

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
PENNSYLVANIA RAILROAD

PEQUEA, PA.

DECEMBER 4, 1939

INVESTIGATION NO. 2396

SUMMARY

Inv-2396

Railroad: Pennsylvania
Date: December 4, 1939
Location: Pequea, Pa.
Kind of accident: Rear-end collision
Trains involved: Work : Freight
Train numbers: Work Extra 3686 : Extra 6742 East
(AB-10)
Engine numbers: 3686 : 6742
Consist: 11 cars : 82 cars and caboose
Speed: 2-6 m. p. h. : 8-20 m. p. h.
Operation: Automatic block and cab-signal system
Track: Single; 3030' curve to the left;
slightly ascending grade
Weather: Cloudy
Time: 2:40 p. m.
Casualties: 5 injured
Cause: Failure of Work Extra 3686 to provide
proper flag protection and failure to
operate Extra 6742 in accordance with
automatic signal indications

Inv-2396

January 26, 1940.

To the Commission:

On December 4, 1939, there was a rear-end collision between a work train and a freight train on the Pennsylvania Railroad near Pequea, Pa., which resulted in the injury of five employees.

Location and Method of Operation

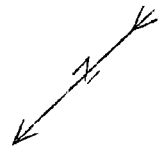
This accident occurred on that part of the Maryland Division designated as the Columbia and Port Deposit Branch which extends between Perryville, Md., and Creswell, Pa., a distance of 38.3 miles. Between Creswell and McCalls, points, respectively, 8.7 miles west and 3.2 miles east of Pequea, this is a single-track line over which trains are operated by an automatic block and cab-signal system, the indications of which supersede time-table superiority and take the place of train orders. Traffic direction is controlled by an electric locking device which is operated only by the cooperation of the signalmen at Columbia, 6.2 miles west of Creswell, and Midway, 5.1 miles east of McCalls. Following movements are governed only by automatic signal indications. The accident occurred at a point approximately 1.2 miles east of Pequea. Approaching this point from the west there is a series of short curves and tangents and then, in succession, a 4° curve to the left 506.5 feet in length, a 6° curve to the right 919.3 feet in length, a 5°15' curve to the left 1,171.7 feet in length, a tangent 434 feet in length, a 3°30' compound curve to the left 979 feet to the point of accident and some distance beyond. The track parallels the north bank of the Susquehanna River and is laid through cuts and on fills between the river and the adjacent cliffs. The grade is undulating and is 0.48 percent ascending eastward at the point of accident.

Automatic signals C-130 and C-150 are of position-light type, approach lighted; they govern eastward movements and are located 10,912 feet and 887 feet, respectively, west of the point of accident.

