

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2727
THE PENNSYLVANIA RAILROAD COMPANY
REPORT IN RE ACCIDENT
NEAR SLOPE, PA., ON
SEPTEMBER 10, 1943

SUMMARY

Railroad: Pennsylvania

Date: September 10, 1943

Location: Slope, Pa.

Kind of accident: Side collision

Trains involved: Freight : Passenger-equip- : Freight
ment

Train numbers: Extra 3641 : Passenger Extra : Extra 6423
West 5408 East East

Engine numbers: 3641-4325-6333 : 5408 : 6423

Consists: 120 cars, : 14 cars : 79 cars,
caboose caboose

Estimated speed: 4 m. p. h. : 25 m. p. h. : 15 m. p. h.

Operation: Automatic block and cab-signal system

Tracks: Four; point of 6° curve; 1.74
percent descending grade eastward

Weather: Clear

Time: 6:03:20 a. m.

Casualties: 1 killed; 3 injured

Cause: Insufficient number of cars of Extra 3641
West equipped with adequate power brakes
to control safely movement of the train

Recommendation: That a sufficient number of cars equipped
with AB brakes be included in each train,
properly spaced, so that the movement of
the train can be safely controlled by the
train brakes

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2727

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

THE PENNSYLVANIA RAILROAD COMPANY

October 26, 1945.

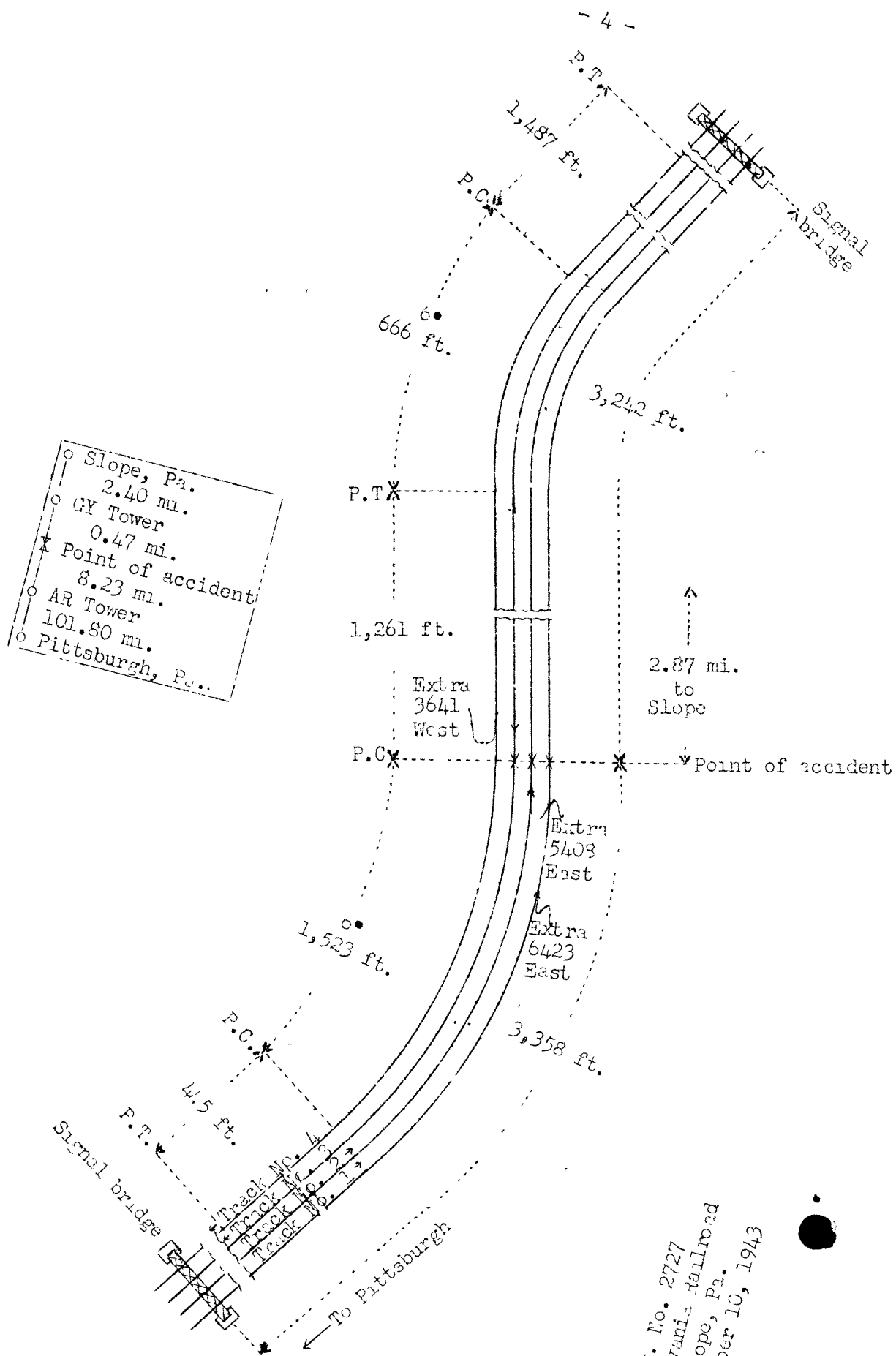
Accident near Slope, Pa., on September 10, 1945, caused
by insufficient number of cars of Extra 3641 West
equipped with adequate power brakes to control safely
movement of the train.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On September 10, 1945, there was a side collision between derailed equipment of a freight train, a passenger-equipment train and a freight train on the Pennsylvania Railroad near Slope, Pa., which resulted in the death of one employee, and the injury of three employees.

