

INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2705

THE PENNSYLVANIA RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT WORKS, PA., ON

JUNE 8, 1943

SUMMARY

Railroad: Pennsylvania
Date: June 8, 1943
Location: Works, Pa.
Kind of accident: Collision
Trains involved: Freight : Passenger
Train numbers: Extra 1509 West : 22
Engine numbers: 1509, 4452, and 4548 : 1522
Consist: 113 cars, caboose : 11 cars
Estimated speed: 5 m. p. h. : 35 m. p. h.
Operation: Automatic block and cab-signal system
Track: Double; tangent; 0.45 percent
descending grade eastward
Weather: Clear
Time: About 1:38 a. m.
Casualties: 2 killed; 5 injured
Cause: Derailed car obstructing a main
track immediately in front of
approaching passenger train

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2705

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

THE PENNSYLVANIA RAILROAD COMPANY

July 20, 1943

Accident at Works, Pa., on June 8, 1943, caused by a de-
railed car obstructing a main track immediately in
front of an approaching passenger train.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

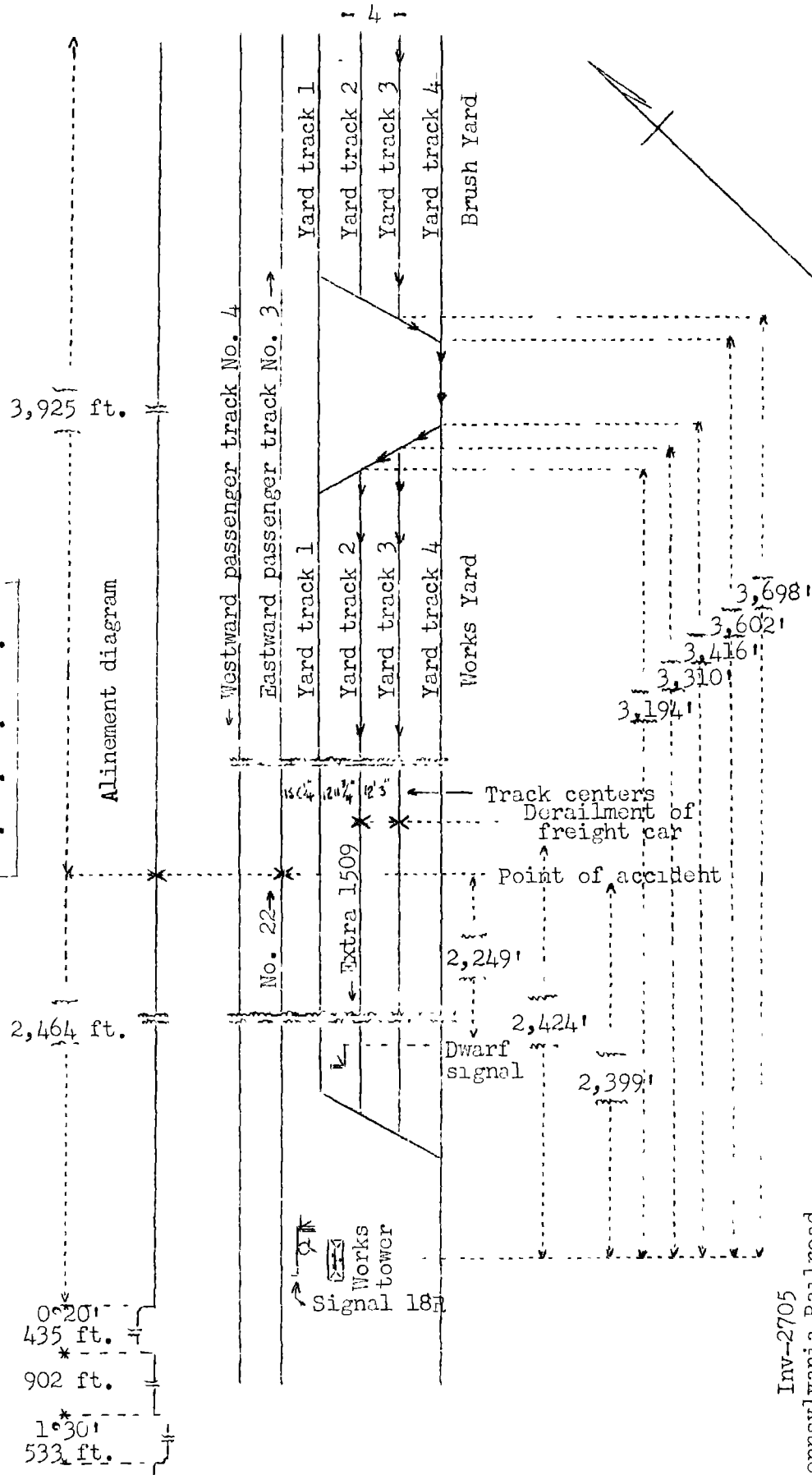
On June 8, 1943, there was a collision between a passenger train and a derailed car of a freight train on the Pennsylvania Railroad at Works, Pa., which resulted in the death of two employees, and the injury of four passengers and one employee. This accident was investigated in conjunction with a representative of the Pennsylvania Public Utility Commission.

