MIFACE Investigation Report #14MI122

Subject: Truck Driver Struck by Rear Tractor Tires When Semi Tractor Driven Forward

Summary

In late fall 2014, a truck driver in his 50s died when he was struck and run over by the passenger side tires of a 2011 International semi-tractor while positioned in a blind spot on the passenger side of the cab. The incident occurred at night. The incident occurred in a staging area lit by four lights attached to the building. Several of the decedent's coworkers were on site, working together to quickly move trucks and associated tankers in and out of a designated staging area at a dairy due to a procedural change imposed on the company by the dairy. One of the decedent's coworkers (Coworker 1) was assisting the 2011 International truck driver. Coworker 1 was positioned on the driver's side of the tractor cab unhooking the trailer. He also acted as a spotter during both the backing and forward movement of the tractor-tanker unit. The decedent was positioned on the passenger side of the semi-tractor and was lowering the landing gear down while the Coworker 1 unhooked the hoses, electrical and other connections from the tractor and tanker. When the trailer was unhooked and landing gear lowered, Coworker 1 saw the decedent standing away from the tractor and signaled the semi-tractor driver to back the tractor to disconnect from the tanker. The driver backed the tractor and felt the tanker shift and come off the truck. Coworker 1 did not see the decedent prior to signaling the tractor driver to drive forward. The semi-tractor driver checked his mirrors and looked out his windows. He drove forward to disengage the trailer. As the driver drove forward, the Coworker 1 walked around to the rear of the tractor and saw the decedent lying on the ground. Subsequent investigation showed that the decedent was standing between the passenger side cab, behind the muffler unit and in front of the rear dual tires. As the driver moved forward to disengage the tractor from the tanker, the decedent was struck and run over by the passenger side rear tires.

Photo 1. Rear view, passenger side of similar truck

MIFACE identified the following key and possibly contributing factors:

- Unexpected change of tanker delivery and tanker holding schedule at dairy site
- More than one individual unhooking a trailer
- Insufficient communication between workers
- Decedent wearing dark clothing
- Working at night

RECOMMENDATIONS

- Blind spot training should include hazards associated with their role as a driver and as a pedestrian, including pedestrians acting as a spotter. As a driver, emphasis should be placed on the need to determine pedestrian location for both forward and backward movement and as a pedestrian, the need to be seen and acknowledged by the truck driver.
- Always wear a high visibility vest/clothing when a pedestrian around moving vehicles, especially at night and/or in dimly lit areas.
- Management should develop a procedure to document firm-wide communication has received and employees have acknowledged the receipt of the communication.
- Ensure designated individual required to communicate important information to coworkers has the time to communicate the information
- Develop and implement an emergency action plan with a checklist of agency contacts.
- When a change in a firm's procedure affects suppliers, the firm should allow suppliers adequate time to institute and communicate changed procedures.

BACKGROUND

In late fall 2014, a truck driver in his 50s died when he was struck and run over while positioned in a blind spot on the passenger side of a 2011 International semi-tractor cab. MIFACE learned of this incident from the MIOSHA 24-hour ASAP reporting system. MIFACE contacted the company owner who agreed to speak with the MIFACE investigator about the incident. During the writing of this report, the death certificate, police and medical examiner reports, and the MIOSHA compliance file were reviewed. The pictures used in this report are courtesy of the MIOSHA compliance file. MIFACE removed identifying information from the pictures for use in this report.

A dairy processing plant had contracted the decedent's employer, a trucking company, to haul milk from dairy farms in Michigan and nearby states. The trucking firm had been in business for eight years. The company owner indicated the company employed 23 individuals at the time of the incident, 21 of whom were truck drivers. The decedent worked full time. The company set the driver's pickup and delivery schedules; all drivers had a variable schedule depending upon the number of drivers available for the day and dairy farm scheduling. The decedent had been employed with the company for approximately one month. Drivers were paid by the load. For at least 10 years prior to his employment with this employer, the decedent had had been a long haul truck driver for another company.

The firm did not have specific written safety procedures for working with others to unhook tractor/trailers. Routinely, the semi driver was responsible for hooking/unhooking his trailer. The company owner was designated safety person. Safety meetings were held as necessary prior to incident. The decedent had attended the meetings. Company-sponsored safety training was less than 8 hours annually; the firm relied on CDL training received.

The trucking firm had a week-long "new driver" training program. For all newly hired drivers, the firm assigned an experienced driver to accompany the new driver on his/her route, introducing the driver to the farm owner and the farm's pickup location and procedures as well as the required work procedures at the dairy plant. This training activity was oriented toward food safety requirements rather than safe work practices. The length of this training was for one week.

