Inv-2348

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

TEXAS AND PACIFIC RAILWAY

DENTON, TEXAS

MAY 5, 1939

INVESTIGATION NO. 2348

SUMMARY

Inv-2348

Railroad:	Texas and Pacific	
Date:	May 5, 1939	
Location:	Denton, Texas	
Kind of accident:	Rear-end collision	
Trains involved:	M-K-T of T. freight	: M-K-T of T. passenger
Train numbers:	Extra 843 South	: 325
Engine numbers:	843	:368
Consist:	60 cars, caboose	: 6 cars
Speed:	Standing	: 18-35 m.p.h.
Operation:	Timetable, train orders, and automatic block-signal system.	
Track:	Single; 2° curve to left 1,015 feet, tangent 1,409 feet to point of accident and beyond. Grade 1.25 percent descending.	
Weather:	Clear	
Time:	About 9 p.m.	
Casualties:	8 injured	
Cause:	Failure of Extra 843 to provide proper flag protection and failure to operate No. 325 in accordance with block-signal indications.	

June 16, 1939.

To the Commission:

On May 5, 1939, there was a rear-end collision between a freight train and a passenger train of the Missouri-Kansas-Texas Railroad Company of Texas on the line of the Texas and Pacific Railway near Denton, Texas, which resulted in the injury of four passengers, two express employees, and two railroad employees.

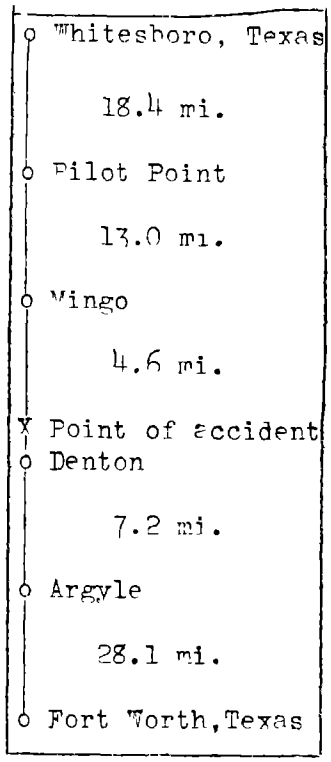
Location and Method of Operation

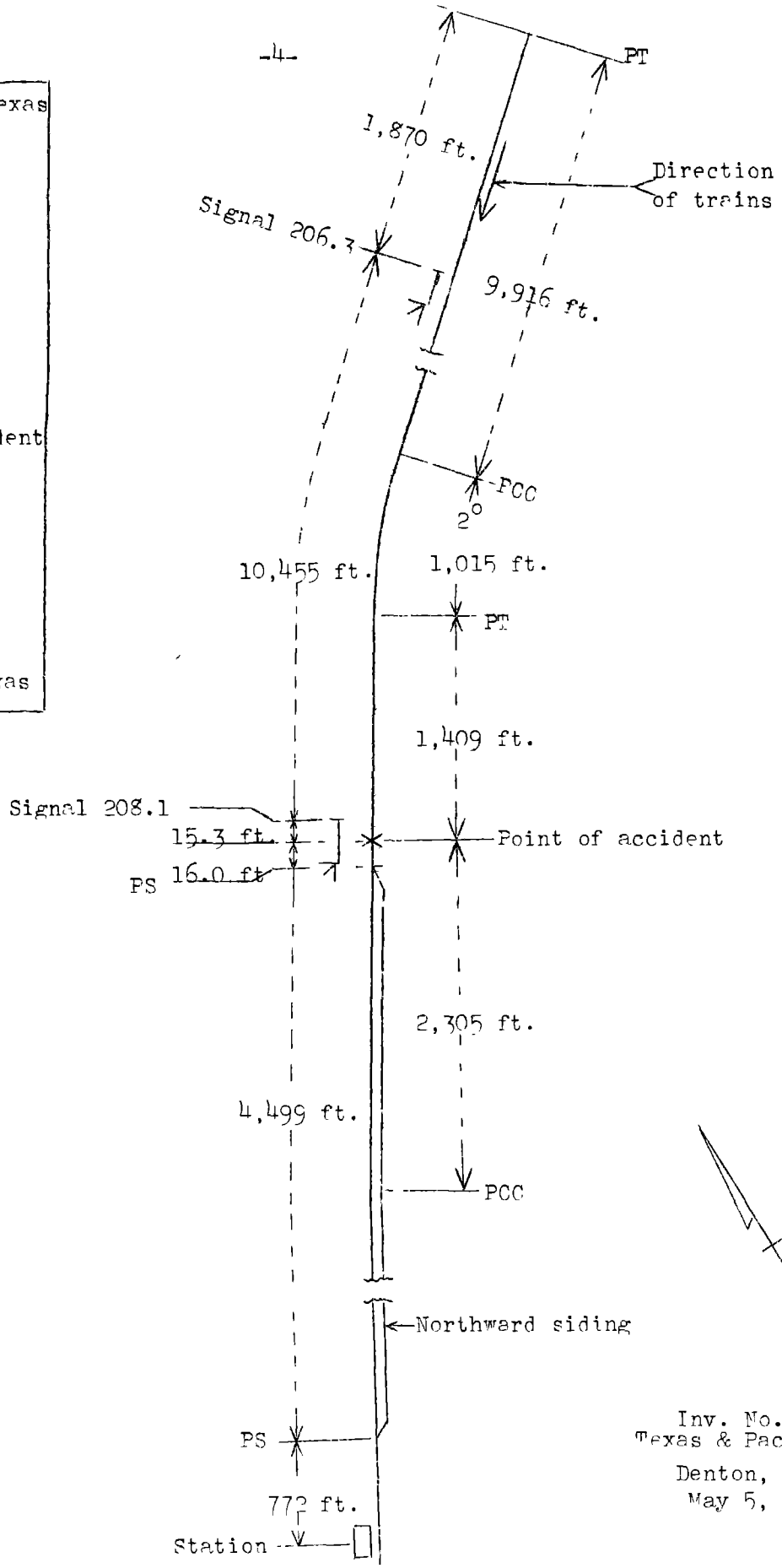
This accident occurred on that part of the Fort Worth Division designated as the Whitesboro Sub-division which extends between Bonham and Fort Worth, Texas, a distance of 116.3 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders, and an automatic block-signal system. Trains of the M-K-T of T., manned by its own employees, are operated over the T. & P. between Whitesboro and Fort Worth, a distance of 71.3 miles.

