

FATALITY INVESTIGATION REPORT

INCIDENT FACTS

DATE:

March 14, 2019

TIME:

7:45 a.m.

VICTIM:

33-year-old truck driver

INDUSTRY/NAICS CODE:

Specialized freight trucking,
NAICS 484220

EMPLOYER:

Transportation

SAFETY & TRAINING:

Had a written safety manual and safety meetings, no safety committee

SCENE:

Public road

LOCATION:

Washington

EVENT TYPE:

Struck by/motor vehicle



REPORT #: 52-47-2021

REPORT DATE: 03/04/2021

Chip Truck Driver Struck by Passing Truck

SUMMARY

On March 14, 2019, a 33-year-old truck driver for a transportation company died after he was struck by a passing truck while trying to tarp his loaded chip trailer.

On the day of the incident, the driver had just picked up a load of wood chips from a supplier in his tractor-trailer. The trailer measured 53-feet long by 14-feet high. The trailer was equipped with a manual side roll tarp system to cover loads. After the trailer was loaded, he pulled off the road into a dirt and gravel turnout that was often used by drivers to check and secure their loads. He was wearing a high-visibility safety vest.

Just before the incident, a witness saw the driver attempting to close the tarp that was on the top of his trailer, but the actual incident was unwitnessed. The driver was working at the rear left side of the trailer, which was approximately two feet off the road. Evidence suggests that he was attempting to reach the tarp roll bar or strap with a long reach tool. While doing this, it is suspected he stumbled into the road where he was struck by a passing tractor-trailer. His body was found in the road approximately 10 feet from the rear of his trailer with the long reach tool between him and the rear of his trailer.

The driver of the passing tractor-trailer did not realize he had struck the driver. He and another witness happened to see the driver lying in the road. He then pulled over in front of the driver's tractor-trailer and went to check on him.

The county coroner declared the driver dead at the scene.

RECOMMENDATIONS

Washington State Fatality Assessment and Control Evaluation investigators concluded that to protect employees from similar hazards employers should:

- Ensure trailers are loaded at the proper capacity so tarps can be safely closed and fastened.
- Maintain tarp systems and consider using an automatic tarping system that eliminates the need to manually close a tarp over a load.
- Develop policies for how and where to safely park and tarp trailers.
- Provide warning devices for truck drivers to use when parked on the side of the road. These devices offer visual aids for motorists and alert them to the possibility drivers may be walking or working outside.



DEFINITION

APP	Accident Prevention Program
DOSH	Division of Occupational Safety and Health
FMCSR	Federal Motor Carrier Safety Regulations
L&I	Washington State Department of Labor and Industries
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
SHARP	Safety and Health Assessment and Research for Prevention Program
WA FACE	Washington State Fatality Assessment and Control Evaluation Program

WASHINGTON STATE FACE PROGRAM INFORMATION

The Washington State Fatality Assessment and Control (WA FACE) program is one of many workplace health and safety programs administered by the Washington State Department of Labor & Industries' Safety & Health & Research for Prevention (SHARP) program. It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH grant# 5 U60OH008487), WA FACE collects information on occupational fatalities in WA State and targets specific types of fatalities for evaluation. WA FACE investigators evaluate information from multiple sources. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. NIOSH-funded, state-based FACE programs include: California, Kentucky, Massachusetts, Michigan, New York, Oregon, and Washington. WA FACE does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program.

Additional information regarding the WA FACE program can be obtained from:

www.lni.wa.gov/safety-health/safety-research/ongoing-projects/work-related-fatalities-face

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INTRODUCTION

In March of 2019, the Washington State Department of Labor and Industries' (L&I) Division of Occupational Safety and Health (DOSH) notified the Washington State Fatality Assessment and Control Evaluation (WA FACE) Program of the death of a 33-year-old tractor-trailer driver. While attempting to adjust and close the tarp on top of his trailer he was struck by a passing tractor-trailer. It is unknown if he fell into the road and was struck or was struck where he was standing by the passing tractor-trailer. His body was found in the road several feet from the rear of his trailer with a long reach tool between him and the trailer.

Washington State FACE investigators interviewed the parent company owners. Documents reviewed during the course of this investigation included the DOSH inspection file, the victim's death certificate, police report, witness statements, and the coroner's report.

