INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2532

THE ATLANTIC COAST LINE RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT OAKLEY, S. C., ON

SEPTEMBER 30, 1941

SUMMARY

Railroad:	Atlantic Coast Line	
Date:	September 30, 1941	
Location:	Oakley, S. C.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Passenger
Train numbers:	Extra 466 North	: Extra 1749 North
Engine numbers:	466	: 1749
Consist:	27 cars and caboose	: 13 cars
Estimated speed:	Standing	: 50-65 m.p.h.
Operation:	Timetable, train orders and automatic block-signal system	
Track:	Double; tangent; 0.26 percent ascending grade northward	
Weather:	Foggy	
Time:	8:38 a.m.	
Casualties:	1 killed; 10 injured	
Cause:	Accident caused by failure to operate following train in accordance with automatic block-signal indications and by failure to obey flagman's signals	
Recommendation:	The traffic and other operating conditions in this section warrant that this carrier extend its automatic train-stop system to include the territory on which this accident occurred	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2532

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

THE ATLANTIC COAST LINE RAILROAD COMPANY

November 26, 1941

Accident at Oakley, S. C., on September 30, 1941, caused by failure to operate the following train in accordance with automatic block-signal indications and by failure to obey flagman's signals.

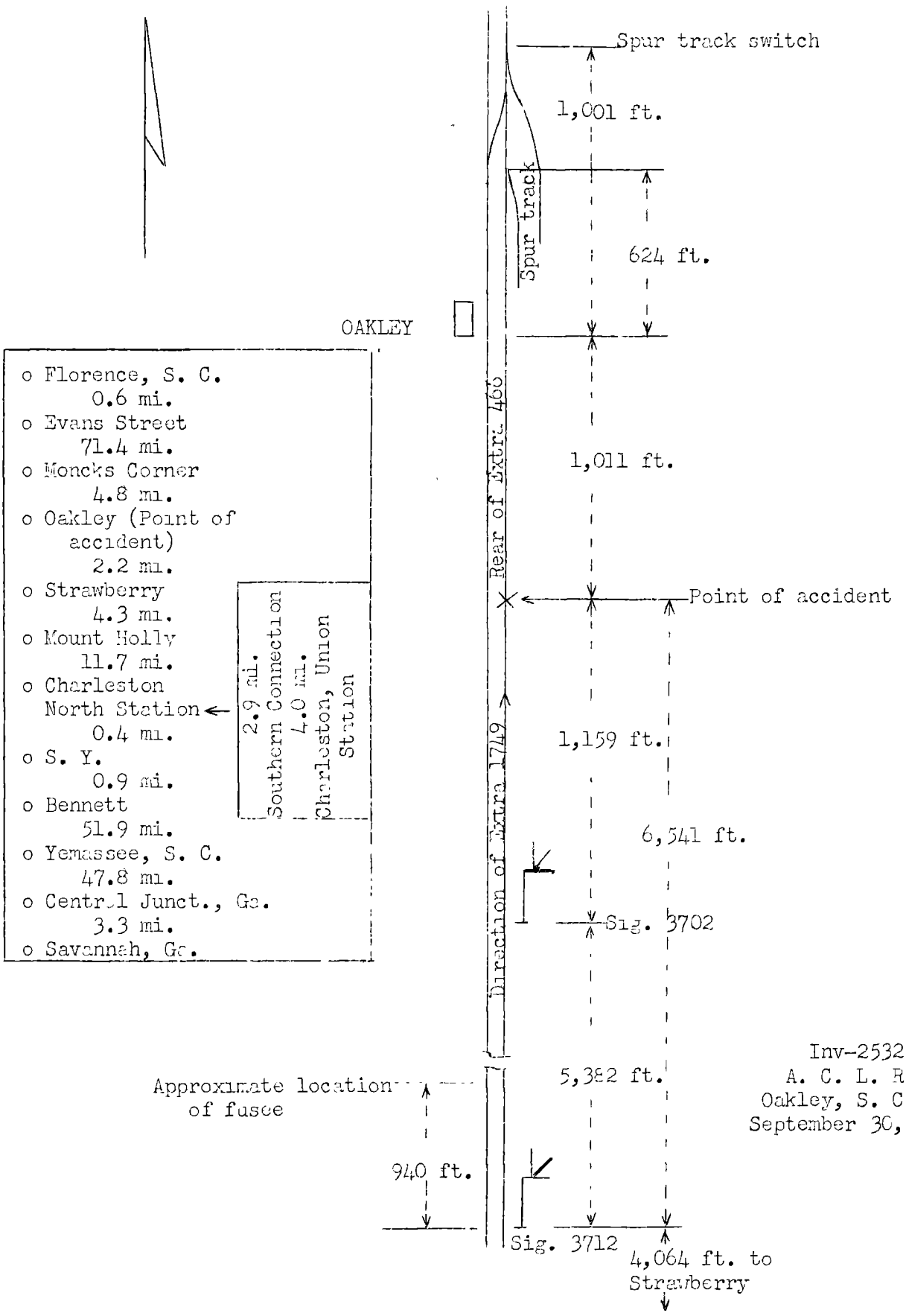
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On September 30, 1941, there was a rear-end collision between a freight train and a passenger train on the Atlantic Coast Line Railroad at Oakley, S.C., which resulted in the death of one employee and the injury of seven passengers and three employees. This accident was investigated in conjunction with the Public Service Commission of South Carolina.

