

**Coal Truck Driver Fatally Injured in Collision
With another Coal Tractor-Trailer
Incident Number: 08KY010**



Photograph of coal truck involved in a crash. Photograph courtesy of LEX 18 Archives.

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Kentucky Fatality Assessment and Control Evaluation (FACE) Program
Incident Number: 08KY010
Release Date: February 13, 2008
Subject: Coal Truck Driver Fatality Injured in Collision Involving with another Coal Tractor-Trailer

Summary

During the winter of 2008, a 39 –year-old tractor-trailer driver died after striking the right rear of a coal tractor-trailer with his vehicle, then veering into an embankment, rolling over and catching fire. The driver of a coal tractor-trailer (Truck 1) and the decedent driver of a second coal tractor-trailer (Truck 2) had descended a hill in the lane next to one another on a four-lane undivided highway. Truck 1 stopped at a traffic light at an intersection at the bottom of a hill while Truck 2 approached the intersection from behind in the left lane. The light turned green so that Truck 2 did not need to stop for the traffic light. Truck 1 advanced from the traffic light and began to climb another hill. Truck 2 approached Truck 1 on the hill, struck the right rear of Truck 1, veered to the left, struck an embankment, and rolled over. Upon impact, driver of Truck 2 was thrown into the sleeper compartment. Emergency medical services and the local coroner arrived on the scene. The coroner pronounced the driver dead at the scene.

To prevent future occurrences of similar incidents, the following recommendation(s) are being made:

Recommendation No. 1: Owner-Operators should follow Kentucky laws and wear seat belts while operating a commercial vehicle.

Recommendation No. 2: Companies should provide new and refresher truck driver safety training for company drivers including driver distraction , defensive driving techniques and Hours of Service as it pertains to fatigue.

Recommendation No. 3: Vehicle stabilizer and sensory systems should be mandatory equipment on all commercial vehicles.

Recommendation No. 4: To better prevent rear collisions, companies should establish a safety program to install flashing amber LED lights on the rear of all slow moving trucks.

Background

The Kentucky Fatality Assessment and Control Evaluation Program was informed of a motor vehicle crash that involved two coal trucks. Interviewed for this report were two law enforcement agencies and the local coroner.

The company the decedent was employed by is classified as “authorized for hire, to operate intrastate only (non-hazmat)” and to “haul coal, coke, sand and gravel.” The company had eleven employees, including five drivers, and nine tractors. The decedent’s truck was equipped with a sleeper cab.

Semi tractor-trailers are used to haul coal away from the mines to regional power plants, barges and trains. Drivers for the company would make multiple intrastate round trips a day hauling coal from the coal tipple to the shipping docks. Each round trip was approximately 230 miles and took four to five hours to complete.

The drivers of Trucks 1 and 2 worked for separate employers. The employer of Truck 3 driver was unknown. Safety training for company drivers is unknown.

Temperatures for the day ranged from 58° Fahrenheit to 66° Fahrenheit.

Investigation

At approximately 7:30 am on a winter morning three tractor-trailer trucks loaded with coal were traveling on a four-lane federal highway with asphalt shoulders and a paved center strip separating the north and south bound lanes. The posted speed limit was 55 miles per hour. Weather conditions were cloudy and the pavement was dry.

Truck 1 was in the right lane traveling north. Truck 2 was traveling behind Truck 1 in the left lane. The lane Truck 3 was traveling in is unknown. The three tractor-trailers were traveling down a hill approximately 1/10 of mile long with a 2.5% - 4.4% grade. They approached an intersection where a two lane state highway connects with a stop light at the bottom of the hill. Upon approach to the intersection, there was a flashing yellow caution light alerting oncoming vehicles of traffic signal changes from green to yellow to red. The caution light was part of a signage unit which read "When Flashing Prepare To Stop." Drivers of Trucks 2 and 3 had been conversing via citizen band radio but had ceased communications before reaching the intersection.

