

INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2550

THE PENNSYLVANIA RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR LOCK, PA., ON

DECEMBER 9, 1941.

SUMMARY

Railroad: Pennsylvania

Date: December 9, 1941

Location: Lock, Pa.

Kind of accident: Rear-end collision

Trains involved: Freight : Freight

Train numbers: Extra 3689 East : Extra 4030 East

Engine numbers: 3689 : 4030

Consist: 46 cars, caboose : 30 cars, 2 cabooses

Estimated speed: 15-18 m.p.h. : 30-45 m.p.h.

Operation: Timetable, train orders and
manual-block system

Track: Single; 1°30' right curve; grade level

Weather: Clear

Time: 2:43 a.m.

Casualties: 4 killed; 1 injured

Cause: Accident caused by failure to provide
adequate flag protection for pre-
ceding train and by failure properly
to control speed of following train
in compliance with permissive-block
indication

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2550

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

THE PENNSYLVANIA RAILROAD COMPANY

February 2, 1942

Accident near Lock, Pa., on December 9, 1941, caused by failure to provide adequate flag protection for the preceding train and by failure properly to control the speed of the following train in compliance with a permissive-block indication.

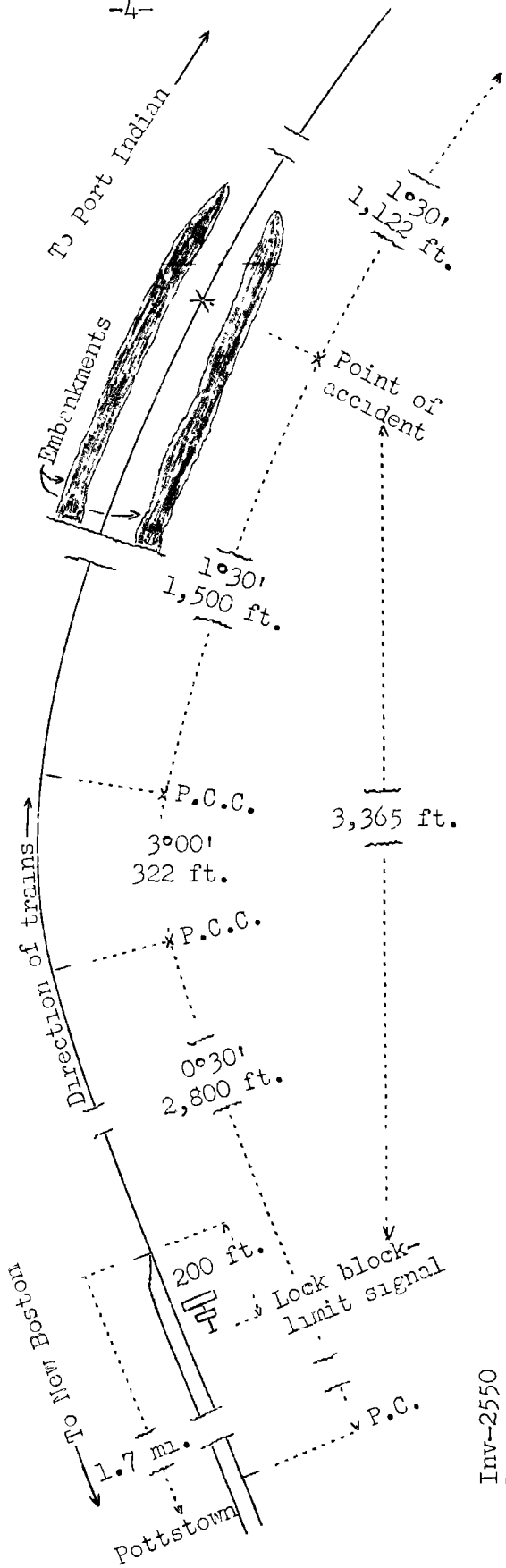
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On December 9, 1941, there was a rear-end collision between two freight trains on the Pennsylvania Railroad near Lock, Pa., which resulted in the death of four employees and the injury of one employee. This accident was investigated in conjunction with a representative of the Pennsylvania Public Utility Commission.

