim received the experienced miner training and hazard training for the Kansas Mine. The victim's required Annual Refresher training was current with the National Coal of Alabama, Inc., Kansas Mine. No training deficiencies were identified by the accident investigation.

Accident Scenario

The last load hauled by the victim was loaded from the dig face sometime between 1:10 and 1:15 a.m. While the victim's truck was being loaded, he was observed laying his head down on the steering wheel. The victim drove his truck to the upper dump, dumped and began his return trip. While the victim was in transit to and from the overburden dump, the excavator operator had called over the CB radio requesting a dozer to clean the dig face for him. He also notified the dump truck drivers of the temporary stoppage of hauling operations. The excavator was moved away from the dig face and parked at the staging area normally occupied by the lead haul truck. The lead truck was stopped upgrade on the haul road at the normal staging area used for the second truck in line. The lead truck had stopped with the tail lights operational, since the hazard lights were not functioning. When the victim drove down the haul road and applied his brakes, the rear brakes locked approximately 15 feet prior to striking the dump body of the lead truck. The victim's truck skidded an additional 26 feet, while pushing the lead truck 22 feet, before both trucks stopped (Appendix D). The dump body of the lead truck was struck by the operator cab of the victim's truck. The victim was killed by crushing injuries, caused by the dump body of the lead truck.

The condition of the brake systems is not considered to have contributed to the accident, since the rear wheels skidded. There was no indication of steering system problems or that the victim reacted to steer clear of the parked truck. The visibility of the stopped truck attributed to missing rear hazard flasher lights is also not considered to have contributed to the accident, since it is likely an alert driver would have recognized the stopped truck and been able to control his own truck to prevent the accident. The victim's physical condition (drowsiness, exacerbated by the use of a prescription narcotic pain reliever) and an unobserved change in the staging routine and location (the lead truck had not traveled into the pit, but had stopped short) were the primary factors that led to the accident.

ROOT CAUSE ANALYSIS

An analysis was conducted to identify the most basic cause of the accident, which could have been corrected through reasonable management controls. During the analysis, a root cause was identified that, if eliminated, would have prevented the accident.

Root Cause: The accident occurred because mine management failed to have a program in place to monitor and supervise employee work activity on a routine basis and to assure that employee work was being conducted in a safe manner. As a result, the operator of the dump truck failed to react and control the truck he was driving to avoid an obstacle in the haul road. Drowsiness from the effects of a prescription narcotic drug the truck driver used, and a change in the work routine and staging location of the trucks, are contributing factors.

Corrective Action: The operator developed and implemented a written program that included:

- Mine supervision monitors employees on a routine basis to determine if employees are demonstrating proper work habits and are alert while performing their respective jobs.
- Mine supervision stresses to employees the importance of communicating via the two-way radio communication, especially with regard to any change in a routine or practice that is abnormal.
- Mine supervision continues to stress to employees that all vehicle marker and hazard lights be used at all times in low light conditions, while moving or stopped.

CONCLUSION

On September 3, 2010, a 37 year old truck driver was killed when the Komatsu HD785 dump truck he was driving struck the rear of the dump body of another dump truck that was stopped on the haul road waiting to be loaded. The victim was returning empty from the rock dump to be reloaded. The accident occurred when the operator failed to control the truck he was driving to avoid an obstacle in the haul road. Drowsiness from the effects of a prescription narcotic drug the truck driver used, and a change in the work routine are the primary factors that contributed to this accident.

Approved by:

Richard A. Gates
District Manager

5/25/11
Date

ENFORCEMENT ACTIONS

103(J) Order No. 7699856:

A fatal accident occurred at this mine when a Komatsu HD785 HD dump truck collided with the back of a parked Komatsu HD785 dump truck. The driver of the moving truck was pinned in the operator cab under the dump body (bed) of the parked truck.

This order is being issued to assure the safety of all persons at this operation. The order prohibits all activity in the 001 pit until MSHA has determined that it is safe to resume normal mining operations.

Area or Equipment: 001 pit.