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.



Inv. No. 2727
 Pennsylvania Railroad
 Slope, Pa.
 September 10, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Pittsburgh Division extending between Slope, near Altoona, and Pittsburgh, Pa., 112.9 miles. Between Slope and AR Tower, 11.1 miles, this was a four-track line over which trains moving with the current of traffic were operated by an automatic block and cab-signal system, the indications of which superseded timetable superiority. The main tracks from south to north were No. 1, eastward freight, No. 2, eastward passenger, No. 3, westward passenger, and No. 4, westward freight. The distance between the centers of tracks Nos. 1 and 2 was 12 feet 8 inches, tracks Nos. 2 and 3, 12 feet 3 inches, and tracks Nos. 3 and 4, 12 feet 5 inches. The trains involved were being operated on tracks Nos. 3, 2, and 1, and the accident occurred about 2.87 miles west of Slope. From the east there were, in succession, a tangent 1,487 feet, a 6° curve to the left 636 feet, and a tangent 1,261 feet to the point of accident. From the west there was a tangent 445 feet in length, which was followed by a 6° curve to the left 1,525 feet to this point. The grade for east-bound trains was 1.74 percent descending.

The tracks were laid on a hillside cut. The track structure consisted of 130 and 131-pound rail, 39 feet in length, on 22 to 24 treated hardwood ties to the rail length. It was fully tieplated, single-spiked on tangents and double-spiked on curves, provided with 6 to 8 rail anchors per rail length, and ballasted with stone to a depth of 30 inches.

Signals governing west-bound movements on tracks Nos. 3 and 4 and east-bound movements on tracks Nos. 1 and 2 were mounted on signal bridges located, respectively, 3,242 feet east and 5,358 feet west of the point of accident.

Operating rules read in part as follows:

DEFINITIONS

* * *

Speeds

* * *

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.

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.

Interchange of traffic rules of the Association of American Railroads read in part as follows:

(a) (4) Air brakes meeting requirements of A. A. R. Specifications for Air Brakes adopted in 1933, required on all cars built new on or after September 1, 1933, and on all cars rebuilt on or after August 1, 1937. From owners. Air brakes meeting requirements of A. A. R. Specifications for Air Brakes adopted in 1933 or A. A. R. standard triple valves, required on all cars built new between January 1, 1919, and September 1, 1933, and, on all cars rebuilt between July 1, 1928, and August 1, 1937. In interchange. On and after January 1, 1945, all freight cars in interchange service must be equipped with air brakes meeting the requirements of the A. A. R. Specification for Air Brakes adopted in 1933. Each car owner shall make a report semi-annually to the Association of American Railroads showing by months the number of freight cars acquired and the number of freight cars on which brake equipment is converted, which information will be filed semi-annually with the Interstate Commerce Commission.

Note.--The design of air brake equipment designated as "AB" meets all of the requirements of the A. A. R. Specifications for Air Brakes adopted in 1933. Cars built prior to September 1, 1933, and equipped with "AB" brakes should be so stenciled; for cars built on or after September 1, 1933, and rebuilt on or after August 1, 1937, the date built or rebuilt will govern.

The maximum authorized speed for the freight train moving on track No. 3 was 45 miles per hour, for the passenger-equipment train moving on track No. 2, 40 miles per hour, and for the freight train moving on track No. 1, 50 miles per hour.

