

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 3172
LOUISVILLE AND NASHVILLE RAILROAD COMPANY
REPORT IN RE ACCIDENT
AT BAIN, KY., ON
MARCH 17, 1948

SUMMARY

Railroad: Louisville and Nashville
Date: March 17, 1948
Location: Bain, Ky.
Kind of accident: Derailment
Train involved: Freight
Train number: 50
Engine number: 1774
Consist: 20 cars, caboose
Estimated speed: 30 m. p. h.
Operation: Timetable and train orders
Track: Single; tangent; 0.16 percent
descending grade northward
Weather: Clear
Time: 7:27 p. m.
Casualties: 2 killed; 1 injured
Cause: Partly open switch

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3172

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 8, 1910.

LOUISVILLE AND NASHVILLE RAILROAD COMPANY

May 12, 1948

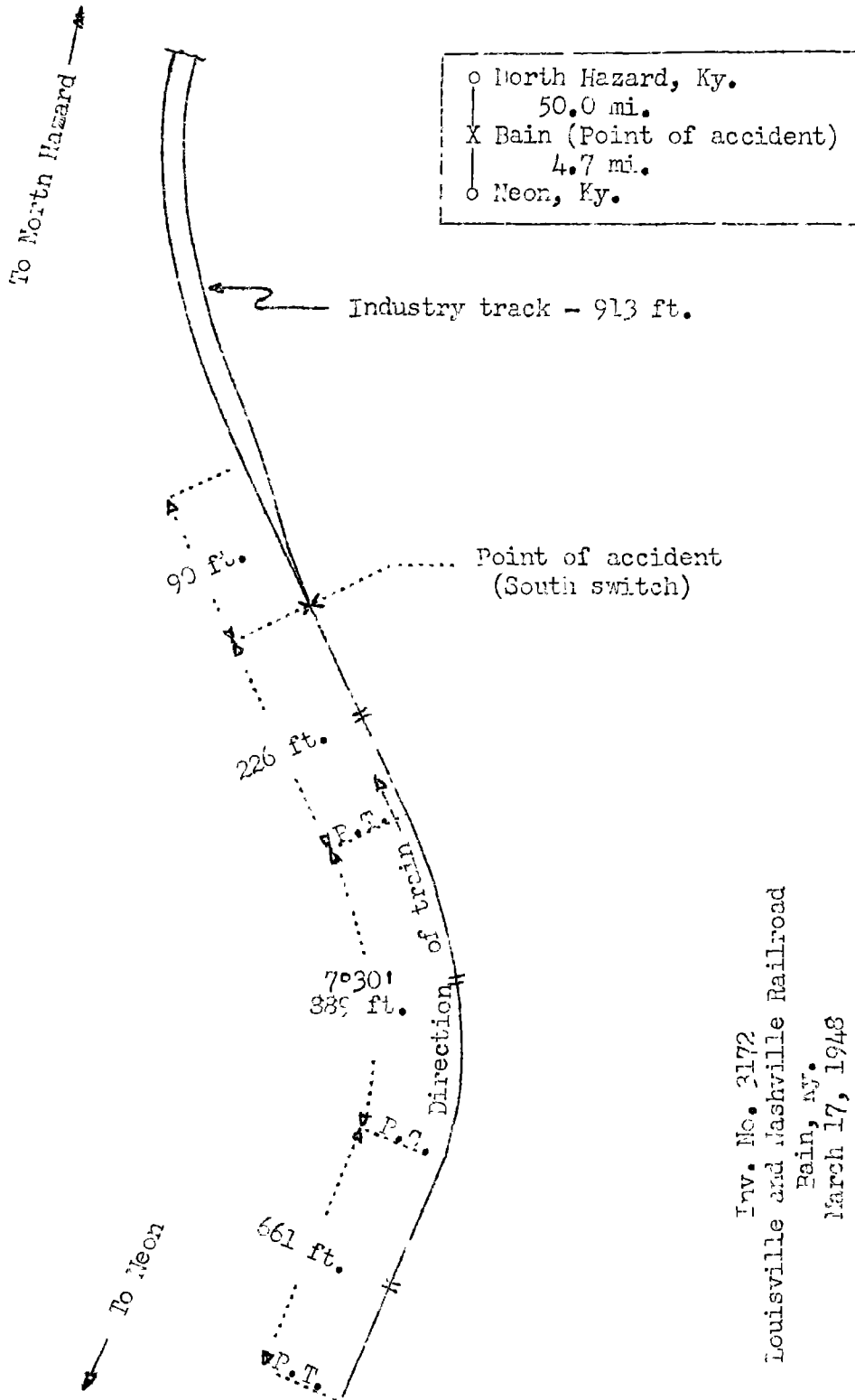
Accident at Bain, Ky., on March 17, 1948, caused by
a switch being in partly open position.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On March 17, 1948, there was a derailment of a freight train on the Louisville and Nashville Railroad at Bain, Ky., which resulted in the death of two employees, and the injury of one employee.