The firm had a 2009 edition employee handbook at the time of the incident. Example topics included dairy plant procedures, farm milk sample procedures, company policies and procedures (e.g. drug and alcohol testing, attendance, vacations, reporting absences, etc.), pre-trip vehicle inspection, defensive and night driving, W-4 information, MIOSHA Health and Safety Protection on the Job poster, and Michigan Whistleblower's Protection Act.

Company Remediation

The firm made procedural changes to minimize a recurrence of a similar incident:

- Requirement that reflective vests must be worn at all times. Vests are kept at work and drivers retrieve them when they arrive. This change in procedure was instituted the day after the incident.
- The firm holds mandatory quarterly safety meetings for all personnel at the company's main office.
- Revised employee handbook to include "Get Out And Look (GOAL)", a program pertaining primarily to backing a vehicle. One of the main tenants of the program is "if you are not 100% certain of your surroundings, then take an extra minute and Get Out And Look. (See Appendix A)
- Developed and implemented a policy where all employees have to be visibly accounted for before moving vehicles including blind spot training.
- Instituted a pre-employment safety briefing discussing truck movement (GOAL) and safety vest requirement,

MIOSHA General Industry Safety Division issued a Safety and Health Recommendation to the company at the conclusion of its investigation:

- It is recommended that the firm develop, document, and train employees on a procedure for truck operation where all employees are accounted for before truck movement occurs.

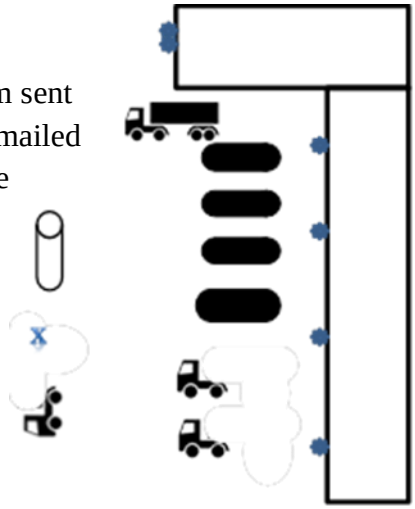
INVESTIGATION

By end of business on Friday of each week, the decedent's employer determined the driver's weekend schedule for milk pickup from farms and delivery of the full tankers to the dairy processing plant. The decedent's employer had communicated the driver's schedule via e-mail, the firm's usual communication method.

The dairy plant notified the decedent's employer of a change of procedure - the trucking firm could only have three tankers on site at all times. The dairy plant notification occurred after the employer's business hours on Friday. The decedent's employer had already notified its drivers of their driving schedules. The reason for the dairy procedural change was unknown. Previously, the decedent's employer had as many trucks and trailers on site as needed. This procedural change created some confusion for the decedent's employer. The trucking firm had three immediate issues to deal with: 1) Figure out which drivers and tankers could be on site, 2) which tankers had to be moved off site and, 3) the location of the off-site storage. The firm determined that the extra trailers were to be hauled out of the plant property to a drop yard approximately ½ mile away.

The trucking firm had one individual referred to as a "shagger" at the dairy processing facility. The shagger drove a semi-tractor that hooked up to a dropped full tank and transported the tank to the scale to be weighed and then moved the tank to the appropriate area of the dairy for emptying. The shagger also transported clean, empty tanks to the staging area where an incoming driver could hook up and take the empty tank to a farm for filling. On the night of the incident, in addition to his regular duties at the plant, the shagger was also transporting empty tanks to the drop yard to reduce the number of tanks (from six tanks on the property to the three tanks limited by the new procedure) on the dairy plant property.

After receiving the email from the dairy processing plant, the firm sent another email to the drivers with their new schedules. The firm emailed the shagger, informing him that as drivers came into the plant, the shagger should inform them of the changes for the next day's deliveries. The firm owner also went to the diary processing facility and spoke to the shagger about the new procedures. A follow-up email was sent to the drivers asking them to speak with the shagger when they arrived at the plant to determine their next steps. The owner was not present at the dairy; he relied on the shagger to share the information with the incoming procedural changes.



Drawing 1. Layout of incident scene. Not to Scale

The change in procedure by the dairy directly related to why several of the trucking firm's drivers were on location at the same time. There were four employees on site at the time of the incident. The drivers were acting as "shagger" by moving vehicles in and out and dropping trailers to remove empties and replace full tankers where they were not normally to be parked.

The decedent reported to the company office, determined which semi-tractor he would use, and drove directly to the dairy.