Description of Accident

Extra 3641 West, a west-bound freight train, consisted of engine 3641, 120 empty tank cars, a caboose, and engines 4325 and 6333, in the order named. This train passed Slope at 5:30 a. m., passed GY Tower, 2.4 miles west of Slope and the last open office, at 5:43 a. m., and while moving on track No. 2 at an estimated speed of 4 miles per hour the air brakes were applied in emergency, and the fifty-first and fifty-second cars were derailed and fouled track No. 2.

Passenger Extra 5408 East, an east-bound passenger-equipment train, consisted of engine 5403, 3 express cars, 1 box car and 10 coaches, in the order named. The cars were of steel construction. This train passed AR Tower, the last open office and 8.25 miles west of the point of accident, at 5:43 a. m., and while moving on track No. 2 at an estimated speed of 25 miles per hour it struck the derailed cars of Extra 3641. The engine and the first four cars were derailed, and the engine and the first car fouled track No. 1.

Extra 6423 East, an east-bound freight train, consisting of engine 6423, 78 loaded cars and a caboose, passed AR Tower at 5:32 a. m., and while moving on track No. 1 at an estimated speed of 15 miles per hour it struck the first car and the tender of the engine of Passenger Extra 5408. The engine and the first three cars were derailed.

The fifty-first and the fifty-second cars of Extra 3641 were considerably damaged. The engine and the first car of Passenger Extra 5408 were badly damaged, and the second, third and fourth cars were slightly damaged. The engine and first car of Extra 6423 were badly damaged, and the second and the third cars were considerably damaged.

It was clear at the time of the accident, which occurred at 6:05:20 a. m.

The engineer of Extra 6423 was killed. The fireman of Extra 6423 and the engineer and the fireman of Passenger Extra 5408 were injured.

Data concerning the cars of Extra 3641 West are as follows:

Car initials	Owner	Number of cars owned		Cars in train	
		Total	Equipped with AF brakes	Total	Equipped with AF brakes
B.L.X.	Bisbee Linseed Co.	53	0	1	0
B.T.R.R.	Bay Terminal Railroad Co.	308	0	2	0
C.O.M.X.	Continental Oil Co.	1,185	27	1	0
C.O.S.X.)	Mid-Continent Petroleum Corporation			4	0
O.S.K.X.)		2,107	4	2	0
E.O.R.X.	Cities Service Oil Co.	2,400	23	10	0
G.A.T.X.	General American Transportation Corporation	12,733	2,973	11	1
G.R.Y.X.	John H. Grace Co.	161	0	1	0
H.M.H.X.	Tank Car Corporation of America	201	12	1	0
H.A.B.X.	Hanlon-Buchanan, Inc.	141	59	1	1
N.A.T.X.	North American Car Corporation	6,775	437	1	0
M.P.C.X.	Magnolia Petroleum Co.	885	145	1	0
P.S.P.X.	Phillips Petroleum Co.	2,612	552	2	0
P.T.L.X.	National Refining Co.	442	5	1	0
S.H.P.X.	Shipper's Car Line Corporation	7,703	3,873	9	5
S.U.N.X.	Sun Oil Co.	1,035	31	4	0
U.S.O.X.	War Department United States of America	1,457	279	1	0
U.T.L.X.	Union Tank Car Co.	32,728	4,336	66	5
W.E.O.X.	White Eagle Oil Corporation	710	0	1	0
Totals	18 owners	79,676	13,256	120	10

Discussion

Extra 3641 West was moving at a speed of about 6 miles per hour on track No. 3, because the cab signal displayed a proceed-at-restricted-speed indication, which required the train to proceed at a speed not exceeding 15 miles per hour but to be prepared to stop short of another train. The enginemen and the front brakeman, who were maintaining a lookout ahead, observed a preceding freight train about 1,100 feet distant. The engineer closed the throttle and applied the independent brake. Soon afterward the fireman observed that the preceding train was stopped, with the rear end about 250 feet distant. He warned the engineer, who immediately made a 5 or 6-pound brake-pipe reduction, and, after the engine had moved about 115 feet farther, made an emergency application of the brakes. The engine stopped at 5:50 a. m., about 50 feet to the rear of the preceding train. The engine and the first 50 cars were on a 6° curve, and the next 30 cars on tangent track. The fifty-first and the fifty-second cars were derailed and fouled track No. 2, but this was not known by any member of the crew until about 12 minutes after the derailment occurred, and only about 45 seconds before the derailed cars were struck by Passenger Extra 5408 East moving on track No. 2. The engine and the first four cars of the latter were derailed, and the engine and first car fouled track No. 1. About 35 seconds later, at 6:03:20 a. m., Extra 6423 East, moving on track No. 1, struck the first car and the tender of the engine of Passenger Extra 5408, and the engine and first three cars of Extra 6423 were derailed.

