MIFACE INVESTIGATION REPORT #13MI149

SUBJECT: Truck Mechanic Pinned By Truck's Sway Bar and Link

SUMMARY

In fall 2013, a male truck mechanic in his 40s died when a pickup truck fell on him. The decedent was in the process of checking the truck for an oil leak. The truck had been driven up a slight incline and parked with the front wheels on a cement apron surrounding a building. The front wheels were positioned several inches east of a 5-inch deep trench and the back wheels on dirt in a concave-shaped 3-inch trench. There was a consistent elevation decline from the building to the west to allow for water drainage. The decedent started the truck, placed it in neutral, and partially depressed the parking brake. No wheel chocks were used to prevent truck movement. At some point while lying on his back working under the truck, the truck moved backward, with the front wheels entering a 5-inch deep dirt trench. The truck's sway bar and link to the rear of the front axle fell on the decedent's chest, pinning him against the cement (Figure 1). A building employee had left approximately one hour earlier and had noted the truck running. When he returned, the truck was still running, so he looked under the truck. Seeing the decedent, he screamed for help. Emergency response was summoned. A jack was used to raise the truck. The decedent was transported to a local hospital and declared dead.

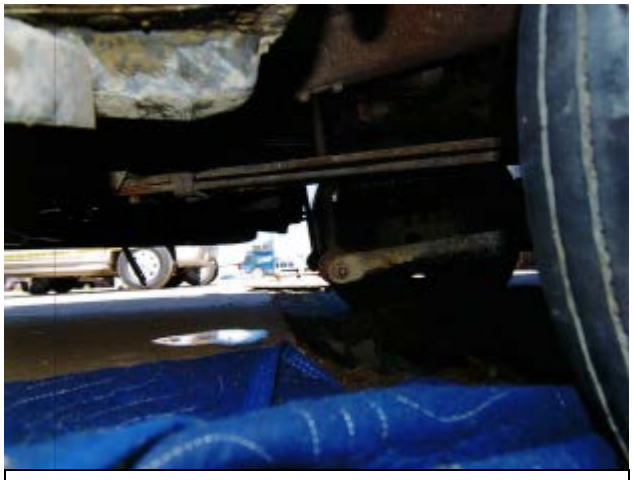

Figure 1. Picture of sway bar/linkage, passenger side, decedent's work area

Factors which contributed to this fatal incident include:

- Vehicle not blocked from inadvertent movement
- Unsafe work practices.

RECOMMENDATIONS

- Persons performing vehicle maintenance should ensure that vehicles are adequately supported while maintenance is performed underneath and that vehicles are protected against inadvertent movement.

INTRODUCTION

In fall 2013, a male truck mechanic in his 40s died when a pickup truck fell on him. MIFACE learned of this incident from a newspaper clipping. MIFACE contacted the company, who based on the newspaper clipping, appeared to be his employer. MIFACE determined that the decedent was not employed by this company but bartered services with the company owner; the owner, who was friends with the decedent, lent the decedent equipment, and the decedent would repair equipment for the company owner when repair was necessary. During the writing of this report, the police report and pictures, the medical examiner's report and the MIOSHA file were reviewed. Pictures are courtesy of the responding police department. Pictures were altered by MIFACE to preserve anonymity.

The decedent's friend owned a construction company. The construction company was installing an underground retention pond with associated manholes and sewer lines at an auto parts store. The firm's owner indicated he had been introduced to the decedent by a mutual friend approximately one year ago, and over this period of time, had become good friends with him.

The decedent was a certified truck mechanic and had a CDL license. He had full time employment with a trucking company. The decedent worked at this trucking company for 7-10 years. He had recently been placed on 2nd shift (1:00 p.m. – 9:00 p.m.).

Due to the decedent's afternoon work hours, his friend indicated to the MIFACE researcher that the decedent had nothing to do until he went to work. The decedent often showed up at his friend's worksites, offering to do work to help fill the time and keep his mind off some personal issues until he went to his full-time job at the trucking company. The friend permitted him to perform work, and found "odd jobs" for him to complete. The friend did not provide compensation to the decedent to perform these work tasks, although there was discussion that the decedent would leave his full time job at the trucking company and begin working for his friend.

