RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4131

SOUTHERN PACIFIC COMPANY

BASSETT, CALIF.

SEPTEMBER 23, 1967

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

Washington

Summary

DATE	September 23, 1967	
RAILROAD:	Southern Pacific	
LOCATION:	Bassett, Calif	
KIND OF ACCIDENT:	Collision and derailment	
EQUIPMENT INVOLVED:	Passenger train	Motortruck
TRAIN NUMBER:	2	
LOCOMOTIVE NUMBERS:	Diesel-electric units 6452, 542, RI635, 6047, 6052	
CONSISTS:	14 cars	Tractor, semitrailer, trailer
ESTIMATED SPEEDS:	50-60 m.p h	3-10 m p h.
OPERATION:	Signal indications	
TRACK:	Single; tangent; level	
HIGHWAY:	Tangent, level, crosses track at angle of 87°00'	
WEATHER:	Clear	
TIME:	8:55 p.m	
CASUALTIES:	8 injured	
CAUSE:	Truck driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by California State law	

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RAILROAD SAFETY BOARD

RAILROAD ACCIDENT INVESTIGATION

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Synopsis

On September 23, 1967, a Southern Pacific Company passenger train struck a motortruck at a rail-highway grade crossing in Bassett, Calif , and derailed Eight train employees and passengers were injured.

The accident was caused by the truck driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by California State law

Location and Method of Operation

The accident occurred on that part of the Los Angeles Division extending between Los Angeles and Colton, Calif , a distance of 57 1 miles In the accident area this is a single-track line over which trains operate by signal indications of a traffic control system At Bassett, 15 4 miles east of Los Angeles, a siding and an auxiliary track parallel the main track on the south and north, respectively. The west switches of the siding and auxiliary track are, respectively, 1,372 and 605 feet west of the station point

The collision occurred on the main track, 740 feet west of the Bassett station point, where the main track and siding are crossed at grade by Temple Avenue

East of the crossing, Railroad Avenue parallels the main track on the north at approximately 110 feet It intersects Temple Avenue north of the railroad crossing, as shown in the sketch appended to this report A plant of Kerns Food, Inc is in the northeast angle of the intersection of Railroad Avenue and Temple Avenue as also shown in the sketch A vacant lot is across the tracks from this plant It is in the southwest angle of the railroad crossing and is adjacent to both Temple Avenue and the railroad right-of-way Motortrucks hauling commodities for Kern Foods, Inc use the vacant lot for parking When leaving the lot, the motortrucks may enter Temple Avenue at a point about 42 feet south of the center of the railroad crossing

An automatic railroad-crossing warning signal of the flashing red-light type, for northbound highway traffic, is adjacent to the east side of Temple Avenue, 23 feet south of the center of the crossing. A gate is attached to the signal mast When the crossing-warning signal is activated, its red lamps start to flash and its bell rings Three seconds later, the gate starts to lower from vertical to horizontal position over and across the northward lane of Temple Avenue A similar crossing-warning signal, for southbound highway traffic, is on the other side of the tracks, 23 feet north of the center of the crossing. The gate attached to this signal lowers to horizontal position over and across the southward lane of Temple Avenue

A highway bridge spans the main track at Bassett, 804 feet west of the Temple Avenue crossing.

A large billboard is in the vacant lot near the crossing, and is about 25 feet west of Temple Avenue and 45 feet south of the main track It is mounted on poles, about 25 or 30 feet above the ground In the crossing area, a line of telephone poles parallels the main track on the south at approximately 30 feet. One of the poles is 25 feet west of Temple Avenue Two railroad signal-circuit housings are located, side-by-side, immediately west of this telephone pole.

As a motortruck enters Temple Avenue from a point on the vacant lot immediately south of the railroad right-of-way and proceeds toward the crossing, the driver's view of the main track westward is intermittently restricted by the poles supporting the billboard, the line of telephone poles, the signal-circuit housings adjacent to one of the telephone poles, and piles supporting the highway bridge 804 feet west of the crossing However, as the vehicle passes the line of telephone poles and approaches the main track within a distance of 30 feet, the driver's view westward increases and he may readily observe an eastbound train approaching the crossing throughout a distance of about one-half mile

The maximum authorized speed for passenger trains in the Bassett area is 65 miles per hour.