The operating rules of this carrier provide that when a train is stopped suddenly by an emergency application of the air brakes or other cause, adjacent tracks that might be obstructed must be protected at once in both directions until it is ascertained they are safe and clear for movement of trains. The employees on the first engine of Extra 3641 understood this, but did not think protection was required in this case because a service application was made a few seconds before the emergency application, and the stop was not rough or sudden on the front end. In addition, within 5 or 6 minutes after the train stopped and the brakes were released, the normal brake-pipe pressure of 70 pounds was fully restored, which condition indicated that the brake pipe was not broken. The enginemen of the rear two engines and the conductor and the flagman said that the rear end of their train stopped abruptly. They were not aware of the derailment, but protection was provided immediately on the adjacent tracks, at the rear of the train. Soon after the train stopped, the conductor proceeded forward to inspect the train, and found the fifty-first and fifty-second

cars buckled toward track No. 2. The air hose between these two cars were not separated, but he did not examine the hose at the opposite ends of the cars to see if they were separated or kinked. Less than one minute after he found these cars derailed, they were struck by Passenger Extra 5408 East. The air gauges on the pusher engines at the rear of Extra 3641 indicated that the air pressure was entirely depleted soon after the train stopped, and was not restored prior to the time of the collision.

Passenger Extra 5408 East was moving on track No. 2 at a speed of about 25 miles per hour, the enginemen were maintaining a lookout ahead, and the cab signal was displaying proceed. Because of track curvature the view of the track ahead was materially restricted. When the engine reached a point about 100 feet west of the point where the cars of Extra 3641 were derailed, the fireman, observing that the cars fouled track No. 2, called a warning. The engineer moved the brake valve to emergency position, but the engine struck the derailed cars before the brakes became effective. The engine of Extra 3423 East, moving on track No. 1, was about opposite the rear car of Passenger Extra 5408 when the brakes of the latter train became applied.

Extra 3423 East was moving at a speed of about 15 miles per hour, the enginemen were maintaining a lookout ahead, and the cab signal was displaying proceed. The fireman first saw the derailed equipment of Passenger Extra 5408 about 100 feet distant, and immediately called a warning to the engineer, who moved the brake valve to emergency position, but the engine struck the derailed equipment before the brakes became effective. Only about 35 seconds elapsed between the time Passenger Extra 5408 was derailed and the time its equipment was struck, and the crew of this train did not have sufficient time to furnish flag protection.

The initial incident which precipitated this accident, involving three trains on adjacent parallel tracks, was the derailment of two cars on account of buckling as a result of an emergency application of the brakes, in a train consisting of 120 empty tank cars, which were owned by 18 private-car owners. The investigation disclosed that only 10 cars, or 8.3 percent, were equipped with the present A. A. R. standard AB brakes, and the cars so equipped were distributed throughout the train so that important advantages of the AB type of brake equipment, namely, faster serial action, emergency after service and reduction of shock from initial application, were not available. The operation of the train brake-system in this case was identical with the operation which would be expected

from type K brakes under such circumstances, and the results in this case again direct attention to the hazards incurred in the operation of long trains which are not provided with suitable and adequate brake equipment for that service.

In 1933, the Association of American Railroads adopted revised specifications for power brakes for freight equipment, which established the AB brake as standard, instead of the type K brake which was standard prior to that time, and a 10-year program was set up, beginning January 1, 1935, in which owners of freight cars were to provide their equipment in interchange service with the improved standard brake. On June 30, 1943, 85 percent of this 10-year period had elapsed. The Pennsylvania Railroad had equipped 60.6 percent of its cars with the new standard brakes, but only 21.2 percent of privately owned freight cars, according to reports received, had been provided with AB brakes, and only 16.6 percent of all cars of the 13 private-car owners represented in the consist of Extra 3641 West had been so equipped. In this train, only 3 of the 10 cars with AB brakes, the tenth, eighteenth and forty-second cars, were ahead of the cars which were buckled from the front. If a sufficient number of cars of this train, properly spaced, had been equipped with AB brakes, this accident would not have occurred.

Cause

It is found that this accident was caused by an insufficient number of cars of Extra 3641 West being equipped with adequate power brakes to control safely the movement of the train.

Recommendation

It is recommended that a sufficient number of cars equipped with AB brakes be included in each train, properly spaced, so that the movement of the train can be safely controlled by the train brakes.

Dated at Washington, D. C., this twenty-sixth day of October, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.