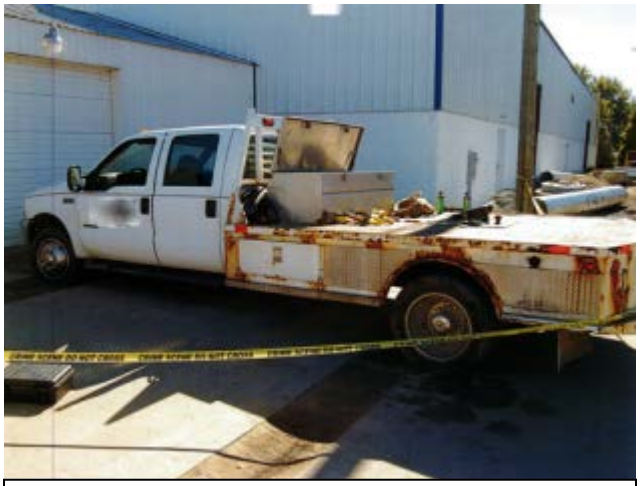

Figure 2. Truck involved in incident. Truck facing east, front wheels in trench

The decedent, according to his friend, had some personal issues that may have distracted his attention from his work. For example, his friend indicated that, while on his worksites, the decedent had placed himself in "dangerous" positions (e.g., near open manholes and excavations) because his attention was on texting, not his surrounding environment.

MIOSHA General Industry Safety and Health Division investigated the incident and determined no employer-employee relationship existed and thus the death was not program-related.

INVESTIGATION

On the day of the incident, the decedent came to his friend's worksite at approximately 8:30-9:00 a.m. The worksite was located near the decedent's home. He spoke with his friend and they talked briefly. The decedent asked if there was anything he could do at the site. The friend decided, based on their conversation that he should give him something "non-hazardous" to do. One of the friend's business trucks (Ford F450) was leaking oil, and due to the decedent's experience, fixing the leak would be a good task for him to perform.

At approximately 9:30am, the friend drove the truck to the back of the auto parts store, parking the truck facing east (Figure 2). There had been two newly created trenches near the building due to the removal of concrete. The trench located a few feet from the building was approximately three feet wide and approximately five inches deep. The second trench was approximately 19 ½ inches wide, was concave in nature, and was located approximately 14 feet away from the building. There was a slight pavement decline from the building toward the center of the property to allow for water drainage. The decedent's friend parked the truck with the truck's front wheels over and several inches past the easternmost trench, in front of an overhead door to allow for more space under the truck for the decedent to work. The friend placed the manual transmission in park and turned the ignition key to off. The work plan did not include jacking the truck up from the ground.

Figure 3. View of undercarriage and distance between sway bar and linkage and cement

Police investigation indicated that the truck's rear wheels were probably positioned in the concave area of the second trench. On the driver's side of the truck, not too far away, was a door to the store. The friend then left the decedent and began work on an excavation located approximately 50 feet away.

The friend indicated the following sequence of events: After he parked the truck, the decedent went to his home and to his parent's home nearby to procure tools. He then went into the auto parts store and bought a can of brake cleaner, and then crossed the street to a gas station and bought a soda. He arrived back at the truck and began work. The decedent placed a blanket on the ground by the passenger side front wheel. He started the truck with the door open, took the truck out of gear, and placed it in neutral. He did not fully apply the parking brake or chock the

wheels. No other safety devices were in place near the vehicle's wheels. When the truck was placed in neutral, the friend indicated the truck lurched backward a couple of inches. The decedent walked around the rear of the truck to the passenger side and positioned himself under the truck.

Sometime between 10:00 a.m. and 11:00 a.m., auto part store personnel heard a scream and walked out of the door to investigate. Seeing nothing, they returned inside of the store. At approximately 10:30 am, an auto parts store employee exited through the side door and noted the truck running. The auto parts store employee returned at approximately 11:30 a.m., and again noted the truck was running. He looked under the truck and saw the decedent lying on his back with the truck's sway bar and linkage on his chest. He screamed for the decedent's friend, who came running. Emergency response was summoned. The decedent's friend used a jack to raise the truck up from the decedent. Emergency response personnel arrived and assumed care. The decedent was taken to a local hospital where he was declared deceased. At some point after the decedent was found, someone turned the truck off.

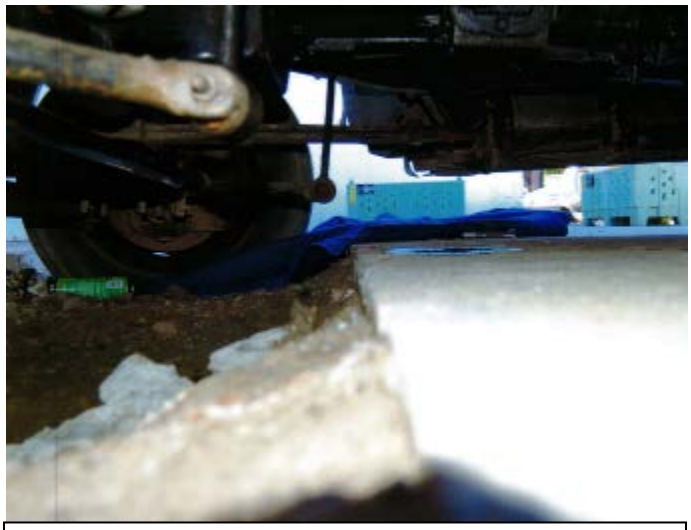

Figure 4. View of incident area looking from driver's side.

