



National Transportation Safety Board
Washington, D.C. 20594

Office of Railroad, Pipeline and Hazardous Materials Investigations

Human Performance

Group Chairman's Factual Report of the Investigation

**Watco Dock & Rail, LLC Employee Fatality at
Musket/Gemini Facility at Greensport Industrial Park**

Houston, Texas

October 29, 2021

NTSB Investigation No.:

RRD22LR002

Report Date: April 1, 2022

HUMAN PERFORMANCE GROUP CHAIR'S FACTUAL REPORT

A. ACCIDENT

Location: Musket/Gemini Facility at Greensport Industrial Park, Houston, TX,
In-Plant Switching Facility: Watco Dock & Rail, LLC (WDRL)
Trucking company: Gemini Motor Transport LP
Incident Date: October 29, 2021
Time: About 4:02 A.M. CDT
NTSB No.: RRD22LR002

B. HUMAN PERFORMANCE GROUP

Group Chair

Dr. Anne Garcia
Human Performance Group Chair
NTSB Office of Railroad, Pipeline and Hazardous Materials

Group Members

Curtis Dougherty,
FRA Operating Practices Safety,
Federal Railroad Administration

Damien Cantrell
AVP Operations,
WDRL

C. SUMMARY OF THE ACCIDENT

On October 29, 2021, at approximately 4:02 a.m. local time, a Watco Dock & Rail, LLC (WDRL) set of two locomotives and 25 rail cars (the Consist), and a Gemini Motor Transport, LP truck tractor in combination with a semi-trailer (Combination Vehicle) collided as the Consist and Combination Vehicle both entered a private grade crossing outside of the gated perimeter of the Greensport Industrial Park in Houston, Texas, on property leased to Musket Corporation. The conductor of the WDRL Consist was fatally injured.

The Combination Vehicle was returning from the day's final delivery of gasoline to Love's Travel Stops & Country Stores. The Consist was traveling at a speed of 7.68 mph while shoving rail cars into a yard track. A WDRL employee (the Conductor) was protecting the movement of the Consist from the end rail car and died as a result of the collision. Preliminary information indicates that the driver of the Combination Vehicle was traveling South on Federal Road, turned Eastward into the Musket/Gemini facility, and attempted to proceed through the Musket private grade crossing without slowing or stopping. This is a private crossing with railroad crossing pavement markings, flashing lights, a multiple tracks ("4 tracks") sign, no trespassing sign, and an orange disk crossbuck signage facing Federal Road and is located

outside of the gated perimeter of the Greensport Industrial Park on property leased to Musket Corporation.

D. DETAILS OF THE INVESTIGATION

Gemini Motor Transport LP (Gemini/Loves) is a wholly owned subsidiary of Love's Travel Stops and Country Stores of Oklahoma City, Oklahoma and is a registered interstate carrier of general freight, liquids, gases and chemicals. Gemini/Loves is classified as a hazardous materials carrier under the Federal Motor Carrier Safety Administration's (FMCSA) Compliance, Safety, Accountability (CSA) system.¹

Watco Dock & Rail, LLC (WDRL) provides in-plant switching services at the Greensport Industrial Park. WDRL is an indirect subsidiary of Watco Companies, LLC of Pittsburg, Kansas. Watco Companies, LLC subsidiary, Watco Transportation Services, L.L.C. separately operates 41 short line railroads across the U.S. and in Australia. Other Watco Companies, LLC subsidiaries own and operate the Greensport Industrial Park in Houston, one of which entities leases space to Musket Gemini/Love's. WDRL provides contract switching services for about 30 customers².

1. Timeline from Security Camera Footage

On October 31, 2021, the investigative group observed the security camera footage of the incident, obtained from a local business located across Federal Road from the incident location³. The following accident timeline was developed based on the observations:

Camera Video Timeline:

4:01:15	Conductor's lantern came into view (at rear of the Consist traveling in reverse)
4:02:12	Combination Vehicle came into view traveling on Federal Road
4:02:17	Combination Vehicle begins to turn left (no oncoming traffic from right)
4:02:23	Combination Vehicle enters the Musket private rail crossing
4:02:28	Combination Vehicle and Consist collide
4:02:37	Combination Vehicle and Consist came to rest

¹ More information on Gemini/Love's is provided in the NTSB Motor Carrier Factors report in the docket.

