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RAILROAD ACCIDENT INVESTIGATION.

REPORT NO 4185

Dept. Of Transportation

JUN 18 1976

THE ATCHISON, TOPEKA AND SANTA FE RAILWAY COMPANY

DUNCANVILLE, TEXAS

JUNE 9, 1972



FEDERAL RAILROAD ADMINISTRATION

OFFICE OF SAFETY

Washington, D C 20590

Summary

DATE: June 9, 1972

RAILROAD: Atchison, Topeka and
Santa Fe

LOCATION: Duncanville, Texas

ACCIDENT TYPE: Rear-end collision

TRAINS INVOLVED: Freight Freight

TRAIN NUMBERS: Extra 234 East Extra 274 East

LOCOMOTIVE NUMBERS: Diesel-electric units Diesel-electric units
234L, 237C, 238L 2741, 2764, 200B,
2889

CONSISTS: 54 cars, caboose 29 cars, caboose

SPEEDS: Standing 26 m p h

OPERATION: Timetable, train orders

TRACK: Single; tangent; 1.00%
ascending grade east-
ward

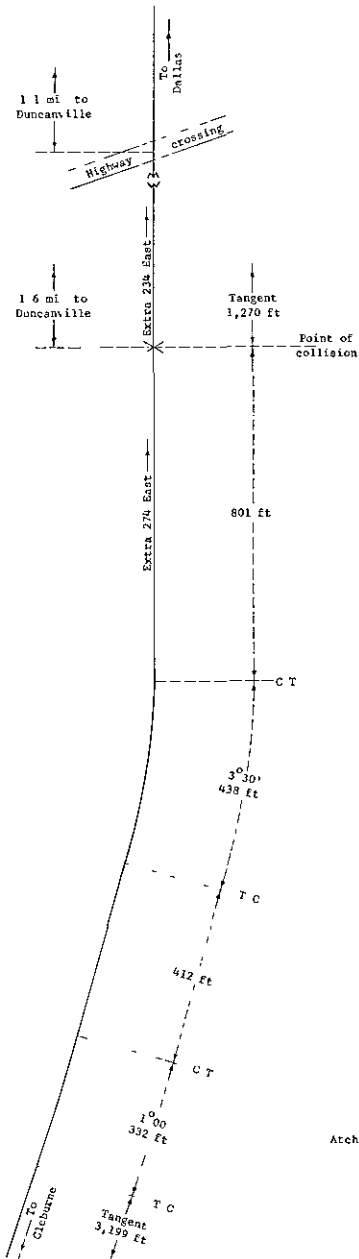
WEATHER: Clear

TIME: 3:15 p m

CASUALTIES: 2 killed; 2 injured

CAUSE: Failure of conductor and
flagman of preceding train
to provide flag protection
against following train

- Dallas, Tex
13.1 mi.
- Duncanville
1.6 mi
- × Point of collision
3.9 mi.
- Cedar Hill
7.7 mi
- Midlothian
2.2 mi
- Ward
5.1 mi
- Venus
19.6 mi
- Cleburne, Tex



Atchison, Topeka and Santa Fe Railway
 Duncanville, Tex
 June 9, 1972

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
OFFICE OF SAFETY

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THE ACHTSON, TOPEKA AND SANIA FE RAILWAY COMPANY

JUNE 9, 1972

Synopsis

On June 9, 1972, a rear-end collision occurred between two ATSF freight trains near Duncanville, Texas. It resulted in death to two, and in injury to two, members of the train crews.

The accident was caused by failure of the conductor and flagman of the preceding train to provide flag protection against the following train.

Location and Method of Operation

The accident occurred on that part of the railroad extending eastward from Cleburne to Dallas, Texas, a distance of 53.2 miles. In the accident area, this is a single-track line over which trains operate by timetable and train orders. There is no block-signal system in use.

The collision occurred on the main track, 38.5 miles east of Cleburne and 1.6 miles west of Duncanville.