The northward siding at Denton, 4,499 feet in length, parallels the main track on the east side and its north switch is located 5,271 feet north of the passenger depot; the accident occurred on the main track at a point about 16 feet north of this switch. Approaching this point from the north there is a tangent 9,916 feet long, followed by a compound curve to the left with a maximum curvature of 2° a distance of 1,015 feet, then a tangent 1,409 feet to the point of accident and 2,305 feet beyond. The grade for south-bound trains varies from 0.05 to 1.55 percent ascending a distance of 7,500 feet, followed by a vertical curve 500 feet in length; it is then descending about 1,000 feet to the point of accident and beyond, the grade varying from 1.05 to 1.35 percent and being 1.25 percent at the point of collision.

Automatic signals 206.3 and 208.1 are located 10,455 and 15.3 feet, respectively, north of the point of accident; these are single-unit, three-position, light-type signals and are approach lighted. Night aspects and indications of these signals are as follows:

Red.....Stop; then proceed at slow speed, expecting to find a train in the block, broken rail, obstruction, or switch not properly set. Name: Stop and Proceed Signal.





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Texas & Pacific Ry.
Denton, Texas
May 5, 1939

Yellow... Approach next signal prepared to stop. Name: Approach Signal.
Green.... Proceed. Name: Clear Signal.

Because of track curvature and an embankment on the west side of the track, the view had of signal 208.1 by the engineman and the fireman of a south-bound train was restricted to about 1,586 and 1,823 feet, respectively.

In the vicinity of the point of accident the maximum authorized speeds for freight trains and passenger trains are 40 and 60 miles per hour, respectively.

Amendment to Rule 99 reads in part as follows:

"When a train stops or is delayed, under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals a sufficient distance to insure full protection.***

"(a) Between sunset and sunrise the flagman shall immediately after he leaves his train light a red fusee and carry it with him back one-quarter of a mile to the point where he places the first torpedo and must leave a burning fusee at the same point as the first torpedo.

"A sufficient distance to insure full protection requires that flagman shall go back to a point one-fourth mile from the rear of his train, where he must place one torpedo on the rail. He must then continue to go back at least one-half mile from the rear of his train and place two torpedoes on the rail, not more than two rail lengths apart; he may then return to within one-fourth mile from the rear of his train, and remain there until recalled. If a passenger train is due he must remain until it arrives.***

"(b) Should the speed of a train be reduced and its rear thereby endangered, making it necessary to check a following train before a flagman can get off, a lighted red fusee must be thrown on the track at intervals to insure the safety of the leading train."