Truck 1 was required to stop at the red light. When the light changed to green, Truck 1 proceeded up the next hill; Truck 1's vision up the hill was clear and unobstructed. Truck 2, driving in the left lane, approached the intersection while the light was green. Truck 2 drove through the intersection followed by Truck 3 approximately three tractor-trailer lengths behind. The next hill after the traffic light was approximately 1/10 of a mile long with a 0.5% - 2.4% grade.

Truck 1, traveling approximately 40-45 miles an hour, was in the right lane approaching the top of the hill. The speed of truck 2 is unknown. Trucks 2 and 3 were also approaching the top of the hill. The driver of Truck 3 stated that Truck 2 appeared to engage in a normal lane change into the right lane when the driver's side tire of Truck 2 hit the right rear of Truck 1's trailer. Upon impact, the driver of Truck 1 looked in the driver's side mirror and saw Truck 2 veer across the southbound lanes of the highway. Truck 2 crossed over a gravel ditch beside the road, immediately hit an earth embankment, overturned and caught fire. Upon impact with the embankment, the cab separated from the frame of the truck, the fuel tanks were torn open, and the driver was thrown into the passenger side of the sleeper compartment.

The crash took place at approximately 7:30 am. At approximately 7:45 am the driver of Truck 3 contacted emergency medical services and then tried to control the flames with a fire extinguisher but Truck 2 was too quickly consumed with flame. The exact time of emergency medical services' arrival on the scene is not known. Upon arrival EMS began to extinguish the fire, found the driver pinned in the sleeper cab of the tractor and called the coroner. The coroner was contacted at 8:02 am, arrived on scene at 8:25 am, and pronounced the driver dead at 8:30 am. The driver was extracted from the truck by mechanical means. The driver of Truck 1 was treated for injuries at a local hospital and released. Neither Truck 1 nor Truck 2 drivers were wearing seat belts.

The crash investigation revealed that the impact of the two trucks flattened the right rear tires of Truck 1 and broke #5 and #6 suspension hangers on the trailer's right hand side axles. The main drive line of Truck 2 dropped down and left several pavement gouge marks in the direction of the right shoulder and there were skid marks across the southbound lanes toward the embankment. The impact force of Truck 2 hitting the embankment was enough to drive the tractor's motor block approximately four feet left and five feet forward from the correct position. The axles on Truck 2 were shifted forward approximately seven inches and the suspension mounts and spring hangers were broken. The impact also knocked the cap off the universal joint of Truck 2. It was recovered by the crash investigator from Kentucky State Police.

The driver of Truck 3 had been talking with the driver of Truck 2 approximately a quarter of a mile earlier and didn't suspect any problems with either the truck or the driver. Both tractor-trailers had passed recent inspections and were in good working order. On the trailer of Truck 1, the brake lights were working and all but one clearance light was working; however this was a non-contributing factor to the crash. There was no detected malfunction in the decedent's truck. According to a crash investigator, the total weight of the decedent's truck was within the legal weight limit at 123,500 pounds. The legal weight limit for this road is 120,000 lbs with a five percent tolerance.

Coal from the overturned trailer spilled into the north and south bound lanes. The northbound lane was reopened at approximately 11:30 am and the southbound lane did not reopen until later in the afternoon.

It is unknown as to why the driver appeared to change lanes and rear-end the coal truck in the right lane. According to the coroner, the decedent did not have a medical condition that could have precipitated the crash such as a heart attack or diabetes and the driver of Truck 3 stated that the driver of Truck 2 did not state he was having any difficulties with the tractor.

Cause of Death

The death certificate lists "Smoke Inhalation and Thermal Injuries of Body" as immediate cause of death.

Recommendations and Discussions

Recommendation No. 1: Owner-Operators should follow Kentucky laws and wear seat belts while operating a commercial vehicle.

