



PRELIMINARY REPORT

RAILROAD

Derailment of Union Pacific Railroad Train UEBLTG 20

Fort Worth, Texas

April 24, 2019

RRD19FR007

The information in this report is preliminary and will be either supplemented or corrected during the course of the investigation.

On April 24, 2019, about 12:30 a.m. central daylight time, Union Pacific Railroad (UP) train UEBLTG 20, a high-hazard flammable key train carrying denatured ethanol, derailed in Fort Worth, Texas. The train consisted of three lead locomotives, two buffer cars, and 96 loaded tank cars. The train was 6,122 feet long, and it weighed 13,230 tons. At the time of the derailment, the train was travelling southbound at 26 mph on 30-mph speed-restricted track.

The derailment of the train occurred near milepost 48.8 on the UP Midlothian Subdivision. Of the 96 loaded tank cars, 25 derailed. The derailed tank cars were No. 17 through No. 41. Three tank cars were breached; the three tank cars leaked 74,000 gallons of denatured ethanol. The released ethanol ignited and formed pool fires. The local police evacuated between 6 and 10 nearby homes; some residents refused to evacuate. Some of the released ethanol entered a nearby tributary of the Trinity River. No individuals were injured. However, three horses in a barn were killed and three horses were injured.

The train crew separated the first 16 non-derailed tank cars behind the locomotives and the two buffer hopper cars loaded with sand away from the derailed and burning tank cars. The noninvolved tank cars at the rear of the train were also moved away from the derailed and burning tank cars. The denatured ethanol was a highly flammable mixture of ethanol and natural gasoline and was intended for use as a motor vehicle fuel. (See figure 1.)



Figure 1. Accident scene.

National Transportation Safety Board (NTSB) investigators completed the initial on-scene work at the derailment site in Fort Worth, Texas. (See figure 2.) However, the NTSB investigators will return to Texas in coming weeks to more closely examine several other tank cars for breaching damage once the tank cars are: (1) cleaned, (2) purged, and (3) without jackets. In addition, some tank car parts were shipped to Washington DC for examination by the NTSB Materials Laboratory.

Preliminary information includes the following:

- The train was loaded with ethanol at Cargill, Incorporated, in Blair, Nebraska. The train was destined for Trafigura Trading LLC in Galveston, Texas.
- Heavy rainfall occurred during the evening of the accident. A large amount of water from nearby Lake Echo flowed through the railroad right-of-way. Safety issues addressed in the investigation will include effective weather alert communications, policies and rules, and inspection and maintenance of storm water drainage from lakes.
- Cargill leased the tank cars involved in the derailment from five leasing companies: (1) GATX Corporation, (2) First Union Rail, (3) SMBC Rail Services, (4) Trinity Industries, Inc., and (5) Union Tank Car Company.
- The tank cars were built by three manufacturers: (1) The Greenbrier Companies, (2) Trinity Industries, Inc., and (3) Union Tank Car Company.
- The 25 derailed tank cars including:
 - Seventeen DOT-117R100W retrofitted CPC-1232 tank cars: some with 7/16-inch thick heads and shells, and others with 1/2-inch thick heads and shells. All were equipped with jackets, head shields, bottom outlet valve operating

mechanisms designed to keep the valves closed during derailments, top fittings protection, and ceramic-fiber thermal protection blankets.

- Seven DOT-117J100W tank cars: fabricated from 9/16-inch thick heads and shells and equipped with jackets, head shields, ceramic-fiber thermal protection blankets, and top and bottom fittings protection.
- One DOT-111A100W tank car: fabricated from 7/16-inch thick head and shell with no jacket, no thermal protection, no head shield, and no top fitting or bottom outlet protection.
- Investigators confirmed that at least three of the derailed tank cars were breached and released denatured ethanol:
 - One DOT-117R100W tank car with a shell tear around a bent body bolster and valves that were torn from the top fittings flange.
 - One DOT-117R100W tank car that sustained a puncture in the shell.
 - One DOT-111A100W tank car with punctured head and shell and an open bottom outlet valve.



Figure 2. DOT-117J100W tank car, which sustained impact damage, but did not release denatured ethanol.

Parties to the investigation include the Federal Railroad Administration; the Pipeline and Hazardous Materials Safety Administration; the Union Pacific Railroad; the Brotherhood of Locomotive Engineers; the International Association of Sheet Metal, Air, Rail and Transportation Workers; Trinity Industries, Inc.; The Greenbrier Companies; and the Union Tank Car Company.