The weather was clear at the time of the accident, which occurred about 9 p.m.

Description

Extra 843, a south-bound freight train, consisted of 68 cars and a caboose, hauled by engine 843, and was in charge of Conductor Worsham and Engineman Crittenden. This train departed from Whitesboro, 36 miles north of Denton, at 7:30 p.m., according to the train sheet. At Pilot Point, 17.6 miles north of Denton, the crew received a clearance card and copies of train order No. 54, Form 19, reading:

> C&E Extra 843 South and No 325
> Extra 843 South run ahead of No 325
> Eng 368 Pilot Point until overtaken No
> 325 gets this order at Pilot Point.

This crew also received the following telegram:

> C&E Extra 843 South
> Extra 867 North should clear at
> Denton by 855 PM or 900 PM. No. 325
> about on time. OK to delay them eight
> 8 or ten 10 mins to get out of Denton.

Extra 843 South passed Pilot Point at 8:10 p.m. and stopped about 8:45 or 8:47 p.m. with the rear of the caboose standing between signal 208.1 and the north switch. After eight cars were set out the engineman was attempting to proceed when the rear of the train was struck by No. 325.

No. 325, a south-bound passenger train, consisted of two baggage cars, one mail-baggage car, one coach, one chair car, and one Pullman sleeping car, in the order named, all of all-steel construction except the fourth car which was steel underframe and steel sheathing construction, hauled by engine 368, and was in charge of Conductor Beamer and Engineman Howe. This train left Whitesboro at 8:16 p.m., according to the train sheet, 6 minutes late, stopped at Pilot Point at 8:37 p.m., at which point the crew received a clearance card and train order No. 54, and in addition it received train order No. 60, Form 19, reading:

> C&E No. 325
> Extra 843 has left Pilot Point on
> order No. fifty Four 54.

No. 325 departed from Pilot Point at 8:39 p.m., 5 minutes late, passed signal 206.3 displaying a yellow aspect and signal 208.1 displaying a red aspect, and while traveling at a speed estimated to have been between 18 and 35 miles per hour it collided with the rear of Extra 843.

The caboose of Extra 843 South was demolished. The rear car was derailed and it stopped against a telephone booth on the left side of the track; the north end of this car was telescoped.

Engine 368 of No. 325 and the front tender truck were derailed to the left and remained in upright position on the ties. The locomotive, the front end badly damaged, stopped approximately 54 feet south of the point of collision. The employees injured were the engineman and the fireman of No. 325.

Summary of Evidence

Conductor Worsham, of Extra 843 South, observed from the cupola of the caboose that after his engine passed signal 208.1 it displayed a red aspect. He stated that when the train stopped, which was about 8:47 p.m., he instructed his flagman to go back until he met No. 325 and ride on it until his train was overtaken, and the flagman started back at once. He was writing at his desk when he heard the engine of No. 325 working steam, coming around the curve and also heard a flagman's signal answered. He looked out the rear door of the caboose and saw a red lamp on the side of the embankment, but could not estimate the distance. He then went to the rear platform of the caboose but could not see the red light because of the reflection of the engine's headlight. When he realized the speed of No. 325 was such that it would not be able to stop in time to avoid an accident he got off the caboose. The conductor saw nothing to indicate that the brakes had been applied. He estimated that the speed of No. 325 was about 35 miles per hour when it collided with his caboose which stood about on the points of the north switch of the siding. He said the accident occurred at 8:58 p.m., and the flagman returned about 8 or 10 minutes later. He was familiar with the rules but did not drop off a lighted fusee when the speed of his train was reduced because he thought it would have burned out before No. 325 reached it. He said that train order No. 54 neither relieved him from properly protecting his train nor restricted the speed of No. 325.

Flagman Hoskins, of Extra 843, stated that after receiving flagging instructions from the conductor he immediately started back with proper equipment, but did not light a fusee as he thought it would have burned out before No. 325 arrived. He observed signal 208.1 displaying a red aspect; the caboose marker lamps showed red to the rear. He stopped near the south end of the curve at a point about 1,200 feet north of the caboose, and heard No. 325 approaching about one mile distant. He said that this gave him an opportunity to light a fusee or place torpedoes but he did not do so because a torpedo would have been at the same point where he was located. After standing about one minute

he saw the reflection of the engine's headlight as it came around the curve, about 500 or 600 feet distant, and he flagged it with a white and a red lantern, and the engineman answered when the engine was about 300 feet distant. The engine was working steam as it passed him at a speed of about 50 miles per hour, and he did not hear the brakes being applied. He thought that it was better to remain at this location rather than to be caught on the curve, and that he was back a sufficient distance in which the train could have been stopped in time to avert the accident; however, if he had had the time he would have gone back farther. He said that had a lighted fusee been dropped off when the speed of his train was reduced, it would have afforded additional protection. He stated that he gave the engineman a short flag, and that had he flagged with a burning fusee the fireman might have seen him. Proceeding from his flagging position to the point of accident, which required 6 or 7 minutes, he walked on the west side of the track; he met no one during this period. He said that he understood the rules and that he was not relying on the automatic block signals to protect his train.

