INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3295

FLORIDA EAST COAST RAILWAY COMPANY

IN RE ACCIDENT

AT SOUTH JACKSONVILLE, FLA., ON

NOVEMBER 12, 1949

SUMMARY

Date:	November 12, 1949
Railroad:	Florida East Coast
Location:	South Jacksonville, Fla.
Kind of accident:	Derailment
Equipment involved:	Engine with cars
Engine number:	276
Consist:	72 cars
Estimated speed:	12 m. p. h.
Operation:	Special instructions
Track:	Yard track; 2° curve; level
Weather:	Clear
Time:	2:15 p. m.
Casualties:	1 killed
Cause:	Defective switch

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REPORT NO. 3295

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

FLORIDA EAST COAST RAILWAY COMPANY

January 10, 1950

Accident at South Jacksonville, Fla., on November 12, 1949, caused by a defective switch.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On November 12, 1949, there was a derailment of a yard engine and cars on the Florida East Coast Railway at South Jacksonville, Fla., which resulted in the death of one employee. This accident was investigated in conjunction with a representative of the Florida Railroad and Public Utilities Commission.

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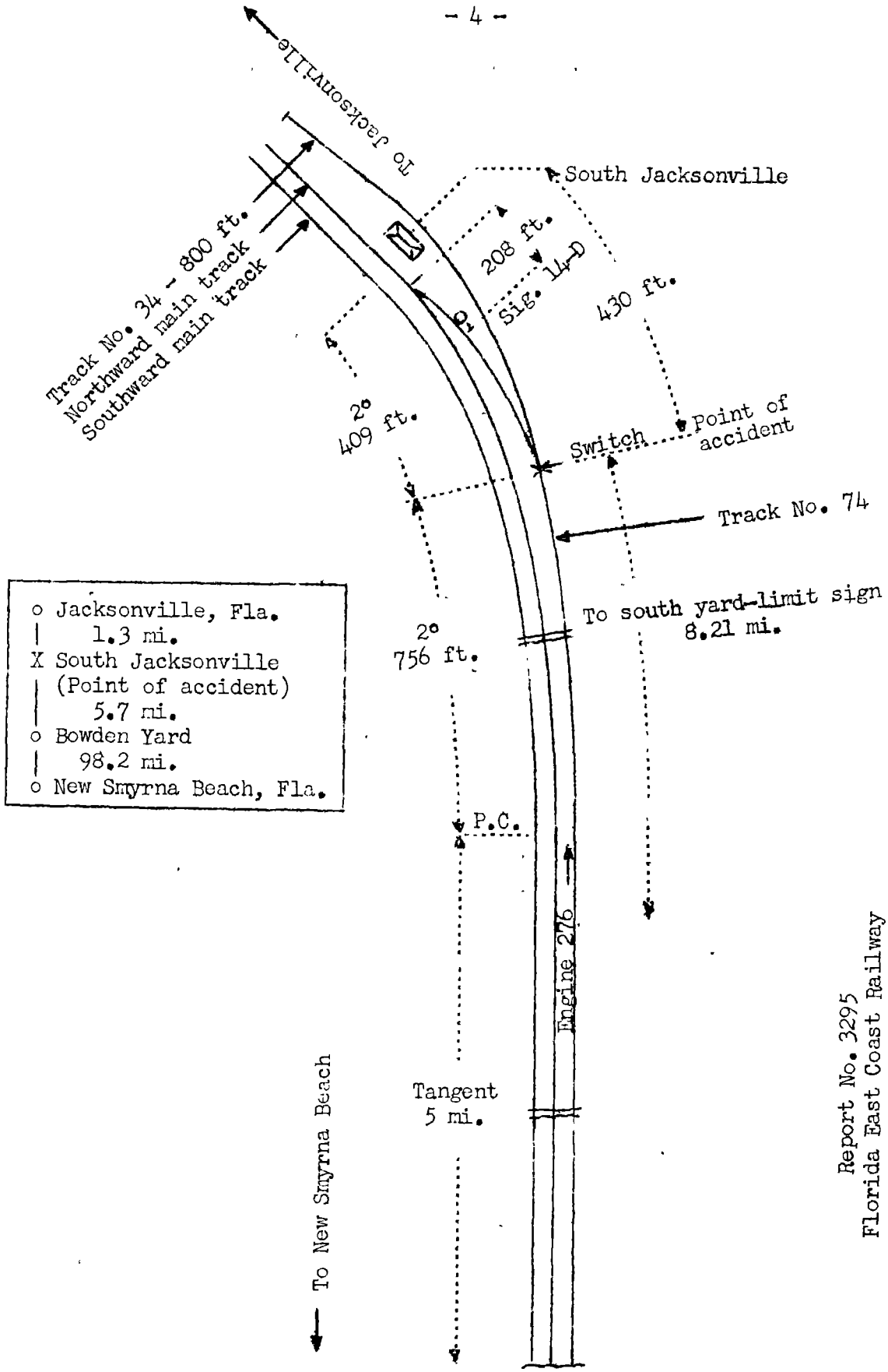
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3295
Florida East Coast Railway
South Jacksonville, Fla.
November 12, 1949