EMPLOYER

The employer was a regional transporter of sawmill wood residuals and biomass products. The company owned and operated two transportation facilities in the region. They had been in business since 1991 and had just under 50 employees.

EQUIPMENT

The driver's truck was equipped with a possum belly chip transport trailer that measured 53-feet long by 14-feet high. The trailer was equipped with a manual side roll tarp system used to cover loads. The stretch cord at the front of the trailer that aids the driver in closing the tarp over the top of the trailer was not operational. This cord being functional is not a requirement by the Department of Transportation or the employer's policy.

WRITTEN SAFETY PROGRAMS and TRAINING

At the time of the incident, the employer had a formal, written accident prevention program (APP). It was available to employees online. They also used an employee manual. The employer trained the driver in a series of on the road tests over the course of approximately a week to 10 days when he was hired. The employer also trained the driver on safe tarping procedures and roadway safety during safety meetings.

According to the general manager, the company held quarterly safety meetings in-person with drivers. At safety meetings, they discussed several issues including safety and procedures at sawmills, proper use of tire chains, and paperwork.

WORKER INFORMATION

The driver had worked for this employer for approximately two months. He had a class "A" commercial driver's license (CDL-A). This meant he was certified to operate truck and trailer combinations, tanker vehicles, livestock carriers, flatbeds as well as most Class B and Class C vehicles, depending on endorsement requirements. He was a certified driver before joining this employer. According to the employer, the driver had no history of discipline or other problems while on the job.

The driver generally worked from 6 a.m. until 4 or 5 p.m. Most of the time he drove the same tractor that he was driving at the time of the incident. At times, he would rotate trailers as needed but never reported any problems. The route he was driving and load he was hauling was typical and made up the majority of his hauls. Typically, he hauled five loads per day.

At the time of the incident, the driver was wearing a high-visibility vest, safety glasses, and boots. He was using a long reach tool that measured approximately eight feet long.

INCIDENT SCENE

The incident happened at a dirt and gravel turnout area used by truck drivers to pull off the road to tarp and check loads. It was located in an industrial area adjacent to a county road. There were no curbs along the sides or lane lines on the road. On the side of the road where the driver parked, there was a railroad track running parallel to the road. The turnout between the road and the railroad track was wide enough for drivers to park and still have room to exit and check their loads and not be in the road. According to other drivers, the tracks were not active. The speed limit on the road was 25 miles per hour. However, the general manager who knew the turnout area well described that it is often used by drivers to inspect and adjust their loads. Therefore, most drive slower than the limit.



Photo 1: Incident Scene – driver’s tractor-trailer in turnout in left side of photo with ambulance parked across the roadway. Green witness tractor-trailer parked on shoulder in the right side of the photo. The “X” indicates approximate location driver was found following incident.

WEATHER

Weather on the incident day was sunny and approximately 22 degrees Fahrenheit. The road surface was dry. Sunrise was at 7:25 a.m.

INVESTIGATION

On the morning of the incident, the tractor-trailer driver had loaded his trailer with wood chips at a fiber mill. The trailer was loaded by pulling into a loading bay where the trailer was filled with the wood chips via conveyor. The driver worked with a mill employee and a loader operator. The operator fed wood chips onto the belt while the mill employee monitored the chip load. Once the height of the chips reached the top of the trailer, the mill employee would honk a horn and the driver would move forward slightly so they could continue to load the trailer. Loading the trailer like this created a series of piles of wood chips, some of which exceeded the height of the trailer.

After the trailer had been loaded to approximately 50 tons gross weight, he drove it off site and pulled into a turnout on the side of the road. This turnout was commonly used by tractor-trailer drivers to check and tarp trailers. The driver

parked at a slight angle leaving approximately three to four feet between the edge of the road and the front of the truck, however only leaving approximately two feet between the road and the trailer. At this point, the driver exited the truck, walked to the rear of the trailer, and began to manually cover the trailer with the tarp.

The tarp system on the driver's trailer was a standard manual side roll tarp system, which is common in the trucking industry. It consisted of a tarp designed to cover the trailer load, a trailer length roll tube attached to the left side of the tarp used to help pull the tarp evenly over the trailer, and five straps used to fasten the tarp to the side of the trailer. The roll tube rolls over the trailer with the use of an attached ground level hand crank. The crank allows the operator to open and close the system, pulling the tarp across the trailer to cover the load and safely travel on roadways.