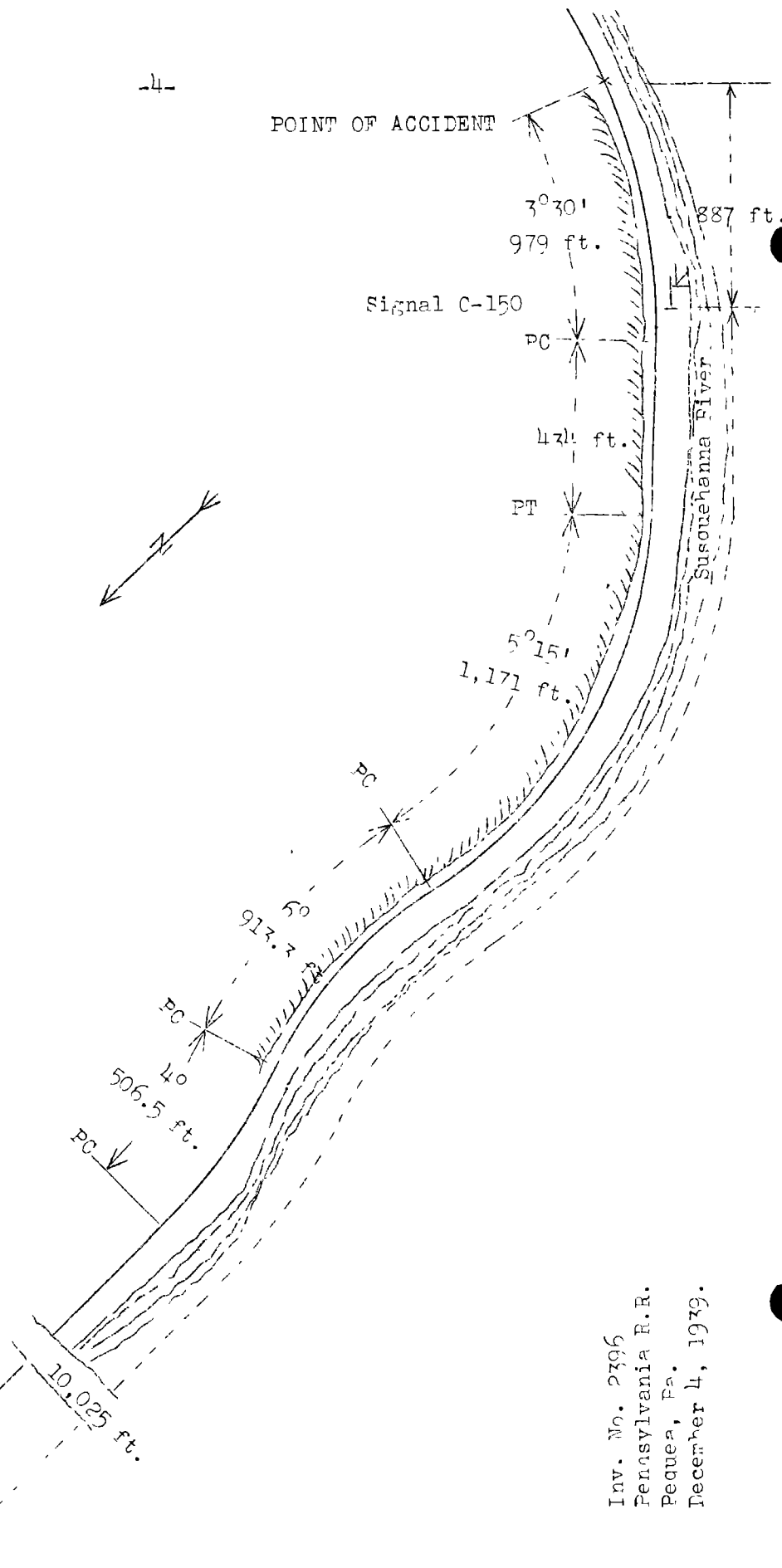
Operating rules provide in part as follows:

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.

o	Perryville, Md.
	1.5 mi.
o	Minnick
	19.8 mi.
o	Midway
	3.2 mi.
o	Holtwood
	1.9 mi.
o	McCalls
	2.0 mi.
x	Point of accident
	1.2 mi. Sig. C-150
o	Pequea
	3.0 mi. Sig. C-130
o	Harbor
	5.7 mi.
o	Creswell, Pa.



POINT OF ACCIDENT



Direction of
AB-10-MY EX 3686
Signal C-130

Inv. No. 2396
 Pennsylvania R.R.
 Pequea, Pa.
 December 4, 1939.

When signal 14(d), * * * has been given to the flagman and safety to the train will permit, he may return. When the conditions require he will leave the torpedoes and a lighted fusee.

* * *

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, or by day when the view is obscured, lighted fusees must be thrown off at proper intervals.

When day signals cannot be plainly seen, owing to weather or other conditions, night signals must also be used.

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

Flagman's signals:

Day signals - A red flag,
Torpedoes and
Fusees.

* * *

276. STOP-AND-PROCEED-SIGNAL.

Indication - Stop, then proceed in accordance with rule 509 * * *.

283. APPROACH-SIGNAL.

Indication - Approach next signal prepared to stop. A train exceeding one-half its maximum authorized speed at point involved must at once reduce to not exceeding that speed.

505a. On portions of the railroad so specified on the timetable, trains will run by block signals whose indications will supersede time-table superiority and will take the place of train orders.

* * *

509. When a train is stopped by a Stop and Proceed signal it may proceed:-

(A) On single track when preceded by a flagman to the next signal displaying a Proceed indication.

* * *

Timetable rule D-2512.

Rule 505a is in effect: * * * Between McCalls and Creswell.

The maximum authorized speed is 40 miles per hour.

The weather was cloudy but the visibility was good at the time of the accident, which occurred about 2:40 p. m.

Description

Work Extra 3686, with Conductor Passwaters and Engineman Baldwin in charge, consisted of engine 3686, 7 loaded and 3 empty cars, and a flanger car; the engine, in backward motion, was pushing the cars eastward. This train left Harbor, 3 miles west of Pequea, at 1:45 p. m., according to the train sheet, stopped five times between Harbor and the point of accident to load track material, and, while moving at a speed estimated at 2 to 6 miles per hour, was struck by Extra 6742.