---

[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-2532
A. C. L. R. R.
Oakley, S. C.
September 30, 1941.

Location of Accident and Method of Operation

This accident occurred on that part of the Charleston District extending between Savannah, Ga., and Florence, S. C., a distance of 199.3 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 system. The accident occurred on the northward main track at a point 1,011 feet south of the station at Oakley. As the point of accident is approached from the south the track is tangent a distance of 11.4 miles to the point of accident and 2.6 miles beyond. The grade for north-bound trains is, successively, 0.38 percent descending a distance of 2,200 feet, 0.13 percent descending 800 feet, level 2,900 feet, 0.08 percent ascending 1,100 feet and 0.26 percent ascending 190 feet to the point of accident and 310 feet beyond.

A spur track 575 feet in length parallels the northward main track on the east. Entrance to this track is made through a trailing-point switch, for northward movements, located 1,001 feet north of the station.

Automatic signals 3712 and 3702, governing northward movements on the northward track, are located, respectively, 6,641 feet and 1,159 feet south of the point of accident. These signals are of the 1-arm, 3-position, upper-quadrant, semaphore type, and are approach lighted. The aspects, indications and names of these signals are as follows:

Day Aspect	Night Aspect	Indication	Name
Vertical	Green	Proceed	Clear Signal
45 degrees	Yellow	Proceed at a speed to not exceed one-half the maximum authorized, prepared to stop at the next signal	Approach Signal
Horizontal	Red	Stop--Then proceed * * *	Stop and Proceed Signal

Operating rules read in part as follows:

11. A fusee on or near the track burning red * * * in territory governed by automatic signals * * * train will come to a full stop and proceed at restricted speed to the next automatic signal.

34. All members of train and engine crews must, when practicable, communicate to each other by its name the indication of all signals affecting the movement of their train.

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees.

* * *

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fusees must be thrown off at proper intervals.

* * *

Flagman's signals:

Day signals --- A red flag.
Torpedoes and
Fusees.

Night signals-- A red light.
A white light.
Torpedoes and
Fusees.

FIREMEN

1009. * * * They must closely observe the indication of * * * fixed signals and call position of same to the Engineman.

Time-table instructions read in part as follows:

Signal Observance

All Approach, * * *, Signals must be acted upon strictly in accordance with their indications * * * . Proper observance of these signal indications requires that the speed of train must be reduced at the time engine passes the signal, and the train must continue to run at reduced speed, in accordance with signal indication, until it reaches the next signal in advance.
* * *

In the vicinity of the point of accident the maximum authorized speed for local freight trains is 40 miles per hour and for passenger trains hauled by 1700-class engines, 75 miles per hour.

Description of Accident

Extra 466 North, a north-bound local freight train, consisted at the time of the accident of engine 466, 4 loaded and 23 empty cars and a caboose. This train departed from Charleston, 25.1 miles south of Oakley, at 7:18 a.m., according to the dispatcher's record of movement of trains. At Southern Connection, 4 miles north of Charleston, the following message was received by the engine crew only:

C&E extra 466 north

The first troop train SY at 7:40 a.m.
Second troop train SY at 8:10 a.m.
Do not delay them

This train was held at North Station, Charleston, to permit Extra 1763 North, which was the first troop train mentioned in the message, to pass. Extra 466 departed from North Station at 8 a.m. and arrived at Oakley, 18.2 miles north of North Station, about 8:36 a.m., according to the statement of the conductor. The engine and the first five cars of the train were detached and a movement was made to the spur track to perform switching. The rear portion of the train was left with the caboose standing 1,159 feet north of signal 3702. About 2 minutes later the rear end of this train was struck by Extra 1749 North.

