

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 3045  
THE PENNSYLVANIA RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
NEAR GUTHRIE, OHIO, ON  
DECEMBER 13, 1946

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SUMMARY

Railroad: Pennsylvania

Date: December 13, 1946

Location: Guthrie, Ohio

Kind of accident: Rear-end collision and wreckage struck by train moving on adjacent main track

Trains involved: Freight : Freight : Passenger

Train numbers: Extra 6191 : Extra 8263 : 63  
East East

Engine numbers: 6191 : 8263 : 3848-3807

Consists: 78 cars, : 50 cars, : 13 cars  
caboose caboose

Estimated speeds: Standing : 25 m. p. h. : 45 m. p.h.

Operation: Signal indications

Tracks: Double; tangent; 0.43 percent descending grade eastward

Weather: Cloudy

Time: 2:25 a. m.

Casualties: 19 killed; 139 injured

Cause: Failure to operate the following freight train in accordance with signal indications, and wreckage obstructing adjacent main track immediately in front of approaching passenger train

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 3045

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

THE PENNSYLVANIA RAILROAD COMPANY

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January 27, 1947

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Accident near Guthrie, Ohio, on December 13, 1946, caused by failure to operate the following freight train in accordance with signal indications, and wreckage obstructing an adjacent main track immediately in front of an approaching passenger train.

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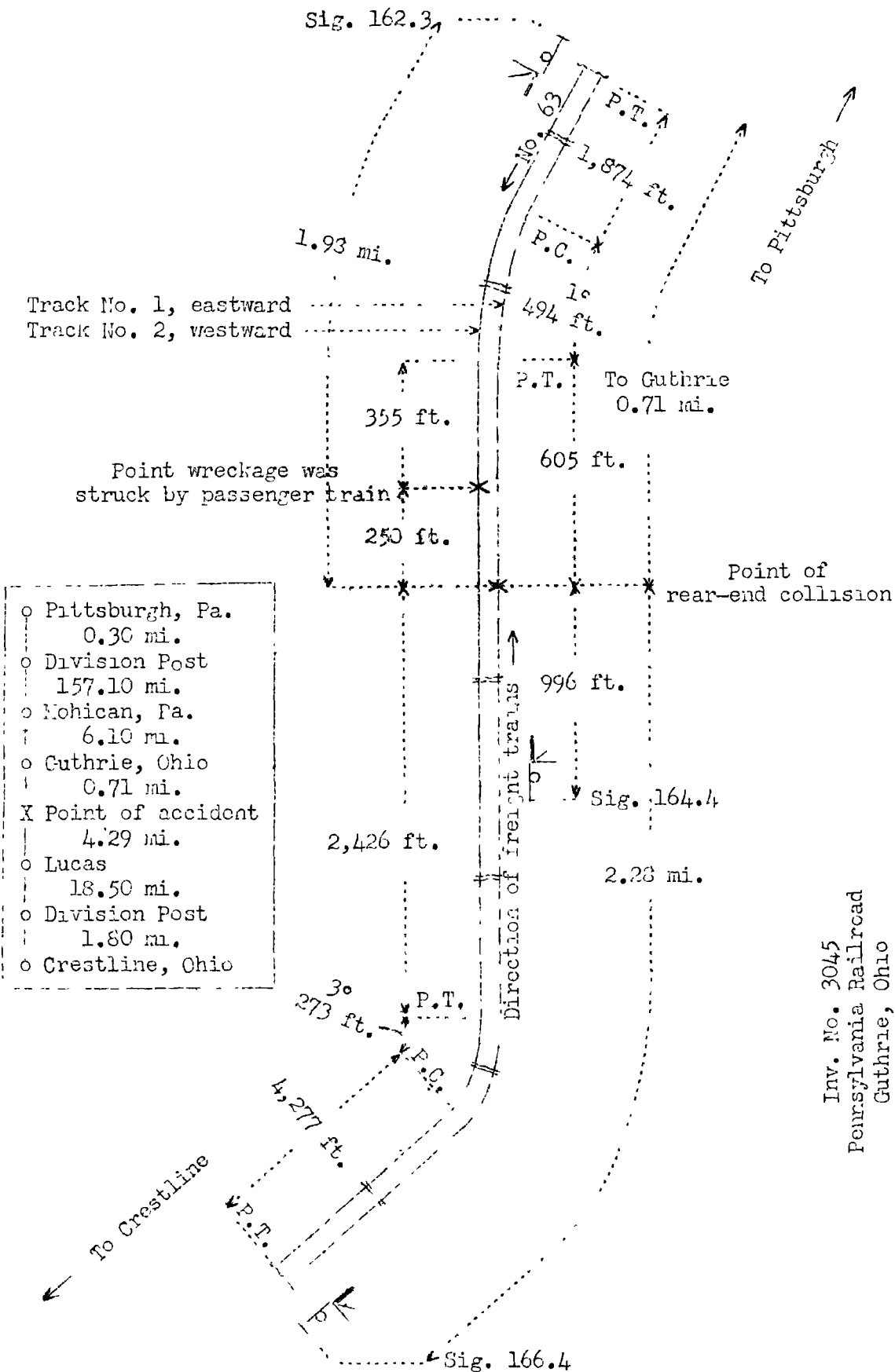
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On December 13, 1946, there was a rear-end collision between two freight trains on the Pennsylvania Railroad, and the wreckage was struck by a passenger train moving on an adjacent main track, resulting in the death of 15 passengers and 4 train-service employees, and the injury of 131 passengers, 1 Pullman employee, 1 dining-car employee and 6 train-service employees. The accident was investigated in conjunction with representatives of the Public Utilities Commission of Ohio.