104(a) Citation No. 7699858, for a Violation of 30 CFR, § 77.1607(b):

CONDITION: A fatal accident occurred on September 3, 2010, when the driver of Komatsu HD785 dump truck, company No. 10373, received crushing injuries in the operator's cab of truck No. 10373 by the truck dump body of Komatsu dump truck, company No. 10375 subsequent to truck No. 10373 running into the rear of truck No. 10375. The mobile equipment operator did not have full control of the equipment operation while in motion, as required by the standard.

HAZARD: A hazard exists to miners when full control of mobile equipment is not maintained while the equipment is in motion. The equipment operator or miners working in the area of the mobile equipment would be exposed to the kinetic energy and crushing forces inherent to moving equipment contacting stationary objects or equipment.

Note: Violative conditions associated with the braking systems of truck No. 10373 and pre-operational inspections were determined to be non-contributory to the accident and were cited as violations under an additional inspection event.

APPENDIX A
Persons Participating in the Investigation

KANSAS MINE

Scott Deppe ……....President
Danny Ingle……Mine Superintendent
Don Williams…….....Shift Foreman
Michael Hicks……. ……...Shift Foreman
Michael Garner……Excavator Operator
Randal Henderson..……Truck Driver
Brandon Fowler……Truck Driver
Ronny Dill...……Surface Utility Miner
Kelley Dill……..Mechanic/Fuel Truck
Corey McDonald..…….Mechanic/Fuel truck
Greg Cantrell…….....Dozer Operator
Jason Balduf……Dozer Operator
Adam Light...……...Dozer Operator
Dewey Kimbrell……...Truck Driver
James Tittle……Truck Driver

KOMATSU, INC.

Curtis Callis……Project Manager

TRACTOR EQUIPMENT COMPANY, INC.

Larry Watkins…….....General Service Manager

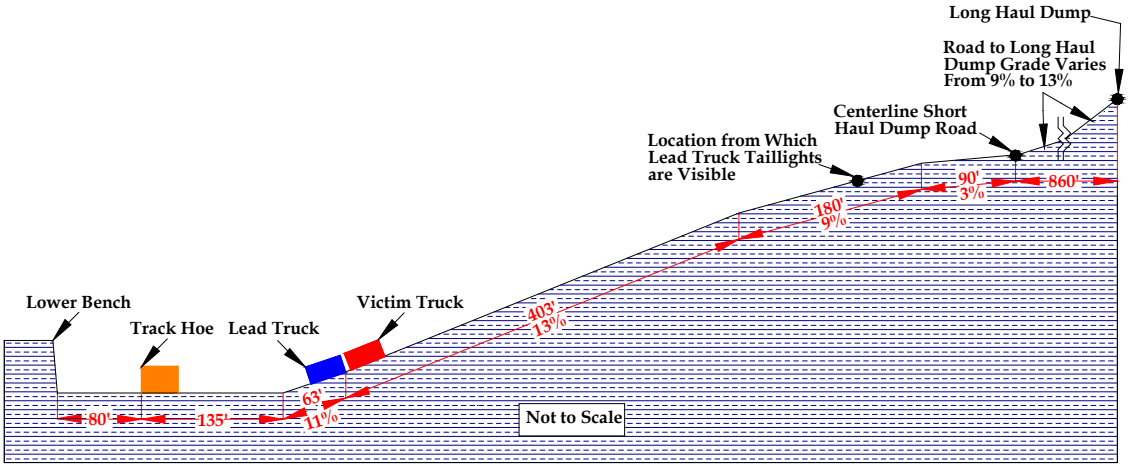
STATE OF ALABAMA DEPARTMENT OF INDUSTRIAL RELATIONS MINING AND RECLAMATION DIVISION

James Rivers ……...Mine Inspection Supervisor
Ronnie West……..Mine Inspector
Charles M. Whitson ……Mining Engineer, P.E.

