INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3446

SOUTHERN RAILWAY COMPANY

IN RE ACCIDENT

NEAR CRAGGY, N. C., ON

OCTOBER 18, 1951

SUMMARY

Date:	October 18, 1951	
Railroad:	Southern	
Location:	Craggy, N. C.	
Kind of accident:	Head-end collision	
Trains involved:	Passenger	: Freight
Train numbers:	11	: Second 52
Engine numbers:	1455	: Diesel-electric units 4216A, 4394B, 4393B and 4215A
Consists:	8 cars	: 102 cars, caboose
Estimated speeds:	20 m. p. h.	: 18 m. p. h.
Operation:	Signal indications	
Track:	Single; 4° curve; 0.14 percent descending grade westward	
Weather:	Clear	
Time:	4:12 p. m.	
Casualties:	1 killed; 12 injured	
Cause:	Failure to operate passenger train in accordance with signal indication	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3446

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

SOUTHERN RAILWAY COMPANY

March 6, 1952

Accident near Craggy, N. C., on October 18, 1951, caused by failure to operate the passenger train in accordance with a signal indication.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On October 18, 1951, there was a head-end collision between a passenger train and a freight train on the Southern Railway near Craggy, N. C., which resulted in the death of one train-service employee, and the injury of three passengers, one railway-mail clerk, one railway-express messenger, two mail porters and five train-service employees.

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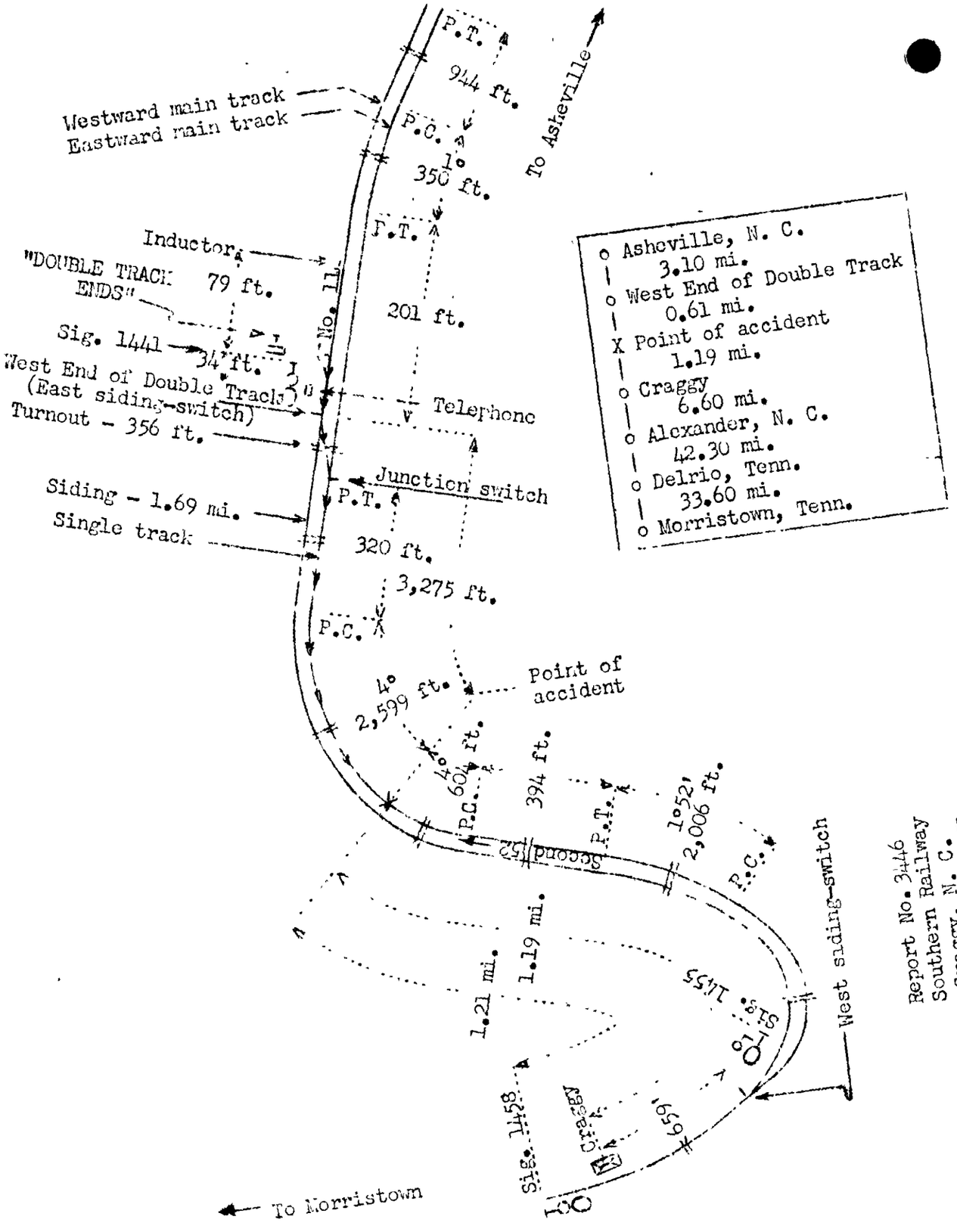
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3446
Southern Railway
Craggy, N. C.
October 18, 1951

