INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2566

THE SOUTHERN RAILWAY COMPANY

REPORT IN RE ACCIDENT

AT MASCOT, TENN., ON

FEBRUARY 6, 1942

SUMMARY

Railroad:	Southern	
Date:	February 6, 1942	
Location:	Mascot, Tenn.	
Kind of accident:	Side collision	
Trains involved:	Light engine	:Freight
Train numbers:		:Fourth 54
Engine numbers:	5220	:5233
Consist:		:35 cars, caboose
Speed:	4 m.p.h.	:12-25 m.p.h.
Operation:	Timetable, train orders and automatic block-signal and automatic train-stop system; accident occurred within yard limits.	
Track:	Double; tangent; practically level	
Weather:	Misting	
Time:	About 3:35 a.m.	
Casualties:	1 killed; 1 injured	
Cause:	Accident caused by failure properly to control speed of freight train moving within yard limits.	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2566

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

THE SOUTHERN RAILWAY COMPANY

March 18, 1942.

Accident at Mascot, Tenn., on February 6, 1942, caused by failure properly to control speed of freight train moving within yard limits.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On February 6, 1942, there was a side collision between a light engine and a freight train on the Southern Railway at Mascot, Tenn., which resulted in the death of one employee and the injury of one employee.

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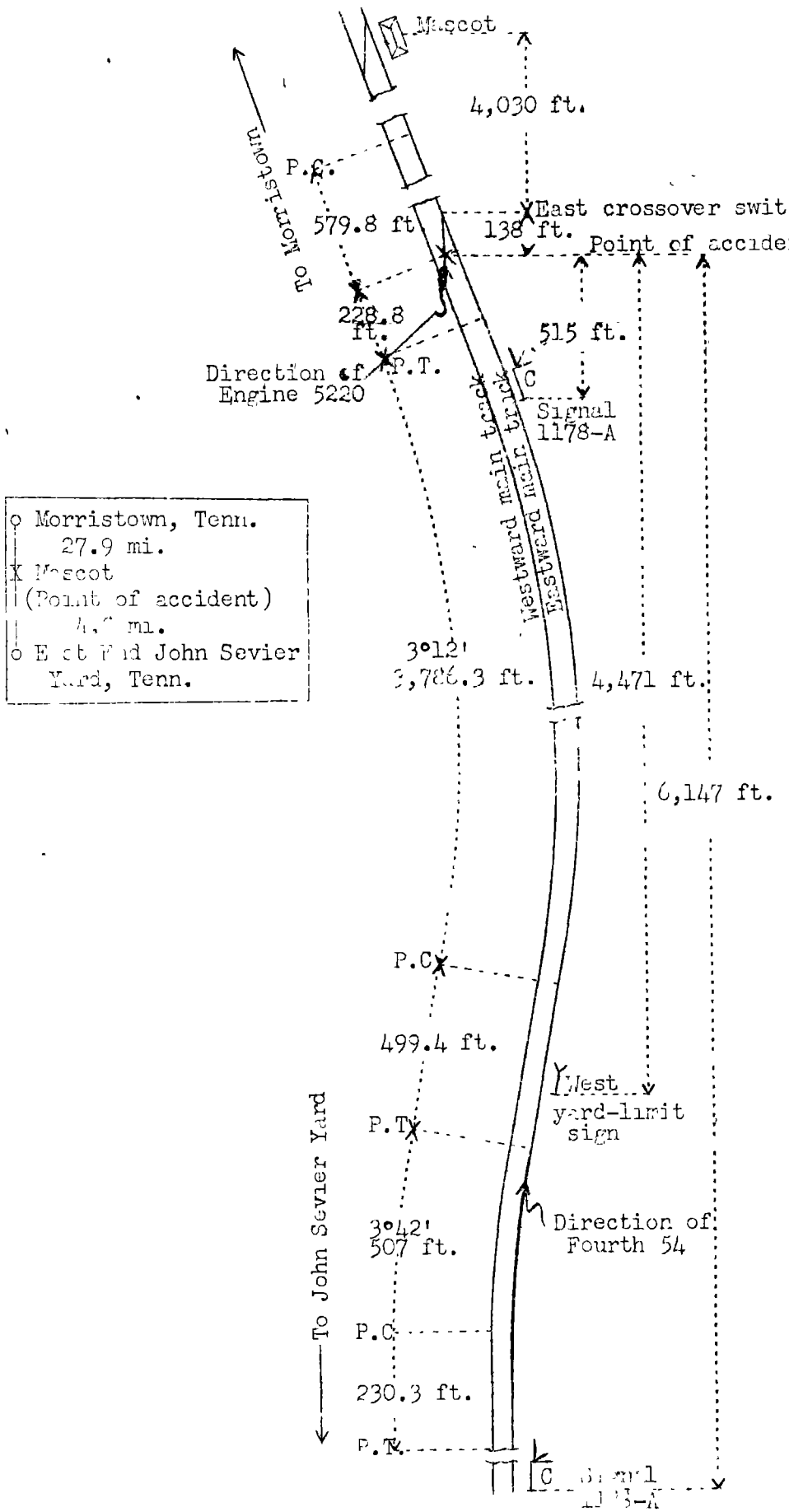
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 2566
Southern Railway
Mascot, Tenn.
February 6, 1942