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between New Smyrna Beach and Jacksonville, Fla., 105.2 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 timetable, train orders and an automatic block-signal system. Yard limits extend from the north end of the St. Johns River Bridge to the south end of Bowden Yard, respectively, 1.3 miles north and 8.28 miles south of South Jacksonville. A yard track, designated as track No. 74 and also as the Bowden Running Track, parallels the main tracks on the east and extends northward from Bowden Yard to South Jacksonville, a distance of 5.7 miles, where it connects with the northward main track. The north switch of the yard track is a spring switch and is trailing point for north-bound movements. At a point 430 feet south of the station at South Jacksonville a yard track 800 feet in length, designated as track No. 34, connects with track No. 74. The switch to track No. 34 is facing-point for north-bound movements. The accident occurred at the point-of-switch of track No. 34. From the south, track No. 74 is tangent throughout a distance of more than 5 miles, then there is a 2° curve to the left 756 feet to the point of accident and 409 feet northward. The grade is 0.38 percent descending northward throughout a distance of 3,764 feet, then it is level 63 feet to the point of accident and a considerable distance northward.

The structure of track No. 74 consists of 90-pound rail, 33 feet in length, laid on an average of 18 ties to the rail length. It is fully tieplated, single-spiked, provided with 4-hole 100-percent joint bars, and is ballasted with sand and cinders to a depth of 6 inches under the ties. The turnout of track No. 34 is a No. 8 turnout and consists of 90-pound reinforced switch rails 16 feet 6 inches in length, 90-pound rails and a 90-pound rigid-type frog laid on 57 treated switch ties. The switch stand is of the low parallel hand-throw type, and is located 4 feet 6 inches east of the east rail of track No. 74. It is equipped with a target-type switch lamp, with lens 3-1/2 inches in diameter, and a target 9 inches in diameter. The center of the target is 27 inches above the tops of the ties. When the switch is lined for movement from track No. 74 to the northward main track the lens displays a green aspect and the target a white aspect. When the switch is lined for movement from track No. 74 to track No. 34

the lens and the target display red aspects. The switch rails are maintained in relation to each other by two switch rods 2-1/2 inches by 1 inch. The front rod is 6 feet 9 inches in length and the rear rod is 4 feet in length. The operating rod is 3 feet 6 inches in length and is located between the first and second switch ties. The switch-rail end of the operating rod is a solid jaw and is connected to the front switch-rod by a 1-inch bolt. The switch-stand end of the operating rod is a screw jaw held in position by a jam nut. A threaded eye-bolt 1-1/2 inches in diameter and 7 inches in length connects the switch rails with the switch-stand spindle. It is connected to the operating rod by a 1 inch bolt.

Time-table special instructions read in part as follows:

> BOWDEN RUNNING TRACK--Spring switch is in service on the turnout switch at the north end of the Bowden running track and is protected by dwarf signal #13 located at the clearance point. When dwarf signal displays YELLOW, train may proceed without stopping, * * *

Rules and Instructions governing the maintenance-of-way employees read in part as follows:

SECTION FOREMEN

> 60. A Section Foreman * * * must cover his entire section at least twice a week and observe particularly the condition of * * *, switches, * * *

The speed of the movement involved was restricted to 25 miles per hour on track No. 74, and to 15 miles per hour through the main track spring switch.