Extra 1749 North, a north-bound passenger train, consisted of engine 1749, one coach, two baggage cars, nine coaches and one Pullman sleeping car, in the order named. The second, third, tenth, eleventh and thirteenth cars were of steel construction. The other cars were of steel-underframe construction. After a terminal air-brake test was

completed this train departed from Yemassee, 71.4 miles south of Oakley, at 7:15 a.m., according to the dispatcher's record of movement of trains, passed SY Tower, North Charleston, 18.6 miles south of Oakley and the last open office, at 8:21 a.m., passed signal 3712, which was displaying approach, passed signal 3702, which was displaying stop-and-proceed, and while moving at an estimated speed of 50 to 65 miles per hour collided with the rear end of Extra 466. There was no condition of the engine of Extra 1749 that distracted the attention of the crew or obscured their vision. The brakes of this train had functioned properly en route. Because of a ground fog prevailing at the time of accident, visibility was restricted to a distance varying from 1/8 to 1/2 mile.

The caboose and the rear three cars of Extra 466 were demolished. The debris of the caboose stopped about 15 feet east of the track and 75 feet north of the point of collision. The rear car stopped on its side approximately 240 feet beyond the point of collision and east of the northward track. The second and third cars from the rear stopped on their sides west of the southward track. The fourth car from the rear was derailed and stopped, badly damaged, upright and across the southward track. The fifth car from the rear was derailed but remained upright on the roadbed, and was slightly damaged. Engine 1749 was derailed to the right and stopped bottom up, east of the northward track and at an angle of 15 degrees. The front end stopped on the rear end of the rear car of Extra 466 at a point 240 feet north of the point of collision. The pilot, the cab, the smokebox and the superheater header were demolished. The front fluesheet was punctured throughout an area 23 inches by 28 inches. The smokebox door was blown off and landed 150 feet north of the engine and 15 feet west of the southward track. The main frame was broken at two locations on each side, and the front end-frames were bent. Immediately after the accident the throttle was found closed, the automatic brake valve in emergency position, the independent brake valve in running position and the reverse lever in position for short cut-off in forward motion. The tender, remaining coupled to the engine, stopped on its side to the rear of the engine. The rear end-sheet of the cistern was crushed inward about 5 feet, and the tender frame was twisted. The first car of Extra 1749 was derailed to the right and stopped on its side east of the northward track and at an angle of 45 degrees to it. This car was destroyed. The second car was derailed to the right and stopped on its side parallel to the northward track. Its front end was on the engine and its rear end on the front end of the first car. The front coupler-shank and the front end-sill were broken. The left side-sheets were damaged throughout a distance of 36 feet and the

left front corner was crushed. The third car was derailed and stopped with its front end to the right of the northward track and at the rear of the second car and its rear end on the roadbed. The second and third cars were badly damaged. The fourth car and the front truck of the fifth car were derailed and slightly damaged. The centerplate of the rear truck of the eleventh car was broken and the truck was off center and 13 inches ahead of its proper position. Five of the other cars were slightly damaged.

A fog prevailed at the time of the accident, which occurred about 8:38 a.m.

The employee killed was the engineer of Extra 1749 and the employees injured were the fireman, the baggagemaster and the flagman of Extra 1749.

Discussion

The rules governing operation on the line involved provide that when a train is moving under circumstances in which it may be overtaken by another train the flagman must take such action as may be necessary to insure full protection. By day when the view is obscured, lighted fusees must be thrown off at proper intervals. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection. The rules governing operation in automatic block-signal territory provide that an approach indication requires the speed of a train to be reduced to not exceeding one-half the maximum authorized speed and the train to be prepared to stop at the next signal. A fusee burning red on the track or near it requires a train to stop and then to proceed at restricted speed to the next signal. The surviving members of both crews involved understood these requirements.

Extra 466 North, a local freight train, stopped on the main track at Oakley about 8:36 a.m. to perform switching and about 2 minutes later the rear end of this train was struck by Extra 1749 North.