Location of Accident and Method of Operation

This accident occurred on that part of the Knoxville Division extending between Asheville, N. C., and Morristown, Tenn., 87.4 miles. This is a double-track line between Asheville and West End of Double Track, 3.1 miles, and is single-track between West End of Double Track and Morristown. Between West End of Double Track and the station at Craggy trains are operated by signal indications supplemented by an intermittent inductive automatic train-stop system. The junction switch at West End of Double Track is a spring switch normally lined for movement from the single track to the eastward main track. A siding 1.69 miles in length connects with the westward main track and parallels the single track on the north to a point 659 feet east of the station at Craggy. The east switch of the siding is normally lined for movement from the westward main track to the single track. The accident occurred on the main track at a point 3,275 feet west of the end of double track and 1.19 miles east of the station at Craggy. From the east on the westward main track there are, in succession, a tangent 944 feet in length, a 1° curve to the left 350 feet, and a tangent 201 feet to the turnout at the west end of double-track. Westward from the end of double track junction switch there are, in succession, a tangent 320 feet, a compound curve to the left, having a maximum curvature of 4°, 2,599 feet to the point of accident and 604 feet westward. From the west there are, in succession, a 1°52' curve to the left 2,006 feet in length, a tangent 394 feet and the curve on which the accident occurred. The grade is 0.14 percent descending westward at the point of accident. In the vicinity of the point of accident the track parallels the south bank of the French Broad River.

Semi-automatic signal 1441, governing west-bound movements from the westward main track to the single track, and automatic signal 1458, governing east-bound movements on the single main track, are located, respectively, 3,309 feet east and 1.21 miles west of the point of accident. These are absolute signals of the color-light type and are continuously lighted. A red marker light is provided on the mast of each of these signals 4 feet below the signal light unit. Each signal displays three aspects. A take-siding indicator is attached to the mast of signal 1441, 4 feet below the marker light and to the right. The aspects applicable to this investigation and their corresponding indications and names are as follows:

Signal	Aspect	Indication	Name
1441	Red over red marker light	STOP	STOP SIGNAL
1458	Yellow	PROCEED, PREPARING TO STOP AT NEXT SIGNAL. TRAIN EXCEEDING MEDIUM SPEED MUST AT ONCE REDUCE TO THAT SPEED	APPROACH

The controlling circuits between the end of double-track and the east end of the siding at Alexander, 7.79 miles west of the point of accident, are arranged on the absolute-permissive block principle. With this system the blocks for following movements in either direction extend between adjacent signals and the blocks for opposing movements extend between adjacent stations. When a train enters the block at either end of this territory on a signal indication more favorable than Stop, all opposing intermediate signals and the opposing absolute signal are caused to display their most restrictive aspects. Westward absolute signal 1441 at the end of double track is semi-automatically controlled from a control machine in the station at Craggy. Visual indicators to indicate track occupancy are provided. When the levers of the control machine are in normal position, signal 1441 indicates Stop and, when an east-bound train is in the territory between the end of double-track and Alexander, signal 1441 displays its most restrictive aspect regardless of the position of the levers of the control machine. The automatic train-stop system is arranged to initiate an automatic brake application at a signal displaying a restrictive aspect. Locomotives are equipped with a device by means of which an automatic train-stop application of the brakes may be forestalled by the engineer. The train-stop inductor for signal 1441 is located 79 feet east of the signal. There is a rectangular sign bearing the words "DOUBLE TRACK ENDS" on the north side of the track and 17 feet east of signal 1441, and a box-enclosed telephone is mounted on a mast 17 feet west of that signal.

This carrier's operating rules read in part as follows:

DEFINITIONS

Medium Speed.--One-half authorized speed, at point involved, but not exceeding 30 miles per hour.

