In-2408

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

BALTIMORE & OHIO RAILROAD

NEW CASTLE JCT., PA.

JANUARY 17, 1940

INVESTIGATION NO. 2409

SUMMARY

Inv-2408

Railroad:	Baltimore & Ohio	
Date:	January 17, 1940	
Location:	New Castle Jct., Pa.	
Kind of accident:	Head-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 2750 East	: Extra 6200 West
Engine numbers:	2750	: 6200
Consist:	40 cars, caboose	: 117 cars, caboose
Speed:	8-15 m. p. h.	: 8-10 m. p. h.
Operation:	Interlocking	
Track:	Double; tangent; level	
Weather:	Clear	
Time:	8:23 p. m.	
Casualties:	3 killed, 2 injured	
Cause:	Failure to obey stop indication displayed by an interlocking home signal	

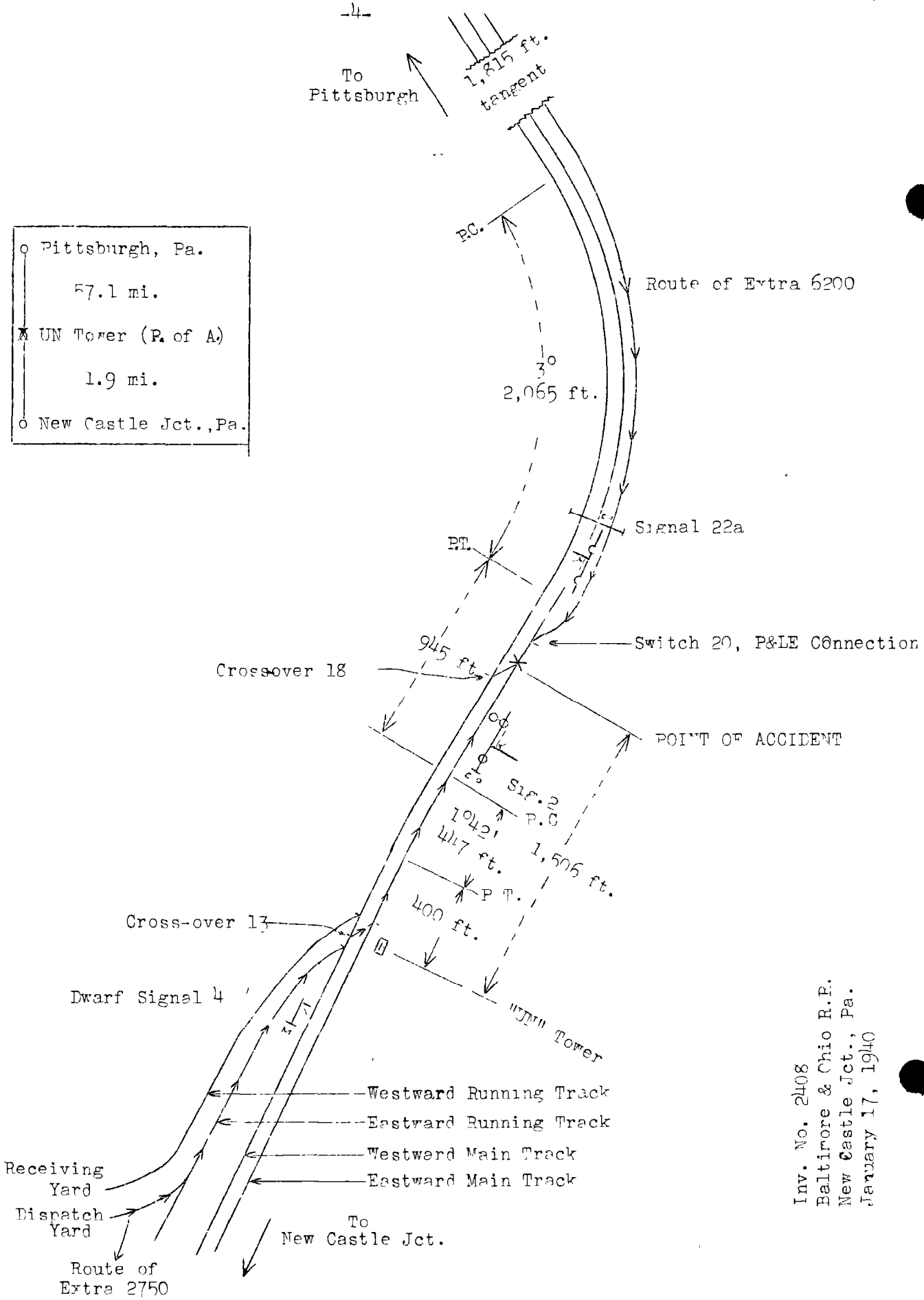
To the Commission:

On January 17, 1940, there was a head-end collision between two freight trains on the Baltimore & Ohio Railroad at UN Tower, near New Castle Jct., Pa., which resulted in the death of three employees and the injury of two employees.

Location and Method of Operation

This accident occurred on that part of the Pittsburgh Division designated as the P. & W. Sub-Division which extends between New Castle Jct. and Pittsburgh, Pa., a distance of 59 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block system. The tracks in this locality extend generally north and south by compass directions, but timetable directions are east and west; the latter directions are used in this report. All tracks involved are within the limits of New Castle Jct. yard. All switches and signals involved are interlocked and are controlled from UN Tower, which is located 1.9 miles east of New Castle Jct.

Cross-over 19, which is trailing for movements with the current of traffic, connects the eastward and the westward main tracks, and its east switch is located 1,506 feet east of the center-line of UN Tower. The accident occurred on the eastward main track at a point 2 feet west of this cross-over switch. A track designated as the P. & L. E. Connection parallels the eastward main track on the south and is 5,501 feet in length; its west switch, No. 20, which is electrically operated from UN Tower, joins the eastward main track at a point 88.3 feet east of the east switch of cross-over 18. The eastward dispatch yard and the westward receiving yard lie northwest of UN Tower. Two tracks designated as the eastward and the westward running tracks are connected to the westward main track at points, respectively, 106 feet west and 215 feet east of the center-line of UN Tower and parallel the main tracks on the north. Trains leave the eastward dispatch yard on the eastward running track and enter the westward receiving yard on the westward running track. Cross-over 13, located opposite UN Tower, connects the eastward and westward main tracks and is trailing for movements with the current of traffic; the west switch of this cross-over is located 15 feet east of the eastward running-track switch. The east switch of dispatch-yard track No. 16 is located 2,136 feet west of UN Tower.



Inv. No. 2408
Baltimore & Ohio R.R.
New Castle Jct., Pa.
January 17, 1940

Approaching the point of accident from the east there are in succession, a tangent 1,815 feet in length, a compound curve to the right 2,065 feet in length with a maximum curvature of 3°, and a tangent extending 289 feet to the point of accident and 656 feet beyond. Approaching from the west there is a 1°42' curve to the right 447 feet in length, which is followed by the tangent on which the accident occurred. The grade, which varies between 0.395 and 0.5 percent, is ascending westward a distance of 5,080 feet, then level a distance of 320 feet to the point of accident and more than 4,000 feet beyond.

In UN Tower there is a model board on which track occupancy is indicated by illumination and the interlocking is provided with approach and route locking. Signal 22a, which governs westward movements from the P.& L. E. Connection, is a color-position-light signal, approach lighted, and is located at a point 351.8 feet east of switch 20. Signal 4, which governs eastward movements from the eastward running track through cross-over 13 to the eastward main track, is a 2-position, mechanically operated dwarf signal and is located between the westward main track and the eastward running track at a point 443.8 feet west of UN Tower. Eastward advance home signal 2, which governs eastward movements on the eastward main track, is a color-position-light signal, approach lighted, and is located south of the eastward main track, 1,077 feet east of UN Tower and 429 feet west of cross-over 18.

For eastward movements from the eastward dispatch yard, signal 2 is approach-lighted a distance of 1,000 feet. The control circuit for this route extends only to the east frog of cross-over 13. When the route is lined for movement through cross-over 13, dwarf signal 4 displays a lunar-white aspect which governs only to signal 2 and permits a train to proceed at permissive-slow-speed prepared to stop short of train or obstruction. When the route is lined for a westward movement from the P. & L. E. Connection to the eastward main track, through cross-over 18 to the westward main track and thence to the westward running track, signal 22a displays a yellow aspect, which is medium-approach indication, permitting trains to proceed at not exceeding medium speed prepared to stop at next signal, and signal 2 displays a stop indication.