The trailer was loaded with piles of wood chips extending beyond the height of the trailer in several places. The piles could be seen over the top of the trailer. Typically if a trailer is filled with piles above the height of the trailer, the wood chips settle down into the trailer flattening the piles as the truck drives from the mill to the tarping area. However, the chip piles did not settle this time. One employee interviewed said that sometimes drivers will hit their brakes a few times to settle the wood chips down if the piles are still too high. It is unknown if the driver of the truck did this. Others interviewed indicated that the piles appeared higher than usual. This could have caused difficulty in cranking the tarp roll bar over the piles and closing the tarp over the trailer.



Photos 2 and 3: Photo 2 shows tarp system including tarp, roll bar, and strap on top rear of trailer. Note how wood chips are piled above the height of the trailer and strap is twisted on top of tarp. Photo 3 shows hand crank used to close tarp over the trailer.

In his attempt to tarp the load, the driver was using a long reach tool at the rear of the trailer to pull the straps from the tarp down snugly to ensure the load was properly covered. The driver appeared to be following the company policy of tarping the trailer. The employer prohibited drivers from climbing on top of a trailer to free up a tarp because they considered it dangerous. No warning triangles or other warning devices were used. During this time there were two tractor-trailers on the road, a blue tractor-trailer traveling eastbound and a green tractor-trailer traveling westbound. Due to the traffic congestion, the tractor-trailers were traveling at an estimated 5MPH.

The driver of the green tractor-trailer traveling westbound witnessed the driver tarping his load and stated it appeared he was struggling to use the long reach tool with the tarp straps at the rear of his trailer. The driver of the blue tractor-trailer traveling eastbound also saw the driver attempting to tarp his load as he approached. He was driving into the sunrise. However based on interviews and witness statements, the sun did not appear to be a factor in the incident. He did not swerve or alter his path in any way due to the sun being in his eyes nor did he report this as a factor. The driver of the blue tractor-trailer had traveled a short distance past where the driver was tarping when he felt a bump sensation at the rear of the trailer. He did not strike the driver with the front of his truck. When he looked behind him, he saw the driver who had been tarping his chip trailer lying in the middle of the road. He appeared to be gravely injured. Both passing drivers stopped and called for aid. The driver who was tarping his trailer was declared to have died from his injuries at the scene by the coroner.

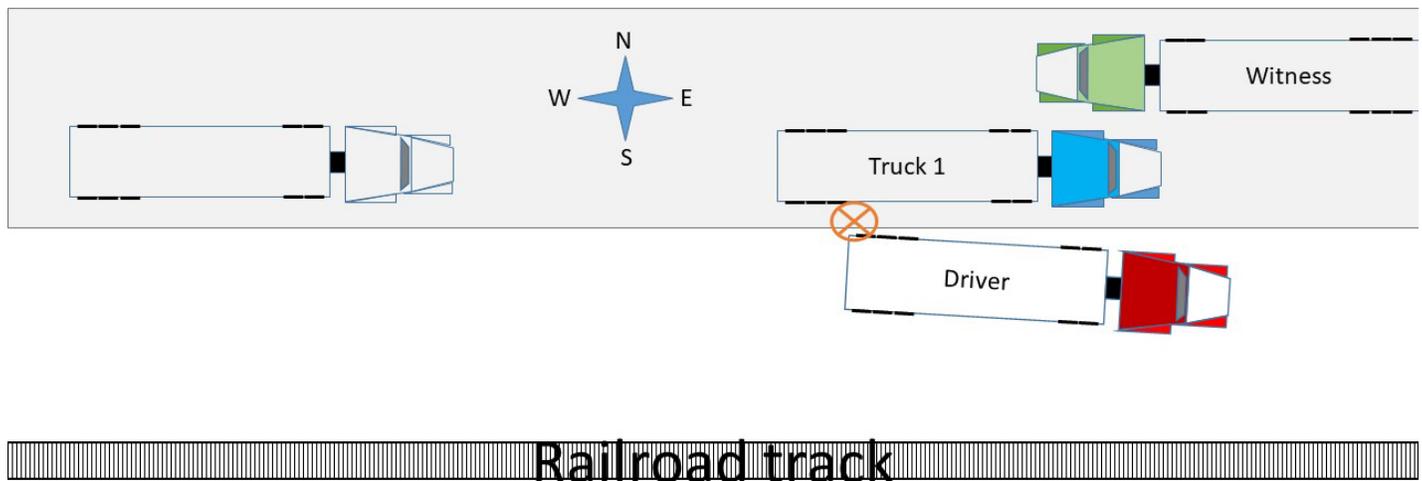


Diagram 1 (Not to scale): Approximate location of tractor-trailers at time of incident based on first responder report. Circle with “X” indicates approximate location chip truck driver was seen when tarping his trailer.