The flagman of Extra 466 said that when his train was approaching Oakley he threw off a lighted 10-minute fusee at a point approximately 5,600 feet south of the point where the accident occurred. The remains of a burned fusee were found at this point after the accident occurred. When his train stopped at Oakley, the flagman immediately proceeded to the rear and had reached a point about 700 feet south of his caboose and was giving stop signals with a lighted fusee when Extra 1749, moving at a speed of about 60 miles per

hour, passed him. His stop signals were not acknowledged and the speed of the train was not reduced until just prior to the collision. Immediately after the accident occurred, the flagman observed that signal 3702 was displaying stop. A section foreman, who was near the caboose of Extra 466 when it stopped, saw the flagman proceed to the rear immediately after Extra 466 stopped. About 2 minutes later he saw Extra 1749 approaching and the flagman giving stop signals with a lighted fusee. The conductor of Extra 1749 was in the rear car as his train was approaching Oakley at a speed of about 60 miles per hour. The first he knew of the impending accident was when the brakes were applied in emergency about 10 seconds before the collision occurred. He immediately alighted and observed signal 3702 displaying stop and the flagman of Extra 466 near the second rear car of Extra 1749 holding a burning fusee in his hand.

The track immediately south of the point of accident is tangent for several miles. Because of fog in the vicinity of the point of accident, the conductor of Extra 1749 could not see to the rear of his train more than about 1/2 mile. The fireman of Extra 1749 said he could see the indications of some of the automatic signals a distance of about 1/4 mile but he could not see the indications of other signals until his engine had practically reached them. According to the statement of the fireman, when Extra 1749 was approaching Strawberry, 2.2 miles south of Oakley, he was tending the fire. He was again tending the fire when his train was approaching Oakley and did not observe the indications of signals 3712 and 3702. His engineer did not call the indications, and the first the fireman knew of anything being wrong was when the brakes were applied in emergency. Then he looked ahead and saw the caboose of the preceding train. The brakes of Extra 1749 had functioned properly and there was no condition of the engine that obscured the vision of the enginemen. The automatic signals involved were functioning properly.

The general mechanical instructor stated that Extra 1749 could have been stopped from a speed of 75 miles per hour, by a service application of the brakes, in a distance of 4,800 feet. Signal 3712, which was displaying approach for Extra 1749, is located 5,382 feet south of signal 3702 and 6,541 feet south of the point where the accident occurred. It appears that if action had been taken at signal 3712 to reduce the speed in accordance with the approach indication and if action had been taken to obey the indication displayed by the burning fusee located about 900 feet north of signal 3712, this accident would not have occurred. Why the engineer did not take proper action is not definitely

known, as he was killed in the accident. About 2 miles south of the point of accident, the engineer crossed to the left gangway and observed a south-bound train. It is probable that, during the time he was absent from his side of the cab, his engine passed both signal 3712 and the burning fusee while he was observing the train on the southward track.

According to the message issued to Extra 466, which was received by the engine crew only, the crew of this train were instructed not to delay two troop trains. There was no information furnished, such as engine numbers, whereby the troop trains could be identified. The investigation disclosed that this matter was handled in accordance with past practice.

The maximum authorized speed for the preceding train was 40 miles per hour and for the following train 75 miles per hour; furthermore, if the following train had been hauled by an R-1 engine it would have been 80 miles per hour. A difference of 35 or 40 miles per hour between the maximum authorized speeds of following trains of equal authority creates an unsafe condition, particularly since the investigation disclosed that the local freight train when moving at the maximum authorized speed of 40 miles per hour was not considered to be proceeding in a manner in which it might be overtaken by a following extra train.

If an automatic train-stop system had been in use on this line, the failure to observe and to obey the approach indication would have resulted in the brakes becoming applied automatically, and the accident would have been averted. This carrier has an automatic train-stop system in operation between Richmond, Va., and Florence, S. C., a distance of 297.2 miles. The southern end of this installation is located about 77 miles north of Oakley. During the 30 days preceding the day of the accident, the average daily movement over this line was 21.4 trains. During the winter season the movement is considerably greater. Fog occurs frequently throughout a considerable distance both north and south of the point of accident.

Cause

It is found that this accident was caused by failure to operate the following train in accordance with automatic block-signal indications and by failure to obey the flagman's signals.

Recommendation

The traffic and other operating conditions in this section warrant that this carrier extend its automatic train-stop system to include the territory on which this accident occurred.

Dated at Washington, D. C., this twenty-sixth day of November, 1941.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.