The circuits of the automatic railroad-crossing warning signals at the Temple Avenue crossing are so arranged that the red lamps and bells of the signals start to function 25 seconds before an approaching train reaches the crossing This is accomplished by a predictor which computes speed and position of an approaching train, predicts it arrival at the crossing, and activates the warning system

Details concerning the main track, Temple Avenue and railroad crossing, crossing-warning signals, railroad carrier's operating rules, California State Motor Vehicle Code, train involved, damages, and other factors are set forth in the appendix

Description and Discussion

No 2, an eastbound first-class passenger train consisting of five diesel-electric units and fourteen cars, left Los Angeles at 8:15 p m , on time, the day of the accident Approximately 40 minutes later, after stopping at Alhambra, 5.8 miles east of Los Angeles, it approached Bassett while moving eastward on the main track at 60 miles per hour, as estimated by the engineer and fireman Both enginemen said that the locomotive bell was ringing, and that the conventional and oscillating headlights were lighted

The engineer stated that as the train moved over a bridge spanning the San Gabriel River, about 2,200 feet west of the Temple Avenue crossing in Bassett, he saw a motortruck moving slowly northward on the crossing and thought it would clear the main track before the train reached the crossing However, as a precautionary measure, he initiated a light service application of the train brakes, which apparently did not materially reduce the speed The engineer stated that he began to sound the prescribed signal on the locomotive horn when the train reached the crossing-whistle sign located 1,352 feet west of the Temple Avenue crossing, and that he continued to sound the horn while approaching the crossing Shortly after passing the crossing-whistle sign, the engineer realized that the motortruck was not going to clear the crossing, and applied the brakes in emergency Moments later, at approximately 8:55 p m apparently while moving at a speed somewhat less than 60 miles per hour, the train entered the crossing and struck the rear end of the motortruck, about five feet east of the center of the crossing

The rear wheel assembly of the motortruck wedged against the front of the locomotive and was pushed about 100 feet eastward to the west turnout of the auxiliary track paralleling the main track on the north The wheel assembly then struck the south switch rail and the frog of the turnout, resulting in wedging actions which caused all five diesel-electric units and the first six cars to derail Some of

the derailed equipment struck and derailed three gondola cars standing on the auxiliary track The train stopped with the first diesel-electric unit about 800 feet east of the collision point, and with its derailed equipment in various positions on or near the main track and auxiliary track structures

The engineer, fireman, two train attendants, and four passengers were injured. The truck driver was uninjured

The motortruck, a combination vehicle, was not carrying any cargo at the time of the accident It consisted of a diesel-powered tractor, a flat-bed semitrailer and a trailer, owned and operated by the Niekirk Hay Company, Artesia, Calif., an intrastate carrier engaged in local transportation operations Thus, it was not subject to Federal motor carrier safety regulations. The overall length of the combination vehicle was about 65 feet The driver was 38 years old and had been employed by the motor carrier for about three months He held valid California Class 1 driver's license No Z-1058815

At the time of the accident, the motortruck was en route from the vacant lot in the southwest angle of the crossing to the plant of Kerns Foods, Inc , via the crossing and Railroad Avenue According to the driver's statements recorded in a report of the County of Los Angeles Sheriff's Department, after leaving the vacant lot and entering the southward lane of Temple Avenue at a point approximately 42 feet south of the center of the railroad crossing, the motortruck proceeded diagonally northeastward across the southward lane and entered the crossing at an angle of about 45 degrees. The statements indicate that the driver neither saw nor heard any indication of the approaching train until his vehicle was on the crossing, when he heard the crossing bells ringing and saw that the red lamps of the crossing signal for southbound traffic were flashing. He stated that he then looked around, evidently to the left and somewhat to the rear, saw the train approaching at a distance of approximately 450 feet, and accelerated the motor in an effort to clear the crossing for the train. His statements indicate that the tractor was crossing the main track at this time and that the motortruck was moving at three to six miles per hour, in second gear He further stated that as the motortruck continued northeastward over the main track, he saw the crossing gate for southbound traffic lower alongside his vehicle and thought he had cleared the crossing for the approaching train However, the motortruck was not entirely clear of the main track when the train entered the crossing, resulting in the train striking the rear portion of the trailer and tearing off the trailer wheel assembly The impact did not cause the trailer to become detached from the semitrailer

Tests after the accident revealed that the automatic railroad-crossing warning signals and crossing gates functioned properly.

