

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2595  
THE SEABOARD AIR LINE RAILWAY COMPANY  
REPORT IN RE ACCIDENT  
AT KITTRELL, N. C., ON  
JUNE 14, 1942

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## SUMMARY

Railroad: Seaboard Air Line

Date: June 14, 1942

Location: Kittrell, N. C.

Kind of accident: Rear-end collision

Trains involved: Passenger : Freight

Train numbers: 43 : First 39

Engine numbers: Diesel-electric : 408  
3009, 3016 and  
3100

Consist: 16 cars : 23 cars, caboose

Speed: Standing : 5-10 m. p. h.

Operation: Timetable, train orders and automatic  
block-signal system

Track: Single; tangent; 0.10 percent  
ascending grade southward

Weather: Foggy

Time: About 12:50 a. m.

Casualties: 8 killed; 9 injured

Cause: Accident caused by failure to provide adequate flag protection for preceding train and by failure properly to control speed of following train in accordance with signal indications

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2595

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

THE SEABOARD AIR LINE RAILWAY COMPANY

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August 12, 1942

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Accident at Kittrell, N. C., on June 14, 1942, caused by failure to provide adequate flag protection for preceding train and by failure properly to control speed of following train in accordance with signal indications.

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REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On June 14, 1942, there was a rear-end collision between a passenger train and a freight train on the Seaboard Air Line Railway at Kittrell, N. C., which resulted in the death of eight passengers, and the injury of eight passengers and one employee.

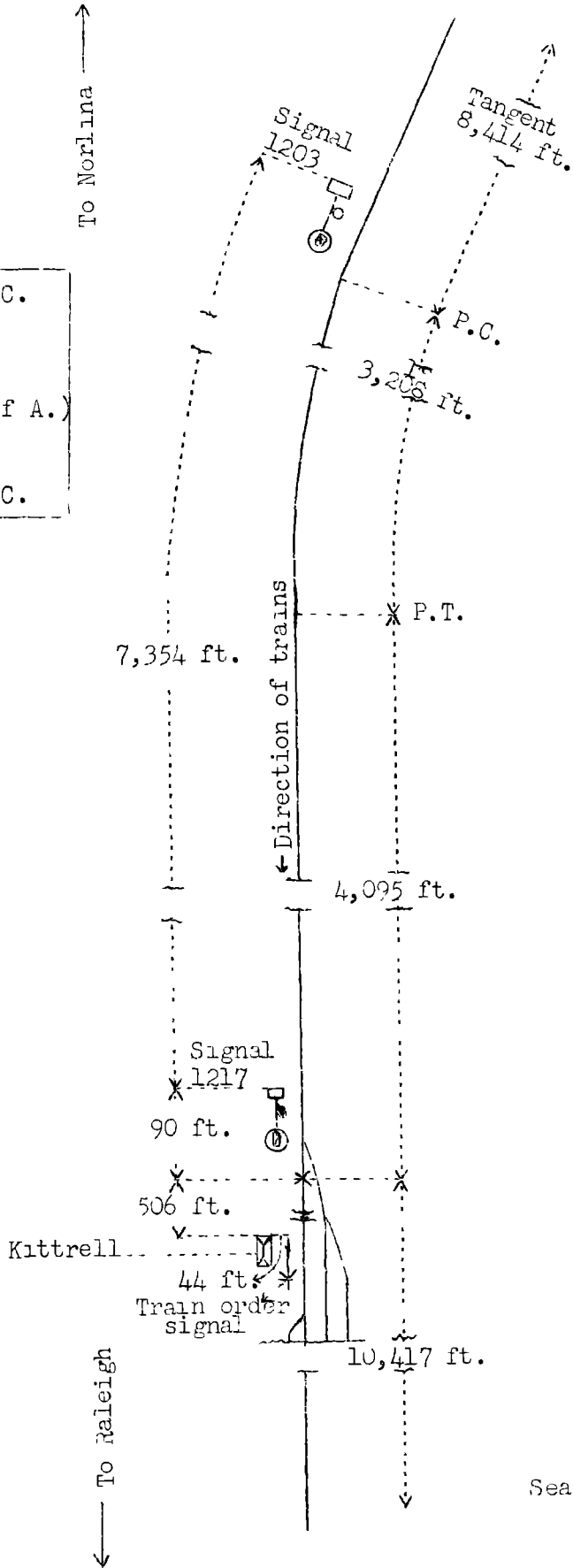
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Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

To Norlina ↑

- Norlina, N. C. 15.4 mi.
- Henderson 8.0 mi.
- ✱ Kittrell (P. of A.) 34.3 mi.
- Johnson St., Raleigh, N. C.