² More information on WDRL is provided in the NTSB Operations Group Factual report in the docket.

³ Operations and Human Performance Field Notes, in the docket. Additional information will be in NTSB's Research and Engineering Video Factual Report which will be placed in the docket.

4:02:57 Driver of a passenger vehicle from Federal Road responds, runs up to truck

4:04:34 WDRL employees arrive on scene by foot

4:05:30 Second passenger vehicle (pickup truck) arrives on scene from Federal Road

4:17:53 EMS arrives on scene

2. Event Recorder Data

The event recorder data from the lead locomotive was reviewed on-scene by the investigative group. This data indicated that at 4:02:28 CDT, emergency brake application was initiated by the locomotive Engineer who moved the throttle from notch 4 to idle and centered the reverser.

The Log Data and Collisions Report from the Combination Vehicle included the following information⁴:

Oct 29, 2021, 4:02:25 a.m. Engine road speed 19 mph

Oct 29, 2021, 4:02:27 a.m. Possible Collision Detected

NTSB's Research and Engineering Factual Report determined the speed of the Combination Vehicle was between 13 mph and 15 mph at impact.⁵

3. Operational Factors

This report focuses on the two WDRL employees who were on the incident consist; the Conductor (deceased) and the locomotive Engineer, along with the Gemini/Loves Combination Vehicle Driver.

a. Training and Experience

The Train Conductor hired on at WDRL on June 10, 2021, and completed all required training for the position of Conductor⁶. This was his first position working for a rail switching company⁷. The investigative team conducted a sight distance analysis/partial reenactment during the on-scene portion of this investigation⁸. A member of the investigative team climbed onto the

⁴ Love's Collision Reconstruction document, in the docket.

⁵ In the docket.

⁶ Conductor training record, in the docket.

⁷ Yard Master interview, in the docket.

⁸ The results of the sight distance analysis/partial reenactment are included in the NTSB Operations Group Factual Report, in the docket.

rear of a similar tank car from the accident train and reenacted the conductor's positioning; three points of contact (two feet and one hand on the bar). The conductor was holding his lantern in the elbow crook of his other arm, with that hand on the radio microphone button on the opposite side of his chest to allow communication with the locomotive engineer on the opposite side of the train. The conductor held onto the bar with his left hand, which would have his body partially turned away from the side of the grade crossing from which the tractor trailer was approaching⁹.

The locomotive Engineer began working for WDRL in April 2021 as an engineer. Prior to that, he hired on at UP as a conductor in 2010, began engineer training at UP in February 2012 and worked as an engineer at UP from February 2013 until he began working at WDRL¹⁰. He completed all WDRL-required training for his position¹¹. Investigators interviewed the WDRL Yardmaster, who had worked for WDRL about five years, the last three years as yardmaster. He had worked with the Engineer and Conductor since they began at WDRL, about seven months and one and a half months respectively¹².

The Combination Vehicle Driver has been a commercial driver for about 10 years, and he hired on at Gemini/Love's on March 5, 2019. His Driver Qualification (DQ) was in compliance with 49 Code of Federal Regulations (CR) 391.51. At the time of the accident, he held a valid Texas Class A Commercial Driver's License (CDL), with a combination of tank and hazardous materials endorsement (X). The CDL was issued in January 2020 with an expiration date of February 2025. The hazardous materials endorsement had an expiration date of February 8, 2020, which was extended after he completed a required security background assessment¹³. His Medical Certificate was issued on December 19, 2019, with an expiration date of December 19, 2021. No medical issues were listed on the driver's medical long form.¹⁴

b. Disciplinary Records

There were no disciplinary actions in the records provided by WDRL for the Train Conductor or the Train Engineer¹⁵.

The Combination Vehicle Driver's disciplinary record showed two disciplinary violations since he began working for Gemini/Loves in March 2019. On December 8, 2020, he received a traffic citation from the City of Beeville, TX, for not following a truck route while driving through the city, in violation of city ordinance #1533 for hazardous material routes.

A second disciplinary violation occurred on May 11, 2021, when he was involved in a reportable crash¹⁶. He drove his combination vehicle off the road, hitting a utility pole and fence,

⁹ NTSB Operation/Human Performance Field Notes, in the docket.

¹⁰ Train Engineer interview, in the docket.

¹¹ Train Engineer training record, in the docket.

¹² Yardmaster interview, in the docket.

