

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2914
THE PENNSYLVANIA RAILROAD COMPANY
REPORT IN RE ACCIDENT
NEAR SOUTH FORK, PA., ON
JULY 20, 1945

SUMMARY

Railroad: Pennsylvania
Date: July 20, 1945
Location: South Fork, Pa.
Kind of accident: Rear-end collision
Trains involved: Freight : Freight
Train numbers: Extra 3650 East : Extra 6968 East
Engine numbers: 3650, 4564-6335 : 6968, 4658-3710
Consist: 46 cars, cabooses : 74 cars, cabooses
Estimated speed: Standing : 5 m. p. h.
Operation: Automatic block and cab-signal systems
Tracks: Four; tangent; 0.57 percent ascending grade eastward
Weather: Foggy
Time: 3:52 a. m.
Casualties: 1 killed
Cause: Failure to operate following train in accordance with signal indications

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2914

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

THE PENNSYLVANIA RAILROAD COMPANY

September 6, 1945.

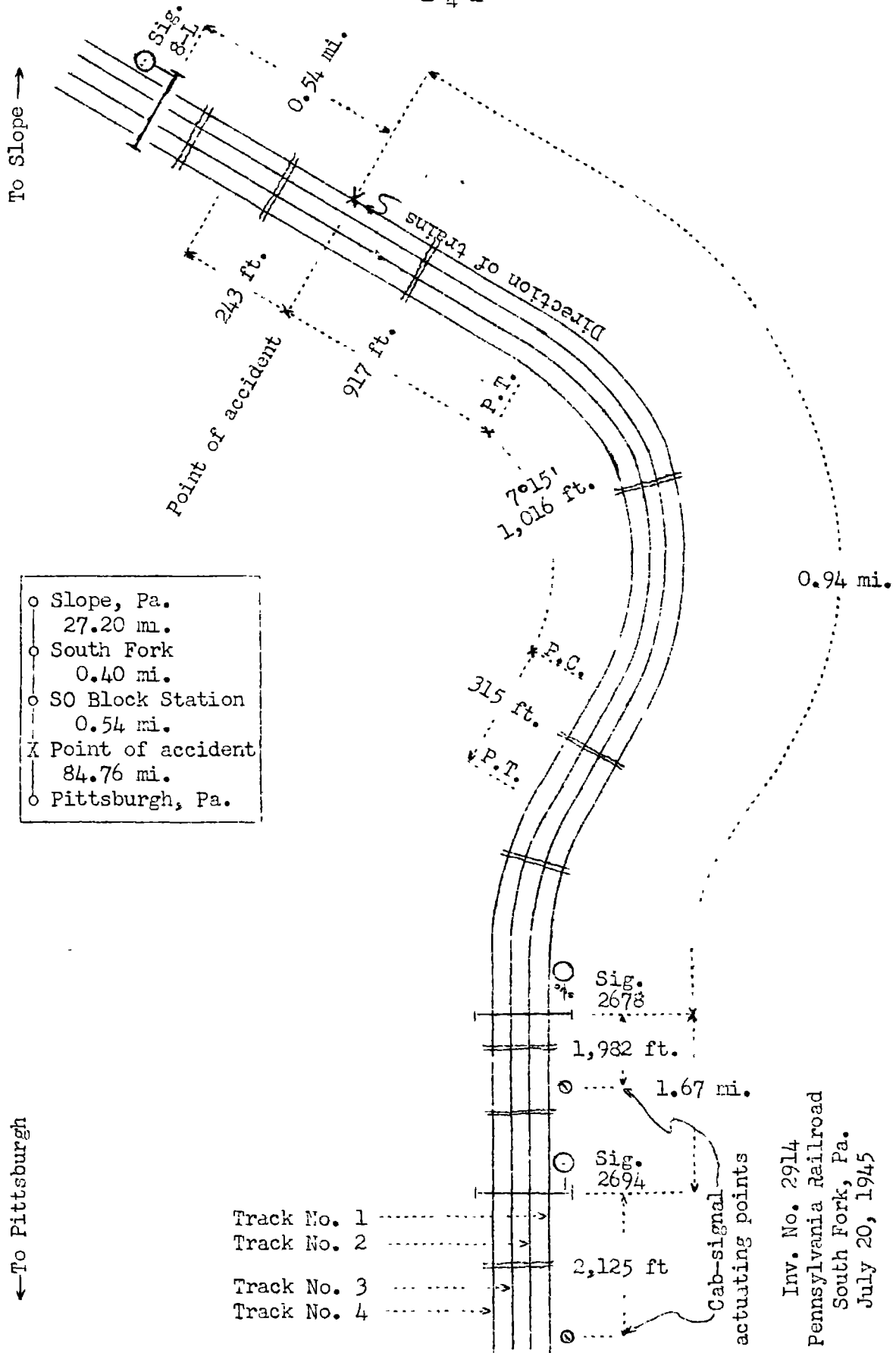
Accident near South Fork, Pa., on July 20, 1945, caused by
failure to operate the following train in accordance
with signal indications.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On July 20, 1945, there was a rear-end collision between two freight trains on the Pennsylvania Railroad near South Fork, Pa., which resulted in the death of one employee. A derailed car of the following train fouled an adjacent main track and was struck by a passenger train.

