

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 3048
THE PENNSYLVANIA RAILROAD COMPANY
REPORT IN RE ACCIDENT
AT PHILADELPHIA, PA., ON
DECEMBER 14, 1946

SUMMARY

Railroad: Pennsylvania

Date: December 14, 1946

Location: Philadelphia, Pa.

Kind of accident: Side collision

Trains involved: Passenger : Passenger

Train numbers: 463 : 272

Engine numbers: 5394 : 4905

Consists: 11 cars : 10 cars

Estimated speeds: 5 m. p. h. : 4 m. p. h.

Operation: Interlocking

Tracks: Crossover; 12° : Station track
curve; level No. 11; tangent;
level

Weather: Clear

Time: 3:05 p. m.

Casualties: 1 killed

Cause: Failure to operate No. 272 in
accordance with interlocking
signal indication

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3048

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE PENNSYLVANIA RAILROAD COMPANY

January 27, 1947

Accident at Philadelphia, Pa., on December 14, 1946, caused
by failure to operate No. 272 in accordance with an
interlocking signal indication.

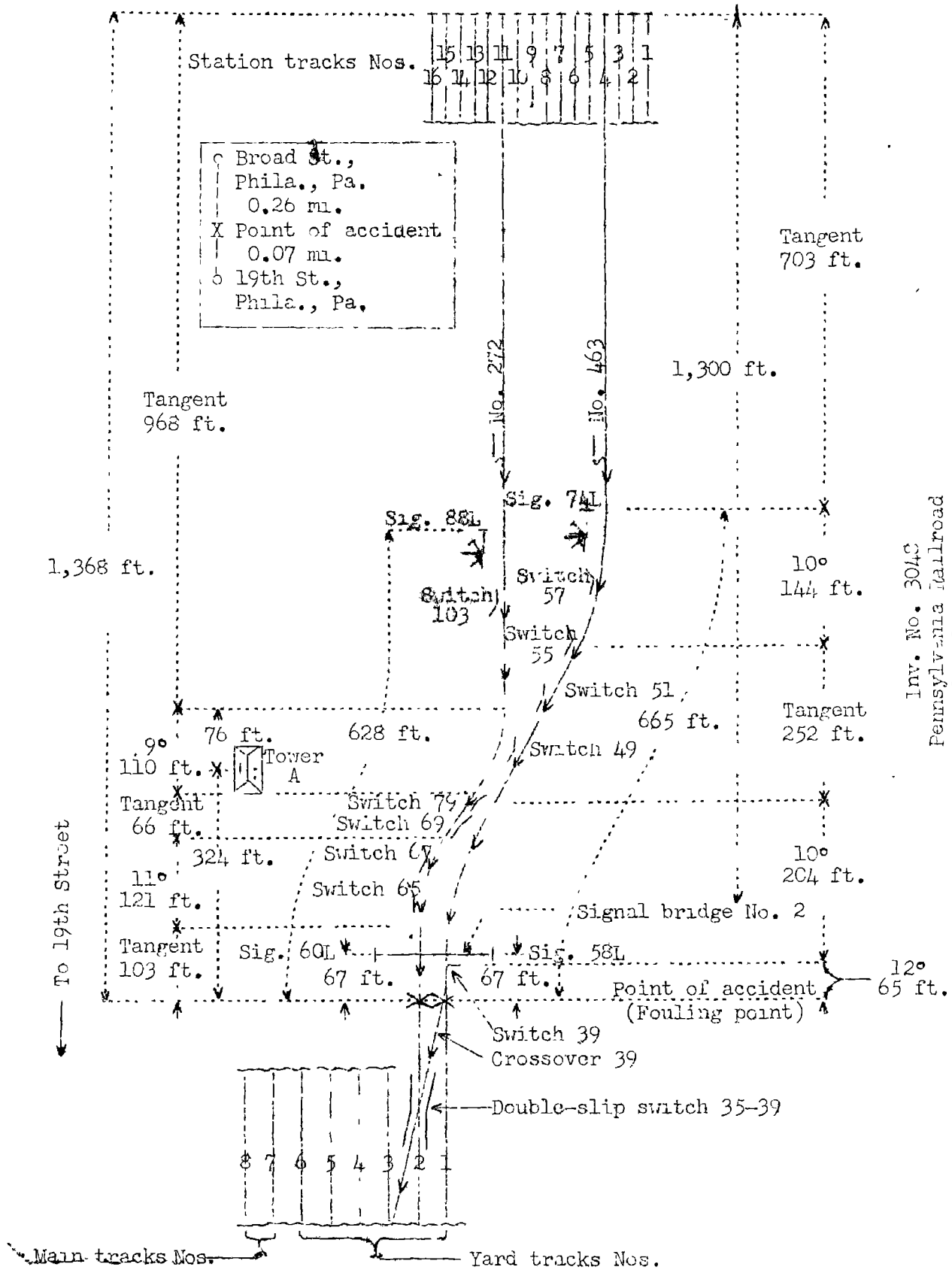
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On December 14, 1946, there was a side collision
between two passenger trains on the Pennsylvania Railroad
at Philadelphia, Pa., which resulted in the death of one
train-service employee.