¹³ Combination Vehicle Driver's training records and NTSB Motor Carrier Factors Report, in the docket.

¹⁴ See the Motor Carrier Factors Group Chairman's On-scene Investigation Narrative, in the docket.

¹⁵ WDRL employee records, in the docket.

¹⁶ Reportable crashes involve personal injury, fatality, or are towaway crashes.

and landed in a ditch. Gemini/Love’s discipline record on this incident was a Final Warning, stating:

“On 5/11/21, you swerved too wide while driving loaded with BIO in a narrow road by RBF terminal which caused our truck and trailer to go into a ditch and roll over... Your violation has a negative impact on the Company; it also creates undue hardship on your team and co-workers. This final warning is meant to give you an opportunity to improve your behavior and meet all the responsibilities of your job. If you fail to do so, any further disciplinary action will be taken up to and including termination.¹⁷”

4. Toxicology Testing and Reporting

Following the incident, the locomotive Engineer and the Combination Vehicle Driver provided specimens for post-accident toxicological testing. Toxicology testing was also performed on the Conductor as part of the autopsy procedure. The results of all tests were negative for illicit drugs and alcohol¹⁸.

Prior to his being hired by Gemini/Love’s, the Combination Vehicle Driver was interviewed during the hiring process. The Gemini Driver Interview Questionnaire form included a comment by the interviewer, “...He [the Combination Vehicle Driver] did mention without being prompted that he has something on his record from 1995 for possession of a controlled substance.¹⁹”

5. Behavioral Factors

a. Sleep/Wake/Work Hours

WDRL Switching crew – Their work week was Wednesday through Saturday, 6 p.m. to 6 a.m. The Wednesday before the accident was the Train Engineer’s first day on this schedule; his previous schedule was 8 a.m. to 8 p.m.²⁰.

Locomotive Engineer – His typical workday ends at 6 a.m., then he has a 15–30-minute commute home. When he arrives home, he showers, sometimes he eats breakfast, and then he goes to sleep for three or four hours. He wakes up between 10 a.m. and 12 noon, then spends time with his family. He takes a nap around 3 p.m. for about an hour or an hour and a half. He eats dinner before he leaves for work at about 5:30 p.m. On off days, he sleeps in, usually sleeping from about midnight to 6 a.m.²¹.

¹⁷ In the docket.

¹⁸ These results are in the docket.

¹⁹ Driver Interview Questionnaire, dated February 18, 2019, in the docket.

²⁰ Interviews, in the docket.

²¹ Train Engineer interview, in the docket.

Combination Vehicle Driver - He stated he works the night shift, 4 p.m. – 4 a.m., Tuesdays through Saturdays.²² He has worked the night shift for four years. His shift is over at 4 a.m. and he has a 15-to-20-minute commuting drive home. Then he watches television, showers, and goes to bed between 4:30 and 5 a.m. He stated that he sleeps well. He described his routine as waking up at 11 a.m., has coffee and breakfast, watches some television, and then gets ready for work. On the afternoon of October 28, 2021, he stated that he arrived at work at 3 p.m. to begin his shift.²³

The Combination Vehicle Driver described his work during the 12-hour shift leading up to the time of the accident. He stated that his trailer is pre-loaded before he arrives at work²⁴. He drives to his first duty stop and drops off fuel then returns for another load of fuel. He drops off five loads of fuel per shift, so he re-enters and departs the Musket/Gemini facility in his Combination Vehicle four times before his final return trip. On this shift, one store could not take the fuel, so that load was cancelled. His last drop-off for the shift was in Angleton, TX, which he estimated was about 60 miles, or a 45-minute drive, from the Musket/Gemini facility. At the Angleton store drop-off, he went into the store, used the restroom, bought something to eat, and got his paperwork in order.

The Combination Vehicle Driver described his approach drive into the Musket/Gemini facility prior to the accident. He said nothing was unusual as he approached the turn into the Musket/Gemini facility, and he was looking forward to the end of the day and going home.

On approach, he looks both ways on turning left towards the entrance due to road construction in the area.²⁵ This area previously had a wider left-turn area, but the road construction recently extended the median area. The Combination Vehicle Driver recalled observing the area when he left at the start of his shift so he knew the area would be narrower and stated he proceeded with caution on returning. He described that he always looks in his mirrors, to see that there were no obstructions and that his trailer is clear and would not hit anything. He stated he was concerned that his wheels would hit the median after turning, as the turn was narrower due to construction. He looked back at his rig on turning at the median, to see that he was not going to hit anything. Then he looked back a second time on entering the driveway to the Musket/Gemini facility. During this second look-back he saw the Consist out of the corner of his eye. When he saw the Consist coming, his instinct was to hit the throttle to outrun it. Then he swerved to avoid the Consist and the impact occurred.