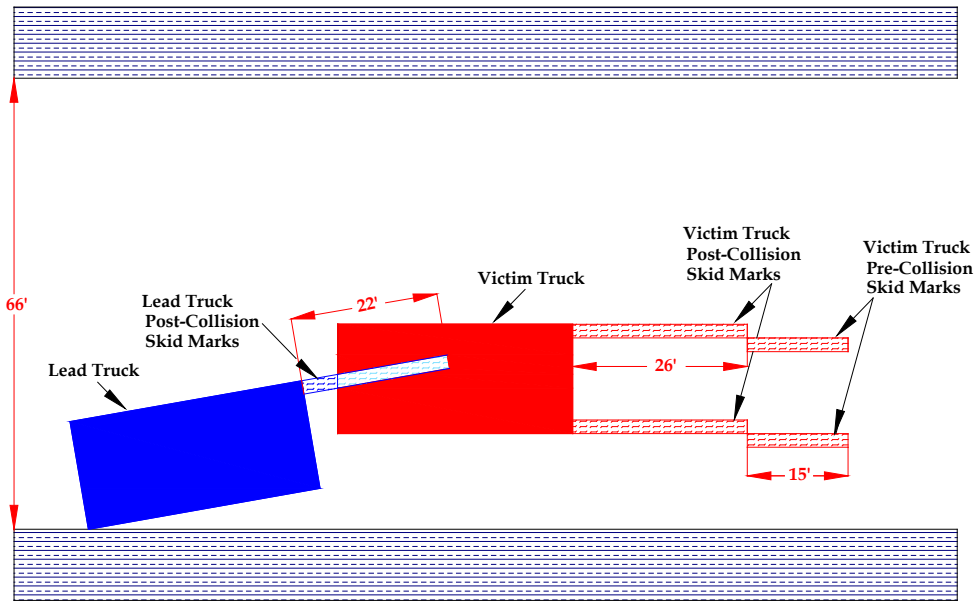
MINE SAFETY AND HEALTH ADMINISTRATION

Harry Wilcox ……....District 11 Electrical Specialist, Lead Investigator
John Smoot ……District 11 Supervisory Coal Mine Safety and Health Inspector
Jarvis Westery ……District 11 Surface Mine Safety and Health Inspector
James Angel …….Mechanical Engineer, Mine Safety and Health Technical Support, Mechanical and Engineering Safety Division