The shagger was bringing an empty tank to the staging area and three drivers wanted this tank. Because the drivers had not yet read/received the emails, several drivers were present at the processing facility. To expedite the process of unhooking/hooking trailers, several of the drivers present worked together to move truck/tankers in and out of the dairy's staging area. (See Drawing 1) The firm's owner stated that it was not a normal operation to have numerous employees performing hooking and unhooking of units. Normally drivers do all aspects themselves.

Since only three of the firm's tankers were now permitted on the property, the arrival of a 2001 International semi-tractor with a tanker full of milk at the staging area to be processed took precedence.

The semi-tractor driver had clocked in at the office at 11:00 a.m. on the day of the incident and had been on the job for longer than 10 hours. When he arrived at the dairy, after his tanker was unhooked, he was instructed to use the tractor to connect to another tanker and transport it to the off-site storage area.

The decedent and one of his coworkers (Coworker 1) unhitched the newly arrived tanker from the incident tractor. Standing on the north (driver) side of the tractor/tanker, Coworker 1 unhooked the hoses and electric pigtail while the decedent, standing on the south (passenger) side, lowered the landing dolly legs. The decedent was wearing a black coat, black sweatshirt and black baseball cap, and blue pants.

Photo 2. Location of decedent when truck driver drove forward

Coworker 1 stated that he observed the decedent positioned away from the tractor/tanker unit. He stepped forward to inform the tractor driver it was all clear and to pull ahead. At this time, his view was blocked from seeing the decedent. The tractor driver stated he looked out his windows and checked his mirrors prior to pulling forward. For reasons unknown, the decedent had entered a blind spot on the passenger side; he was positioned behind the cab and its muffler system and in front of the rear tandem wheels of the tractor (See Photo 2). Another truck driver observed the positioning of the decedent and honked his horn to warn the driver and decedent but it was too late. As the tractor pulled ahead, the tractor ran over him. Emergency response was called and the decedent was pronounced dead at the scene.

Photo 3. View from driver's seat in truck cab

The MIFACE researcher sat in the driver's seat of a similar unit at the firm's headquarters. The researcher observed that while in the driver's seat there was a large blind spot created by the large muffler system, which was mounted on the right (passenger) side of the truck tractor and blocked view of this area. Figure 3 is a picture taken by the MIOSHA compliance officer seated in the cab of the incident tractor and shows the driver's view out of the back window and the blind spot created by both the height of the cab above the ground and the muffler unit.

KEY WORDS: Struck By, Blind Spot, Semi-Tractor, Transportation & Warehousing

RECOMMENDATIONS/DISCUSSION

- Blind spot training should include hazards associated with their role as a driver and as a pedestrian, including pedestrians acting as a spotter. As a driver, emphasis should be placed on the need to determine pedestrian location for both forward and backward movement and as a pedestrian, the need to be seen and acknowledged by the truck driver.

Although under normal circumstances, the firm's truck driver hooked/unhooked his own vehicle blind spot training would still be applicable because the drivers worked moved trailers at farms and the dairy where workers on foot might be present. A blind spot is the area around a vehicle or piece of equipment that is not visible to operators, either by direct line-of-sight or indirectly by use of internal and external mirrors. After the incident, the firm adopted a Get Out and Look (GOAL) program, which addresses hazards associated with the *backing* of a truck but does not directly address the hazards associated with pulling a truck forward. Although the firm now requires that everyone be in eyesight before moving, it is unclear whether within eyesight includes an acknowledgement from the driver and/or spotter that the pedestrian is <u>seen</u> by both the driver and/or spotter.

Workers who are pedestrians, including spotters, near the trucks should be instructed that the area directly in front, behind or to the side of the truck is a prohibited zone unless the worker on foot receives a verbal and visual approval confirmation from the driver that it is safe to enter the area.

MIFACE recommends that both vehicle drivers, spotters, and pedestrian workers receive training to ensure a safe driving and/or backing activity. Training for truck operators should include, but not be limited to:

- Window rolled down.
- Radio off.
- No cell phone or similar distraction while backing.
- Foot on brake.
- If you lose sight of the spotter or pedestrian in your mirror, STOP.
- If any individual on foot is not acknowledged and eye contact is not made, the driver should not move the truck until visual contact is re-established.

