



Federal Railroad Administration, Office of Railroad Safety

Accident Investigation Summary Report FE-2021-20

WATCO Rail Services (WATX) Employee Fatality
Houston, Texas
October 29, 2021

1. EXECUTIVE SUMMARY

On Friday, October 29, 2021, at 4:06 a.m. CDT, a WATCO Rail Services (WATX) brakeman was fatally crushed between a semi-trailer tanker truck and a railcar while riding the point¹ of a shove movement at the Greens Port Industrial Park in Houston, Texas. The semi-truck failed to yield to the train, which was moving in reverse, over a private highway-rail grade crossing with passive warning devices (crossbucks and a stop sign), resulting in a collision of the truck and the train.

The Federal Railroad Administration (FRA) conducted an on-scene investigation and verified that all Federal regulations and WATX operating rules were followed. The cause of the accident and fatality was the truck failing to stop and yield to the train at the private highway-rail grade crossing. Further, FRA analysis found that drug and alcohol use, fatigue, and qualifications of the brakeman were not factors in the accident.

2. ACCIDENT DESCRIPTION

On October 28, 2021, the WATX Switching Job-202 (Train 1) crew reported for duty at 6:00 p.m., CDT, at the WATX crew room at Greens Port Industrial Park in Houston, Texas. The crew consisted of a locomotive engineer, a conductor, and a brakeman² (collectively referred to as “the crew”). This was the regular assignment for all crew members. Upon going on duty, the

¹ An employee is said to “ride the point” when they ride on the end railcar of a section of cars being moved along the track to another location. This is necessary during a “shove movement,” where cars are pushed (as opposed to the usual pulling performed by a locomotive) to provide protection by instructing the engineer how to operate.

² A brakeman is a position on a crew that assists the assigned conductor in the inspection and switching operation of a train. According to current industry terminology, however, a brakeman is a qualified conductor.

crew completed a job briefing³ on the work to be performed, and then switched cars in the west yard before their lunch break. After their lunch break, the crew conducted a second job briefing during which the conductor explained the crew's next task was to shove a cut⁴ of 25 cars south from the Union Pacific Railroad Lead track (UP Lead) to a yard track. This move would require the crew to cross a private highway-rail grade crossing over the entrance to Greens Port Industrial Park, which connected the park with Federal Road (Figure 1). The road runs parallel to the UP Lead outside of Greens Port Industrial Park property. There is a gate that runs parallel to the road, blocking access to the track, and opens away from the road. The gate is equipped with red lights that inform the train crew that the gate is open.



Figure 1: Aerial view of Federal Road and Greens Port Industrial Park

The brakeman positioned himself on the rear of the cut of cars on the UP Lead. The conductor drove the side-by-side utility vehicle to the yard, bypassing the private highway-rail grade crossing, remembering the rail gate was open because the crew had pulled railcars through the gates before its lunch break.⁵

At approximately 4:06 a.m., on October 29, 2021, the crew was in the process of shoving its cut down the UP Lead approximately 240 feet in a southward direction. The brakeman was riding the point of the shove movement as the train approached the private highway-rail grade crossing.

³ A job briefing is a two-way exchange of information by crew members to reach an understanding of the initial work tasks and the tasks being performed anytime a change occurs.

⁴ A “cut” of cars is several railcars coupled together.

⁵ Information collected during the conductor interview held at the WATX office located in the Greens Port Industrial Park in Houston, Texas on Sunday, October 31, 2021.

The brakeman contacted the engineer via radio stating that the private highway-rail grade crossing was clear and that the shove should continue.

A few seconds after that communication, a semi-trailer tanker truck traveling southbound on Federal Road made a left-hand turn and drove into the entrance to Greens Port Industrial Park. Upon reaching the entrance to the park, the semi-truck did not stop at the stop sign or crossbucks and yield to the moving train, and instead entered the private highway-rail grade crossing and caused a collision with the lead railcar of the shove movement, where the brakeman was riding (Figure 2 and Figure 3). The brakeman was fatally injured in the impact.



Figure 2: The position of the impacted railcar and the semi-truck after the accident and the train stopped.



Figure 3: Another view of the semi-truck after the accident and the train stopped.

3. INVESTIGATION AND ANALYSIS

Investigation Overview

At approximately 7:00 a.m., on October 29, 2021, FRA’s Inspector-in-Charge (IIC) arrived at the accident scene and FRA began their on-scene investigation. The investigation involved gathering photographic evidence and accounts of the accident from the engineer, conductor, and yardmaster. FRA also reviewed a copy of video footage of the accident from cameras on a building on the opposite side of Federal Road, which showed the semi-truck turning left from Federal Road and into the path of the train without stopping.