Inv. No. 2595  
 Seaboard Air Line Railway  
 Kittrell, N. C.  
 June 14, 1942

Location of Accident and Method of Operation

This accident occurred on that part of the Virginia Division designated as the Norlina Sub-Division and extending between Norlina and Johnson St., Raleigh, N. C., a distance of 57.7 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the main track at a point 506 feet north of the station at Kittrell. As the point of accident is approached from the north there are, in succession, a tangent 8,414 feet in length, a 1° curve to the left 3,208 feet and a tangent 4,095 feet to the point of accident and 10,417 feet beyond. The grade for south-bound trains varies between 0.20 and 0.77 percent descending a distance of 6,500 feet and then is 0.10 percent ascending a distance of 406 feet to the point of accident.

Automatic signals 1203 and 1217, which govern south-bound movements, are located, respectively, 7,444 and 90 feet north of the point of accident. These signals are of the 3-indication, color-light type, and are continuously lighted. The involved aspects and corresponding indications and names of these signals are as follows:

<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Yellow	Approach next signal prepared to stop	Approach Signal
Red-over-lunar-white, staggered	Stop, then proceed	Stop and Proceed Signal

Operating rules read in part as follows:

35. The following signals will be used by flagmen:

\* \* \*

Night Signals--A Red light.  
A White light.  
Torpedoes and Fusees.

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, (not less than one-half mile), placing one torpedo on the rail, on the engine-man's side; he must then continue to go back to a point not less than three-quarters of a mile (or further on descending grades or where the view is obscured) from the rear of his train, placing two torpedoes on the rail (100 feet apart), when he may return to the point where

the first torpedo was placed, where he must remain until the approaching train has been stopped, or he is recalled by the whistle of his engine.

When necessary, lighted fuseses will be displayed.

When signal \* \* \* 14 (e) has been given to the flagman, and the safety of the train will permit, he may return, taking up the one torpedo, but when the conditions require he will leave a lighted fusee.

\* \* \*

\* \* \* Conductors and enginemen are responsible for the protection of their trains.

509. \* \* \*

\* \* \*

F. A train passing an Approach Signal must proceed at reduced speed prepared to stop before passing the next signal.

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In the vicinity of the point of accident the maximum authorized speed for the passenger train involved is 70 miles per hour, and for freight trains, 40 miles per hour.

#### Description of Accident

No. 43, a south-bound first-class passenger train, consisted of Diesel-electric engines 3009, 3016 and 3100, one passenger-baggage car, four Pullman sleeping cars, one dining car, two coaches, one lounge car, one tavern car, one dining car, four coaches and one coach-observation car, in the order named. The second, third, fourth, fifth and eleventh cars were of conventional, all-steel construction, and the other cars were of streamlined stainless steel construction. At Richmond, 121.8 miles north of Kittrell, an air-brake test was made. This train departed from Norlina, 23.4 miles north of Kittrell, at 12:14 a. m., according to the dispatcher's record of movement of trains, 1 hour 40 minutes late, passed Henderson, 8 miles north of Kittrell, at 12:29 a. m., 1 hour 39 minutes late, and stopped on the main track at Kittrell at 12:39 a. m. with its rear end standing at a point 90 feet south of signal 1217. About 11 minutes later the rear end of No. 43 was struck by First 89.

