INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2494

THE ATLANTIC COAST LINE RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT O'NEAL, GA., ON

MARCH 30, 1941

SUMMARY

Railroad:	Atlantic Coast Line
Date:	March 30, 1941
Location:	O'Neal, Ga.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	First 71
Engine number:	1804
Consist:	12 cars
Speed:	72 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system
Track:	Single; tangent; practically level
Weather:	Clear
Time:	3:01 a. m.
Casualties:	14 injured
Cause:	Accident caused by broken rail, as result of presence of transverse fissure

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2494

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

THE ATLANTIC COAST LINE RAILROAD COMPANY

May 29, 1941

Accident at O'Neal, Ga., on March 30, 1941, caused by broken rail, as result of presence of transverse fissure.

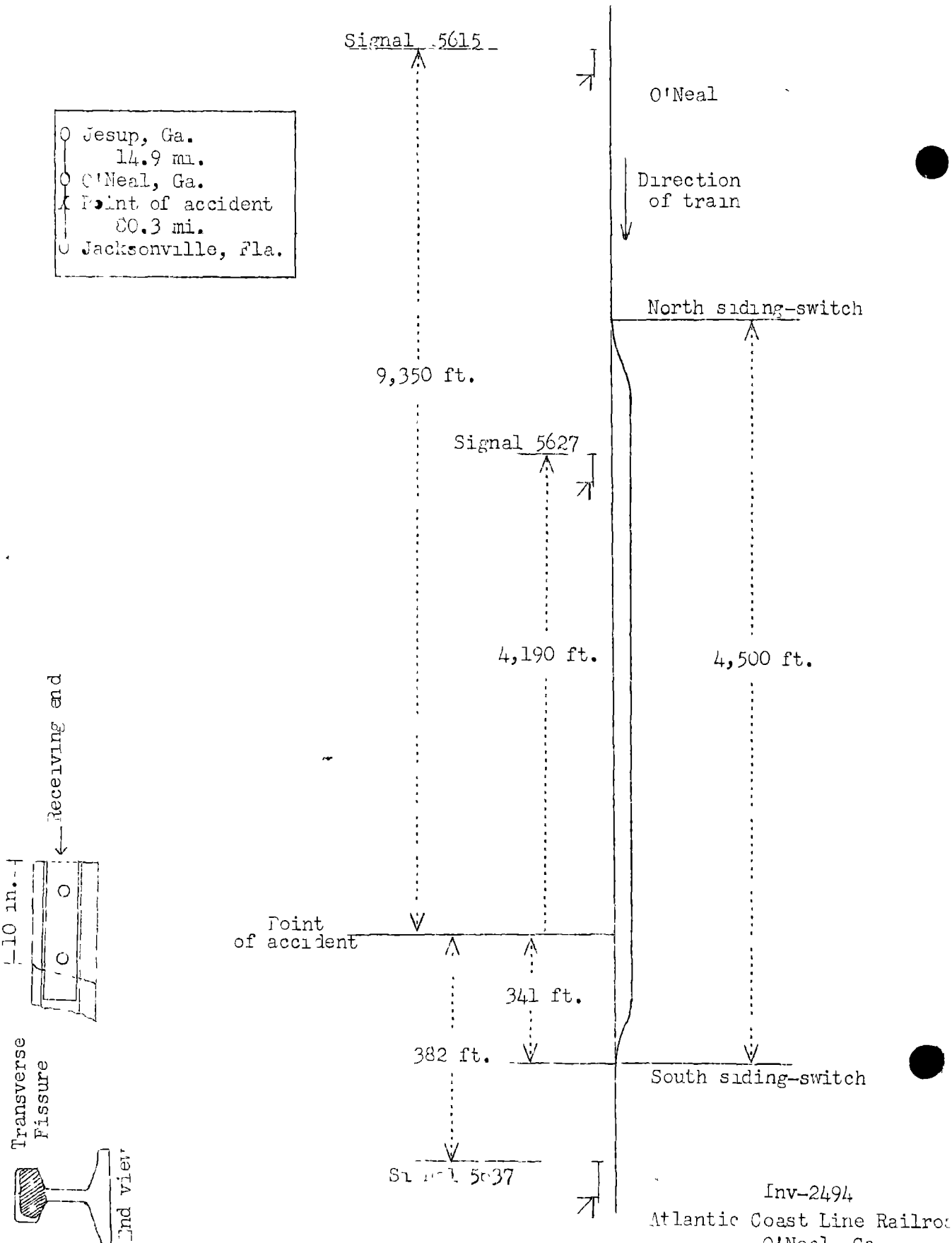
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On March 30, 1941, there was a derailment of a passenger train on the Atlantic Coast Line Railroad at O'Neal, Ga., which resulted in the injury of 9 passengers, 2 railway-mail clerks, 1 dining-car employee, and 2 train-service employees.