Kentucky and Federal laws both require commercial drivers to wear seat belts when operating a commercial vehicle. Kentucky Revised Statute 189.125(6) requires drivers and all passengers to be restrained by properly adjusted and fastened seatbelts. 49 Code of Federal Regulations §392.16-Use of seat belts, states that a commercial vehicle is equipped with a seatbelt, and the driver must properly restrain himself/herself with the seatbelt. The tractor in this case was manufactured in 1995 and was equipped with seat belts. Owner-operators should follow the Federal Motor Carrier Safety Administration's program, "Commercial Vehicle Safety Belt Program". A manual, "Increasing Safety Belt Use in Your Company" is also available to help owner-operators understand the importance of wearing seatbelts. The manual can be found at: <http://www.fmcsa.dot.gov/safety-security/safety-belt/increasing-safetybelt-usage-manual.htm>

Recommendation No. 2: Companies should provide new and refresher truck driver safety training for company drivers including driver distraction and defensive driving technique techniques and Hours of Service as it pertains to fatigue.

Company truck drivers should receive new and refresher driving training semi-annually. This training should include defensive driving techniques and highway incident management strategies. Training should also include education on the causes of jackknives, roll-overs and the prevention of such occurrences. According to two truck driver training schools, defensive driving techniques should include looking eight to ten seconds ahead of the truck and how to deal with obstacles in the roadway (05KY089). Training should also include aids in helping drivers stay focused on driving and not becoming distracted. Companies provide refresher training for all drivers every six months to address driving habits including appropriate speed for driving conditions, wearing safety belts, space management, how to avoid becoming distracted while driving and fatigue.

Recommendation No. 3: Vehicle stabilizer and sensory systems should be mandatory equipment on all commercial vehicles.

The Federal Motor Carrier Safety Administration's Code of Federal Regulations, 393.55 requires commercial vehicles manufactured after 1999 to be equipped with automatic braking systems (ABS). The semi-tractor trailer involved in this incident was equipped with an ABS, but not a stabilizer system. When ABS is applied by the driver prior to striking or making an avoidance maneuver, the ABS prevents the semi-tractor trailer from jackknifing. If the ABS is not activated quickly enough, the stabilizer system can sense incorrect vehicle movement. Independent of driver input or action, the stabilizer system will override the driver, deploy, and prevent the semi-tractor trailer from a jackknifing or rolling-over.

Another system available for trucks is a sensory system which uses forward sensing radar to inform the driver that he/she is too close to the vehicle in front of them. Two indicators, a light on the dash board and an audio signal, will alert the driver of close proximity to the vehicle in front and will automatically slow the truck down thus expanding the driver's reaction time.

Recommendation No. 4: To better prevent rear collisions, companies should establish a safety program to install flashing amber LED lights on the rear of all slow moving trucks.

Vehicles driving slower than the posted speed limit, or slower than other traffic can cause hazardous situations for faster moving vehicles to negotiate. The slower moving tractor trailer involved in this incident was in the proper lane for the vehicle's speed. Companies that have vehicles that commonly travel at speeds lower than the posted limit should consider installing additional flashing lights on the back of the vehicle. Additional flashing lights on the rear of the trailer would have given the tractor driver a warning visual of how slow the other vehicle was traveling.