First 89, a south-bound second-class freight train, consisted of engine 408, 22 loaded cars, one empty car and a

caboose. This train departed from Norlina at 11:50 p. m., June 13, according to the dispatcher's record of movement of trains, 2 hours 25 minutes late, departed from Henderson at 12:35 a. m., 2 hours 20 minutes late, passed signal 1203, which displayed approach, passed signal 1217, which displayed stop-and-proceed, and while moving at an estimated speed of 5 to 10 miles per hour it collided with the rear end of No. 43. The brakes of First 89 functioned properly at all points where used en route. There was no condition of the engine that obscured the vision or distracted the attention of the employees on the engine.

The force of the impact crushed the rear portion of the rear car of No. 43 a distance of 23 feet, and the rear truck was derailed and driven forward under the car. The collision members, buffer beam, floor structure and the other members forming the structural strength of the rear end of the rear car were driven forward. The center-sill was demolished to a point about 8 feet ahead of the normal location of the body bolster. The body bolster was torn from its attachments to the side sills and the center-sill, and was driven forward a distance of 11 feet 6 inches. The draft attachments were torn from the car and the coupler shank was bent. The underframe, floor structure and side framing immediately beyond the demolished portion were intact. The ninth and tenth cars jack-knifed, the west rail was canted outward at an angle of 45 degrees, and the rear truck of the ninth car and the front truck of the tenth car were derailed. The Diesel units were separated from the train by the impact and were driven forward a distance of about 8 feet. The front end of engine 403 was badly damaged.

There was a light fog at the time of the accident, which occurred about 12:50 a. m.

The employee injured was the fireman of First 89.

#### Data

Engine 403, of First 89, is of the 2-8-2 type, and is provided with No. 6-ET brake equipment. Of the cars of First 89, 18 were provided with AB valves and the remainder with K-2 triple valves.

The brake equipment of this train functioned properly in tests made after the accident. The brake-cylinder piston travel on the cars varied between 6-1/2 and 9-1/4 inches.

After the accident, two braking tests were conducted with a train consisting of equipment and loading practically identical to that of First 89. Brake-pipe pressure of 70 pounds was used in the tests. The percentages of braking ratio of First 89 and of the test train were, respectively, 19.69 and 19.62. In the first test, as the train approached signal 1203, a speed of 48.6 miles per hour was attained, and the brake valve on the test engine was operated in the same manner as the engineer

stated he operated the brake valve on the engine of First 89. The train was stopped in a distance of 4,887 feet with the front end of the engine standing at a point 2,467 feet north of signal 1217. In the second test a speed of 50 miles per hour was attained and as the engine passed signal 1203 a 20-pound brake-pipe reduction was made. The train was stopped in a distance of 4,379 feet with the front end of the engine standing at a point 2,975 feet north of signal 1217.

### Discussion

The rules governing operation on the line involved provide that 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, but not less than one-half mile. When recalled, he may return if it is safe to do so. He must leave a lighted fusee when conditions require it. In automatic block-signal territory an approach indication requires the speed of a train to be reduced and to be so controlled that the train can stop short of the next signal. All the employees involved understood these requirements.

No. 43 stopped at Kittrell at 12:39 a. m. with the rear end standing 90 feet south of signal 1217. About 11 minutes later the rear end of this train was struck by First 89. Under the rules, flag protection was required for No. 43. First 89 passed signal 1203, which displayed approach, passed signal 1217, which displayed stop-and-proceed, and while moving at a speed of 5 to 10 miles per hour it struck the rear end of No. 43. Under the rules, the speed of First 89 was required to be so controlled that this train could be stopped short of signal 1217.