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

RULES GOVERNING OPPOSING AND FOLLOWING MOVEMENT OF TRAINS BY BLOCK SIGNALS

261. On portions of the railway, and on designated tracks so specified on the time-table, trains will be governed by block signals whose indications will supersede the superiority of trains for both opposing and following movements on the same track.

264. Except as affected by Rule 261, all Block Signal Rules and Operating Rules remain in force.

Timetable special instructions read in part as follows:

12. TRAIN MOVEMENTS

* * *

AS SHOWN BELOW, TRAINS AND ENGINES WILL BE GOVERNED BY BLOCK SIGNAL INDICATIONS WHICH WILL SUPERSEDE SUPERIORITY OF TRAINS FOR BOTH OPPOSING AND FOLLOWING MOVEMENTS ON THE SAME TRACK:

* * *

BETWEEN WEST END DOUBLE TRACK (M.P. S-144.1) AND TELEGRAPH OFFICE CRAGGY. * * * West-bound trains must not flag away from West End of Double Track at M.P. S-144.1 without permission from operator at Craggy.

* * *

The maximum authorized speeds were 60 miles per hour for passenger trains and 50 miles per hour for freight trains, but in the immediate vicinity of the point of accident passenger trains were restricted to 45 miles per hour and freight trains to 40 miles per hour.

Description of Accident

No. 11, a west-bound first-class passenger train, consisted of engine 1455, two express cars, three mail cars, one baggage-express car, one coach and one sleeping car, in the order named. All cars were of steel construction except the sixth car, which was of steel-underframe construction. At Asheville, the last open office, 3.71 miles east of the point of accident, the crew received copies of train order No. 551, reading in part as follows:

> No 11 Eleven Eng 1455 run
> 1 One hour late Asheville
> to Knoxville

This train departed from Asheville at 4 p. m., 1 hour 10 minutes late, and while it was still about 1 hour 10 minutes late it stopped at about 4:07 p. m. on the westward main track at signal 1441, which indicated Stop. About 3 minutes later No. 11 passed signal 1441, entered the single track and while moving at an estimated speed of 20 miles per hour it collided with Second 52.

Second 52, an east-bound second-class freight train, consisted of Diesel-electric units 4216A, 4394B, 4393B and 4215A, coupled in multiple-unit control, 102 cars and a caboose. At Delrio, 50.09 miles west of the point of accident, the crew received copies of train order No. 553, reading as follows:

> First and Second No 52 Fifty
> two Engs 4212 and 4216
> have right over No 11
> Eleven Delrio to double
> track Craggy

This order also was addressed to No. 11 and the operator at Craggy for delivery to No. 11 at Craggy. Second 52 proceeded eastward, passed Alexander, 6.6 miles west of Craggy, at 3:53 p. m., 4 hours 8 minutes late, passed signal 1458, which indicated Approach and while moving at an estimated speed of 18 miles per hour it collided with No. 11 at a point 3,275 feet west of the end of double track.

The engine of No. 11 was derailed and stopped on its left side, with the front end at the base of the fill and about 50 feet south of the track and the rear end of the cab about 15 feet south of the track. The tender remained coupled and stopped upright and at an angle of about 45 degrees to the track, with the rear end on the roadbed. The

first car was derailed and stopped in line with the track, with its front end against the rear of the tender. The front truck of the second car and the front truck of the seventh car were derailed and stopped in line with the track. The engine and the tender were badly damaged. The first car was somewhat damaged and the fifth and sixth cars were slightly damaged. The first three Diesel-electric units and the front truck of the fourth unit of the locomotive of Second 52 were derailed. A separation occurred between the first and second units. The first unit stopped in reverse position and south of the track. The front end of this unit was about 20 feet south of the track and the rear end was against the front end of engine 1455. The front end and the control compartment were crushed downward. The second Diesel-electric unit stopped at an angle of about 45 degrees to the track, with its front end across the siding and the rear end about 15 feet south of the main track. The third Diesel-electric unit remained coupled and stopped with its front end south of the track and the rear end on the roadbed. The second and the third units leaned toward the south. The front truck of the fourth Diesel-electric unit was derailed and this unit stopped upright and in line with the track. The first unit was badly damaged, the second unit was considerably damaged and the third unit was somewhat damaged. No other equipment of Second 52 was derailed or damaged.

The engineer of Second 52 was killed. The engineer, the fireman, the flagman and the baggageman of No. 11 and the fireman of Second 52 were injured.