Police pictures at the scene show that the decedent took a flashlight, a can of brake cleaner, and a rag with him when he went under the truck. Responding police found that the brake cleaner was lying next to the passenger side front tire with its cap off and an oily rag. There was an area on the oil pan that looked like it had been freshly wiped and had oil/dirt consistent with the oily rag found at the scene under the truck.

For reasons unknown, while he was under the truck, the truck rolled backward four to five inches and fell down hard as the tires entered the five inch deep dirt trench. The ground clearance on the driver's side of the vehicle near the front bumper (minus the plastic air dam) and lower fender area measured approximately 12 inches. Police personnel measured 5¼ inches from the compacted earth near the west edge of the trench to the bottom of the sway bar where it connected to the passenger side sway bar link. A second measurement from the concrete west edge to the lower passenger side leaf spring was measured at approximately 9 inches.

Police investigation found that the parking brake had been partially depressed, but not fully engaged. Police personnel measured the distance from the carpeted floor (mats moved out of the way) to the bottom of the rubber pedal pad or the parking brake pedal and recorded a

measurement of approximately 7½ inches. Police noted the parking brake release lever was in the "relaxed" position, where the pedal position locking device would be allowed to be engaged. Police pulled the parking brake release lever and allowed the parking brake pedal to return to its natural position when the pedal latch was released and measured that distance to be approximately 8 7/8 inches. Police then set the parking brake with reasonable pressure and recorded a measurement of approximately 5½ inches from the carpeted floor to the bottom of the pedal pad. A difference of 2 inches was recorded.

CAUSE OF DEATH

The cause of death as listed on the death certificate was traumatic asphyxiation. Toxicology was consistent with medical treatment.

RECOMMENDATIONS/DISCUSSION

- Persons performing vehicle maintenance should ensure that vehicles are adequately supported while maintenance is performed underneath and that vehicles are protected against inadvertent movement.

Prior to beginning any type of work under a vehicle, individuals should always verify that the vehicle is properly supported and stabilized. The decision was made by the decedent and his friend that the slope would provide enough clearance for the decedent to safely work underneath the vehicle. Although not ideal, this would have been the case if the vehicle's parking brake was fully depressed and appropriate wheel chocks used.

A safer way of performing this task would have been to set the parking brake, use a rated jack to lift the vehicle, a jack stand rated for the weight of the truck on each side of the front of the vehicle for support and to prevent the vehicle from falling, and appropriate wheel chocks on both rear tires.

The decedent's friend indicated there were "items nearby" that could have been used to chock the tires. Workers should ensure that the chocks selected are manufactured for the type and size of vehicle tire to be chocked. Workers should not use dunnage, blocks of wood, stones, or other objects not manufactured to serves as chocks.

- Employers should develop, implement, and enforce a comprehensive preventive maintenance program that includes safe work practices.

Developing policies and procedures on preventive maintenance can assist firms in performing scheduled maintenance, monitoring maintenance conducted, and inspecting completed maintenance. Performing preventive maintenance on a vehicle can be time consuming and redundant at times, but the overall goal is to lengthen the life of a vehicle and diagnose potential

problems before they become costly to repair, take a vehicle out-of-service, or pose a safety risk to the operator and/or passenger(s).

Maintenance schedules should be established and recorded as an integral part of a well-planned maintenance program. The maintenance program should include daily, weekly, monthly, yearly, and periodic maintenance service checks. The maintenance checks should be based on the manufacturer's service manuals, the tire manufacturer's recommendations, and operating conditions.

Establishing a system for retaining records is an important component of a preventive maintenance program. All service records, whether an issue is identified or not, should be maintained according to the individual vehicle and kept for the life of the vehicle. In many cases, problems can only be found by comparing current findings with previous observations/work performed.

KEY WORDS: working under unsupported vehicle, maintenance schedules, jack stands, vehicle repair.

REFERENCES

- Washington FACE Investigation Report #11WA013: *Truck Driver Dies after being Run Over by Propane Transport Rolling Backward at Bulk Plant*, http://www.lni.wa.gov/safety/research/face/files/propanetruckdriver.pdf
- NIOSH Fire Fighter Fatality Investigation Report 2010-37: *Volunteer Fire Captain Dies from Injuries Received after a Brush Truck Undergoing Maintenance Strikes and Pins Him Against a Wall — Indiana*, http://www.cdc.gov/niosh/fire/reports/face201037.html
- NIOSH Fire Fighter Fatality Investigation Report 2011-19: *Career Lieutenant Dies from Injuries Received after Vehicle Undergoing Maintenance Crushes Him – Massachusetts* http://www.cdc.gov/niosh/fire/reports/face201119.html

 March 4, 2015