Track

From the west on the main track there are, successively, a tangent 3199 feet in length; a 1°00' curve to the left 332 feet; a tangent 412 feet; a 3°30' curve to the left 438 feet, and a tangent 801 feet to the collision point and 1270 feet eastward.

From the west, the grade is, successively, an average of 1.00% descending for approximately one-half mile, a vertical curve about 500 feet, and an average of 1.00% ascending about 400 feet to the collision point and approximately 2000 feet eastward.

Time and Weather

The collision took place at 3:15 p.m., under clear weather conditions.

Authorized Speed

The maximum authorized speed for the trains involved in the accident area was 35 m.p.h.

Sight Distance

Because of track curvature and trees, a caboose standing at the collision point cannot be seen from an approaching eastbound locomotive at a distance greater than approximately 1500 feet (see photograph).



Looking eastward to collision point (arrow), about 1435 feet distant.

Carrier's Operating Rules

99. ...

When a train or engine stops under circumstances in which it may be overtaken by another train or engine, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, and when necessary display lighted fusee. ...

...

Forms of Train Orders

...

V. Protect Orders

- (1) Westward Extras following Extra 292 West between C and K wait at

C	until	two ten	2 10 PM
D		three fifty	3 50 PM

When this form is used, extra 292 west will not be required to protect against westward extras between the stations named, until the times specified

Circumstances Prior to Accident

Extra 234 East

The crew members of this train went on duty in Cleburne at 8:00 a m the day of the accident. An entry in the "Watch Register" at the Cleburne yard office indicates the conductor compared his watch with a standard clock at 8:00 a m and found it to be six seconds slow

Extra 234 East departed eastward from Cleburne at 9:00 a m. Before leaving, the crew members received, among others, copies of train order No 18, a Form V order which required following eastbound extra trains to wait at Cleburne and Venus until 12:10 p m and 12:50 p m, respectively. The train stopped at Venus, 19.6 miles east of Cleburne, to pick up two or three cars. It then proceeded to Ward, 5.1 miles east of Venus and 2.2 miles west of Midlothian, and stopped there for extensive switching operations. During the course of those operations, the operator at Midlothian delivered copies of train order No 43 to the train crew. That order annulled order No 18, and required all eastbound extra trains following Extra 234 East to wait at Cleburne until 1:01 p m, at Venus until 1:50 p m, and at Midlothian until 2:05 p m.

Extra 234 East completed the switching operations at Ward shortly after 1:00 p m and proceeded to Midlothian, stopping on the main track there at approximately 1:35 p m. The train was then separated to open up a street crossing for highway traffic, after which the locomotive set out a few cars on an auxiliary track and returned to a point near the station, where it was left standing while the members of the train crew ate lunch at a restaurant. Shortly before going to the restaurant, they received copies of train order No 54 from the Midlothian operator. That order read in part as follows:

"Order No 43 is annulled
Eastward extras following Extra 234 East
between Cleburne and Cedar Hill wait at

Cleburne	until	one forty	1 40 PM
Venus		two thirty	2 30 PM
Midlothian		two forty five	2 45 PM"

Since no regular trains operate in the territory involved and order No 54 restricted following extra trains from passing Venus, the next station to the rear, before 2:30 p m, Extra 234 East was not required to be provided with flag protection against following trains while its crew members were eating lunch at Midlothian. They returned from lunch at approximately 2:20 p m, after which the locomotive with three cars coupled to the front of the train and shoved the front portion of the train back to a coupling with the rear portion. Soon afterward, the train departed eastward from Midlothian and proceeded toward Duncanville, 13.2 miles distant, where it was required

to set out the second and third cars. The conductor boarded the caboose as the train left Midlothian and soon thereafter called over the radio "conductor is on, all riding, highball." This was the last communication the crew members on the locomotive had with those on the caboose.