When asked, the Combination Vehicle Driver stated he has seen trains or sets of cars cross at that location a variety of times but not often. He has called his boss in the past to say he can't get through because the entrance road was blocked by a train. He has rarely seen a train moving through; either a train was stopped on the road, blocking it or was off away, already

²² Combination Vehicle Driver interview, in the docket.

²³ Additional information on the Truck Driver's Hours of Service history is provided in the Motor Carrier Factors Group Chairman's On-scene Investigation Narrative, in the docket.

²⁴ The Combination Vehicle Driver arrives for work at the Musket/Gemini facility outside of the perimeter of the Greensport Industrial Park.

²⁵ This is local highway bridge construction that has been on-going for about a year. Additional information on this construction is in the docket.

stopped. He added that before, when a train was in the accident location, he saw people out on the ground with lights and someone was at the gates, flagging people down. He said that wasn't the case on this day.

He also stated that he has been told trains go through that area and to be careful. This was done informally. He has seen the signs for the railroad crossing, so he knew trains run through that location. In general, he stated the rules for railroad crossings are to stop if the gates are down, if not you proceed. He also stated that at this location, there are no gates and if the people aren't there to stop you, you proceed. When asked by the investigator, the Combination Vehicle Driver stated, "If I saw a train, I would yield to the train; that kind of machinery can't stop."²⁶

6. Gemini/Love's Safety Management

As part of their safety management practices, Gemini/Love's provides drivers with its *Driver Code of Conduct* which has safety points and procedures. It states, "The following, but not limited to, is what is expected from all drivers all of the time." It provides a list of safety points, one being, "Drivers must always come to a complete stop at stop signs and railroad crossings and should not shift over tracks."²⁷

The Gemini/Love's General Manager, Central Division, provided company policy on hours of service and required down time for drivers. He stated that the Combination Vehicle driver's normal work shift is five days a week of 12-hour days, for a total of 60 hours per week. He further stated that drivers can work up to 14 hours per day, and one day per week they can work up to 16 hours²⁸.

7. Weather and Environment

The weather was clear at the time of the incident. A complete weather report is provided in the NTSB Research and Engineering Weather Report.²⁹

The investigative team convened at the incident location at 4:00 a.m. and observed the environment at the same time that the incident occurred. They observed that the south side of the private roadway at the incident location was illuminated by a private flood light located south of the driveway. The north side driveway did not have a flood light but did have lighting on a nearby building. The north side was observed to be darker than the south side. However, the reenactment tank cars could still be seen. Also, a NTSB investigator standing in the location of the WDRL Conductor, and the light from his lantern, could still be seen.

In addition, puck lights are positioned at the inner and outer tops of the right and left gates that cross the railroad tracks on both sides of the road. These gates are open and the puck lights are flashing when a Consist is expected to travel across the road at the grade crossing. Investigators observed that the gates on both sides of the road and all four puck lights functioned and were visible. Figure 1 shows the north side of the grade crossing with the Consist on the left

²⁶ See the Truck Driver interview transcript, in the docket.

²⁷ Gemini/Love's Driver Code of Conduct, in the docket.

²⁸ Gemini/Love's General Manager interview transcript, in the docket.

²⁹ In the docket.

side of the photograph. The Consist is stopped inside the chain-linked fencing that borders the entry driveway, prior to the incident location.

A rail crossing warning sign is located at the entrance to the Musket/Gemini facility, warning road vehicle drivers and pedestrians of four rail grade crossings (Figure 2).



Figure 1: NTSB photograph taken during the site distance test conducted at 4:00 a.m. (the incident time) showing the incident Consist on the left, behind the open fencing gates. A NTSB investigator is standing on the Consist platform wearing an orange vest and white helmet and holding a lighted conductor's lantern. The white light on the rear of the Consist is a reflection of the building lights seen on the right side of the photograph.



Figure 2: Grade crossing sign located at the entrance to the Musket/Gemini facility, prior to the incident grade crossing.