The weather was clear at the time of the accident, which occurred about 4:12 p. m.

Discussion

No. 11 departed from Asheville at 4 p. m., and stopped about 7 minutes later on the westward main track at signal 1441, which indicated Stop. The front end of the engine was in the vicinity of the train-stop inductor located 79 feet east of the signal. The engineer and the fireman were on the engine. The members of the train crew were in various locations in the cars of the train. The fireman said that, soon after the train stopped, the engineer instructed him to communicate by telephone with the operator at Craggy to determine why the signal was indicating Stop. He observed from the right side of the cab that the signal indicated Stop and then proceeded to the telephone and rang the call for the station at Craggy. The telephone was located 17 feet west of signal 1441. Before he received an answer the engineer sounded two blasts on the engine whistle and the

train moved westward. The fireman said that he remained in the vicinity of the telephone and west of the signal until he boarded the engine. After the fireman boarded the engine the engineer remarked that the operator at Craggy must have forgotten about No. 11. After No. 11 had entered the single-track line the fireman observed that Second 52 was approaching, and called a warning. The engineer immediately made an emergency application of the brakes and the speed had been reduced to about 20 miles per hour when the accident occurred.

As Second 52 was approaching Craggy the engineer, the fireman and the front brakeman were maintaining a lookout ahead from the control compartment at the front end of the locomotive. The conductor and the flagman were in the caboose. Signal 1458 indicated Approach for Second 52, and the engineer closed the throttle and forestalled an automatic brake application. The whistle of the automatic train-stop apparatus sounded as the locomotive passed over the inductor, and the speed was reduced to about 25 miles per hour in the vicinity of the station. The front brakeman said that when the members of the crew on the locomotive first observed that No. 11 was approaching they thought that it was moving westward on the siding. When No. 11 was about 250 feet distant the fireman called a warning, and he and the front brakeman immediately alighted from the locomotive. The members of the crew in the caboose said that the brakes were applied in emergency and the speed was reduced to about 18 miles per hour before the collision occurred.

When the operator went on duty at Craggy at 4 p. m., on the day of the accident, the visual indicator in the office indicated that Second 52 was in the block between Alexander and Craggy. Train order No. 553 addressed to the conductor and the engineer of No. 11 and to the operator at Craggy was transferred to him by the preceding operator. He said that the levers of the control machine were in normal position when he went on duty and he did not operate them before the accident occurred. The route was lined to advance the east-bound train to double track, 1.8 miles east of Craggy. About 4:04 p. m. the visual indicator in the office indicated that No. 11 had entered the approach circuit on the westward main track. The operator said that he had considered using the take-siding indicator at signal 1441 to advance No. 11 to the west end of the siding, but Second 52 was then closely approaching Craggy and he took no action. According to the statement of the operator, the movement of No. 11 from West End of Double Track to Craggy was governed

by signal indications, and the signal authorizing No. 11 to leave West End of Double Track could not be cleared until Second 52 had passed that point. He said that order No. 553 was handled according to common practice, and that the order would be fulfilled or annulled before No. 11 reached Craggy. Second 52 reduced speed at signal 1458 and passed the station at Craggy at 4:10 p. m. The operator said that immediately after its caboose had passed his office the visual indicator indicated that No. 11 had passed signal 1441. A power failure at 4:12 p. m. resulted when the transmission line was torn down as a result of the accident. A few seconds later the operator was informed by telephone that an accident had occurred between Craggy and the end of double track.

Inspection of the signal apparatus after the accident occurred disclosed that the line control wires and the transmission line wires were broken in the vicinity of the point of collision. No defective condition was found in the signal apparatus. After the broken wires were repaired the signal system functioned as intended. Signal 1458 indicated Approach because the next block in advance, on the eastward main track, was occupied.

When No. 11 stopped at the end of double track, the block between Alexander and the end of double track was occupied by an east-bound train and the levers of the control machine in the station at Craggy were in normal position. The fireman and all members of the train crew were aware immediately after the train stopped that signal 1441 indicated Stop but none of them observed the signal after the train was started. The fireman said he did not hear the warning whistle of the automatic train-stop system when the engine passed the train-stop inductor at signal 1441. The baggageman observed that the signal indicated Stop after the engine and several cars had passed it. The engineer of No. 11 was too severely injured in the accident to be questioned during the investigation and the reason for operating the train past the stop-signal could not be determined.

Cause

It is found that this accident was caused by failure to operate the passenger train in accordance with a signal indication.

Dated at Washington, D. C., this sixth day of March, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.