Several persons were in the area of the crossing at the time of the accident, including two who witnessed the motortruck entering the crossing. Statements made by these witnesses clearly indicate that the horn and the bell of the train locomotive were being sounded, as required, in approach to the crossing, and that the train headlights were lighted They further indicate that the train brakes were applied before the train entered the crossing, and that the automatic railroad-crossing warning signals and crossing gates were functioning properly before and after the collision

One of the witnesses who saw the motortruck enter the crossing was a female driver of an automobile parked in a parking lot in the northwest angle of the crossing The automobile was approximately 250 feet north of the crossing This witness's attention was attracted to the crossing when she heard the crossing bells start to ring She then noticed that the red lamps of the crossing signals were flashing, and that a northbound motortruck was approaching the crossing in the southward lane of Temple Avenue. She did not notice whether the crossing gates were lowered at this time, and was unable to determine how far the motortruck was from the crossing when she first saw it Soon after first observing the motortruck, this witness saw the rear of the vehicle be struck by the train

The other witness who saw the motortruck enter the crossing was a female driver of a northbound automobile on Temple Avenue While approaching the crossing within a distance of 200 feet, this witness saw that the red lamps of the crossing signals were flashing and observed the crossing gates start to lower She also observed that a northbound automobile ahead of her had stopped short of the crossing She stated that she first noticed the motortruck while stopping her vehicle behind the preceding automobile According to her statements, the motortruck was slowly leaving the vacant lot at this time and was entering the southward lane of Temple Avenue at a 45-degree angle She stated the motortruck then proceeded diagonally northeastward onto the crossing at slow speed while the red lamps of the crossing signals were flashing. She further stated that the motortruck entered the crossing while moving at an angle between the crossing gates, and that the crossing gates were completely lowered to horizontal position just before the tractor of the motortruck moved onto the main track. A moment or two later, as the tractor was moving over the main track, the witness saw the train approaching the crossing at a distance which she estimated as about 350 feet She immediately realized a collision was inevitable, and saw it occur a few moments later According to her statements, the motortruck proceeded onto the crossing at 5 to 10 miles per hour, without entering the northward lane of Temple Avenue before moving onto the tracks

It is apparent that the train approached the Temple Avenue crossing with its headlights illuminated and with the locomotive bell and horn sounding, as required by the carrier's operating rules It is further apparent that the crossing-warning signals were activated 25 seconds before

the train reached the crossing, and that the crossing bells and red lamps were indicating the immediate approach of a train as the motortruck left the vacant lot and entered Temple Avenue, about 42 feet south of the center of the crossing. Thus, the driver should have been alerted to the close approach of the train, and should have been able to stop his vehicle short of the crossing and wait for the approaching train to pass The motortruck, however, proceeded diagonally across the southward lane of Temple Avenue, between the crossing gates, and moved onto the crossing while the gates were lowering to horizontal position, causing the accident The reason for the driver's failure to heed the warnings being given of the approaching train, and to stop his vehicle short of the crossing as required by State law when a clearly visible electric or mechanical signal device gives warning of the immediate approach of a train, could not be determined.

Findings

1 The train was moving in accordance with applicable operating rules of the carrier

2. The automatic railroad-crossing warning signals were functioning properly and were giving a warning of the immediate approach of the train

3. The motortruck failed to stop short of the crossing, as required, causing the collision

4 The reason for the driver's failure to stop the motortruck short of the crossing could not be determined.

Cause

This accident was caused by the truck driver's failure to stop short of a rail-highway grade crossing and to remain standing until the approaching train had passed, as required by California State law.

