

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2469
THE SEABOARD AIR LINE RAILWAY COMPANY
AND
THE ATLANTIC COAST LINE RAILROAD COMPANY
REPORT IN RE ACCIDENT
AT ZEPHYRHILLS, FLA., ON
DECEMBER 19, 1940

SUMMARY

Railroads: Seaboard Air Line : Atlantic Coast Line
Date: December 19, 1940
Location: Zephyrhills, Fla.
Kind of accident: Side collision
Trains involved: Passenger : Freight
Train numbers: 305 : 213
Engine numbers: 824 : 1656
Consist: 5 cars : 44 cars, caboose
Speed: 30-35 m. p. h. : 3-15 m. p. h.
Operation: Automatic interlocking
Track: Single; tangent; : Single; tangent;
0.22 percent : level
descending grade
southward
Weather: Clear
Time: About 7:21 a. m.
Casualties: 1 killed and 19 injured
Cause: Accident caused by failure of A. C. L.
train to obey interlocking signal
indications.

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2469

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

THE SEABOARD AIR LINE RAILWAY COMPANY
AND
THE ATLANTIC COAST LINE RAILROAD COMPANY

February 13, 1941

Accident at Zephyrhills, Fla., on December 19, 1940, caused by
failure of Atlantic Coast Line train to obey interlocking
signal indications.

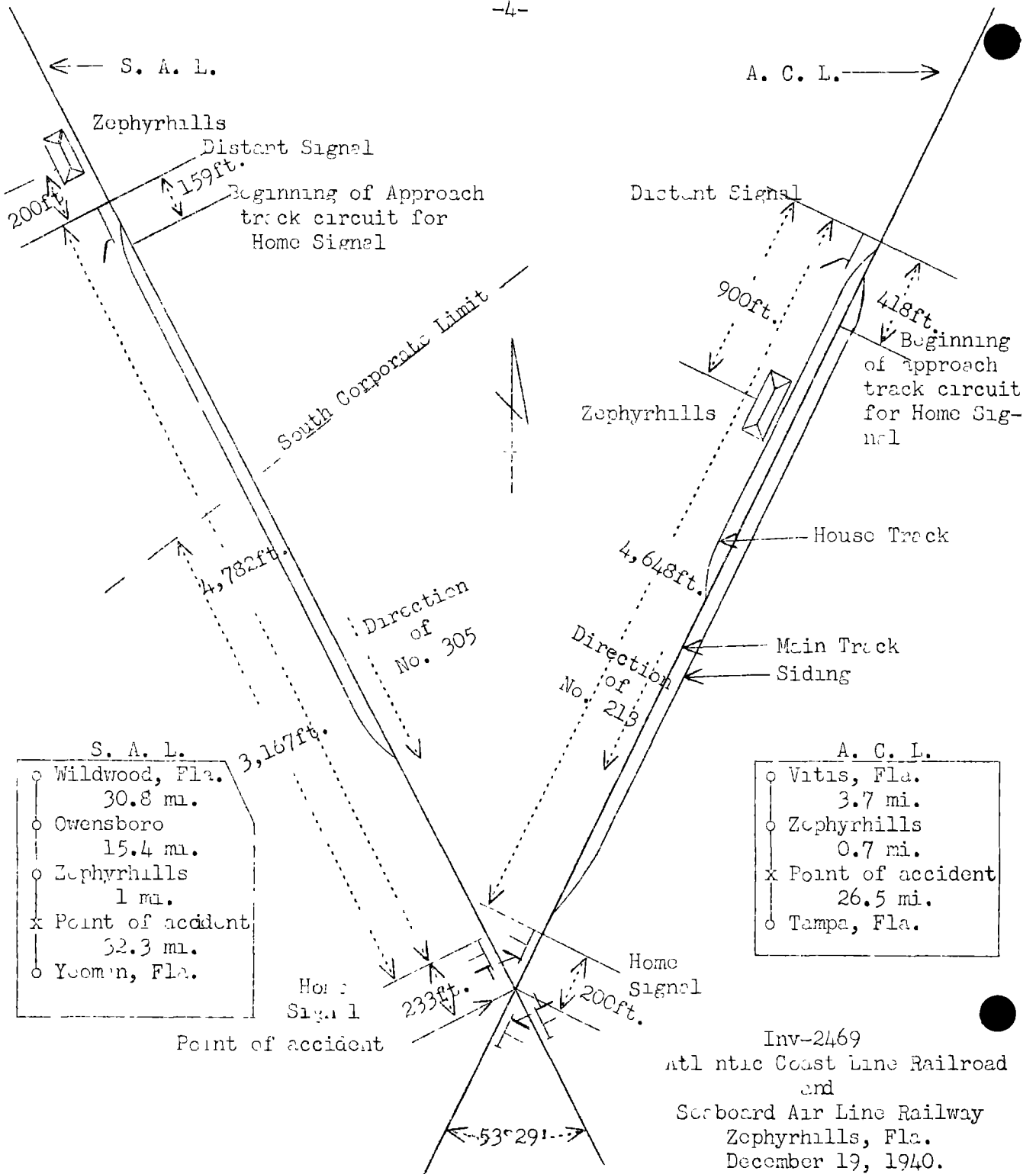
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On December 19, 1940, there was a side collision between a
passenger train of the Seaboard Air Line Railway and a freight
train of the Atlantic Coast Line Railroad at Zephyrhills, Fla.,
which resulted in the death of 1 employee and the injury of 17
passengers and 2 employees.