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



- o Slope, Pa.
27.20 mi.
- o South Fork
0.40 mi.
- o SO Block Station
0.54 mi.
- X Point of accident
84.76 mi.
- o Pittsburgh, Pa.

Inv. No. 2914
 Pennsylvania Railroad
 South Fork, Pa.
 July 20, 1945

Location of Accident and Method of Operation

This accident occurred on that part of the Pittsburgh Division extending eastward from Pittsburgh to Slope, near Altoona, Pa., 112.9 miles, a four-track line in the vicinity of the point of accident. The main tracks from south to north are designated as No. 1, eastward freight, No. 2, eastward passenger, No. 3, westward passenger, and No. 4, westward freight. Trains moving with the current of traffic on tracks Nos. 1, 2 and 4, and in either direction on track No. 3, are operated by automatic block-signal and cab-signal systems. The accident occurred 84.76 miles east of Pittsburgh on track No. 1, at a point 0.94 mile west of South Fork and 0.4 mile west of SO Block Station. From the west there are, in succession, a tangent 266 feet in length, a compound curve to the right 1,724 feet, the maximum curvature of which is 5°53', a tangent 290 feet, a compound curve to the left 426 feet, the maximum curvature of which is 5°30', a tangent 315 feet, a 7°15' curve to the left 1,116 feet and a tangent 917 feet to the point of accident and 243 feet eastward. The grade for east-bound trains is ascending, successively, 0.85 percent 1.88 miles, 0.78 percent 1,795 feet, 0.20 percent 1,228 feet and 0.57 percent 1,969 feet to the point of accident.

Automatic signals 2694 and 2678 and semiautomatic signal 8-L, governing east-bound movements on track No. 1 are, respectively, 2.61 miles and 0.94 mile west and 0.54 mile east of the point of accident. These signals are of the position-light type. Signal 8-L is controlled by an interlocking machine at SO Block Station. The cab signals are of the four-indication, position-light type. 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>
2694 and cab signal	Three white lights in diagonal position to the right.	Proceed prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach.
2678	Three white lights in horizontal position over three white lights in diagonal position to the left.	Proceed at restricted speed.	Restricting.
Cab signal	Two white lights in diagonal position to the left.	Proceed at restricted speed.	Restricting.
8-L	Three white lights in horizontal position.	Stop.	Stop-signal.