The operator at Kittrell was standing near the track in the vicinity of the station to deliver a clearance card to No. 43. He stated that when No. 43 was approaching the station he moved a lighted white lantern from his right hand to his left hand. The engineer of No. 43 interpreted the movement of the lantern as a stop signal and stopped the train by an emergency application of the brakes. Since there would be considerable delay to recharge the train air-brake system, the engineer sounded the engine-whistle signal for flag protection. The engineer said about 7 minutes later the gauge indicated that the train air-brake system was recharged and he sounded the engine-whistle signal to recall the flagman. About 2 minutes later, a signal to proceed was given at the rear of the train; however, because the brakes did not release, there was additional delay and soon afterward the accident occurred. The conductor of No. 43 said that he observed the flagman proceeding to the rear soon after his train stopped, and that about 5 minutes later a signal was sounded to recall the flagman, who returned to the rear of the train and gave a proceed signal. The conductor and the baggagemaster were engaged in inspecting their train and were not aware of the approach of First 89 until the collision occurred. The flagman stated that after the train stopped about



1 minute was consumed in getting his flagging equipment, then he proceeded northward and about 4 minutes later, when he had reached a point about 350 feet to the rear of his train, he was recalled. He placed a lighted 10-minute fusee on the track, then returned to the rear of his train and gave a proceed signal. His train did not move promptly in response to his signal and he again proceeded northward. He had reached the point where he left the fusee when he observed the approaching train. He lighted another fusee, continued northward and had reached a point about 700 feet to the rear of his train when First 89, moving at a speed of about 15 miles per hour, passed him.

As First 89 was approaching signal 1203, located 7,444 feet north of the point where the accident occurred, the speed was about 45 miles per hour and the enginemen and the front brakemen were maintaining a lookout ahead. There was no condition of the engine which obscured their vision or distracted their attention. A slight fog prevailed, and visibility was somewhat restricted. The brake-pipe pressure was 75 pounds and the brakes had functioned properly at all points where used en route. Signal 1200 displayed approach and all members of the crew on the engine called the indication. The engineer said that as his engine passed signal 1203, the throttle was in drifting position and he made a 15-pound brake-pipe reduction soon after the engine passed the signal. At a point about 1,300 feet south of the signal the speed of the train was reduced to about 35 miles per hour and he made a brake-pipe reduction of about 10 pounds. When the engine reached a point about 4,000 feet north of signal 1217 the speed was reduced to about 20 miles per hour and he made an additional brake-pipe reduction of about 5 pounds. When the engine reached a point approximately 1,350 feet north of signal 1217 the engineer observed a member of the crew of No. 43 giving stop signals with a lighted fusee in the vicinity of the signal. He moved the brake valve to emergency position and opened the sander valve but the distance was not sufficient for stopping short of the rear of No. 43. The engineer said that proper brake application was not obtained by the series of brake-pipe reductions which he said he made. After the accident, the air-brake equipment of this train functioned properly. Tests made after the accident disclosed that the distance between the signals involved was sufficient for a freight train similar to that of First 89 and moving at maximum authorized speed at signal 1203 to be stopped short of signal 1217.

From the time No. 43 stopped at Kittrell to the time the collision occurred about 11 minutes was available in which to provide flag protection. The flagman of No. 43 had consumed not less than 4 minutes in reaching a point about 350 feet to the rear of his train when he was recalled. About 7 minutes then elapsed during which period he returned to his train and then proceeded northward again to provide flag protection. He had reached a point about 700 feet to the rear of his train when First 89 passed him. If the flagman had not been recalled until it was known that No. 43 was ready to proceed, undoubtedly

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he would have been able to station himself far enough to the rear to provide adequate flag protection against First 89. The members of the crew of First 89 who were on the engine could not see the flagging signals far enough to take action in time to stop their train moving at maximum authorized speed short of No. 43. If the speed of First 89 had been controlled in accordance with the approach indication displayed by signal 1203 this accident would have been averted.

The Commission investigated an accident which occurred on this line at Moncure, N. C., on June 8, and which resulted in the injury of three employees and considerable damage to rolling stock. The accident was caused by failure to provide adequate flag protection for the preceding train and by failure properly to control speed of the following train in accordance with signal indications. The accident at Moncure and the accident covered by this report occurred on different divisions but only 65 miles apart. The method of operation in each case was the same. Both investigations disclosed a lack of proper supervision in the enforcement of the rules.

#### Cause

It is found that this accident was caused by failure to provide adequate flag protection for the preceding train and by failure properly to control speed of the following train in accordance with signal indications.

Dated at Washington, D. C., this twelfth day of August, 1942.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

Secretary.

(SEAL)