Extra 6742, symbol AB-10, an east-bound freight train, with Conductor Warner and Engineman Shaffer in charge, consisted of engine 6742, 79 loaded and 3 empty cars, and a caboose. This train left Creswell, 8.7 miles west of Pequea, at 2:25 p. m., according to the train sheet, passed signal C-130 displaying an approach indication, passed signal C-150 displaying a stop-and-proceed indication, and, while moving at a speed estimated to have been from 8 to 20 miles per hour, collided with Work Extra 3686 at a point 887 feet beyond signal C-150.

Both engines, with their front ends badly damaged and their frames broken, stopped about 330 feet east of the point of collision. Engine 6742 was entirely derailed and the engine truck of engine 3686 was derailed. The center and side sills and the east end-gate of the third car ahead of engine 3686 were broken; the fourth car was off center, and the fifth car was considerably damaged. The first car behind engine 6742 telescoped the tender, crushed it inward about 4 feet and demolished the brakeman's shelter cabin; the sixteenth and seventeenth cars were considerably damaged.

The employees injured were the fireman and the brakeman of Extra 6742 and three trackmen who were on Work Extra 3686.

Summary of evidence

Engineman Baldwin, of Work Extra 3686, stated that the air brakes functioned properly en route. Leaving Harbor, 3 miles west of Pequea, the engine, headed west, was shoving the cars eastward. He had been informed of the various points at which track material was to be handled. He said that when the speed was reduced at these points, the flagman got off and remained a distance of two or three car lengths back of the train until recalled. For a period of 10 or 15 minutes just prior to the accident his train had been moving at a speed of 2 to 4

miles per hour, during which period the view toward the rear was generally restricted by curvature and embankment to a distance of about 400 feet. At the time of the accident and during 5 or more minutes just prior to it the flagman was on the engine procuring torpedoes from the fireman's seat-box. The engineman said he was aware that the movement was being made in territory where the view was considerably restricted but he was engaged in watching for signals from the brakeman ahead and did not instruct the flagman to go back. He heard no torpedoes exploded by Extra 6742, and he was not aware that a train was following closely. He estimated that the speed of Extra 6742 at the time of the accident was about 15 miles per hour. He said that he was not aware of any rule that specified when a train was moving the flagman should be to the rear. He thought that if the flagman had been back a sufficient distance the accident might have been averted.

The testimony of Fireman Ely, of Work Extra 3686, developed nothing additional of importance.

Conductor Passwaters, of Work Extra 3686, stated that his train left Harbor at 1:45 p. m. on permission from the signalman-operator at Midway, who was informed that they expected to load track material at several points between Harbor and McCall's, and would probably be delayed about 30 minutes. He did not give the flagman any flagging instructions and for some time prior to the accident did not know where the flagman was. He was on the front car and the front brakeman was walking beside the train, about three car lengths ahead of the engine, and giving signals to the engineman. The conductor said that he was not relying altogether on signals to protect his movement; the operation of his train in this instance was according to customary practice. He said that the flagman should have placed torpedoes occasionally and flagged when the train stopped. He estimated the speed of his train as between 2-1/2 and 4 miles per hour at the time of the collision which occurred at 2:35 p. m., at which time the weather was cloudy.

Brakeman Rink, of Work Extra 3686, corroborated in substance the statement of Conductor Passwaters. He estimated the time of accident at 2:40 p. m.

Flagman Shertzer, of Work Extra 3686, stated that his train stopped at Shenks Ferry, about 1-1/2 miles west of Pequea, for a period of about 10 minutes during which ^{period} he went back 8 or 10 car lengths, placed torpedoes on the rail, and remained there until recalled. When the train stopped at Pequea he went back 18 or 20 car lengths and placed two torpedoes, which exhausted his supply. He remained there about 5 minutes before being recalled. At the next stop, which was just west of signal

C-150, he went back only 4 or 5 car lengths when he was recalled, but he had forgotten to obtain torpedoes. He boarded the engine and as the train proceeded at a speed of 3 to 5 miles per hour he procured torpedoes from the fireman's seat-box, which required about 5 minutes; he was about to get off to place the torpedoes when the engineman called a warning of the approach of the other train. He jumped off 12 or 14 car lengths east of signal C-150 just prior to the collision. Because the visibility was good he used no fuses and he depended upon the following train to obey signal indications.