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<sup>1</sup>Under 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.



Inv. No. 3045  
 Pennsylvania Railroad  
 Guthrie, Ohio  
 December 13, 1946

Location of Accident and Method of Operation

The collisions occurred on that part of the Eastern Division extending between Division Post, near Pittsburgh, Pa., and Division Post, near Crestline, Ohio, 136.7 miles. In the vicinity of the point of accident this is a double-track line over which trains moving with the current of traffic are operated by signal indications. The main tracks from south to north are designated as No. 1, eastward, and No. 2, westward. The freight trains were being operated on track No. 1 and the passenger train on track No. 2. The first collision occurred 163.91 miles west of Pittsburgh and 0.71 mile west of the station at Guthrie, and the second collision occurred about 250 feet eastward. From the west on track No. 1 there are, in succession, a tangent 4,277 feet in length, a 3° curve to the left 273 feet and a tangent 2,426 feet to the point of collision and 605 feet eastward. From the east on track No. 2 there are, in succession, a tangent 1,874 feet in length, a 1° curve to the left 494 feet and a tangent 355 feet to the point of collision. The grade is 0.48 percent descending eastward.

In this vicinity the tracks are laid on a 12-foot fill, and the distance between the track centers of the eastward and westward main tracks is 13 feet 2 inches.

Automatic signals 166.4 and 164.4, governing east-bound movements on track No. 1, and automatic signal 162.3, governing west-bound movements on track No. 2, are, respectively, 2.28 miles and 996 feet west, and 1.98 miles east of the point of collision. These signals are of the position-light type and are mounted on masts, 15.5 feet above the level of the tops of the rails and about 8.5 feet to the right of their respective tracks. The aspects and corresponding indications and names of these signals are as follows:

<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Three white lights in vertical position	Proceed.	Clear.
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.
Three white lights in horizontal position over white marker light	Stop; then proceed at Restricted speed.	Stop-and-proceed.

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.

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.

\* \* \*

Note--When trains are operating under Automatic Block System Rules, the requirements of Rule 99, in so far as protecting against following trains is concerned, will have been complied with when full protection is afforded against trains moving at Restricted speed.