---

[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-2494
Atlantic Coast Line Railroad
O'Neal, Ga.
March 30, 1941

Location and Method of Operation

This accident occurred on that part of the Waycross District which extends between Jesup, Ga., and Jacksonville, Fla., via the Short Line, a distance of 95.2 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. At O'Neal a siding 4,500 feet in length parallels the main track on the east. The accident occurred on the main track at a point 341 feet north of the south siding-switch. As the point of accident is approached from the north the track is tangent a distance of 14 miles to the point of accident and about 5 miles beyond. The grade is practically level.

The track structure consists of 100-pound rail, 39 feet in length, laid new in 1929 on 24 ties to the rail length; it is fully tieplated, single-spiked, provided with 4-hole continuous angle bars, ballasted with slag and gravel to a depth of 14 inches below the ties, and is well maintained.

Automatic signals Nos. 5615 and 5627, which govern southward movements, are located, respectively, 9,350 and 4,190 feet north of the point of derailment.

In the vicinity of the point of accident the maximum authorized speed for passenger trains is 80 miles per hour.

The weather was clear at the time of the accident, which occurred about 3:01 a. m.

Description

First 71, a south-bound first-class passenger train, with Conductor McLamb and Engineman Tanner in charge, consisted of engine 1804, of the 4-8-4 type, one deadhead Pullman sleeping car, one coach-dormitory car, one baggage car, one mail car, one express car, three Pullman sleeping cars, one dining car and three Pullman sleeping cars, in the order named; all cars were of steel construction. This train departed from North Tower, 68.3 miles north of O'Neal, at 1:50 a. m., according to the train sheet, on time, passed Jesup, 14.9 miles north of O'Neal and the last open office, at 2:46 a. m., 7 minutes late, and was derailed while moving at a speed of 72 miles per hour as indicated by the speed-recorder tape with which the engine was equipped.

The engine and tender were not derailed; the front end of the engine stopped 1,546 feet south of the point of derailment. The first car, remaining coupled to the tender, was derailed and

stopped with its rear end 30 feet west of the center-line of the track and leaned at an angle of 30 degrees to the west. The second car was derailed and stopped on its right side 776 feet behind the first car, practically parallel to the track and about 50 feet west of it; this car was badly damaged. The third car was derailed and stopped on its right side 50 feet behind the second car, at right angles to the track and with its front end 20 feet west of it; this car was badly damaged. The fourth car was derailed and stopped on its right side with its front end against the third car and its rear end 30 feet west of the track; this car was demolished. The fifth car was derailed and stopped on its right side, against the fourth car, at right angles to the track and with its front end 35 feet west of it. The sixth car was derailed but remained upright, with its front end 14 feet and its rear end 16 feet west of the track; this car was badly damaged. The seventh to tenth cars, inclusive, remaining coupled, were derailed and stopped with the front end of the seventh car 19 feet west of the track and the rear end of the tenth car on the roadbed; these cars leaned to the right at angles varying between 25 and 35 degrees. The front truck of the eleventh car was derailed. The south siding-switch and about 800 feet of track were destroyed.

The employees injured were the conductor and the baggage-master.