Location of Accident and Method of Operation

This accident occurred on that part of the Knoxville Division which extends between East End John Sevier Yard and Morristown, Tenn., a distance of 32.7 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal and automatic train-stop system. At a point 4,030 feet west of the station at Mascot a trailing-point crossover for movements with the current of traffic connects the eastward and the westward main tracks. This crossover is provided with No. 10 turnouts and is 193 feet in length. The accident occurred within yard limits on the eastward main track at the fouling point of the crossover at a point 55 feet east of the west switch of the crossover.

As the point of accident is approached from the west there are, in succession, a tangent 230.3 feet in length, a 3°42' curve to the right 507 feet, a tangent 499.4 feet, a compound curve to the left 3,786.3 feet, which has a maximum curvature of 3°12', and a tangent 228.8 feet to the point of accident and 579.8 feet beyond. At the point of accident the grade is practically level.

In the immediate vicinity of the point of accident the tracks are laid on a fill 19.1 feet in height. Mascot Road parallels the tracks on the south and crosses under the tracks at a point 87 feet east of the point of accident. The foot of the embankment is 37 feet horizontally distant from the eastward main track.

Automatic signals 1188-A and 1178-A, governing eastbound movements on the eastward main track, are located, respectively, 6,147 feet and 515 feet west of the point of accident. These signals are of the 3-indication, color-light type and are continuously lighted. The aspects and corresponding indications and names of these signals are as follows:

Aspect	Indication	Name
Green	Proceed	Clear Signal
Yellow	Approach next Signal prepared to Stop	Approach Signal
Red	Stop; then Proceed	Stop and Proceed Signal

The circuits are so arranged that when either switch of the crossover involved is lined for movement through the crossover, signal 1188-A displays a yellow aspect and signal

1178-A displays a red aspect.

The switches of the crossover are not equipped with either targets or lamps.

Operating rules read in part as follows:

DEFINITIONS

FIXED SIGNAL--A signal of fixed location indicating a condition affecting the movement of a train.

Note.- The definition of a "Fixed Signal" covers such signals as * * * yard limits, * * *.

93. Within yard limits the main track may be used without protecting against second and inferior class trains. Second and inferior class and extra trains or engines must move within yard limits prepared to stop unless the main track is seen or known to be clear. When the view is obstructed additional precautions must be taken. In case of accident the responsibility will rest with the approaching train.
* * *

514. Before entering the main track in automatic block signal limits, a train must, in addition to other precautions, wait two minutes after opening the switches before proceeding; * * *.

In the vicinity of the point of accident the maximum authorized speed for freight trains is 40 miles per hour.

The west yard-limit sign is located 4,471 feet west of the point of accident.

Description of Accident

Engine 5220, headed eastward, followed a west-bound freight train on the westward main track from Mascot to a point west of the crossover involved. Both crossover switches were lined for movement through the crossover, and this engine entered the crossover to move to the eastward main track. After the rear of the tender was east of the west switch, because of a train approaching on the eastward track, the engine started to move backward to the westward main track and while moving at an estimated speed of 4 miles per hour it was struck by Fourth 54.

Fourth 54, an east-bound second-class freight train, consisted of engine 5233, 32 loaded and 3 empty cars and a caboose. After a terminal air-brake test was made this train departed from East End John Sevier Yard, 4.8 miles west of Mascot, at 3:18 a.m., according to the dispatcher's record of movement of trains, 6 hours 3 minutes late, passed signal 1188-A, which displayed proceed, passed the west yard-limit sign at an estimated speed of 25 to 30 miles per hour, passed signal 1178-A, which displayed stop-and-proceed, and while moving at an estimated speed of 12 to 25 miles per hour it collided with engine 5220 at a point 138 feet west of the east switch of the crossover.

At the time of the accident a west-bound freight train was standing on the westward main track, with the rear end of the caboose standing about 200 feet west of the crossover. Because of track curvature and the train standing on the westward main track the view of the point of accident from the right side of an east-bound engine was restricted to a distance of about 500 feet, and from the left side to about 900 feet.

Engine 5220 was derailed to the north but stopped upright and in line with the westward main track, with the front end standing 78.5 feet east of the west switch of the crossover. The right cylinder assembly was broken off. The engine-truck frame was broken. The front truck of the tender was derailed. Engine 5233, of Fourth 54, was derailed to the south, overturned down the embankment and stopped in Mascot Road, on its right side and parallel to the tracks, at a point 195 feet east of the point of accident. The left cylinder assembly was broken off. The engine truck and the cab were badly damaged. The tender was derailed to the south down the embankment and stopped upright and practically at right angles to the tracks. The frame was broken. The first 12 cars were derailed and stopped at various angles across both main tracks and down the embankment. Seven of these cars were destroyed and the remainder were badly damaged.