Description of Accident

Engine 276, headed northward and pulling a cut of 72 cars, was making a transfer movement. This movement departed from Bowden Yard, 5.7 miles south of South Jacksonville, about 1:50 p. m., and while moving on track No. 74 at an estimated speed of 12 miles per hour, the engine, the tender, the first and second cars, and the front truck of the third car were derailed while passing over the switch leading to track No. 34.

The engine stopped between tracks Nos. 74 and 34, with the front end 177 feet north of the switch. It leaned to the east at an angle of 45 degrees. The tender remained coupled to the engine and stopped across track No. 34, with the front against the engine. The engine and the tender were considerably damaged. The derailed cars stopped upright, behind the tender and across tracks Nos. 74 and 34. The first car was badly damaged, and the second and third cars were slightly damaged.

The conductor of the yard crew was killed.

The weather was clear at the time of the accident, which occurred about 2:15 p. m.

Engine 276 is of the 0-8-0 type. The total weight in working order is 218,000 pounds, distributed on the driving wheels as follows: No. 1, 51,400 pounds; No. 2, 52,500 pounds; No. 3, 57,100 pounds; and No. 4, 57,000 pounds. The specified diameter of the driving wheels is 51 inches. The rigid wheel-base of the engine is 15 feet long. The tender is rectangular in shape, and its capacity is 8,000 gallons of water and 2,000 gallons of oil. The total length of the engine and tender coupled is 68 feet 8 inches.

Discussion

As the transfer movement was approaching South Jacksonville the speed was about 25 miles per hour. The enginemen were maintaining a lookout ahead from their respective positions in the cab of the engine. The conductor and one yard brakeman were on the tender. The other yard brakeman was on the sixty-fourth car from the engine. Prior to the time of the accident, the engine and the cars had been riding smoothly. The engineer said he initiated a service brake application as the engine approached the switch at track No. 34. The speed was reduced to about 10 miles per hour as a result of this action. He observed the target and the switch rails of the switch, and they appeared to be in position for movement on track No. 74. The signal governing movements from track No. 74 to the northward main track was displaying a yellow aspect, and the fireman called the indication. The engineer said the tender lurched suddenly as it entered the turnout. He immediately initiated an emergency brake application, but the derailment occurred before the movement could be stopped. The brakes of this cut of cars had functioned properly when used en route.

Examination of the track throughout a considerable distance south of the switch disclosed no indication of defective track, dragging equipment, or any obstruction having been on the track. The surface, gage and alinement were well maintained. The first mark of derailment was a flange mark on a spike head outside the east rail and 5 feet 10 inches north of the heel of the switch rail. Flange marks then continued on the ties outside the east rail and inside the west rail about 12 feet northward. The frog and the track were considerably damaged.

An examination of the switch disclosed that the eye bolt connecting the operating rod to the switch-stand spindle was broken flush with the threaded portion of the spindle. Two areas, on opposite sides of the bolt and each covering about 20 percent of the cross-sectional area of the bolt, were oxidized. The remainder was a new break. Apparently, the eye bolt between the operating rod and the switch-stand spindle was broken by the thrust of the driving wheels of engine 276 against the heel of the normally closed switch rail. After the bolt was broken the switch points were opened sufficiently to cause the tender to become derailed, and then the engine was pulled from the track.

Immediately after the derailment occurred the engineer, the fireman and a yard brakeman examined the turnout and found the switch points open about 1-1/2 inches. The switch-stand lever was locked in position for movement on track No. 74. A track laborer working in the immediate vicinity when the accident occurred examined the switch and stated he found the switch rails open about 1 inch and the eye bolt broken.

Section foremen are required to give switches a visual inspection twice a week. The removal of eye bolts from the switch-stand spindle during inspection is not required. The defective condition of the eye bolt was of such nature that it could not be detected without removing the eye bolt from the switch-stand spindle. The switch was last inspected by the section foreman about 48 hours before the accident occurred, and no defective condition was observed.

Cause

It is found that this accident was caused by a defective switch.

Dated at Washington, D. C., this tenth day of January, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.