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.

○	Port Indian, Pa.	8.0 mi.
○	Phoenixville	9.07 mi.
X	Point of accident	0.63 mi.
○	Lock	11.4 mi.
○	Brooke	44.3 mi.
○	Carbon	11.1 mi.
○	New Boston, Pa.	



Inv-2550
 Pennsylvania Railroad
 Lock, Pa.
 December 9, 1941

Location of Accident and Method of Operation

This accident occurred on that part of the Wilkes-Barre Division designated as the Schuylkill Branch, which extends between New Boston and Port Indian, Pa., a distance of 8.5 miles. In the immediate vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and a manual-block system. The accident occurred on the main track at a point 3,365 feet east of the station at Lock. Between Pottstown and Lock a siding 1.7 miles in length parallels the main track on the north. The east switch of this siding is 200 feet east of the station at Lock. As the point of accident is approached from the west there is a compound curve to the right 5,744 feet in length, the curvature of which varies from 0°30' to 3°. The accident occurred on this curve at a point 1,122 feet from its eastern end, where the curvature is 1°30'. At the point of accident the grade is practically level.

At Lock the block limit is indicated by a sign located at a point 200 feet west of the east siding-switch. This sign consists of the station name, "Lock," lettered in white on a black signboard 10 inches wide and 20 inches long mounted horizontally 7 feet 5 inches above the level of the rail on a mast 9 feet south of the south rail. For a night indication a light is provided in a box 8 inches high and 27-1/4 inches long, mounted horizontally on the mast 8 feet 11 inches above the level of the rail, with a red and a yellow lens, each of which is 5 inches in diameter. The yellow lens is next to the main track. Both the sign and the night indication are visible from either direction. A telephone booth is attached to the mast on which the block-limit sign is mounted.

Operating rules read in part as follows:

DEFINITIONS

Block-Limit Signal--A fixed signal indicating the limit of a block the use of which by trains is prescribed by manual block system rules.

Block-Limit Station--A place at which a block-limit signal is displayed.

35. The following signals will be used by flagmen:

* * *

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

99. * * *

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, * * * lighted fuseses must be thrown off at proper intervals.

* * *

Conductors and enginemen are responsible for the protection of their trains.

289. NAME: Permissive-block.

INDICATION--Block occupied; * * * for trains other than passenger trains, proceed prepared to stop short of train ahead.

305. Block signals govern the use of the blocks, but unless otherwise provided, do not supersede the superiority of trains, nor dispense with the use and the observance of other signals whenever and wherever they may be required.

At a block-limit station trains will be governed in their use of the block by instructions of the signalman in charge of the block-limit station as indicated on the time-table.

317. (For absolute block for opposing movements and permissive block for following movements on the same track.)

* * *

Before admitting a train other than a passenger train to a block, the signalman in charge of the block station or block-limit station at the entrance of the block must know that the block is clear of opposing trains and passenger trains, and that no opposing train or no passenger train has been given permission or a signal to enter the block. * * * If the block is clear of opposing trains and passenger trains, the signalman in charge of the block station may permit a train other than a passenger train to follow a train other than a passenger train into the block by displaying a Permissive-Block signal for the train to be admitted to the block. The signalman in charge of a block-limit station may give a train

at that block-limit station verbal permission to enter one block. The signalman, when authorized by the superintendent, will issue Clearance Card (Form K) to a train to pass one or more block-limit stations as though Permissive-Block signal were displayed.

* * *

FORMS OF BLANKS

Form K Clearance Card Form K

_____ Block Station _____ M., _____ 19____

To Conductor and Engineman:

Train _____ Engine _____

Proceed at _____

As though _____ signal were displayed.

Report clear at _____

Signalman.

The signalman may issue this card only when authorized by the superintendent. Before issuing it, the signalman must have proper understanding with other signalmen, if any, having authority over blocks mentioned, and must know that blocks mentioned above are clear of opposing trains, and clear of trains that may not be followed in the same block by the train addressed.