Engineman Crittenden, of Extra 843, stated that all block signals between Whitesboro and Denton displayed proper indications. His train stopped at Denton between 8:45 and 8:47 p.m. He did not see the conductor at this point. The brakeman did the work necessary in setting out the cars, and the engineman was under the impression the flagman had gone back. They were close to the time of No. 325, and he had discussed with the fireman and the brakeman the matter of leaving the flagman to ride No. 325 to Argyle, located 7.2 miles beyond, at which point they expected to clear for that train. He was not informed of the accident until about 20 or 25 minutes after it occurred. He understood the rules and train order No. 54.

The statements of Fireman Bryans and Head Brakeman Sarrett, of Extra 843 South, corroborated that of the engineman in all essential details.

Engineman Howe, of No. 325, stated that an air-brake test was made at Whitesboro; after departing a running test was made and the brakes functioned properly. The first stop was made at Pilot Point. He passed through Mingo at 8:58 p.m., approached signal 206.3, which was displaying a yellow aspect, at a speed of about 50 miles per hour, and this signal was called by the fireman, who was on the left seat-box, but he did not hear him make any other remarks. Before reaching the summit of the grade, a 6-pound brake-pipe reduction was made, with the engine brake released, and as the slack of the train became adjusted, the fireman called signal 208.1 as displaying a red aspect and

informed him that a caboose was back of the signal. He immediately closed the throttle, made an emergency application of the brakes and observed the red aspect of this signal and the caboose markers as the engine approached the tangent. He thought he had ample time in which to stop, but when he realized that his engine was too close to avoid striking the train ahead, he got off about two car lengths from the caboose. He stated that the accident occurred at 9:05 p.m., and the speed of his train was about 18 or 20 miles per hour at the time of the collision. He did not see a flagman and thought that had a flagman been back with a white and a red lantern he would have observed him. The only whistle signals he sounded in this vicinity were for grade crossings. He has been assigned to passenger-train service about two years. He was thoroughly familiar with this territory, the rules, and the orders held by him. Engine 368 was in good condition and the rail was dry. On previous occasions, under similar circumstances, he had reduced the speed of his train to such an extent as to stop the engine, by means of a service application, short of signal 208.1. He said that in this instance he failed to stop short of the signal because he had misjudged the speed of his train.

Fireman McDaniel, of No. 325, stated that after calling the indication of signal 206.3 he warned the engineman that there might be a freight train in the block ahead and the engineman eased off on the throttle, reducing the speed to about 45 miles per hour. When the engine reached the top of the grade, he called signal 208.1 as displaying a red aspect and about one second later he observed the caboose marker lamps. The engineman had not made any further reduction and he called his attention to the caboose standing on the main track. He said that the engineman did not close the throttle or make an emergency application of the brakes until within a distance of 600 to 750 feet from the caboose. He got off the engine as it collided with the caboose, at which time the speed was about 25 miles per hour; the accident occurred about 9 p.m. He first saw the flagman of Extra 843, about three or four car lengths north of the caboose, waving a red light from the west side of the track. Engineman Howe appeared to be normal in all respects.

Conductor Beamer, of No. 325, stated that he was on the right side of the fourth car and estimated that when passing signal 206.3 the speed was about 40 or 45 miles per hour. He expected to hear the whistle sounded for the station at Denton. He did not notice an application of the brakes previous to the emergency application, after which the train moved about 300 feet before the accident occurred. Prior to the collision he heard the engine whistle sounded, and when the accident occurred he thought they had struck an automobile. He thought that at

the time of the accident the train was traveling at a speed of about 20 miles per hour. He got off on the left side of the train, crossed to the right side and arrived at the head end of the train about 8 or 10 minutes after the accident occurred. Shortly thereafter he saw Flagman Hoskins at the caboose, but did not observe that he had any equipment other than a white lantern. The conductor said that the accident occurred at 8:57 or 8:58 p.m., at which time the weather was clear.