The tractor-trailer was parked in the turnout at a slight angle to the road with the trailer closer to the road. Photographs from the scene and drone footage show the rear tarp strap was twisted and on top of the tarp. The area where the driver appeared to be struggling to tarp the trailer was close to the road. The driver may have lost his balance while trying to reach the rear strap with the long reach tool and stumbled backwards just as the blue tractor-trailer was passing slowly on the road and was run over by its trailer.



Photo 4: Tractor-trailer with piles of wood chips, partially covered with tarp at rear but not at front.

Tractor is parked further away from the road, while rear of trailer is angled closer to roadway traffic. Long reach tool is seen at rear of trailer in road by tires.

The “X” indicates approximate location driver was found following incident.

Another issue that may have caused the driver to struggle while covering the trailer with the tarp is the lack of an elastic stretch cord at the front of the trailer. Elastic stretch cords run across the front of the trailer and help guide and pull the front of the roll bar across the loaded trailer as the tarp is cranked in the rear. This cord is not required by law. Scene photographs show the tarp is positioned diagonally with the rear of the tarp closed and the front open. A guide cord may have helped the driver to fully close the tarp.



Photo 5: Driver’s trailer with manual tarping system missing the elastic stretch cord across the top end cap at front of trailer.



Photo 6: Tractor-trailer that stopped near the incident scene. Arrow points to intact elastic stretch cord across the top end cap at front of trailer.

CAUSE OF DEATH

According to the death certificate, the coroner reported the cause of death as “massive head injuries due to a motor vehicle collision.”

CONTRIBUTING FACTORS

Occupational injuries and fatalities are often the result of one or more contributing factors or key events in a larger sequence of events that ultimately result in the injury or fatality. Washington FACE investigators identified the following as key contributing factors in this incident:

- Wood chips were loaded in excess above the height of the trailer.
- The rear of driver’s tractor-trailer was parked too close to the road to safely work around the trailer.
- Employer did not identify and designate a place for employees to safely tarp trailers.
- No elastic stretch cord across the top end cap at front of trailer.
- No warning devices in the roadway to alert passing drivers.

POST-INCIDENT CORRECTIVE ACTIONS TAKEN BY EMPLOYER

The employer is installing automatic tarp systems that eliminate the need for drivers to manually cover the trailer load. The employer has also emphasized to employees to pull as far away from the road as safely allowed to avoid walking near an active roadway.

RECOMMENDATIONS/DISCUSSION

Recommendation: Ensure trailers are loaded at the proper capacity so tarps can be safely closed and fastened.

Discussion: Employers should develop policies and train drivers to avoid loading trailers with material to a height that makes tarping difficult. This should include drivers working with mill workers and loader operators to not overfill trailers. If the employer had a policy to not overfill the trailer and the driver had instructed the mill workers accordingly, tarping the load may have been easier. Wood chip loading is done by visual assessment at the mill. The height of this load did exceed the height of the trailer and did not settle after driving to the turnout. While the trailer was loaded to the proper capacity for the weight limit, the height of the load likely made the trailer difficult to tarp. The proper load height should be considered. Even with automatic tarping systems or trailer arches, materials loaded too high inside the trailer would cause an equipment fault and require the driver to exit the vehicle to troubleshoot.

Recommendation: Maintain tarp systems and consider using an automatic tarping system that eliminates the need to manually close a tarp over a load.

Discussion: The elastic stretch cord was missing from the front of the trailer’s tarp system. The cord helps guide and close the tarp as the driver operates the rear crank. If the tarp had closed as intended, the tarp straps should have hung down the side of the trailer. Scene examination shows the rear tarp strap tangled at the top of the trailer, which meant the driver needed to reach for and untangle it. While the incident was not witnessed, it is suspected that the driver may have stumbled backwards while trying to reach the tarp strap. The long reach tool was in the middle of the road, which he could have been tugging on forcefully when he stumbled backwards into the passing trailer. Automatic tarping systems are available for these trailers. These allow the trailer to be covered with a tarp by pressing a button inside the truck cab. The driver does not have to interact with traffic or struggle with tarp straps. This also reduces driver’s risk of falls and musculoskeletal injuries which are associated with manual tarping.