During backing operations, a spotter should be used to assist the driver when there are other workers in the area. Training for the "spotter" should include, but not be limited to:

- Always wear a high visibility reflective vest.
- Inspect the backing area and all other sides of the vehicle checking for hazards before allowing the vehicle to move - be sure to also check overhead clearance.
- Communicate any observed hazards to the driver.
- Stand alone, do not allow anyone to congregate around you.
- Spotter position: eight to ten feet away from and on the driver side of the vehicle. Stay out of the direct path of the moving/backing vehicle's movement.
- Keep clear of both the vehicle and any fixed objects. Make sure pathway is clear f tripping hazards. Watch for pinch points behind you such as other vehicles, utility poles, trees, etc.
- If you cannot see the driver's face in the driver's side rear view mirror, have him/her STOP until you do.
- Give clear, understandable, and consistent hand signals. Coordinate with driver/operator of what signals are used
- Walk along the side of the backing vehicle and do not walk backwards while directing the vehicle.
- Always have an escape route.
- Never turn your back on the moving equipment.
- Stop the driver if any hazards are observed or if you are uncertain of the direction that the driver is maneuvering.

- Always wear a high visibility vest/clothing when a pedestrian around moving vehicles, especially at night and/or in dimly lit areas.

The firm now mandates the use of high-visibility vests that comply with industry standards for their employees. For safety, the truck drivers should don and doff the vest in the corporate office. The vest should worn and kept closed in front and on sides be worn at all times to ensure visibility.

- Management should develop a procedure to document firm-wide communication has received and employees have acknowledged the receipt of the communication.

The firm routinely used email for communicating with drivers, but did not require a response from the drivers indicating that the email was opened and read. Ensure if utilizing email or other social media for firm-wide communication, management should ensure that it is required that employees acknowledge the email/text. In this incident, the email system used by the employer for communication could have been used to inform employees of all changes to procedure.

- Ensure designated individual required to communicate important information to coworkers has the time to communicate the information

If one individual is selected to communicate information to employees, the individual must be given time to do so. In this incident, the shagger had other responsibilities at the site and could not stay at the entrance of the facility to inform his coworkers of the plans made by the employer to accommodate the number of trucks staged at the facility. Because the shagger was also required to move trailers carrying milk into the facility and transport empty trailers from the facility, the shagger was unable to carry out the employer-designated communication responsibilities. Employees who arrived while the shagger was moving trailers within the site could not receive the necessary information; this led to two unusual situations for the decedent and his coworkers. The first situation was that more employees were present than would normally be present waiting for trucks, hooking/unhooking tractors from trailers in an effort to move the trucks and trailers more quickly. Secondly, the employees on site normally did not work together to unhook trailers from the tractor; no signals or communication methods between the workers on the ground and the driver had been established.

- Develop and implement an emergency action plan with a checklist of agency contacts.

The firm identified the need to develop a checklist for which agencies to call when there is a problem, regardless of whether or not it is an emergency. The firm owner stated he received contradictory information depending upon which agency he called… DOT, MIOSHA, Law Enforcement, Food and Drug Administration, etc. MIFACE recommends the firm develop a checklist of agencies, which require a call based on a broad type of issue. For example, issues could be a vehicle crash, worker injury, contaminated milk, etc.

- When a change in a firm's procedure affects suppliers, the firm should allow suppliers adequate time to institute and communicate changed procedures.

A factor in this incident was the sudden change of a long-standing practice. When possible, when a procedure or practice change that would affect suppliers is being considered, the firm should notify suppliers, if applicable, of its plans to change. In this incident, the decedent's employer did not have sufficient planning time for this unexpected procedure change and coupled with other communication issues, the incident occurred.

KEY WORDS: Struck by, run over, semi-tractor/trailer, working at night, high visibility vest, blind spot, transportation

REFERENCES

- OSHA Blind Spot Activity: https://www.osha.gov/dte/grant_materials/fy11/sh-22285-11/Handouts.pdf

RESOURCES

- MIFACE Investigation Report #04MI107: Engineering Technician Dies When Backed Over by Cement Mixer. https://oem.msu.edu/images/MiFACE/04MI107v1.pdf
- MIFACE Investigation Report #08MI040: Municipal Truck Driver Dies After Being Backed Over by Dump Truck https://oem.msu.edu/images/MiFACE/08MI040.pdf

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Appendix A

GOAL (Get Out and Look)

States the following:

99% for all accidents caused by trucks backing up is preventable

If you are not 100% sure of your surroundings then take a minute to Get Out and Look

You will save yourself and the company a lot of time, hassle and money

Why? Because it is never safe to back a truck up

Backing a truck into a dock for unloading is a reality of driving

But it is not safe and 40 tons at 5MPH can do a lot of damage

Only you can prevent this accident

And you can only prevent it with the knowledge of your surroundings

It takes constant care and caution to have a great driving record

It takes seconds to ruin your record or your carrier

So take care and be 100% aware of your surroundings

And if you are not 100% certain of your surroundings

Then take an extra minute and Get Out and Look