Medium speed is defined as one-half the normal speed, not to exceed 30 miles per hour.

The maximum authorized speed through cross-over 18 and the turnout to P. & L. E. Connection is 25 miles per hour.

The weather was clear at the time of the accident, which occurred about 8:23 p. m.

Description

Extra 2750 East, symbol B-94, a freight train, with Conductor Babcock and Engineman Bowser in charge, consisted of engine 2750, 19 loaded cars, 21 empty cars and a caboose. This train departed from dispatch track 16, proceeded over the eastward running track, passed dwarf signal 4, which was displaying a permissive-slow-speed indication, at a speed estimated at 8 to 15 miles per hour, moved through cross-over 13 to the eastward main track, passed signal 2, which was displaying a stop indication, and collided with Extra 6200 West.

Extra 6200 West, symbol RT-89, a freight train, with Conductor Lauderback and Engineman Frizzell in charge, consisted of engine 6200, 24 loaded cars, 93 empty cars and a caboose. This train was diverted to the P. & L. E. R. R. at McKees Rocks, Pa., 41.2 miles east of UN Tower and departed from McKees Rocks at 6:15 p. m., according to the P. & L. E. train sheet. At B. & O. Jct., 1.3 miles east of UN Tower, it entered P. & L. E. Connection and cleared the P. & L. E. circuits at 8:22 p. m., and en route to the eastward main track the front portion passed signal 22a, which displayed a medium-approach indication, passed switch 20, and as the engine was entering cross-over 18 at an estimated speed of 8 to 10 miles per hour it collided with Extra 2750.

None of the equipment in Extra 6200 was derailed, but engine 6200 and a total of 27 cars throughout the train were badly damaged. Engine 2750, of Extra 2750, the thirteenth to the sixteenth cars, inclusive, and the rear trucks of the seventeenth and eighteenth cars were derailed. Engine 2750 was badly damaged, its cab was crushed by the tender cistern, and the front end of the engine and both cylinder heads were broken. The derailed cars stopped in various positions; all of them were damaged and one of them was destroyed. Other cars throughout the train sustained damage. The east switch of cross-over 18 was damaged.

The employees killed were the engineman, the fireman and the front brakeman of Extra 2750 East, and the employees injured were the flagman of Extra 2750 East and the front brakeman of Extra 6200 West.

Summary of Evidence

Conductor Babcock, of Extra 2750, stated that before departure from the dispatch track an air-brake test was made and the air-brake inspector reported that all brakes were functioning properly; when the train departed the caboose gauge indicated 70

pounds brake-pipe pressure. The maximum speed attained was about 10 miles per hour. Snow blowing from cars of his train restricted visibility from the cupola windows to a distance of 8 or 10 car lengths. The accident occurred just as he opened the rear door of the caboose to see if the flagman was stationed where he could receive Form A from the operator. Soon afterward the operator at UN Tower told him that his engine had overrun a stop signal and had collided with Extra 6200, which was moving from P. & L. E. Connection. The conductor said that he neither heard the emergency horn blown nor saw the operator give stop signals with a lighted red lantern. No stop was made en route from the yard and he did not think that the air brakes were applied prior to the accident. About 10 minutes after the accident he observed that advance home signal 2 was displaying a stop indication; the red lights were clearly visible. The route over which engine 2750 moved from the yard to signal 2 was one frequently used. About 1 hour before departure he had talked with his front brakeman, who appeared to be normal at that time.

Flagman White, of Extra 2750, stated that he was on the rear platform of the caboose when approaching the point of accident, and at that time the speed of his train was between 12 and 15 miles per hour. When about 15 car lengths from UN Tower, upon seeing the operator giving stop signals with a lighted red lantern, he reached for the emergency valve to stop the train, but before he could open the valve the train stopped abruptly. He thought the brakes were applied in emergency before the accident occurred and later he observed that the brake-cylinder piston was out on the car next ahead of his caboose.