Engineman Shaffer, of Extra 6742, stated that the cab signals and air brakes were tested at the commencement of the trip and they functioned properly en route. Approaching Harbor, signal C-106 displayed an approach indication and he reduced speed from 40 to about 20 miles per hour. Because this signal changed to display a clear indication just before they passed it he thought that another east-bound train was ahead and moving at slower speed. He said that, moving at a speed of about 25 miles per hour, they passed signal C-130 displaying an approach indication. His view of signal C-150 was restricted to about 600 feet, but he heard the fireman, whose view on the inside of the curve was slightly longer, call its indication as stop; the speed at this time was about 20 miles per hour. He made a 10-pound brake-pipe reduction, and then, seeing the fireman jump from the engine, he applied the brakes in emergency. Between Creswell and the point of accident he heard no torpedoes exploded. He estimated the speed of his train at the time of the accident at 8 or 10 miles per hour. The impact shoved the work train back about six car lengths. He said that he should have approached signal C-150 prepared to stop short of it but he did not expect to find this signal displaying a stop-and-proceed indication.

Fireman Gaugler, of Extra 6742, stated that signal C-106 west of Harbor displayed an approach indication but changed to a clear indication just before the engine passed it. Signal C-130 displayed an approach indication and the speed was reduced to about 25 miles per hour. When his engine was near signal C-150, he observed that it displayed a stop-and-proceed indication. He shouted a warning to the engineman and jumped from the engine; the speed at that time was 15 or 20 miles per hour. He did not hear any torpedoes exploded by his engine east of Creswell.

Brakeman Marshall, of Extra 6742, stated that his train was operated at usual speed from Creswell to within about a mile of the point of accident, where some reduction was made, the extent of which he could not estimate. He was in the brakeman's cupola on the rear of the tender and neither observed signal indications nor heard any torpedoes exploded.

Conductor Warner, of Extra 6742, estimated the speed of his train when passing Harbor at 38 or 40 miles per hour, when passing Pequea about 15 miles per hour, and at the time of collision 10 or 12 miles per hour.

Flagman Rennie, of Extra 6742, estimated the speed of his train when passing Pequea at 18 or 19 miles per hour and at 10 or 12 miles per hour at the time of impact.

Assistant Track Supervisor Dixon estimated that Work Extra 3686 had been moving eastward at a speed of 5 or 6 miles per hour for about 10 or 15 minutes prior to the time the accident occurred.

The statements of Track Foreman Good and Block Operator Eppeleman developed nothing additional of importance.

Observations of Commission's Inspectors

The Commission's inspectors observed that the view of signal G-150 from an approaching east-bound train was limited to a distance of about 713 feet because of a line of catenary poles and a nearly perpendicular bank 15 feet high on the inside of the curve. From an approaching east-bound train the point of accident can be seen a distance of about 340 feet.

Discussion

According to the evidence, at the time of the accident the work train had been moving at a speed of 2 to 6 miles per hour for a period of not less than 10 minutes, in territory where the view was considerably restricted by an embankment. During the 5 minutes just prior to the accident the flagman was on the engine procuring a supply of torpedoes. He stated that he had placed torpedoes on the rail at two points between Harbor and the point of accident, but because of the favorable weather conditions he left no fuses. He said that to a certain extent he was depending for protection upon signal indications. Neither the engineman nor the conductor of the work extra took action to supervise the flag protection. The engine crew of Extra 6742 did not hear any torpedoes exploded, and when they saw the work extra there was not sufficient distance in which to stop short of the train ahead. Under the rules the flagman of the work extra was required to protect his train and not to depend upon signal indications. If the flagman had complied with the provisions of the flagging rule, undoubtedly this accident would not have occurred.

The evidence indicated that the engineman of Extra 6742 saw the indication of signal C-106, the third signal west of the point of accident, change from approach to clear just before his engine passed it, and he thought that another east-bound train was preceding his train and moving at a slower speed. The second signal west of the point of accident displayed an approach indication which required him to reduce speed to 20 miles per hour or one-half the maximum authorized speed and to approach the next signal prepared to stop. He estimated his speed when passing signal C-130 at 25 miles per hour. Although the view of signal C-150 from an approaching train was restricted to 600 or 700 feet, he approached it at a speed of 20 miles per hour; when the fireman called the stop-and-proceed indication displayed by this signal he made a 10-pound brake-pipe reduction and the speed had been reduced to about 15 miles per hour when passing the signal. He then made an emergency application of the brakes but the distance was insufficient in which to stop short of the work extra. The engineman understood that he was required to approach signal C-150 prepared to stop short of it but he assumed it would not be displaying a stop-and-proceed indication. If the engineman had approached this signal prepared to stop short of it, as required by the rules, undoubtedly the accident would have been averted.

Conclusion

This accident was caused by failure to provide proper flag protection for Work Extra 3686 and by failure to operate Extra 6742 in accordance with signal indications.

Respectfully submitted,

S. N. MILLS,

Director.