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



Inv-2469
Atlantic Coast Line Railroad
and
Seaboard Air Line Railway
Zephyrhills, Fla.
December 19, 1940.

Location and Method of Operation

The accident occurred at the intersection of the Seaboard Air Line Railway and the Atlantic Coast Line Railroad, herein-after referred to, respectively, as the S. A. L. and the A. C. L. Zephyrhills is located on that part of the North Florida Division of the S. A. L. designated as the Wildwood Sub-Division which extends between Wildwood and Yeoman, Fla., a distance of 79.5 miles, and on that part of the Ocala District of the A. C. L. which extends between Vitis and Tampa, Fla., a distance of 30.9 miles. Both are single-track lines. On the S. A. L. trains are operated by timetable, train orders and a manual block system for first-class trains or trains carrying passengers following first-class trains or trains carrying passengers. On the A. C. L. trains are operated by timetable and train orders; there is no block system in use. On both railroads time-table directions are north and south; however, according to compass directions, the S. A. L. track extends from northwest to southeast and the A.C.L. track extends from northeast to southwest; these tracks intersect at an angle of $33^{\circ}23'$. The crossing is located approximately 5,215 feet south of the S. A. L. station and 3,948 feet south of the A. C. L. station.

As the crossing is approached from the north on either line the track is tangent more than 2 miles. The grade for south-bound trains on the S. A. L. is, successively, 0.20 percent descending a distance of 1,339 feet, 0.11 percent ascending 2,325 feet, and 0.22 percent descending 475 feet to the crossing. The grade for south-bound trains on the A. C. L. is 0.30 percent descending a distance of 2,850 feet and then level 2,400 feet to the crossing.

Movements over the crossing are governed by an automatic interlocking. The home signals are of the 2-position, 2-arm, upper quadrant, semaphore type, approach lighted; the bottom arms are fixed. The distant signals are of the 1-arm, semaphore type; they are inoperative and are fixed in a 45-degree position; they are not lighted but are equipped with yellow reflex lenses. The distant and the home signals governing southward movements on the S. A. L. are located 5,015 feet and 233 feet, respectively, north of the crossing. The day aspects and the indications of these signals are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Distant	45 degrees	Proceed to next signal at restricted speed	Restricting Signal
Home	90 degrees	Proceed	Clear Signal
Home	Horizontal	Stop	Stop Signal

The distant and the home signals governing southward movements on the A. C. L. are located 4,848 feet and 200 feet, respectively, north of the crossing. The day aspects and the indications of these signals are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Distant	45 degrees	Approach next signal at restricted speed prepared to stop	Distant(Caution) Signal
Home	45 degrees	Proceed at a speed to not exceed one-half the maximum authorized, * * *	Approach Signal
Home	Horizontal	Stop	Stop Signal

Each home signal normally displays a stop indication and clears automatically upon the approach of a train. Track circuits in approach of the home signals are provided on each line. On the S. A. L. the approach circuit for southward movements extends from a point 4,323 feet north of the southward home signal, and on the A. C. L. from a point 4,250 feet north of the southward home signal. The interlocking is so arranged that when an approaching train on either line enters its respective approach track circuit, provided there is no conflicting train movement on the other line and the tracks within the home-signal limits on both lines are unoccupied, the home signal automatically displays an indication for movement of the train over the crossing. The first train to enter its approach circuit establishes priority over a train on the other line and the home signal on the opposing line remains at stop until the first train has completed its movement through the interlocking. The circuits are so arranged that if two trains enter their approach circuits simultaneously all home signals remain in stop position.