Engineman Frizzell, of Extra 6200, stated that the air brakes were tested at Connellsville, Pa., about 105 miles east of New Castle Jct., and functioned properly en route. The speed of his train was about 15 miles per hour as it approached signal 22a, which was displaying a yellow aspect indicating that the route was lined from P. & L. E. Connection to the receiving yard. At this time he observed that the headlight of engine 2750 was near signal 2 and he thought the engine was standing; it was not unusual to see engines standing at that point. The speed of his own train was about 8 or 10 miles per hour and, when he determined that Extra 2750 was moving toward him, he closed the throttle and applied the air brakes in emergency but not in time to avert the collision. He said that whenever a train in his charge moved from the dispatch yard to signal 2 he could see the red aspect displayed by that signal a sufficient distance in which to stop his train.

Fireman Fox, of Extra 6200, corroborated in substance the testimony of Engineman Frizzell. He said that the headlight

on his engine was burning and was brightened and dimmed alternately by his engineman in order to attract the attention of the crew of Extra 2750.

Front Brakeman Reed, of Extra 6200, corroborated the testimony of Engineman Frizzell and Fireman Fox.

Conductor Lauderback, of Extra 6200, stated that he was in the caboose at the time of the accident, which occurred at 8:23 p. m. He estimated that the speed of his train was 10 miles per hour immediately prior to the accident.

Flagman Lambert, of Extra 6200, stated that the air brakes on his train became applied shortly before the accident, which occurred at 8:23 p. m.

Operator Dover, at UN Tower, stated that about 8 p. m. he lined the route for Extra 6200 to move from P. & L. E. Connection to the westward receiving yard. When Extra 6200 entered the route lined for it, Extra 2750 departed from the dispatch yard and the engineman signalled for dwarf signal 4. A permissive-slow-speed indication was displayed by signal 4 to advance Extra 2750 to signal 2, which was displaying a stop indication, and, as engine 2750 passed the tower at a speed of between 8 and 10 miles per hour, he handed the engineman a clearance card Form A. At that time he observed that a stop indication was displayed by signal 2 and then he returned to the tower and inspected the train. When he realized that Extra 2750 was not going to stop at signal 2, he sounded the emergency horn. When the emergency horn failed to attract attention, he gave stop signals with a lighted red lantern to members of the crew on the caboose, which was about 10 or 12 car lengths west of the tower. He said that engine 2750 continued to work steam until the collision occurred. He did not hear the brakes become applied on Extra 2750. He said that he knew of no instance when a signal at UN interlocking had displayed a false-clear indication; in cases of failure, all signals had displayed stop indications. He was familiar with the operation of the interlocking at UN Tower, and there was nothing unusual about the manner in which the route was lined to move Extra 2750 from the dispatch yard to signal 2.

Signal Maintainer Phillips stated that he arrived at UN Tower about 9:05 p. m. He examined the interlocking machine and found that the route was lined for Extra 6200 West and signal 2 was set against Extra 2750 East. He checked the position of the switches involved and found them properly lined. Signal 2 displayed a stop indication and the control lever for that signal was locked in normal position and could not be released.

Yard Conductor Krepps, of yard engine 639, stated that a short time after the accident occurred he found the air brakes of Extra 2750 were applied on the caboose and on the rear 22 cars, but he did not observe the brakes on the remainder of the train.

Yard Brakeman Cameron corroborated the statement of Yard Conductor Krepps.

Car Inspector DeVivo stated that he made a terminal test of the air brakes on Extra 2750 East from road engine 2750. This test was made in accordance with the requirements of the B. & O. R. R. and all brakes throughout the train applied and released properly.

Car Inspector Posa corroborated the statement of Car Inspector DeVivo.

Hostler Stigers stated that he conversed with Engineman Bowser and Fireman Kunkle from 1:15 p. m. to 2:30 p. m., January 17, 1940, and again conversed with them about 6:25 p. m.; in both instances they appeared normal.

Crew Dispatcher Fulkerson stated that when he called Engineman Bowser and Fireman Kunkle for duty on Extra 2750 East they appeared normal.

General Mechanical Foreman Harper stated that he arrived at the scene of the accident about 9:15 p. m. He entered the cab of engine 2750 and observed that the throttle was partly open and latched, the independent brake-valve was in running position, and the power reverse lever was in full forward motion, but it had been fouled. He did not observe the position of the automatic brake-valve handle. The right side cab-window was entirely open. He said the engine-truck wheels of engine 6200 were about 1-1/2 feet west of the east switch-point of cross-over 18.