The controlling circuits of the wayside signals are so arranged that when an east-bound train is occupying track No. 1 in the block extending between signal 2678 and signal 8-L, signal 2678 will display proceed-at-restricted-speed and signal 2694 will display proceed-prepared-to-stop-at-next-signal. The controlling circuits of the cab-signal system are so arranged that when an east-bound train is occupying track No. 1 in the block extending between signal 2678 and signal 8-L, the cab signal of a following train will display proceed-prepared-to-stop-at-next-signal when the engine passes a point 2,125 feet west of signal 2694 and will continue to display this indication until the engine passes a point 1,982 feet west of signal 2678, then the cab signal will display proceed-at-restricted-speed from that point eastward to the point where the track is occupied by the preceding train.

Operating rules read in part as follows:

DEFINITIONS

* * *

Medium Speed--Not exceeding one-half the speed authorized for passenger trains but not exceeding 30 miles per hour.

Reduced Speed--Prepared to stop short of train or obstruction.

* * *

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.

11. A train finding a fusee burning red on or near its track must stop and extinguish the fusee and then proceed at reduced speed.

14. Engine Whistle Signals

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

* * *

SOUND

INDICATION

* * *

(db) ___ ___ ___ ___ o	(Three or more main tracks) Flagman for freight track may return from west or south.*
---------------------------------------	--

* * *

* As prescribed by Rule 99.

15. Torpedoes

The explosion of two torpedoes is a signal to proceed at reduced speed. The explosion of one torpedo will indicate the same as two but the use of two is required.

* * *

35. The following signals will be used by flagmen:

* * *

Night signals--a red light, a white light, torpedoes and fuses.

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fuses.

When recalled and safety to the train will permit, he may return.

When conditions require, he will leave the torpedoes and a lighted fuse.

* * *

102. When a train is disabled or stopped suddenly by an emergency application of the air brakes or other causes, adjacent tracks as well as tracks of other railroads that are liable to be obstructed must be protected at once in both directions until it is ascertained they are safe and clear for the movement of trains.

296. Cab signal indications do not supersede fixed signal indications except when cab signal changes to a more restrictive or a more favorable indication after passing a fixed signal.

514. * * * when cab signal indication changes to "restricting," a train or engine must at once reduce to not exceeding restricted speed.

In the vicinity of the point of accident, the maximum authorized speed for freight trains moving on track No. 1 is 45 miles per hour.

Description of Accident

Extra 3650 East, an east-bound freight train, consisting of engine 3650, 46 cars, a caboose and engines 4564 and 6335, in the order named, stopped about 2:55 a. m. at signal 8-L, which displayed stop. About 57 minutes later the rear end of this train was struck by Extra 6968 East. The tender of engine 6335 and the forty-fourth to the forty-sixth cars, inclusive, were considerably damaged.

Extra 6968 East, an east-bound freight train, consisting of engine 6968, 74 cars, a caboose and engines 4658 and 3710, in the order named, passed signal 2694, which displayed proceed-prepared-to-stop-at-next-signal, passed signal 2678, which displayed proceed-at-restricted-speed, and while moving at an estimated speed of 5 miles per hour it struck Extra 3650 about 4,987 feet east of signal 2678. Engine 6968 and the sixth to ninth cars, inclusive, were derailed and stopped in various positions. This equipment was considerably damaged. Immediately after the collision occurred, the ninth car, which fouled track No. 2, was struck by Passenger Extra 299 East.

Passenger Extra 299 East, an east-bound passenger train, consisted of engine 299, one mail-storage car, one passenger-baggage car, two coaches, one dining car and four coaches, in the order named. All cars were of steel construction. This train was moving on track No. 2 at an estimated speed of 45 miles per hour when it struck the ninth car of Extra 6968. Passenger Extra 299 was not derailed, but the right side of the engine and the right sides of the cars were slightly damaged.

It was foggy at the time of the accident, which occurred about 3:52 a. m.

The flagman of Extra 3650 was killed.