The conductor and engineman receiving this card properly filled out and signed, or authorized by the signalman to fill it out, may proceed as directed above.

When delivered by telephone, the signalman will show on his office copy the name of the person to whom delivered.

Special time-table instructions provide that Rule 317 will govern movements within the territory involved in this accident. The block involved extends between Lock and Phoenixville, a distance of 9.7 miles. The block-limit station at Lock is in the charge of the signalman at Phoenixville.

In the vicinity of the point of accident the maximum authorized speed for freight trains is 45 miles per hour.

Description of Accident

Extra 3689 East, Symbol S-6, an east-bound local freight train, consisted at the time of the accident of engine 3689, 33 loaded and 13 empty cars and a caboose. This train departed from Brooke, 11.4 miles west of Lock and the last open office, at 12:40 a.m., according to the dispatcher's record of movement of trains, and stopped in the siding at Lock at 1:27 a.m. Permission to proceed was obtained by telephone from the signalman at Phoenixville. Extra 3689 departed from Lock at 2:32 a.m., and while it was moving at an estimated speed of 15 to 18 miles per hour its rear end was struck by Extra 4030 East at a point 3,365 feet east of the block-limit sign at Lock.

Extra 4030 East, symbol S-12, an east-bound freight train, consisted of engine 4030, 28 loaded and 2 empty cars and 2 cabooses. After a terminal air-brake test was made this train departed from Carbon, 55.7 miles west of Lock, at 1:05 a.m., according to the dispatcher's record of movement of trains. At Brooke the crew received copies of clearance Form K authorizing this train to proceed at Lock as though a permissive signal was displayed. This train departed from Brooke at 2:25 a.m., passed the block-limit sign at Lock, and while moving at an estimated speed of 30 to 45 miles per hour it collided with the rear end of Extra 3689. The brakes of Extra 4030 had functioned properly at all points where used en route.

In the immediate vicinity of the point of accident the track is laid in a cut, the south slope of which rises about 15 feet. There is vegetation on both sides of the track. Because of track curvature, the cut and the vegetation, the view from the right side of the cab of an east-bound engine of the point where the accident occurred is restricted to about 750 feet.

The caboose of Extra 3689 was derailed to the south and stopped, badly damaged, on its right side and practically parallel to the track, with its rear end 285 feet east of the point of collision. The rear 3 cars of this train were derailed and damaged. Engine 4030 and its tender, remaining coupled, stopped, badly damaged, on their right sides, south of the track and parallel to it, with the pilot of the engine against the caboose of Extra 3689. The engine cab was demolished. The first 16 cars of Extra 4030 were derailed and stopped in various positions west of the engine. The first, third, sixth and seventh cars were demolished and the other derailed cars were damaged.

Inspection of engine 4030 after the accident disclosed that the throttle was closed and the automatic brake valve was in emergency position.

The weather was clear at the time of the accident, which occurred about 2:43 a.m.

The employees killed were the engineer, the fireman and the front brakeman of Extra 4030, and the flagman of Extra 3689, and the employee injured was the conductor of Extra 3689.

Discussion

The rules governing operation on the line involved provide that when a train is moving under circumstances in which it may be overtaken by another train the flagman must take such action as may be necessary to insure full protection for his train. In addition, a following train moving under permissive-block authority must proceed prepared to stop short of train ahead.