¹
Under authority of section 17 (2) of the Interstate Com-
merce Act the above-entitled proceeding was referred by the
Commission to Commissioner Patterson for consideration and
disposition.

Broad Street Station



Inv. No. 304C
Pennsylvania Railroad
Philadelphia, Pa.
December 14, 1946

Location of Accident and Method of Operation

This accident occurred on that part of the Philadelphia Terminal Division extending westward from Broad Street to 19th Street, Philadelphia, Pa.; 0.33 mile. In the immediate vicinity of the station at Broad Street there are 16 station tracks designated from south to north as tracks Nos. 1 to 16, inclusive. Within interlocking limits at Tower A, 1,044 feet west of the station at Broad Street, the station tracks converge with six yard tracks and two main tracks. The six yard tracks parallel the two main tracks on the south, and these tracks are designated from south to north as yard tracks Nos. 1 to 6, inclusive, and main tracks Nos. 7 and 8. The station tracks, the yard tracks and the main tracks are equipped with an overhead catenary system for the electric propulsion of trains, and trains moving in either direction on these tracks are operated by signal indications. West-bound movements en route from station track No. 4 to main track No. 8 are made, successively, through switches 57, 55, 51, 49 and 39, thence through crossover 39 and five other crossovers westward. West-bound movements en route from station track No. 11 to main track No. 8 may be made, successively, through switches 103, 79, 69, 67 and 65, thence through double-slip switch 35, located at the west end of crossover 39, and through four crossovers westward. The accident occurred within interlocking limits, 1,368 feet west of the station at Broad Street and 524 feet west of Tower A, at the fouling point of station track No. 11 and crossover 39. From the east on station track No. 4 there are, in succession, a tangent 703 feet in length, a 10° curve to the right 144 feet, a tangent 252 feet, a 10° curve to the left 204 feet to switch 39 and a 12° turnout to the right 65 feet to the point of accident. From the east on station track No. 11 there are, in succession, a tangent 968 feet in length, a 9° curve to the right 110 feet, a tangent 66 feet, a 11° curve to the left 121 feet and a tangent 103 feet to the point of accident. The grade is practically level.

Interlocking signals 74L and 58L, governing west-bound movements from station track No. 4 through switch 39 to crossover 39, are, respectively, 665 feet and 67 feet east of the point of accident. Interlocking signals 88L and 60L, governing west-bound movements on station track No. 11, are, respectively, 628 feet and 67 feet east of the point of accident. These signals are of the two-unit, position-light type, and are continuously lighted. Signals 74L and 58L are mounted on masts, and signals 88L and 60L are mounted on signal bridge No. 2. The involved aspects and corresponding indications and names of these signals are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
74L) 88L)	Two white lights in diagonal position to the left	Proceed at Re- stricted speed.	Restricting.
58L	Two white lights in vertical position	Proceed; Slow speed within interlocking limits.	Slow-clear.
60L	Two white lights in horizontal position	Stop.	Stop-signal.

The interlocking is of the electro-pneumatic type. The machine consists of 96 working levers. Route and time locking are provided. An illuminated track diagram is provided and is so arranged that when signals display stop, red lights are displayed, and when signals display a permissive indication, no light is displayed. The controlling circuits are so arranged that when the route is lined for movement from station track No. 4 through switch 39 and crossover 39, signals 74L and 88L display proceed-at-restricted-speed, signal 58L displays proceed-at-slow-speed, and signal 60L displays stop.

Operating rules read in part as follows:

DEFINITIONS

* * *

Slow Speed--Not exceeding 15 miles per hour.