It was misting at the time of the accident, which occurred about 3:35 a.m.

The employee killed was the fireman of Fourth 54, and the employee injured was the engineer of Fourth 54.

Discussion

The rules governing operation on the line involved provide that within yard limits all trains and engines may use the main tracks without protecting against second-class, inferior class or extra trains and engines, and that all except first-class trains must be operated prepared to stop unless the way is seen or known to be clear. In addition, in automatic-

signal territory an interval of 2 minutes must elapse after crossover switches are opened before a movement may be made through a crossover. All surviving members of both crews involved understood these requirements.

About 3:32 a.m. engine 5220 stopped at the crossover involved. According to statements of the front brakeman and the engineer, the east switch was lined first and then the west switch. More than 2 minutes had elapsed when engine 5220 entered the crossover. The engineer was maintaining a lookout ahead and the fireman warned him that a train was approaching on the eastward main track. The engineer then looked back and, observing that the approaching train was moving at a speed too great to stop short of the crossover, he placed the reverse lever in position for backward motion, opened the throttle and sounded one blast of the engine whistle; however, before engine 5220 could back clear of the fouling point it was struck at the location of the guide-bearer by the engine of Fourth 54. There was no first-class train due for 1 hour 41 minutes. The engineer of engine 5220 understood that an interval of 2 minutes must elapse after crossover switches are lined before a train proceeds through a crossover, but he said he had never been instructed that this rule was applicable in yard-limit territory.

According to the statement of the engineer of Fourth 54, signal 1188-A displayed proceed for his train, and as his engine passed the west yard-limit sign the speed was about 25 or 30 miles per hour. As his train approached the point where the accident occurred, the headlight was lighted brightly, the speed was about 25 or 30 miles per hour, the throttle was open, and the fireman and he were maintaining a lookout from their respective sides of the cab. Because of track curvature to the left and a west-bound train standing on the westward main track, the view ahead was considerably restricted. At a point about 750 feet west of the point of accident the fireman said something about a caboose, and the engineer closed the throttle and made a service brake-pipe reduction. At that time the fireman warned him that signal 1178-A was displaying a red aspect. The engineer immediately moved the brake valve to emergency position and opened the sander valve but the distance was not sufficient to stop short of the crossover involved. Other members of the crew thought the emergency application of the brakes was the only application made. The engineer understood that within yard limits proceed signal indications cannot be used as information that the way is clear, but in this instance he did not expect to find a train or engine at the point involved, and he accepted the proceed indication displayed by signal 1188-A as information that the way was clear because the last preceding train had departed from John Sevier Yard at 2:05 a.m. He was not aware of anything being wrong until he

observed signal 1178-A displaying a red aspect. He expressed the opinion that if a 2-minute interval had been observed by engine 5220, his train either would have received an approach indication at signal 1188-A or would have passed the crossover involved before engine 5220 could have entered it. Based on the highest estimate of speed of 30 miles per hour, Fourth 54 would have used 2 minutes 19 seconds in traversing the distance of 6,147 feet between signal 1188-A and the crossover involved.

In tests made after the occurrence of the accident, signals 1188-A and 1178-A functioned as intended. Under the rules, after Fourth 54 passed the west yard-limit sign it was not authorized to operate in accordance with the proceed indication of signal 1188-A, which was located 1,676 feet west of the west yard-limit sign, but was required to be operated in accordance with the yard-limit rule; however, a speed of 25 or 30 miles per hour was maintained between the west yard-limit sign and a point about 750 feet west of the point of accident. Several employees involved stated that it was customary practice for second-class and inferior trains to move in this territory as Fourth 54 moved in this instance. The brakes of Fourth 54 had been tested and functioned properly. Had the speed of Fourth 54 been controlled in accordance with the yard-limit rule, this accident would have been averted.

According to the statement of the trainmaster, within yard limits as well as outside yard limits in automatic-signal territory a main-track switch must be opened at least 2 minutes before a train enters the main track, but automatic-signal indications cannot be accepted as information that the way is clear. He said that regardless of the yard-limit rule, restrictive automatic-signal indications within yard limits must be obeyed, but that signal indications cannot be accepted as information concerning train or engine movements within yard limits. There was evidence that during a long period preceding the day of the accident second-class and inferior trains had passed through the yard limits involved in a manner not in accordance with the provisions of the yard-limit rule. The failure to obey an operating rule for a considerable period indicates lack of proper supervision. If the yard-limit rule had been strictly enforced, this accident would not have occurred. If similar accidents are to be prevented, operating officials must take necessary measures to require strict obedience to the rules.

Cause

It is found that this accident was caused by failure properly to control the speed of a freight train moving within yard limits.

Dated at Washington, D. C., this eighteenth day of March, 1942.

By the Commission, Commissioner Patterson.

(SEAL) W. P. BARTEL,

Secretary.