Extra 234 East, consisting of 3 diesel-electric units, 54 cars and a caboose, left Midlothian at 2:10 p m, five minutes before the time shown for that point in train order No. 54. The engineer and front brakeman were in the cab of the first diesel-electric unit; the conductor and flagman were in the caboose. The engineer and front brakeman had read and discussed order No. 54. They understood its provisions. Their statements indicate they had not discussed the order with either the conductor or flagman after receiving it at Midlothian.

Extra 274 East

This was an eastbound freight train consisting of 4 diesel-electric units, 29 cars and a caboose (3778 tons). The first and third locomotive units were of the EMD, F-7 car-body type; the second and fourth were of the EMD, GP-7 road-switcher type. According to the engineer, the radio equipment in the cab of the first locomotive unit was inoperative.

Extra 274 East left Cleburne at 1:55 p m, 15 minutes after the time shown for that point in train order No. 54 and some time after its air brakes had been tested as prescribed. The engineer and front brakeman were in the cab at the front of the first locomotive unit; the conductor and flagman were in the caboose. The crew members had received copies of train order No. 54 before departure from Cleburne, and had read and understood it.

The Accident

Extra 234 East

This train left Midlothian at 2:40 p m. Approximately 15 minutes later, it passed Cedar Hill, 7.7 miles east of Midlothian, and proceeded beyond the limits specified in train order No. 54 after the time shown in that order for Midlothian. Under these circumstances, order No. 54 no longer provided any protection for Extra 234 East against following trains.

A few minutes after it passed Cedar Hill, Extra 234 East stopped, apparently at 3:00 or 3:05 p m., with its front end at a rail-highway grade crossing located 1.1 miles west of Duncanville. The rear end stopped on tangent track at a point 801 feet east of a 30°30' restricted-view curve. Immediately after the train stopped, according to the engineer and front brakeman, the prescribed engine-whistle signal was sounded for the flagman to provide protection against following trains. The locomotive then proceeded eastward on the main track to Duncanville with the first three cars. On arrival there, the locomotive shoved the three cars back onto an auxiliary track and spotted the second and third cars at an industrial facility. At 3:15 p m., while the locomotive was on the auxiliary track

at Duncanville, the caboose at the rear of the portion of Extra 234 East left standing on the main track was struck by Extra 274 East, resulting in death to the conductor and flagman of Extra 234 East

It appears both the conductor and flagman of the preceding train were in their caboose at the time of the impact and that neither had provided any flag protection against following trains, as required after his train stopped on the main track to set out cars at Duncanville

Extra 274 East

This train passed Midlothian at 2:55 p m , 10 minutes after the time shown for that point in train order No 54, and 15 minutes after the departure of Extra 234 East

After passing Midlothian, Extra 274 East continued eastward at speeds varying between 22 and 42 m p h , as indicated by the speed-recording tape. As it approached the collision point and moved at a speed of about 40 m p h , nearing a 3°30' curve to the left, the engineer initiated a service application of the brakes to control the speed. Soon afterward, while the train was moving at unreduced speed and about to enter the curve, the front brakeman saw the caboose of Extra 234 East standing on the main track about 1500 feet ahead and called a warning. The engineer promptly applied the train brakes in emergency. He and the front brakeman then left the cab of the first locomotive unit and jumped from the train. A few seconds later, when its speed had been reduced to 26 m p h , as indicated by the speed-recording tape, Extra 274 East struck the caboose of Extra 234 East.

Both the engineer and front brakeman of Extra 274 East stated they neither saw nor heard any flagman's signals while approaching the collision point, and did not see either the conductor or flagman of the preceding train before the impact.

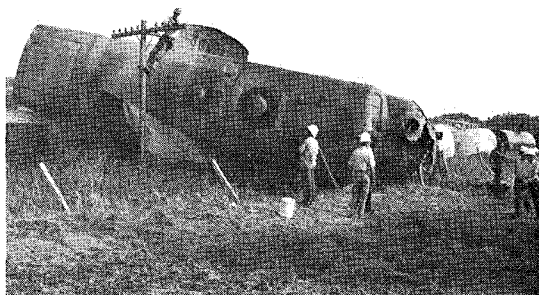
Damages

The caboose and last two cars of Extra 234 East were derailed. The caboose stopped on the north side of the track structure and was crushed underneath the first locomotive unit of the following train (see photograph on the following page).