Rules and Regulations of the Operating Department of both the S. A. L. and the A. C. L. read as follows:

Restricted Speed. - Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

98. Trains must approach the end of double track junctions, railroad crossings at grade, and drawbridges, prepared to stop, unless the switches are properly lined, signals indicate proceed, and track is clear. Where required by law, trains must stop.

The maximum speed over the crossing involved which is authorized by the S. A. L. for its passenger trains is 60 miles per hour

and by the A. C. L. for all its trains is 20 miles per hour.

The weather was clear at the time of the accident, which occurred about 7:21 a. m.

Description

No. 305, a south-bound first-class S. A. L. passenger train, with Conductor Williams and Engineman Green in charge, consisted of engine 824, one passenger-baggage car, one coach, one coach-diner and two Pullman sleeping cars, in the order named; all cars were of steel construction. This train departed from Wildwood, 46.2 miles north of Zephyrhills, at 5:55 a. m., according to the train sheet, 22 minutes late, departed from Owensboro, 15.4 miles north of Zephyrhills and the last open office, at 6:48 a. m., 31 minutes late, passed the home signal at Zephyrhills, which was displaying a proceed indication, and, while moving at a speed of 30 to 35 miles per hour, struck the side of A. C. L. No. 213.

No. 213, a south-bound third-class A. C. L. freight train, with Conductor Matthews and Engineman Boring in charge, consisted of engine 1856, 34 loaded and 10 empty cars and a caboose. This train departed from Vitis, 3.7 miles north of Zephyrhills, at 7:14 a. m., according to the train sheet, 2 hours 39 minutes late, passed the southward home signal at Zephyrhills, which was displaying a stop indication, and was moving over the crossing at a speed variously estimated between 3 and 15 miles per hour when the first car in the train was struck by S. A. L. No. 305.

The engine of the S. A. L. train shoved the first car of the A. C. L. train southward about 75 feet, and then stopped with the front end of the engine 240 feet beyond the crossing. Both the engine and the tender were derailed and badly damaged. The engine leaned to the left at an angle of about 30 degrees and the tender was on its left side immediately to the rear of the engine. The first and second cars of the S. A. L. train were badly damaged. The first car was derailed and stopped across the track at an angle of about 30 degrees with its front end about 125 feet south of the crossing. The second car was derailed and stopped with its front end about 30 feet west of the track and the rear end near the crossing. The front truck of the third car was derailed and the front end of the car was damaged.

The engine of the A. C. L. train was not derailed; it stopped with its front end 180 feet beyond the crossing. The body of the first car of the A. C. L. train was torn loose from its trucks and stopped on the west side of the S. A. L. track and at right angles to it. The second car was badly damaged. The third car was derailed, stopped upright across the southeast angle of the

crossing and was considerably damaged. The fourth and fifth cars were derailed and stopped upright and in line with the track. The front truck of the sixth car was derailed.

The employee killed was the engineman of the S. A. L. train, and the employees injured were the fireman and the train porter of the S. A. L. train.

Summary of Evidence

Fireman McLeod, of S. A. L. No. 305, stated that he was on the left seatbox when his train was approaching Zephyrhills. The speed of the train at that time was 10 to 15 miles per hour. He observed the home signal change from stop to proceed; the engineman called the indication as clear and he acknowledged it. He then tended the fire and the engineman increased the speed of the train rapidly. As the engine passed the home signal the speed of the train was about 30 miles per hour. Just after the train passed the home signal the engineman shouted a warning and applied the brakes in emergency but the accident occurred immediately. He said it was daylight and the weather was clear but he was busy with the fire and did not observe the A. C. L. train approaching.