APPENDIX B
Haul Road Profile



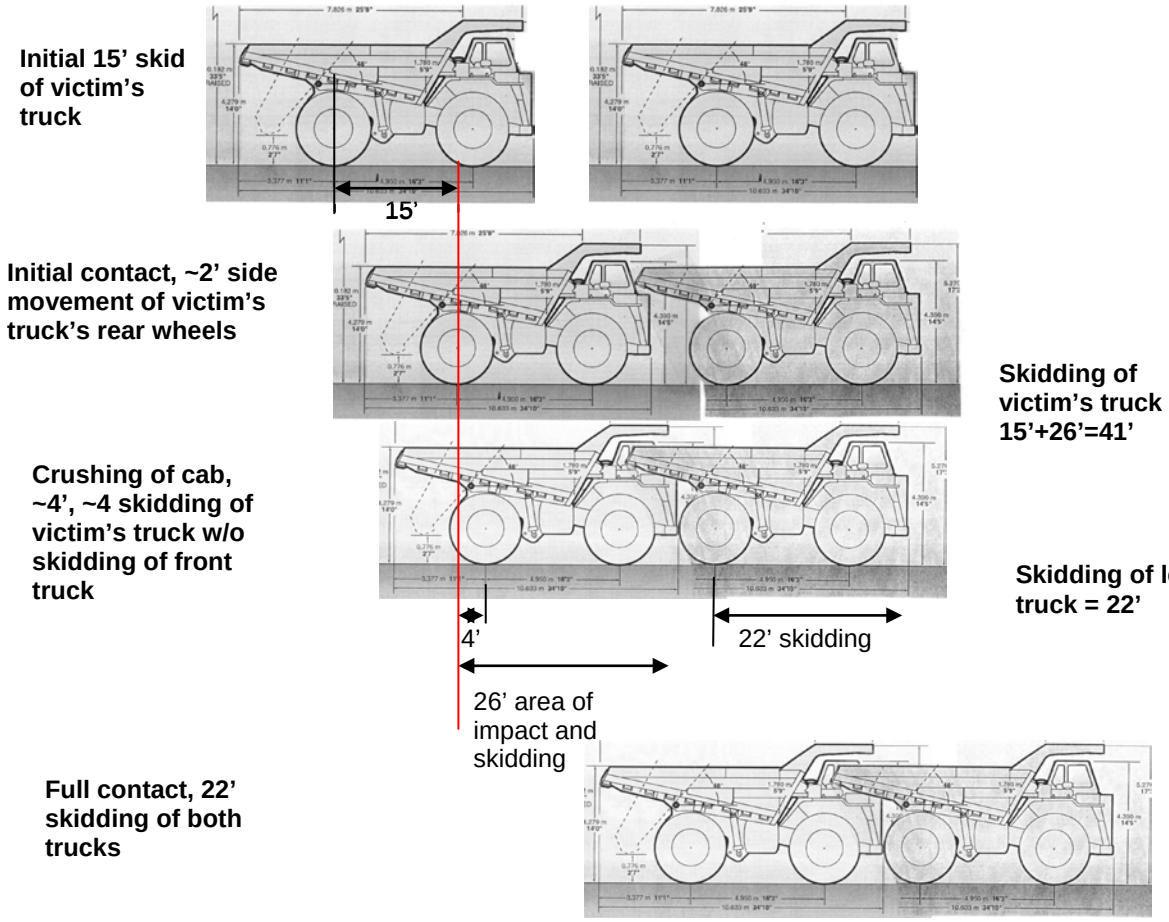
Accident Scene



Not to Scale

APPENDIX C
Overview of Accident Scene

APPENDIX D
Collision Analysis



Komatsu HD785-5 Mechanical Drive Truck, Specifications, AESS529-03, 11/05 (EV-1)

APPENDIX E
Victim Information

Accident Investigation Data - Victim Information
Event Number: 4 4 9 1 6 8 8

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. Last Four Digits of SSN:	5. Degree of Injury:
John R. Tittle	M	37	7014	01 Fatal

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death: a. Date: 09/03/2010 b.Time: 2:00

7. Date and Time Started: a. Date: 09/02/2010 b.Time: 16:00

8. Regular Job Title: 176 Haul Truck Driver

9. Work Activity when Injured: 055 Operate Haul Truck

10. Was this work activity part of regular job? Yes X No

11. Experience

	a. This Work Activity:	b. Regular Job Title:	c. This Mine:	d. Total Mining:
Years	2	2	1	2
Weeks	0	0	26	0
Days	0	0	0	0

12. What Directly Inflicted Injury or Illness? 104 Large truck

13. Nature of Injury or Illness: 170 Crushing

14. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

15. Company of Employment:(If different from production operator) Operator
Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: | Medical Professional: | None: X

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim: 9999 None (No Union Affiliation)

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | No

11. Experience:

	a. This Work Activity:	b. Regular Job Title:	c. This Mine:	d. Total Mining:
Years				
Weeks				
Days				

12. What Directly Inflicted Injury or Illness?

13. Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

15. Company of Employment: (If different from production operator)
Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: | Medical Professional: | None:

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim:

Victim Information:

1. Name of Injured/Ill Employee:	2. Sex	3. Victim's Age	4. Last Four Digits of SSN:	5. Degree of Injury:

6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:

7. Date and Time Started:

8. Regular Job Title:

9. Work Activity when Injured:

10. Was this work activity part of regular job? Yes | No

11. Experience:

	a. This Work Activity:	b. Regular Job Title:	c. This Mine:	d. Total Mining:
Years				
Weeks				
Days				

12. What Directly Inflicted Injury or Illness?

13. Nature of Injury or Illness:

14. Training Deficiencies:
Hazard: | New/Newly-Employed Experienced Miner: | Annual: | Task:

15. Company of Employment:(If different from production operator)
Independent Contractor ID: (if applicable)

16. On-site Emergency Medical Treatment:
Not Applicable: | First-Aid: | CPR: | EMT: | Medical Professional: | None:

17. Part 50 Document Control Number: (form 7000-1)

18. Union Affiliation of Victim:

MSHA Form 7000-50b, Dec 1994 Printed 10/12/2010 7:13:50 AM