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.



Inv. No. 3172
Louisville and Nashville Railroad
Bain, Ky.
March 17, 1948

Location of Accident and Method of Operation

This accident occurred on that part of the Eastern Kentucky Division extending between Neon and North Hazard, Ky., 54.7 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders. There is no block system in use. At Bain, 4.7 miles north of Neon, an industry track 913 feet in length parallels the main track on the east. Entry to the industry track at the south switch is made through a No. 10 turnout having a curvature of $7^{\circ}25'$, without super-elevation. There is no station at Bain. The accident occurred at the south switch of the industry track. From the south on the main track there are, in succession, a tangent 661 feet in length, a $7^{\circ}30'$ curve to the left 289 feet and a tangent 226 feet to the point of accident and 20 feet northward. The grade is 0.18 percent descending northward.

The turnout of the south industry-track switch consists of 100-pound switch points 18 feet 5 inches long, 100-pound rails and a No. 10 spring-type frog laid on 66 switch ties. It is fully tieplotted and double-spiked, and provided with 4-hole joint bars. The track is ballasted with crushed stone to a depth of 12 inches. The switchstand is of the hand-throw intermediate-stand type, and is located 2 feet 10 inches east of the centerline of the main track. It is provided with an oil-burning lamp and two targets. The center of the lenses and the centers of the targets are, respectively, 7 feet 11 inches and 6 feet 6 inches above the level of the tops of the ties. When the switch is lined normally a green light and a green target are displayed at right angles to the track. When the switch is lined for entry to the industry track a red light and a red target are displayed at right angles to the track. The switch points are arranged for a throw of $4\frac{3}{4}$ inches, and the points are maintained in proper relation by two switch rods. A connecting rod 6 feet long connects the crank of the switchstand and the switch points, and is located between the head-block ties. The lamp, the targets and the operating lever are attached to the spindle of the switchstand. The operating lever is of the two-position, horizontal-throw type, 1 foot 8 inches long, and is attached to a fulcrum about 3 feet above the level of the tops of the ties. Slots are provided in the lever for the insertion of keeper eye-bolts in which the shackle of a switch lock is placed to lock the switch securely in the desired position. To operate the switch the lever is raised from vertical position to horizontal position and moved in an arc of 180 degrees.

This carrier's maintenance-of-way department rules read in part as follows:

237. Switch and Derrail Targets and Lamps. All main track switches shall be equipped with green and red targets, and in addition, with green and red lights (oil or reflectorized) at night, * * *

247. Supervision of Switches.--Foremen must examine main track switches at least once a week, and see * * * that the switch is securely locked. All main track switches * * * shall be provided with locks.

317. Care of Switch, * * * Lamps.--* * *

* * *

(m) Lamps found not burning shall be reported to the Supervisor.

The maximum authorized speed for freight trains is 35 miles per hour.

Description of Accident

No. 50, a north-bound second-class freight train, consisting of engine 1774, a 2-8-2 type, 20 cars and a caboose, departed from Neon, the last open office, 4.7 miles south of Bain, at 7:05 p. m., 3 hours 35 minutes late, and while moving at an estimated speed of 30 miles per hour the engine and the first eight cars were derailed at the south switch of the industry track at Bain.

The engine and the tender, remaining coupled, stopped on their left sides on the main track, with the front of the engine 241 feet north of the south industry-track switch. The engine was badly damaged. The derailed cars were considerably damaged. The engine struck the south end of the most southerly car of a cut of three cars that were standing on the industry track. This car was derailed and slightly damaged.

The fireman and the front brakeman were killed, and the engineer was injured.

The weather was clear at the time of the accident, which occurred about 7:27 p. m.

During the 30-day period preceding the day of the accident, the average daily movement in this vicinity was 20.1 trains.