Conductor Williams, of S. A. L. No. 305, stated that as his train approached the point where the accident occurred he was in the first car. He said the speed of his train was reduced to 15 miles per hour through Zephyrhills, because of a city ordinance; the south corporate limit is about 3,400 feet north of the crossing. At the point of the accident the speed had been increased to 30 or 35 miles per hour. His train passed Zephyrhills at 7:19 a. m. He said there was no speed restriction over the crossing involved.

The statements of Baggage-master Johnson and Flagman Scott, of S. A. L. No. 305, added nothing of importance except that Baggage-master Johnson stated the maximum speed over the crossing involved authorized by the S. A. L. was 60 miles per hour.

Engineman Boring, of A. C. L. No. 213, stated that an air-brake test was made before the train departed from High Springs, 122.4 miles north of Zephyrhills, and the brakes functioned properly en route. He called the caution indication of the distant signal at Zephyrhills and it was acknowledged by the fireman and the brakeman. The speed of the train at this point was between 40 and 45 miles per hour. When the engine was 8 or 10 car lengths north of the distant signal he made an 18 to 20 pound brake-pipe reduction and the speed of the train was reduced properly. When the engine passed Zephyrhills station,

900 feet south of the distant signal, the speed of the train was 30 or 35 miles per hour and, observing that the home signal was in proceed position, he released the brakes. He called the indication of the home signal as proceed but it was not acknowledged by anyone on the engine. A second or two later the smoke cleared from in front of the engine and the fireman called the home signal as stop. The engineman observed that it was at stop and immediately placed the brake valve in emergency position but, since the brake pipe was not fully charged he did not obtain an emergency application of the brakes. He opened the sanders and then reversed the valve motion of the engine at a point 6 or 8 car lengths north of the crossing but the train overran the home signal at a speed of about 3 miles per hour and was just about stopped when the accident occurred. He was of the opinion the train would have stopped short of the home signal if the brake pipe had been fully charged when he made the emergency application. He said there was no defect in the air-brake equipment. The weather was clear and there was nothing to interfere with his view of the home signal.

Fireman Hubner, of A. C. L. No. 213, stated that at a point about 1/2 mile north of the distant signal at Zephyrhills the engineman partly closed the throttle and the speed of the train was reduced to about 35 miles per hour. He called the indication of the distant signal as caution and it was acknowledged by the engineman. Soon after the train passed the distant signal the engineman called the home signal as displaying proceed but the fireman was unable to distinguish the position of the signal at that time and did not acknowledge it. He continued to look ahead and when the engine was passing Zephyrhills station he observed that the home signal was in stop position and called a warning to the engineman. At the house-track switch, located 750 feet south of the station, the speed of the train was about 30 miles per hour and since the engineman had taken no action to stop the train the fireman called a second warning; then the engineman made a service brake-application but the train passed the home signal at a speed of 12 to 15 miles per hour. It was his opinion that there was ample distance in which to stop the train from the point where he called the second warning if the engineman had made a heavier brake application. He said the air brakes functioned properly.

Brakeman White, of A. C. L. No. 213, stated that when his train approached Zephyrhills he was standing in the gangway on the right side of the engine. When the train was passing the distant signal the speed was about 30 miles per hour. When the engine was passing the station he observed that the home signal was in stop position and he and the fireman called a warning at the same time. He did not observe the engineman make any brake application prior to this time. The fireman called a second warning when the engine passed the house-track switch and then the engineman made a service application of the brakes. The

train passed the home signal at a speed of about 15 miles per hour and the speed was practically the same at the time of the collision. He thought the engineman was given ample warning for stopping the train in time to avert the accident.

Conductor Mattner s, of A. C. L. No. 213, stated that an air-brake test was made before the train departed from High Springs. The speed of the train as it approached the distant signal at Zephyrhills was 35 or 40 miles per hour. He was in the caboose and because of smoke was unable to see the home signal at any time prior to the accident. The brakes were applied when the caboose passed the distant signal; he thought the engineman had made an 8 or 10-pound brake-pipe reduction. This was the only brake application made and it had not been released when the accident occurred. The speed of the train was reduced to about 3 miles per hour at the time of the accident. He thought that a heavier brake application would have stopped the train short of the crossing.

The statement of Flagman Kennedy, of A. C. L. No. 213, added nothing of importance.