Dated at Washington, D. C., this 11th day of April 1968
By the Federal Railroad Administration,
Railroad Safety Board

Bette E. Holt
Acting Executive Secretary

(SEAL)

Appendix

Track

The main track is tangent and the grade is practically level throughout a considerable distance east and west of the collision point.

Temple Avenue and Railroad Crossing

Temple Avenue, a two-lane road, crosses the railroad at an angle of 87°00' It is tangent and practically level throughout a considerable distance south of the crossing and a short distance north of the crossing. It is surfaced with bituminous material to a width of 29 feet

The crossing is 33 feet wide. Planking is laid between the rails of each track at the crossing and along the field side of each rail The remaining area of the crossing is surfaced with bituminous material to the level of the rail tops

Railroad Crossing Warning Signals

An automatic crossing-warning signal of the flashing red-light type, for northbound traffic, is adjacent to the east side of Temple Avenue, 23 feet south of the crossing center. The signal mast is 12 feet high and is provided with a bell at its top. A crossbuck, bearing the words "RAILROAD CROSSING", is attached to the mast 18 inches below the bell. Two pairs of red lamps are fixed to the signal mast, back-to-back, 24 inches below the crossbuck A crossing gate, 16 feet in length and bearing three red lamps, is attached to the signal mast 30 inches below the two pairs of red lamps. When lowered to horizontal position, the gate extends 14½ feet over the northward lane of Temple Avenue at a height of 30 inches above the road surface A similar crossing-warning signal and gate, for southbound traffic, is in the northwest angle of the crossing

The controlling circuits of the crossing signals are so arranged that the signals are activated 25 seconds before an approaching train enters the crossing

Railroad Carrier's Operating Rules

14 ENGINE WHISTLE SIGNALS

Note The signals prescribed are illustrated by "o" for short sounds, "——" for longer sounds ***

	SOUND	INDICATION
***		
(1)	— — o —	Approaching public crossings at grade *** to be commenced sufficiently in advance to afford ample

warning, but not less than one-fourth mile before reaching a crossing, and prolonged or repeated until engine has passed over the crossing.

***

17. The headlight must be displayed to the front of every train day and night ***

***

17-D Oscillating white light on engines so equipped must be operated *** approaching road crossing at grade both day and night under all conditions

30. The engine bell must be rung *** while approaching public crossings at grade ***

California State Vehicle Code

Chapter 8

§22451 Train signal.

(a) Whenever any person driving a vehicle upon a highway approaches an interurban electric or steam railway grade crossing and a clearly visible electric or mechanical signal device gives warning of the immediate approach of a railway train or interurban car, the driver of the vehicle shall stop within 50 feet but not less than 10 feet from the nearest track of the railway but need not remain standing if he can proceed in safety.

***

Train

No. 2 consisted of car-body type diesel-electric units 6452, 542, RI635, 6047, and 6052, coupled in multiple-unit control, 4 baggage and baggage-express cars, 1 dormitory car, 1 sleeping car, 1 coffee shop-lounge car, 3 chair cars, 1 automatic buffet car, and 3 chair cars, in that order The cars were of all-steel construction The first 4 cars were equipped with type F interlock couplers, and the remaining 10 cars had tightlock couplers. The brakes of the train had been tested and had functioned properly when used en route As the train approached the collision point, the engineer and fireman were in the control compartment at the front of the first diesel-electric unit. The conductor, front brakeman and flagman were at various locations in the cars.