Keywords

Coal truck
Seat belts

References

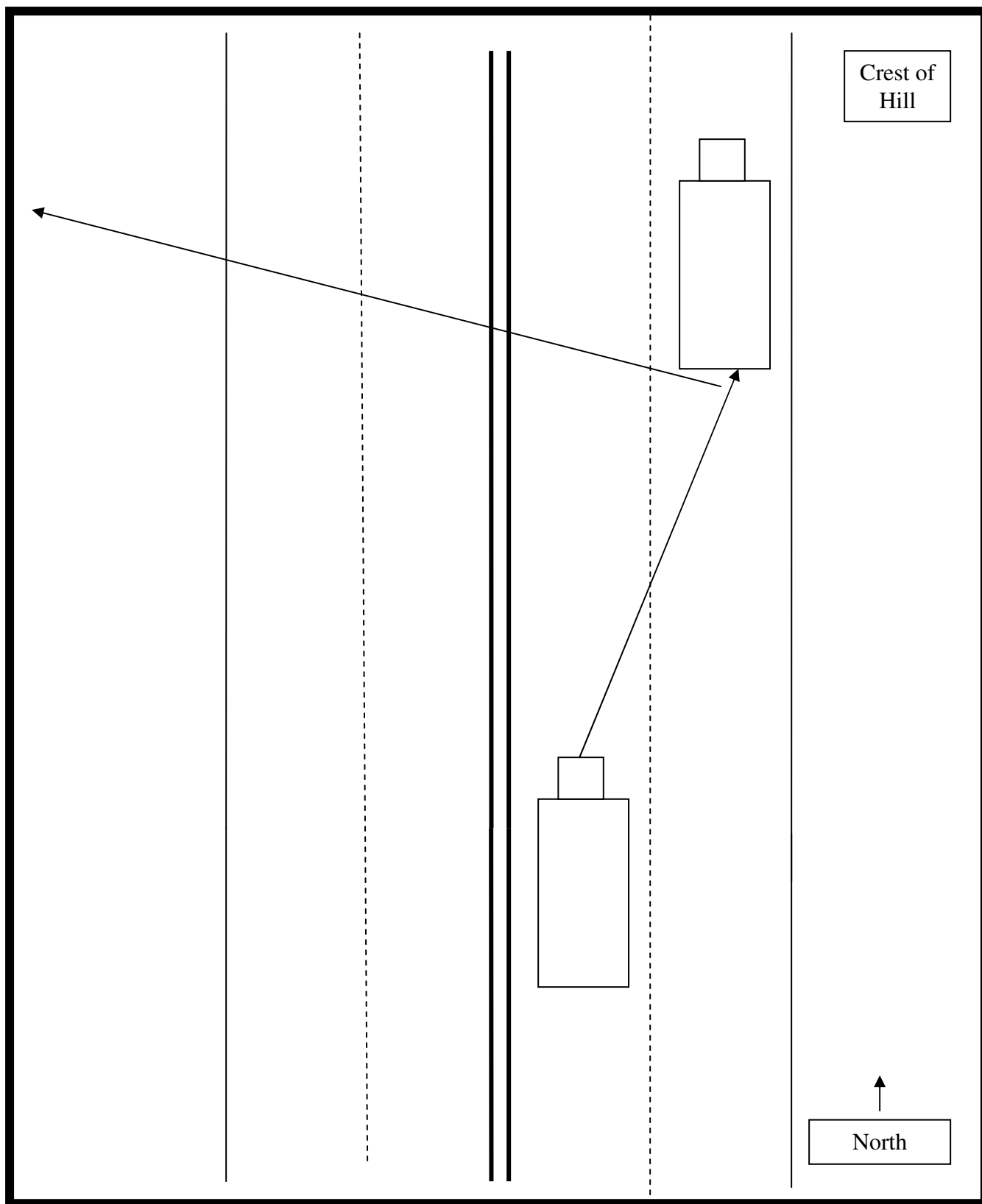
- 1) Kentucky Revised Statute 189.125(6) – Seat belts
- 2) 49 Code of Federal Regulations §392.16-Use of seat belts
<http://www.fmcsa.dot.gov/safety-security/safety-belt/increasing-safetybelt-usage-manual.htm>
- 3) Guidelines for Driving with Bendix Electronic Stability Program Technology,
<http://www.youtube.com/watch?v=85ZmW1gqIOc>
- 4) Guidelines for driving with Meritor Wabco radar based collision system,
http://www.meritorwabco.com/literature/onguard_movie.asp
- 5) Code of Federal Regulations, Department of Transportation, Federal Motor Carrier Safety Administration, Part 393: Parts and Accessories Necessary for Safe Operation, Subpart C, 393.55 Antilock brake systems, <http://www.fmcsa.dot.gov/rules-regulations/administration/fmcsr/fmcsrruletext.asp?section=393.55>

Acknowledgements

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employers and employees to have a safer work environment. For more information about FACE and KIPRC, please visit our website at: www.kiprc.uky.edu



Schematic of incident; not to scale