¹
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.

- o Banks, Pa. 121.07 mi.
- X Point of accident 0.53 mi.
- o Works 0.60 mi.
- o Altoona 0.90 mi.
- o Slope, Pa.

To Banks →

← To Slope



Inv-2705
 Pennsylvania Railroad
 Works, Pa.
 June 8, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Middle Division extending between Slope and Banks, Pa., 123.1 miles. In the immediate vicinity of the point of accident this was a double-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 time-table superiority. The main tracks from south to north were No. 3, eastward passenger track, and No. 4, westward passenger track. Works Yard, a freight classification yard, paralleled the main tracks on the south and its west end was a short distance east of the tower at Works. Brush Yard, a freight classification yard, paralleled the main tracks on the south and its west end was immediately east of the east end of Works Yard. Yard tracks 1 and 4 were continuous through both yards. Yard track 1 was adjacent to the eastward passenger track. Yard tracks 2 and 3 of Works Yard and yard tracks 2 and 3 of Brush Yard were between yard tracks 1 and 4. At the east end of Works Yard and at the west end of Brush Yard lead tracks connected tracks 1, 2, 3, and 4. The distances between track centers of the eastward main track, yard tracks 1, 2, and 3 of Works Yard were, respectively, 15 feet 6-1/4 inches, 12 feet 11-3/4 inches and 12 feet 3 inches. The switches of the lead track of Works Yard were facing-point and the switches of the lead track of Brush Yard were trailing-point for west-bound movements. The east switches of tracks 2, 3, and 4 of Works Yard were, respectively, 3,194 feet, 3,310 feet and 3,416 feet east of the tower at Works. The west switches of tracks 3 and 4 of Brush Yard were, respectively, 3,698 feet and 3,602 feet east of the tower at Works. The derailment of the freight car involved occurred on tracks 2 and 3 of Works Yard 2,424 feet east of the tower at Works, and the collision between the derailed car and the passenger train occurred on the eastward passenger track 2,399 feet east of the tower at Works. Approaching from the west on the eastward passenger track there were, in succession, a 1°30' curve to the left 533 feet, a tangent 902 feet, a 0°20' curve to the right 435 feet, and a tangent 2,464 feet to the point of accident and 3,925 feet beyond. Approaching from the east on the tracks used by Extra 1509 West there were, in succession, a tangent 2,600 feet on track 3 of Brush Yard, a No. 8 turnout to the left 70 feet, a tangent 26 feet on the west lead, a No. 8 turnout to the right 70 feet, a tangent 136 feet on track 4, a No. 10 turnout to the right 82 feet, a tangent 140 feet on the east lead of Works Yard, a No. 10 turnout to the left 82 feet, and a tangent on track 2 about 770 feet to the point of derailment. At the point of collision on the eastward passenger track the grade was 0.45 percent descending eastward. At the point of derailment on track 2 of Works Yard

the grade was 0.60 percent ascending westward.