Car Inspector Edwards stated that he made an air-brake test on A. C. L. No. 213 before it departed from High Springs and the brake on each car applied and released properly.

Car Foreman Anderson stated that subsequent to the accident he made an air-brake test on the 39 undamaged cars of A. C. L. No. 213 and the brakes functioned properly, except the brake on one car which had a defective conducting pipe.

Acting General Foreman Jones stated that subsequent to the accident he made an air-brake test on A. C. L. engine 1650 and found the brake equipment to be in suitable condition for service and functioning properly.

Signal Supervisor Lackey, of the A. C. L., stated that he has supervision over the interlocking involved. All the damage to the signal equipment was within the limits of the home signals. When this damage had been repaired, he and an S. A. L. signal supervisor conducted a test of the interlocking signals and found them to be functioning as intended.

Trainmaster Pace, of the A. C. L., stated that he conducts frequent surprise tests to check the observance of crossing signals by enginemen. In numerous tests made during the past year the performance of Engineman Boring in the observance of speed restrictions and signal indications at crossings was satisfactory.

Discussion

According to the evidence, the S. A. L. train was approaching the crossing at a speed of 30 or 35 miles per hour; its home signal was at proceed, and the A. C. L. train, moving at an estimated speed of 3 to 15 miles per hour, entered upon the crossing immediately ahead of the S. A. L. train.

The automatic interlocking by which the crossing was protected was so arranged that the first train to enter its approach circuit would receive a signal indication for movement over the crossing and the home signals on the other line would remain at stop until the first train had moved over the crossing. The evidence is clear that the S. A. L. train entered its approach circuit before the A. C. L. train entered its circuit. The speed of the S. A. L. train was about 15 miles per hour through Zephyrhills and it had been increased to about 30 or 35 miles per hour just before the accident occurred; the speed of the A. C. L. train was 40 or 45 miles per hour when it was approaching Zephyrhills, 30 or 35 miles per hour at the station, and from 3 to 15 miles per hour at the time of the accident. The fireman of the S. A. L. train saw the home signal on his line change from stop to proceed and the fireman and the front brakeman of the A. C. L. train stated that their home signal displayed stop from the time they first saw it until their engine passed the signal; however, the engineer of the A. C. L. train first called his home signal as proceed but later when his fireman called the indication as stop the engineer observed that the signal was displayed stop. The normal position of each home signal is stop and, since no defect in the interlocking was disclosed, the A. C. L. home signal would remain at stop during the time the S. A. L. train was on its circuit. The approach indication received by the A. C. L. train at its distant signal required that the train be prepared to stop short of its home signal. According to the engineer, when he realized that the home signal was at stop he made an emergency application of the brakes but failed to stop the train short of the crossing because the brake pipe was not fully charged; however, other members of the crew thought that only a service application of the brakes was made. The fireman and the front brakeman thought that after their engineer was warned there was sufficient distance in which to stop the train if a heavier brake-pipe reduction had been made.

The A. C. L. train entered its approach circuit after the S. A. L. train entered its circuit, but the A. C. L. engine reached the crossing first because the A. C. L. train moved at a greater average speed throughout its approach circuit, and its approach circuit was 393 feet shorter than that of the S. A. L.

The maximum speeds authorized by the A. C. L. and S. A. L. over this crossing were 20 miles per hour for all A. C. L. trains and 30 miles per hour for S. A. L. passenger trains. The S.A.L. train was moving at a speed of 70 or 35 miles per hour at the crossing. The Commission's order of April 13, 1939, prescribing rules, standards, and instructions for installation, inspection, maintenance and repair of interlocking and other signal systems, which became effective September 1, 1939, specifies that at automatic interlocking when authorized train speed between home signals exceeds 20 miles per hour, operative approach signals shall be provided. Since the S. A. L. authorized its trains to be operated at a much higher rate of speed than 20 miles per hour and since the approach signal was inoperative, it follows that this operation of its trains was in violation of the Commission's order. If the maximum speed between home signals on the S. A. L. had been not in excess of 20 miles per hour, it is possible that this accident might have been prevented, and in any event the consequences of the accident would have been considerably lessened.

Cause

It is found that this accident was caused by failure of the Atlantic Coast Line train to obey interlocking signal indications.

Dated at Washington, D. C., this thirteenth day of February, 1941.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.