102. When a train is disabled or stopped suddenly by an emergency application of the air brakes or other causes, adjacent tracks \* \* \* 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.

509. \* \* \* When a train or engine is stopped by a Stop-and-proceed signal, it may then proceed at restricted speed.

The maximum authorized speed was 45 miles per hour for the following freight train and 70 miles per hour for the passenger train.

### Description of Accident

Extra 6191 East, an east-bound freight train, consisting of engine 6191, 78 cars and a caboose, passed Lucas, the last open office, 5 miles west of Guthrie, at 1:59 a. m. and stopped on track No. 1 about 2:05 a. m., with the rear end standing 996 feet east of signal 164.4. About 20 minutes later the rear end was struck by Extra 8263 East.

Extra 8263 East, an east-bound freight train, consisting of engine 8263, 50 cars and a caboose, passed Lucas at 2:19 a. m., passed signal 166.4 without reducing speed, passed signal 164.4, which displayed stop-then-proceed-at-restricted-speed, and while moving on track No. 1 at an estimated speed of 25 miles per hour it collided with Extra 6191 East. The caboose and the rear eight cars of Extra 6191 East were derailed and damaged. The tender of the engine of Extra 8263 East and the first four cars were derailed and damaged. Wreckage of both trains obstructed track No. 2, and immediately after the collision the wreckage was struck by No. 63.

No 63, a west-bound first-class passenger train, consisted of engines 3848 and 3807, two coaches, one passenger-baggage car, one coach, one dining car, seven Pullman sleeping cars and one observation car, in the order named. All cars were of conventional standard all-steel construction. This train passed Mohican, the last open office, 6.1 miles east of Guthrie, at 2:18 a. m., passed signal 162.3, which displayed proceed, and while moving on track No. 2 at an estimated speed of 45 miles per hour it struck the wreckage which obstructed track No. 2. The engines, the first five cars, and the front truck of the sixth car of No. 63 were derailed. Separations occurred between the engines and between the first four cars. The first engine stopped on its right side north of the track and down the embankment, and at an angle of about 15 degrees to the track, with the front end about 525 feet west of the point of collision. The second engine stopped on its left side at the rear of the tender of the first engine and at an angle of about 30 degrees to the track. The engines were badly damaged, and steam pipes within the cabs were broken. The first car stopped against the firebox and the tender of the second engine. The entire body structure and the underframing of this car collapsed, and escaping steam from broken manifold turret pipes of the second engine was directed into the car. Most of the fatalities occurred in this car. The second car stopped practically upright, opposite the first car and across both main tracks.

The front end of this car was crushed inward and the body was out of square. The third car stopped upright and at an angle of 45 degrees to the track, with its front end on the roadbed and against the second car and its rear end down the embankment. The fourth car stopped upright and at an angle of 45 degrees to the track, with its front end against the rear of the third car and its rear end on the roadbed. The fifth car stopped upright on the roadbed, with its front end against the fourth car. The third to fifth cars, inclusive, were badly damaged, and the sixth car was considerably damaged.

The weather was cloudy at the time of the accident, which occurred about 2:25 a. m.

The engineer and the fireman of the second engine of No. 63, and the fireman and the front brakeman of Extra 8263 East were killed. The engineer and the fireman of the first engine of No. 63, the conductor, the flagman and the brakeman of No. 63, and the engineer of Extra 8263 East were injured.

#### Discussion

Extra C191 East was moving on track No. 1 at a speed of about 45 miles per hour when an undesired application of the brakes occurred. Investigation disclosed that the brake-pipe hose at the rear end of the first car had ruptured in an irregular tear about 2 inches in length just above the bottom coupling. The markings on the hose indicated that it was manufactured in April, 1936. This train stopped about 2:05 a. m. and about 20 minutes later the rear end was struck by Extra 8263 East at a point 996 feet east of signal 164.4.