The switch which connected the east end of track 3 of Works Yard to the lead track was facing-point for west-bound movements and consisted of a No. 10 turnout to the left 82 feet in length, the curvature of which was $7^{\circ}27'37''$. The switch consisted of 130-pound rail, switch points 18 feet in length, a gage plate on the first switch tie, 10 switch plates under each point, and was adjusted to a throw of $5\text{-}1/4$ inches. The switch plates were secured by 2 anchor spikes and 3 rail-holding spikes. Each point was chamfered to the thickness of $3/32$ inch at the top, which was $23/32$ inch below the top of the stock rail, and each was $5/16$ inch thick at the reinforcing strap. The switch points were connected by two switch rods located 6 inches and 3 feet west of the point of switch. The switch-stand, of the hand-throw low-stand type, was located on the north side of track 3, and was equipped with positive treadle-type latches. The switch lamp was oil burning and the center of each lens was 4 feet 6 inches north of the north rail and about 2 feet above the level of the base of the rail. The lenses were 5 inches in diameter and were provided with 10-inch flared-disc reflectors. When the switch was lined for movement on the lead track a green aspect and a white disc were displayed, and when lined for entry to track 3 a yellow aspect and a yellow disc were displayed.

Home signal 18R, which governed east-bound movements on the eastward passenger track, was located 2,399 feet west of the point of collision. This signal was of the semi-automatic, position-light type, and was continuously lighted.

Operating rules read in part as follows:

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.

The maximum authorized speed for passenger trains was 70 miles per hour.

Description of Accident

Extra 1509 West, a west-bound freight train, consisted of engine 1509, 113 empty cars, a caboose, engine 4452 and engine 4548, in the order named. Engine 1509 and the front portion of this train were on track 2 of Works Yard, and the train extended eastward through the Works Yard lead track to track 4 and the Brush Yard lead track to track 3. After a

terminal air-brake test was made, this train departed westward about 1:34 a. m., according to the statement of the yardmaster, and had proceeded about 30 feet and had attained an estimated speed of 5 miles per hour when the rear truck of the fifty-seventh car and the rear portion of the train were diverted to track 3 of Works Yard. The rear truck of the fifty-sixth car and the front truck of the fifty-eighth car became derailed 83 feet west of the east switch of track 3, and then the fifty-seventh car became derailed and stopped across the eastward passenger track. Immediately afterward this car was struck by No. 22.

No. 22, an east-bound first-class passenger train, consisted of engine 1522, of the 4-6-2 type, two baggage cars, four express cars and five coaches, in the order named. All cars were of steel construction. After a terminal air-brake test was made, this train departed from Altoona, 0.6 mile west of Works, at 1:33 a. m., according to the statement of the conductor. Soon afterward a running test of the brakes was made and the brakes functioned properly. This train passed signal 18R, which displayed proceed, and while moving on the eastward passenger track at an estimated speed of 35 miles per hour it collided with the derailed freight car 2,399 feet east of this signal.

The engine of No. 22 was derailed to the north and stopped on its right side, 262 feet east of the point of collision and 25 feet north of the eastward passenger track. The cab was torn loose, the engine truck was badly damaged, and the front-end frame was bent. The left cylinder, both steam admission pipes, and various steam pipes on the back-head were broken. The tender was torn loose from the engine and stopped on its left side at the rear of the engine and at an angle of 45 degrees to it. Both trucks were badly damaged and both side sneets were crushed inward. The first car stopped upright, 168 feet east of the point of derailment, across both main tracks and at right angles to them. The second car stopped upright, west of the first car, across both main tracks and at an angle of 45 degrees to them. These cars were badly damaged. The third and fourth cars were derailed but remained upright and in line with the track. The front truck of the fifth car was derailed. These cars were slightly damaged. The fifty-sixth and the fifty-seventh cars of Extra 1509 were badly damaged and the fifty-fifth and fifty-eighth cars were slightly damaged.

It was clear at the time of the accident, which occurred about 1:38 a. m.

The engineer and the fireman of No. 22 were killed. The conductor of No. 22 was injured.