Engine 1774 is of the 2-8-2 type. The total weight in working order is 323,350 pounds, distributed as follows: Engine truck, 19,350 pounds; driving wheels, 248,400 pounds; and trailer truck, 55,600 pounds. The specified diameters of the engine-truck wheels, the driving wheels and the trailer-truck wheels are, respectively, 33, 63 and 43 inches. The rigid wheel-base of the engine is 16 feet 9 inches long. The total length of the engine and tender is 82 feet 3-5/8 inches.

The tender is rectangular in shape, and its capacity is 10,000 gallons of water and 19 tons of coal.

The last class 3 repairs to the engine were completed November 15, 1946. The last class 5 repairs and the last annual inspection and repairs were completed at Corbin on November 1, 1947. The last trip inspection and repairs were completed at Keon on March 17, 1948. The accumulated mileage since the last class 3 repairs was 46,500 miles.

Discussion

No. 50 was moving on tangent track at an estimated speed of 30 miles per hour, in territory where the maximum authorized speed was 35 miles per hour, when the derailment occurred. As the train was approaching Bain the headlight was lighted brightly. The engineer, and the front brakeman, who was on the engine, were maintaining a lookout ahead. Prior to the time of the accident, the engine and the cars had been riding smoothly. The engineer said that the first he knew of anything being wrong was when the engine was moving over the south industry-track switch, where he observed an unusual movement of the switch target, then felt the engine lurch. He immediately moved the brake valve to emergency position, but the engine overturned before the speed of the train was materially reduced. The fireman and the front brakeman were killed. The conductor, the swing brakeman and the flagman were in the caboose. These employees were not aware of anything being wrong until the derailment occurred. The brakes of this train had been tested and had functioned properly. After the accident no defective condition of the engine or cars which could have contributed to the cause of the accident was found.

Examination of the main track throughout a considerable distance south of the south industry-track switch disclosed that the alignment, gage and surface were well maintained for the maximum authorized speed. There was no indication of dragging equipment or of defective track. The first mark on the track structure was a flange mark on the east switch-point brace between the switch-rail and the stock rail at a point 12 feet north of the switch-point. There were flange marks on a joint bar 4 feet 5 inches northward. Immediately north of this point the east rail of the main track was forced to the west, and the spike heads at four tie locations inside the east rail were sheared off. Northward to the frog, heavy flange marks appeared on the tieplates and on the ties inside the east rail of the turnout, and between the west rail of the main track and the west rail of the turnout. Northward from the frog to the point where the engine stopped the track was torn up. When examined after the accident the south industry-track switch operated normally, and no defective condition was found. The operating lever and the switch-points were in position for movement on the main track. The switch lock was found in open position on the ground in the vicinity of the switchstand. In tests after the accident it was found that the switch lock could be opened by jerking the chain of the lock. The investigation disclosed that the switch lamp at the south industry-track switch had not been lighted during a period of several months prior to the accident, and that one green lens and a portion of one red lens of the lamp were missing.

The switch involved was last inspected by the section foreman about four days prior to the day of the accident, and no defective condition was observed. The switch was last operated by members of the crew of a south-bound train about 38 hours prior to the accident, and at that time the switch operated properly.

A representative of the carrier's police department said that six boys, between 10 and 15 years of age, had informed him that they were playing in the immediate vicinity of the switch in question during a period of about 1 hour immediately prior to the time of the accident. One of the boys said that just prior to the accident he observed that the red switch target was at an angle of about 45 degrees to the track and that the operating lever was in horizontal position, but that he did not realize this condition would affect the movement of a train over the switch. At the time this investigation was completed it had not been determined how the switch became unlocked and partly open.

The marks on the track structure, and marks on the right engine-truck binder and on the counter-balance of the right main driving wheel indicate that the switch-points were in partly open position as No. 50 was approaching the switch and that the right wheels of the engine were diverted to the east, or stock, rail of the turnout and the left wheels continued on the west rail of the main track. Then, at a point 12 feet northward, the right wheels dropped between the stock rail and the east switch-rail and the left wheels dropped between the west rail of the main track and the west switch-rail, and pressure of the left wheels against the west switch-rail forced the switch points to normal position, then the operating lever dropped to vertical position.

Cause

It is found that this accident was caused by a switch being in partly open position.

Dated at Washington, D. C., this twelfth day of May, 1948.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.