When Extra 6191 East stopped, the conductor proceeded to a telephone located about 200 feet east of the caboose and near the track, and the flagman proceeded westward to provide flag protection. The engineer and the front brakeman inspected the train and the fireman proceeded eastward to provide flag protection on track No. 2. A few minutes later, the engineer observed the ruptured hose, and instructed the front brakeman to proceed to the caboose to procure tools and a replacement hose. Then the engineer recalled the fireman, and informed the operator at Lucas by telephone about the delay. The conductor obtained this information from the operator by telephone, and then returned to the vicinity of the caboose. The flagman placed two torpedoes on track No. 1 in the vicinity of signal 134.4, then returned eastward to a point about 400 feet west of the caboose. Soon afterwards, the conductor and the flagman saw the reflection of the headlight of the following train about one-half mile distant. The flagman immediately gave stop signals with a lighted red fusee and the conductor gave stop signals with a lighted red lantern, and they continued to give these signals until the engine of Extra 8263 East passed them.



As Extra 8263 East was approaching the point where the accident occurred the speed was about 50 miles per hour. The headlight was lighted brightly. The engineer was maintaining a lookout ahead, the fireman was on the deck of the engine tending the stoker conveyor and the front brakeman was in the brakeman's booth on the tender. The engineer said that because of cold weather the right window of the cab was closed, and that he was looking ahead through the clear-vision window at the front of the cab. He thought signal 166.4, located about 2 miles west of signal 164.4, displayed proceed as his engine was approaching it, and he called that indication to the fireman. Then the engineer momentarily turned his head toward the fireman and immediately afterward he again looked forward, and he said that signal 166.4 continued to display proceed. When the engine was about 1,500 feet west of signal 164.4 the fireman called a warning, then the engineer saw the stop-then-proceed-at-restricted-speed indication displayed by that signal, a burning fusee and the lighted red marker lamps of the preceding train. When the fireman called the warning the engineer immediately moved the brake valve to emergency position, then the enginemen and the front brakeman jumped from the engine. The fireman and the front brakeman were killed. The brakes of this train had been tested and had functioned properly en route.

When the collision between Extra 6191 East and Extra 8263 East occurred, No. 63, moving on track No. 2 at a speed of about 45 miles per hour, had passed the front portion of Extra 6191 East. The headlight of the first engine of No. 63 was lighted brightly. The engineer of the first engine was maintaining a lookout ahead and the fireman was on the deck of the engine tending the fire. The engineer of the first engine was not aware of anything being wrong until his engine struck the wreckage, which apparently obstructed track No. 2 immediately in front of the engine. The enginemen of the second engine were killed.

Under the flagging rule of this railroad, "full protection" in automatic block-signal territory consists of providing flag protection a distance sufficient only for stopping a following train which is being operated under a stop-then-proceed-at-restricted-speed indication. Under the conditions present, signal 166.4 should have displayed a proceed-prepared-to-stop-at-next-signal indication for Extra 8263 East. The engineer of Extra 8263 East was the only surviving member of the crew of that train who saw the indication displayed by signal 166.4 for Extra 8263 East, and this employee stated that this signal displayed proceed. Consequently, he operated his train as though a proceed indication was displayed until the engine reached a point where the stop-then-proceed-at-restricted-speed indication displayed by signal 164.4 became visible. Immediately after the accident, tests were made of the signals involved, and during a subsequent 48-hour period the signals

were under constant observation to determine whether any condition was present that would cause signal 166.4 to display a phantom or a false indication. No condition was found that would prevent the display of proper indications by the signals in this territory.

Cause

It is found that this accident was caused by failure to operate the following freight train in accordance with signal indications, and wreckage obstructing an adjacent main track immediately in front of an approaching passenger train.

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

By the Commission, Commissioner Patterson.

W. P. BARTEL,

Secretary.

(SEAL)