Discussion

Extra 3650 East stopped on track No. 1 just west of signal 8-L, which was displaying stop. A few minutes later, the engineer of the first engine was informed by telephone by the operator at SO Block Station that, on account of congestion on track No. 2 east of SO Block Station, east-bound trains on track No. 2 were being routed from track No. 2 to track No. 1 at SO Block Station, and that Extra 3650 would not be permitted to proceed beyond signal 8-L until several more trains had crossed from track No. 2 to track No. 1. About 57 minutes after Extra 3650 had stopped, its rear end was struck by Extra 6968 East, and Passenger Extra 299 East struck the ninth car of Extra 6968, which fouled track No. 2. The engine of Passenger Extra 299 East had passed the rear end of Extra 6968 East before the collision occurred, and it was not possible for the crew of

Extra 6968 to provide protection for Passenger Extra 299.

The conductor of Extra 3650 said that immediately after his train stopped the flagman proceeded westward with flagging equipment. About 52 minutes later, the indication of signal 8-L changed from stop to proceed and the engine-whistle signal recalling the flagman was sounded. The collision occurred about 5 minutes later. Immediately after the accident the remains of a freshly burned fusee and the clamps of two recently exploded torpedoes were found on track No. 1 about 1,000 feet west of the rear end of Extra 3650, and a lighted fusee was found about 400 feet west of the point of accident, where the flagman of this train was found fatally injured.

As Extra 6968 was approaching the point where the accident occurred the speed was about 15 miles per hour. The brakes of this train had been tested and had functioned properly en route, and were in the charge of the engineer of the first engine. The headlight was lighted, and the enginemen of the first engine were maintaining a lookout ahead. Because of dense fog, visibility was restricted to a distance of about 450 feet. Signal 2694, located 1.67 miles west of signal 2678, displayed proceed-unprepared-to-stop-at-next-signal, and the cab signals on each side of the cab of the first engine displayed corresponding indications. When the first engine passed the cab-signal actuating point, located 1,982 feet west of signal 2678, the cab-signal indications changed to proceed-at-restricted-speed. As the engine was approaching signal 2678, located 0.94 mile west of the point of accident, this signal was displaying proceed-at-restricted-speed, and the enginemen called the indication. Then the engineer eased the throttle toward closed position and when the engine reached a point about 2,000 feet west of the point where the accident occurred he closed the throttle and applied the engine and tender brakes. He thought this action reduced the speed to about 8 miles per hour. Soon afterward, two torpedoes were exploded and the engineer made a 6-pound brake-pipe reduction. Before the brake-pipe exhaust had ceased the enginemen saw, simultaneously, stop signals being given with lighted red and white lanterns and the lighted red marker lamps of the preceding train about 400 feet distant. Then the engineer moved the brake valve to emergency position, but the train could not be stopped in time to prevent the collision. The engineer and the fireman of the first engine said they did not see any lighted fusee prior to the accident. However, immediately after the accident occurred the flagman of Passenger Extra 299 and the conductor of Extra 3650 saw a burning fusee near the point where the flagman of Extra 3650 was found. The fusees in use were of the 5-minute type, and it is probable that the fusee which was placed about 1,000 feet west of the point of accident had burned out just before Extra 6968 approached. The evidence indicates that the flagman was returning

to his train and had almost reached the rear end when he first heard the following train; then he proceeded westward and gave flagging signals. In this case, if 10-minute fusees had been in use, one of them placed 1,000 feet to the rear of the preceding train would have provided protection during the time the flagman was returning to his train. The enginemen of Extra 6968 understood that the proceed-at-restricted-speed indication displayed by the cab signals and by signal 2678, and the torpedoes which their engine exploded required the speed of their train to be so controlled that the train could be stopped short of a preceding train. However, the engineer thought that if the preceding train had been displaying a lighted fusee a distance of 800 feet west of the rear of that train, he would have seen it in time to avert the accident. The engineer said that if adequate flag protection is not provided, it is not safe for a train to move under a proceed-at-restricted-speed indication in weather such as prevailed in the territory involved.

Cause

It is found that this accident was caused by failure to operate the following train in accordance with signal indications.

Dated at Washington, D. C., this sixth
day of September, 1945.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.