Brakeman Fairbanks, of No. 325, was in the fifth car, walking toward the rear, when the brakes became applied in emergency. He said that the accident occurred about 9 p.m. Immediately after getting flagging equipment he proceeded northward on the west side of the track, a distance of about 3,750 feet, but did not see a flagman.

Car Inspector Jones, of the M-K-T of T., located at Whitesboro, stated that he had made a test of the air brakes of No. 325 and found all brakes to be functioning properly.

Road Foreman of Engines McCune, of the M-K-T of T., arrived at the scene of accident about midnight and his inspection of the engine disclosed that the throttle was closed, the reverse lever in 25 percent cut off, forward motion, and the brake valve in emergency position.

Trainmaster Conder, of the T. & P., stated that at 1:45 a.m., May 6, in company with the signal maintainer and the general signal inspector, he made a visual test and it was disclosed that a good view of signal 208.1 could be had at points 1,825 feet and 1,586 feet north thereof from the left side and the right side, respectively, of a south-bound engine.

The statements of Signal Maintainer Wilson and General Signal Inspector Yarrell, of the T. & P., who arrived at the scene of the accident within a few hours after its occurrence, were to the effect that signals 206.3 and 208.1 displayed proper indications. Their inspection developed that none of the circuits had been disturbed and tests disclosed that the signals were functioning properly.

General Roadmaster Gammie, of the T. & P., arrived at the scene of the accident about 11 p.m., and he determined from the marks on the ties and rails that the collision occurred 16 feet north of the north switch of the siding.

Discussion

While the evidence was to the effect that Extra 843 stopped about 8:47 p.m., there was considerable discrepancy as to the time the accident occurred, some stating that it occurred at 8:58 p.m., and one said that it occurred at 9:05 p.m. Nevertheless, the flagman of the preceding train had not less than 11 minutes in which to provide adequate flag protection. The engineman of the following train said he saw no flagman and the fireman of that train said he saw the flagman only about three or four car lengths behind the caboose. After the accident the flagman of the following train when going back to flag did not see the flagman of the preceding train. The flagman of the preceding train said that he was back about 1,200 feet, or near the south end of the curve. He said that he did not have time to go to the north end of the curve and that he did not want to get caught on the curve when the following train approached. The distance from his caboose to the north end of the curve was 2,424 feet. Walking at a rate of 3 miles per hour during the time available to him, he could have reached a point at least 500 feet north of the north end of the curve. In flagging No. 325 he used only a red and a white lantern; he did not use torpedoes and a fusee as required by the rules. The flagman said that he was not relying on the block signals to protect his train. No doubt this accident would have been averted had the flagman obeyed the flagging rule.

According to the testimony of the engine crew of No. 325, the speed of that train was about 50 miles per hour when it passed signal 206.3 which was displaying an approach indication; this indication required them to approach the next signal prepared to stop. The fireman said that he warned the engineman there might be a freight train ahead, and the speed was reduced to about 45 miles per hour. When they reached a point between 1,000 and 1,500 feet north of the caboose the fireman called the red aspect displayed by signal 208.1 and about a second later he observed the caboose markers. No action was taken until the engine was within 600 to 750 feet of the caboose at which point the engineman closed the throttle and made an emergency application of the brakes. No. 325 passed signal 208.1 and struck the rear of the preceding train about 15 feet beyond the signal. The engineman said that he thought he had ample time in which to stop short of the train ahead, but that he misjudged the speed of his train. The engineman stated that he understood that he was required to approach signal 208.1 prepared to stop short of it. Had the approach indication been obeyed this accident would have been averted.

All members of the crew of the preceding train understood that the run-ahead order neither relieved them from properly protecting their train nor restricted the speed of No. 325.

In previous reports the Bureau of Safety has repeatedly recommended the principle of requiring a definite speed reduction for trains receiving approach indications; in fact, this recommendation was made in a report covering the investigation of an accident which occurred on the Texas and Pacific on June 14, 1935. On many roads the approach indication rule as now used on the Texas and Pacific has been revised to conform to the standard code.

Conclusion

This accident was caused by the failure of Extra 843 to provide proper flag protection and by the failure to operate No. 325 in accordance with block-signal indications.

Recommendation

It is recommended that officials of the Texas and Pacific give consideration to a revision of its rule covering the approach signal indication so as to require a reduction to a specified speed when that indication is received by a train traveling at a rate of speed greater than that specified.

Respectfully submitted,

W. J. PATTERSON,

Director.