Recommendation: Develop policies for how and where to safely park and tarp trailers.

Discussion: In this incident the customer did not have a tarping station available. Some customers do have them. Employers should develop policies that require drivers to use available tarping stations. When stations are unavailable, policies should be developed for drivers to safely park and work outside of their trucks. The area should be separate from the roadway and designated by signs, warning devices, or barriers such as concrete blocks, railings, or gates. This helps reduce the risk of drivers being hit by a moving vehicle. In Washington State, approximately 36% of motor vehicle fatalities occur to drivers outside of their vehicles. While personal protective equipment such as hi-visibility vests improve safety for drivers, reducing the interaction between drivers and vehicles is the best way to prevent these incidents.

In this incident, the driver could have also parked his tractor-trailer further from the road, which would have allowed more room for working at the rear of the trailer.



Photo 7: Photo of location in turnout where the driver parked with more area toward the railroad track and in front that could have been used to park farther from the road.

Recommendation: Provide warning devices for truck drivers to use when parked on the side of the road. These devices offer visual aids for motorists and alert them to the possibility drivers may be walking or working outside.

Even though this was not an emergency stop, any time a driver parks on the side of the road and exits their vehicle, it creates a potentially hazardous situation. Therefore, employers should adopt and ensure that drivers follow roadside safety procedures from the Federal Motor Carrier Safety Regulations (FMCSR).

According to FMCSR, drivers should immediately activate their vehicle's hazard warning signal flashers any time they stop on a roadway or adjacent shoulder. Flashers should be on when deploying and retrieving external warning devices. External warning devices should be deployed within 10 minutes. FMCSR specifies that three warning devices be deployed. Bi-directional reflective triangles are recommended. One warning device should be 10 feet from the truck in the direction of approaching traffic. A second warning device should be placed approximately 100 feet from the truck in the center of the traffic lane or shoulder where the truck is parked also in the direction of approaching traffic. A third warning device should be placed approximately 100 feet from the truck in the center of the traffic lane or shoulder where the truck is parked in the direction away from approaching traffic.



ADDITIONAL RESOURCES

Hazards to Truck Drivers and other Workers While Loading and Unloading Trucks and Trailers

www.lni.wa.gov/safety-health/safety-research/files/2011/47202011facefatalfacts.pdf

Trailer Tarping Safety Solutions - Forest Resources Association (FRA)

www.forestresources.org/digital-magazine/item/397-13-r-26-trailer-tarping-safety-solutions

Tarping Related Fall Injuries to Drivers

www.keeptruckingsafe.org/assets/9032007.pdf

Fatality Alert - Mine Safety and Health Administration (MSHA) Truck Driver Died after Falling from the Top of His Trailer

www.msha.gov/data-reports/fatality-reports/2020/june-1-2020-fatality/fatality-alert

REFERENCES

SHARP Stat - Truck Driver Fatalities

www.lni.wa.gov/safety-health/safety-research/files/2020/76_25_2020_TruckDriverFatalities.pdf

TIRES Trucker Narrative - No Distance, Know Pain

www.lni.wa.gov/safety-health/safety-research/files/2020/901472020.pdf

Federal Motor Carrier Safety Administration, 6.3.6 Emergency Warning Devices

www.csa.fmcsa.dot.gov/safetyplanner/MyFiles/SubSections.aspx?ch=23&sec=68&sub=168

INVESTIGATOR INFORMATION

Todd Schoonover has a PhD in Industrial Hygiene from the University of Illinois at Chicago. He is a Certified Industrial Hygienist (CIH) and Certified Safety Professional (CSP). Todd is currently the Principle Investigator for the WA FACE Program.

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Randy Clark has a BA from the Evergreen State College. He is a Safety and Health Specialist with the WA FACE Program.

ACKNOWLEDGEMENTS

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- The employer involved in the incident
- Division of Occupational Safety and Health (DOSH)
- Federal FACE Program management (NIOSH)
- Safety & Health Assessment & Research for Prevention (SHARP)

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