Discussion

A cut of 70 cars, which later became the front portion of Extra 1509 West, had been placed on track 2 of Works Yard about 1:15 a. m., June 7. The east end of the cut fouled the east lead track of this yard. About 1 a. m., June 8, engine 1509 pushed these cars eastward, and the rear end passed the east switch of track 3, and, in succession, it entered track 4, the west lead track of Brush Yard, and track 3 of Brush Yard. The cut was coupled to 43 cars standing on track 3, and after the train was assembled it consisted of engine 1509, 113 cars, a caboose, and 2 pusher engines, in that order. At this time the front truck of the fifty-seventh car was west of the east switch of track 3 of Works Yard and the rear truck was east of it. About 1:34 a. m. this train started westward, and, after it had moved about 100 feet, the rear truck of the fifty-sixth car and the front truck of the fifty-eighth car became derailed. The front truck of the fifty-seventh car was on track 2 and the rear truck and the following cars entered track 3. A yard employee, observing the derailed cars, notified the yardmaster at Works tower. The indication of the home signal governing east-bound movements on the eastward main track and the indication of a dwarf signal governing west-bound movements leaving track 2 of Works Yard were changed to display stop. When the engineer of Extra 1509 observed the indication of the dwarf signal change to stop, he applied the engine and tender brakes and closed the throttle. At this time the speed was about 5 miles per hour. As the front portion started to decrease speed, the pusher engines continued to use power, and the fifty-seventh car was forced from tracks 2 and 3, across track 1, to the eastward passenger track where it was struck immediately afterward by No. 22.

Before the collision occurred, the conductor of Extra 1509 was the only member of that crew who was aware of the derailment. He was near the west lead track of Works Yard when he discovered a derailed car. He immediately attempted to stop his train and to provide flag protection for adjacent tracks, but No. 22 struck the car obstructing the eastward main track before he could take effective action.

As No. 22 was approaching the point where it collided with the car obstructing the eastward main track, the speed was 35 to 40 miles per hour, and the headlight was lighted dimly because of passing through the yard. The first that any member of the train crew was aware of anything being wrong was when the accident occurred. No surviving member of the crew was aware of any application of the brakes immediately prior to the collision. Since the engineer and the fireman were killed

in the accident, it could not be determined when they first became aware that a car was obstructing the track ahead of the engine, but apparently they did not see it in time to take action as inspection after the accident disclosed that the throttle was fully open, the reverse lever in position for 35 percent cut-off in forward motion, and the automatic brake valve midway between release and running positions.

After the accident, engine 1509 and 54 cars were on track 2 of Works Yard, the fifty-fifth to the fifty-eighth cars, inclusive, were derailed and, beginning with the fifty-ninth car, the rear portion was headed into track 3. The switch to track 3 was lined for entry to that track, the throwing lever was latched, the switch lamp was extinguished, and the wick was turned down. A piece 1 inch long by 1/4 inch wide was broken off the top of the north switch point about 1 inch from the actual point of switch. The first mark on the track structure was a flange mark on the top surface of the south rail at a point 86 feet 6 inches west of the point of switch, and it extended diagonally across the head of the rail a distance of 6 inches. At a point 3 feet farther west a flange mark appeared on the south wing of the frog. Westward from these marks throughout a distance of 800 feet, flange marks appeared on the ties about 17 inches outside the south rail and 2 feet inside the north rail. The first mark on track 2 was a flange mark on the north wing of the frog at a point 104 feet west of the mark on the frog of track 3. Opposite the mark on the wing of the frog of track 2, a flange mark appeared on the guard rail and it extended diagonally across the head of the rail a distance of 6 inches. From this point westward throughout a distance of 696 feet, flange marks appeared on the ties about 1 foot 6 inches outside the north rail and 2 feet 2 inches inside the south rail. Examination of the switch to track 3 disclosed that the points fitted properly against the stock rails in either position. The switch operated easily when lined for entry to track 3, but operated very hard when it was thrown to the reverse position. A yard employee who was in charge of the switches at the east end of Works Yard said that when he lined the east switch of track 4 a few minutes before the cars were moved eastward from track 2 to the lead track he observed that the switch lamp on the east switch of track 3 displayed a green aspect, which indicated that this switch was lined for movement on the lead track. The accident occurred about 35 minutes later and soon afterward he examined the switch lamp and found that the wick had been turned down and the light extinguished. He was of the opinion that the throwing lever of the switch was not properly latched and was thrown for movement to track 3 by the movement of the cars over the switch points, or that

some unauthorized person changed the position of the switch and extinguished the light while the fifty-seventh car was standing over the switch. However, no unauthorized person was observed in the vicinity of the switch prior to the accident. The fifty-seventh car was an empty gondola of steel construction. Its length between the pulling faces of the couplers was 73 feet, and between the center-line of the trucks 56 feet 9 inches.

Cause

. It is found that this accident was caused by a derailed car obstructing a main track immediately in front of an approaching passenger train.

Dated at Washington, D. C., this twentieth day of July, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.