Restricted Speed--Not exceeding 15 miles per hour prepared to stop short of train, obstruction or switch not properly lined and to look out for broken rail.

606. Emergency Signals--Whistle or Horn.

Note--The signals prescribed are illustrated by "o" for the short sounds; "___" for the longer sounds.

Sound	Indication
(a) _____	All movements within interlocking limits--stop immediately.

* * *

663. A train or engine must stop clear of an interlocking signal indicating Stop. A train or engine must not pass a Stop-signal except when authorized * * *

The maximum authorized speed for all trains is 15 miles per hour.

Description of Accident

No. 463, a west-bound first-class passenger train, consisted of steam engine 5394, one baggage-mail car, one baggage-express car, six coaches, one baggage-express car, one passenger-baggage car and one express car, in the order named. All cars were of steel construction. Signal 74L displayed proceed-at-restricted-speed for No. 463, and this train, en route from station track No. 4 to main track No. 8, departed from Broad Street at 3:03 p. m., 3 minutes late, passed signal 58L, which displayed proceed-at-slow-speed, entered crossover 39 at switch 39 and while moving at an estimated speed of 5 miles per hour the tender of the engine was struck by No. 272 at the fouling point of the turnout of switch 39 and track No. 11.

No. 272, a west-bound first-class passenger train, consisted of electric engine 4905, one baggage-mail car, eight coaches and one passenger-baggage car, in the order named. All cars were of steel construction. Signal 88L displayed proceed-at-restricted-speed for No. 272, and this train, en route from station track No. 11 to main track No. 8, departed from Broad Street at 3:04 p. m., on time, passed signal 60L, which displayed stop, and while moving at an estimated speed of 4 miles per hour it struck No. 463.

The rear truck of the tender of the engine of No. 463, the front truck of the first car of No. 463, and the engine-truck wheels and the Nos. 1, 2 and 3 driving wheels of the engine of No. 272 were derailed. The right sides of the tender of the engine and the first car of No. 463, and the left side of the engine of No. 272 were damaged.

The weather was clear at the time of the accident, which occurred about 3:05 p. m.

The engineer of No. 463 was killed.

Discussion

About 3:02 p. m. the leverman at Tower A lined the route for No. 463, a west-bound passenger train, to proceed from station track No. 4 through switches 57, 55, 51, 49 and 39 and crossover 39, thence through several other crossovers to main track No. 8. At that time No. 272, a west-bound passenger train, was standing on station track No. 11. Signals 74L and 88L, located, respectively, 600 and 563 feet east of switch 39, displayed proceed-at-restricted-speed for Nos. 463 and 272. Signals 58L and 60L, located on a signal bridge 2 feet east of switch 39, displayed, respectively, proceed-at-slow-speed for No. 463 and stop for No. 272. The stop indication displayed by signal 60L required No. 272 to stop short of that signal and not to proceed until an indication permitting the train to proceed was displayed or proper authority from the leverman had been received. The indication displayed by signal 58L permitted No. 463 to enter switch 39 and to proceed through crossover 39 en route to main track No. 8 at a speed not in excess of 15 miles per hour.

No. 463 entered crossover 39 at switch 39 and was moving at a speed of about 5 miles per hour when the right side of the tender of the engine was struck by No. 272 at the fouling point of station track No. 11 and crossover 39.

As No. 463 was approaching the point where the accident occurred a special duty engineer, who was on the left side of the engine, and the engineer were maintaining a lookout ahead. The fireman was on the deck of the engine tending the fire. The engineer was killed in the accident. The special duty engineer and the fireman said that the first they knew of anything being wrong was when they heard an alarm signal sounded on the emergency horn, which was actuated by the leverman at Tower A when he observed that No. 272 was closely approaching signal 60L, and the collision occurred immediately afterward.

As No. 272 was approaching signal 60L the speed was about 8 miles per hour. The engineer was maintaining a lookout ahead. The fireman was in the motor compartment. The engineer said that he was not aware that signal 60L was displaying stop until his engine was within a few feet of the signal. Then he heard the alarm signal sounded on the emergency horn and observed that signal 60L was displaying stop, and immediately moved the brake valve to emergency position. The speed of No. 272 was about 4 miles per hour when the collision occurred.

Cause

It is found that this accident was caused by failure to operate No. 272 in accordance with an interlocking signal indication.

Dated at Washington, D. C., this twenty-seventh day of January, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.