FRA requested and received pertinent records, forms, and other documentation to determine the facts of the accident. Additionally, all applicable carrier rules and Federal regulations were reviewed throughout the investigation.

At the time of the accident, the location was dark, and the weather was 64°F, clear, with 8 mile per hour (mph) winds.

Analysis by Possible Cause

With no evidence of any track, mechanical, signal and train control issues, or other deficiency or issue that may have led to this accident, as described below, FRA analyzed the accident from the toxicological, fatigue, operating rules, training, qualification, efficiency, and hours of service perspectives.

The Harris County Medical Examiner's Office performed a postmortem examination of the decedent. The cause of death was attributed to internal injuries resulting from the impact of the semi-truck hitting the railcar and the manner of death was determined to be an accident.

I. Toxicological Testing

FRA Post-Accident Forensic Toxicology Result Reports indicate the decedent tested negative for drugs or alcohol, determining that drug and alcohol use did not contribute to this accident.

II. Fatigue

FRA analyzed the work and sleep schedules of all crew members using the biomathematical model known as Fatigue Audit InterDyne (FAID). FAID predicts the effect of different work schedules on fatigue and provides a representative score of the fatigue exposure of a worker. That score indicates the likely sleep opportunity that a work pattern allows. As the relative sleep opportunity associated with a work pattern decreases, the FAID score increases.

The FAID scores of the decedent indicated that FRA should consider whether fatigue was a contributor to the accident. Therefore, FRA performed further analysis of other fatigue-related indicators, the context in which this accident occurred, and the crew interviews. Further analysis of other fatigue-related indicators demonstrated that the decedent's fatigue exposure occurred earlier in his 10-day work history and not near the time of the accident. Based on this further analysis, FRA concluded that fatigue was not a likely contributor to the cause or severity of this accident.

III. Operating Rules

FRA reviewed all applicable carrier rules and Federal regulations as part of the investigation. WATX operates under the General Code of Operating Rules (GCOR), Eighth Edition. GCOR Rule 6.32.1, Providing Warning Over Road Crossing, states:

“When cars are shoved, kicked or a gravity switch move is made over road crossings at grade, an employee must be on the ground at the crossing to provide warning until crossing is occupied. Make any movement over the crossing only on the employee's signal. Warning is not required when crossing is equipped with:

- Gates that are in the fully lowered position.

Or

- Flashing lights or passive warning devices (cross-bucks, stop signs, etc.) when it is clearly seen that no traffic is stopped at the crossing or is approaching the crossing. Leading end of shoving movements must not exceed 15 MPH over crossings.”

The private highway-rail grade crossing where the accident occurred was equipped with cross-bucks and a stop sign. Prior to the accident, the crew was shoving at approximately 7.6 mph. At the commencement of the shove move, the truck was traveling behind the train with no indication that the truck was going to turn into the entrance to Greens Port Industrial Park. Therefore, by rule, the brakeman was not required to be on the ground at the grade crossing to provide warning. FRA concluded that the brakeman complied with all applicable operating rules.

IV. Training, Qualifications, Efficiency Testing, and Hours of Service

WATX provided documentation of the brakeman's training and qualification records, which indicated that, on August 11, 2021, the brakeman completed the WATX Safety Rules Exam, Site Specific Exam, and Air Brake and Locomotive Exam. FRA determined that the brakeman was certified, qualified, and that all required training was current. Training and qualifications did not contribute to the cause of this accident.

WATX provided the brakeman's efficiency testing records which reflected a total of 102 tests performed with 100 passes and 2 failures (1.96% failure rate). Neither of the failures related to shove movements or grade crossing protection. The brakeman's most recent efficiency test associated with shoving movements was conducted on October 8, 2021, 21 days prior to the accident. FRA determined that efficiency testing was in accordance with Federal regulations and did not contribute to this accident.

FRA also confirmed that the crew had received the required statutory off-duty rest period prior to going on duty.

4. CONCLUSION

FRA's investigation and analysis concluded that this accident was caused by the semi-truck failing to stop and yield to the train moving through the private highway-rail grade crossing, resulting in a collision with the train and the fatality of the brakeman.

WATX has taken several corrective actions.

1. On each side of the grade crossing, WATX installed Hi-Viz yellow railroad crossing signs outlined with flashing LED lights. Before future crews enter the grade crossing with a train, they will turn the flashing lights on with a switch at the gate.
2. WATX redesigned the rail gate at the grade crossing to swing out into the road and restrict vehicle access to the grade crossing when it is in use by a train crew. A stop sign on the gate will alert any vehicles approaching the grade crossing, and red flashing strobe lights are attached to the top posts of the gate.

3. WATX issued a general order that requires train crew members to stop and protect all grade crossings, including private crossings, before entering.