Damages

The train stopped with the first locomotive unit about 800 feet east of the collision point All five locomotive units and the first six cars were derailed They stopped in various positions on or near the main track and auxiliary track structures The five locomotive units and the first three cars were heavily damaged The fourth car was considerably damaged, and the fifth car was slightly damaged Two of the three gondola cars struck by derailed equipment of the train were heavily damaged The other gondola car and the sixth derailed car of the train were not damaged

The trailer at the rear of the motortruck was heavily damaged

Other Factors

The accident occurred about 8:55 p m , in clear weather

According to data provided by the railroad carrier, the average daily railroad movement in the Bassett area is 42 trains A traffic count made by the County of Los Angeles revealed that 2,655 highway vehicles moved over the Temple Avenue crossing on Thursday, August 26, 1965 It was estimated by local authorities that a more recent count would show approximately 3,000 vehicles, due to increased traffic resulting from development of an industrial area north of the crossing

According to the railroad carrier's records, the engineer and fireman of No 2 had been on duty 2 hours 10 minutes at the time of the accident, after having been off duty more than 30 hours The conductor, front brakeman and flagman had been on duty 1 hour 10 minutes, after having been off duty 34 hours 55 minutes

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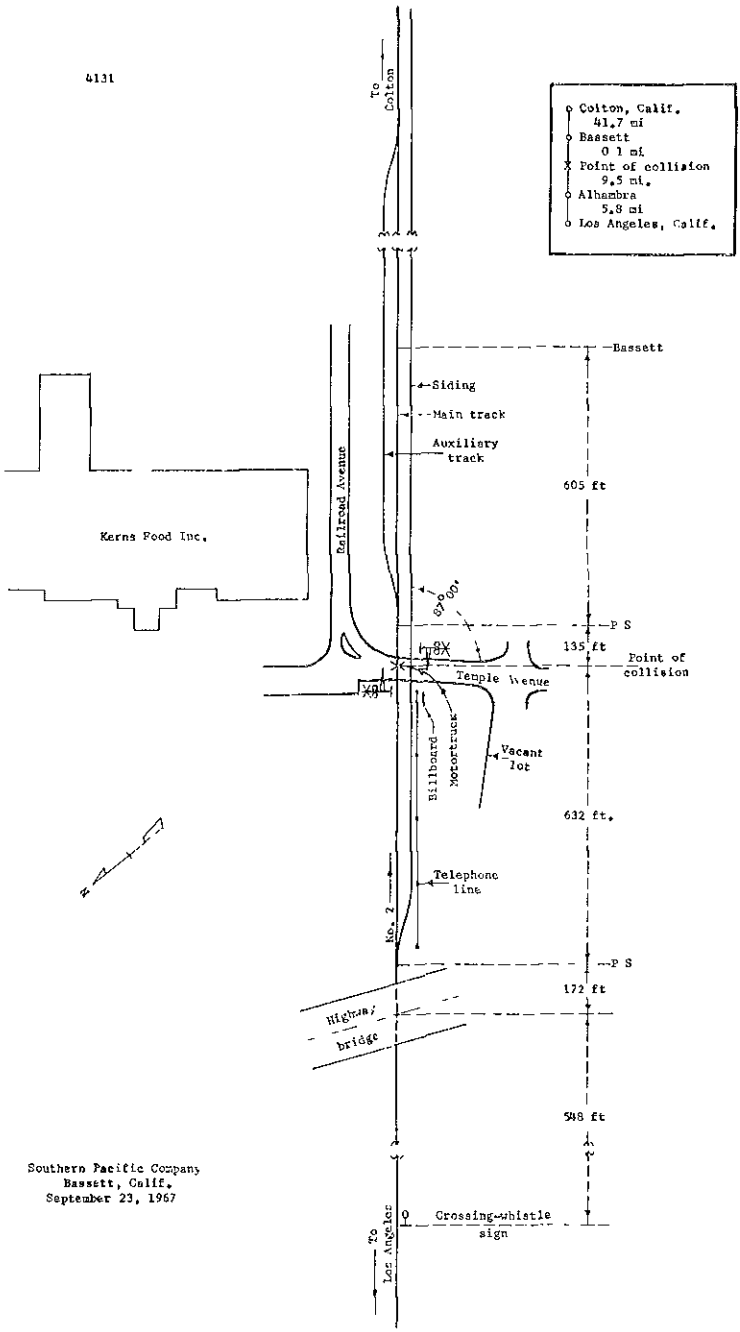

Southern Pacific Company
Bassett, Calif.
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