Extra 274 East stopped with the front end 120 feet east of the collision point. All four locomotive units and the first five cars derailed and stopped in various positions on or near the track structure. The first locomotive unit overturned onto its right side, caught on fire, and stopped at right angles across the top of the caboose of the preceding train.

The caboose and last car of Extra 234 East were destroyed, and the next to last car of that train was damaged slightly.

The first and third locomotive units of Extra 274 East were destroyed. The second and fourth locomotive units and the first four cars of that train were heavily damaged.



Caboose of Extra 234 East under first locomotive unit of Extra 274 East.

According to the carrier's estimate, the cost of damages to the track structure and equipment of both trains was \$164,200.

Casualties

Extra 234 East

The conductor and flagman of this train were killed. They were found in wreckage of the caboose.

Extra 274 East

As a result of jumping from the locomotive, the engineer sprained his left ankle and fractured his right wrist; the front brakeman sustained minor head lacerations.

Train Crews' Hours of Service

Extra 234 East

All the crew members of this train had been continuously on duty 7 hours 15 minutes at the time of the accident. The engineer and front brakeman had been previously off duty eight hours or more. The conductor and flagman had previously been off duty 41 hours 30 minutes and 9 hours 30 minutes, respectively.

Extra 274 East

All the crew members of this train had been continuously on duty three hours at the time of the accident. All had been previously off duty more than 11 hours.

Conductor and Flagman of Extra 234 East

The conductor, age 49, was first employed by the carrier as a switchman in March 1946. He was promoted to engine foreman in August 1948 and to conductor in June 1967. He last underwent operating rules and physical examinations in

unc 1967 and December 1971, respectively. His service record shows that he was subjected to disciplinary action on eight occasions prior to promotion to conductor. All those occasions involved minor switching-type accidents.

The flagman, age 34, was first employed by the carrier as a fireman in April 1959. Beginning February 1968, he began to perform service as a switchman-brakeman. He was promoted to engine foreman in February 1969. He last underwent operating rules and physical examinations in May 1971 and April 1972; respectively. His service record shows that on four occasions in the period 1968-1970, he was subjected to disciplinary action related to minor switching-type accidents. Between April and July 1971, he was subjected to disciplinary action on four occasions for his responsibility in connection with not being available for calls. In October 1971, he was dismissed from service for his responsibility in connection with laying off duty 35 minutes before he was to go on duty as a member of a train crew. He was reinstated in February 1972, four months before the accident.

Findings

1 Five minutes after it left Midlothian, Extra 234 East lost the protection against following trains that had been afforded by train order No. 54. When it stopped on the main track to set out cars at Duncanville, it was required to be provided flag protection against following trains as prescribed by the carrier's operating rule No. 99. The engineer sounded the prescribed engine-whistle signal calling for such protection.

2 When Extra 234 East stopped to set out cars at Duncanville, both the conductor and flagman remained on the caboose. Thus, the stopped train was not provided flag protection against following trains, as required.

3 The accident was caused by failure of the conductor and flagman of Extra 234 East to provide the required flag protection against following trains after their train stopped on the main track. The reason why they failed to provide this protection could not be determined.

4 Except for its speed, which was approximately 5 m.p.h. higher than that authorized, Extra 274 East, the following train, approached the collision point in accordance with applicable rules and regulations of the carrier. Its excessive speed was not a significant factor in the accident.

5 Because of restricted-view conditions at a curve and failure of the conductor and flagman of Extra 234 East to provide flag protection against following trains, the engineer and front brakeman of Extra 274 East had no knowledge of the train stopped on the main track ahead before it was too late to stop their train short of a collision.

Dated at Washington, D C , this 1st
day of June, 1973
By the Federal Railroad Administration

Mac E Rogers
Associate Administrator
Office of Safety