According to records furnished by the railroad, Engineman Bowser, prior to the trip in question, made 1 trip during September and 1 during October, 1939, and 5 trips during January, 1940, in the vicinity of UN Tower. Fireman Kunkle made in this vicinity 1 trip during October, 1 during November and 10 trips during December, 1939, and 3 trips during January, 1940. Brakeman Welty made in this vicinity 2 trips during June, 1939, and 1 trip during January, 1940. The last trip made into New Castle Jct. by each of these employees was on January 16, 1940.

Observations of the Commission's Inspectors

The Commission's inspectors observed that the aspect of

home signal 2 could be seen plainly from the fireman's side of an east-bound engine a distance of 1,000 feet when the track circuits were shunted at the east frog of the east switch of cross-over 13; it could be seen from the engineman's side a distance of 869 feet when the east switch of cross-over 13 was reached.

Discussion

According to the evidence, the operator at UN Tower lined the route for Extra 6200 West to move from P. & L. E. Connection to the westward running track. All members of the crew who were on engine 6200 stated that signal 22a, which governed this movement, was displaying a medium-approach indication, which required their train to be operated at a speed not exceeding 12-1/2 miles per hour and to be prepared to stop at the next signal. This signal indication was accepted and Extra 6200 entered the eastward main track, moved westward to the east switch of cross-over 18 and, as it was about to enter this switch and while moving at a speed of 8 or 10 miles per hour, collided with Extra 2750 East. The engineman of Extra 6200 said that he saw a headlight of an engine in the vicinity of signal 2 on the eastward main track, but as it was not unusual to see a headlight at that point he attached no particular significance to it. As he moved closer to the cross-over switch, he could see that the headlight of the opposing engine was moving toward him and immediately applied the brakes in emergency but it was then too late to avert the accident

After an air-brake test was made, which disclosed all brakes to be operative, Extra 2750 East started to move eastward on the eastward running track and the engineman signalled the operator at UN Tower for a route. The operator lined a route through cross-over 13 to the eastward main track. Dwarf signal 4 displayed a permissive-slow-speed indication, which required Extra 2750 to proceed prepared to stop short of train or obstruction as far as advance home signal 2. The operator said that the routes were properly lined for both movements. After the accident, the maintainer said that he found signal 2 burning brightly and displaying a stop indication; both routes were properly lined and locked. The conductor of Extra 2750 and the engineman of Extra 6200 both said that soon after the accident they saw signal 2; it was displaying a stop indication and its light was burning brightly. The investigation disclosed that it was possible for the fireman of an east-bound train to see signal 2 from the approach-lighting point, a distance of about 1,000 feet; the engineman of an east-bound train could see signal 2 a distance of 869 feet. When engine 2750 passed UN Tower the operator handed a clearance card Form A to the engineman. At this time engine 2750 was working steam and its speed was 8 to 15 miles per hour. The operator returned to the tower and, as

he did so, observed that signal 2 was burning brightly and displaying a stop indication. He said that engine 2750 continued to work steam and being apprehensive it would not stop short of signal 2 he blew the emergency horn. When the horn signal failed to obtain the desired result he gave stop signals with a red lantern. The flagman of Extra 2750 saw the lantern stop-signals and attempted to stop his train, but as he reached for the emergency valve on the caboose his train stopped abruptly.

The evidence indicates that the air brakes were tested on Extra 2750 shortly before the accident occurred and they functioned properly. After the accident the flagman of Extra 2750 observed that the brake-cylinder piston was out on the car next ahead of his caboose. The conductor of a yard engine said that 22 brakes were applied on the rear of Extra 2750.

All members of the crew of Extra 2750 were familiar with the method of operation in the vicinity of the point of accident. There was nothing unusual about the route line-up at the time of accident. All members of the crew on engine 2750 apparently were in normal condition immediately before the accident. Why the stop indication at signal 2 was not obeyed could not be determined as all members of the crew on engine 2750 were killed in the accident.

Conclusion

This accident was caused by failure to obey a stop indication displayed by an interlocking home signal.

Respectfully submitted,

S. N. MILLS

Director.