Extra 3689 East departed from Lock at 2:32 a.m. and about 11 minutes later, while it was moving at a speed of about 15 miles per hour, the rear end of this train was struck by Extra 4030 East. Because of track curvature, an embankment and vegetation, a lantern signal given in the vicinity of the rear of an east-bound train moving from the siding to the main track at Lock cannot be seen from the engine. In accordance with a prearranged practice, which was understood by the members of the crew of Extra 3689, after the rear of this train was east of the east siding-switch the flagman displayed a 5-minute lighted fusee on top of the caboose as an indication to the engineer that the flagman had closed the switch and boarded the caboose. What action was taken by the flagman to provide flag protection for his train is not known, as he was killed in the accident. The conductor of Extra 3689 stated that when his train was moving from the siding, he informed the flagman that Extra 4030 was then in the vicinity of Brooke and would enter the block at Lock under permissive block authority. The flagman informed the conductor that he would provide necessary flag protection. The conductor entered the caboose and did not observe what action was taken by the flagman, nor was the flagman's action observed by the other surviving employees. No remnant of a recently burned fusee was found in the vicinity. The conductor and the front brakeman of Extra 3689 understood that flag protection was required for their train while it was moving from the siding to the main track and until it had attained a speed of at least 25 miles per hour; however, they did not take action to see that flag protection was afforded. The engineer of Extra 3689 stated that according to his understanding he was

not required to assure himself that flag protection was being provided for the rear end of his train. The fireman of Extra 3689 thought if his train was moving at a speed of more than 7 or 8 miles per hour flag protection was not required in manual-block territory. The superintendent stated that compliance with the rules required the flagman of Extra 3689 to place a lighted fusee on the main track prior to the movement of the train from the siding. In addition, he stated that in the territory involved lighted fusees should have been dropped at proper intervals until the train had attained a speed of not less than 20 miles per hour.

The conductor of Extra 4030 stated that as his train was approaching Lock at a speed of about 45 miles per hour, a road-crossing whistle signal was sounded. When his caboose passed the east siding-switch, the slack ran in as though the throttle had been partially closed, and the speed of the train was reduced to about 40 miles per hour. His train proceeded a distance of about 1,000 feet, then the brakes were applied in emergency and the collision occurred almost immediately. Prior to the time his train passed Lock it had been operated in the usual manner. According to his understanding, in order to comply with a permissive-block authority his train should have been operated at a speed not in excess of 15 miles per hour east of Lock. He was aware that his train was not being operated in accordance with his understanding, but he did not take action to control the speed of his train as he depended upon the engineer to comply with the rules and expected the preceding train to provide flag protection. Since all members of the crew on the engine of Extra 4030 were killed in the accident, it could not be determined why action was not taken to control the speed of that train so that it could be stopped short of the preceding train. The superintendent said that Extra 4030 should have proceeded under permissive-block authority at a speed not in excess of 15 miles per hour, prepared to stop short of the train ahead.

The rules governing operation in manual-block territory provide that block signals do not dispense with the use and the observance of other signals whenever and wherever they may be required. The maximum authorized speed for the trains involved was 45 miles per hour. Extra 3689 was moving at a speed of about 30 miles per hour less than the maximum authorized speed, in territory where the members of the crew on the caboose could see but 750 feet to the rear. Under these circumstances a following train moving at maximum authorized speed could collide with the preceding train unless the preceding train furnished adequate flag protection. According to the evidence, some members of the crew of Extra 3689 were depending

upon the following train to be operated in accordance with the requirements of a permissive-block authority as they understood that the rules did not require them to provide flag protection for their train while it was moving at speeds ranging between 7 and 25 miles per hour. Apparently the crew of Extra 4030 were expecting the preceding train to provide flag protection. If the officials and employees had had a common understanding of the rules and if the employees on each train had complied with the rules pertaining to their own train, instead of depending upon the employees of the other train to obey the rules pertaining to the movement of that train, it is probable this accident would not have occurred.

The crew of Extra 4030 received authority from the signalman at Brooke to pass the block-limit sign at Lock, and to proceed as though a permissive signal was displayed, because the block was occupied. Had the block been unoccupied this crew would have received authority to proceed as though a proceed signal was displayed. Several of the employees involved thought an inoperative signal was not so impressive as a signal which can display two or more indications. Had an operative block signal been used at this point it is probable the members of the crew of Extra 4030 would have observed its restrictive indication and would have taken action to control the speed of their train so that it could be stopped short of the train ahead.

Cause

It is found that this accident was caused by failure to provide adequate flag protection for the preceding train and by failure properly to control the speed of the following train in compliance with a permissive-block indication.

Dated at Washington, D.C., this second day of February, 1942.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.