Summary of Evidence

Engineman Tanner stated that at North Tower the brakes were tested, a running test was made soon after the train departed from that point, and the brakes functioned properly en route. All signals en route displayed proceed for his train. As his train was approaching the point where the accident occurred the headlight was burning brightly, the speed as indicated by the speed-recorder was 72 miles per hour and he was in his usual position maintaining a lookout ahead. The engine was riding smoothly. The first he knew of anything being wrong was when he heard a sound similar to that made by a rail breaking and he caught a glimpse of some object being thrown from beneath the engine. The engine dropped suddenly on the right side then righted itself and he immediately moved the brake valve to emergency position. The engine stopped in a distance of 30 or 35 car lengths. The accident occurred at 3:01 a. m., at which time the weather was clear. After the occurrence of the accident he examined the equipment and the track. There was a cut in the tread of the right front engine-truck wheel and the right front sand pipe was bent. In his opinion the accident was caused by a rail breaking under the engine.

Fireman Phinazy corroborated the statement of his engineman.

Conductor McLamb stated that at North Tower the air brakes were tested and were reported to be functioning properly. As his train was approaching the point where the accident occurred it was riding smoothly, the speed was about 73 miles per hour, and he was in the sixth car. The first he knew of anything being wrong was when this car became derailed.

Flagman Moody stated that after the accident he examined the track northward from the point of derailment as he proceeded toward the rear to provide flag protection. There was no indication of defective track or dragging equipment.

Roadmaster Smart stated that he arrived at the scene of the accident about 4:30 a. m. Under the eleventh car, at a point 341 feet north of the south siding-switch, the west rail was broken into 12 pieces. The first break occurred at a point 10 inches south of the receiving end of this rail. The break extended diagonally downward through the head and web, missed the second bolt hole about 1-1/2 inches, and came through the base at a point 12 inches south of the receiving end. The first piece, which was about 11 inches in length, remained in the angle bars; the angle-bar bolts were intact. The break was about 1-3/4 inches inside the south end of the angle bars. At the first break there was a transverse fissure which covered about 90 percent of the cross-sectional area of the head of the rail and was so located that it could not have been detected by visual inspection prior to the breaking of the rail. The fissure had not progressed through the outer edges of the rail section prior to the breaking of the rail. No other transverse fissures were found. The receiving end of the second piece was battered slightly but the leaving end of the first piece was not battered. There were slipping burns on the top of the head, one about 4 inches south of the north end of the rail and the other about 2 inches from the first break. In his opinion the rail broke under First 71. A detector car was operated over this section on January 23, 1940, but no defective condition was revealed. On March 27, 1941, he inspected the track in the vicinity of the point of accident but at that time there was no defective condition that could have been discovered by visual inspection. The track is inspected at least once a week by the section force. He considered the track to be safe for the maximum authorized speed.

Section Foreman Harrison stated that the track in his territory is inspected two or three times a week, and a special inspection is made each Saturday. The last inspection of the

track in this vicinity prior to the accident was on Saturday afternoon, March 29; this inspection was made on a motor car; no defective condition of the track was found. After the accident occurred he examined the broken rail involved. Near the receiving end of the rail at the first break a transverse fissure covered about 95 percent of the cross-sectional area of the head of the rail but had not progressed through the outside edges and could not have been discovered by visual inspection. In his opinion the rail broke under the engine of First 71. He considered the track in this vicinity to be safe for the maximum authorized speed. His section consists of 12 miles of track and his force consists of four laborers and himself.

Signal Maintainer Chancey stated that he arrived at the scene of the accident about 6 a. m. He inspected signals 5615 and 5627 and found them to be functioning as intended. The rail involved was fractured at a point 12 inches south of the receiving end; the break appeared to be new. The signal bond wire was attached to the leaving end of the first rail north of the broken rail, but was torn from the broken rail. If the rail had been broken prior to the approach of First 71, the signals to the rear could have displayed proceed, because the break was between the terminals of the bonding.

Road Foreman of Engines Baker stated that he arrived at the scene of the accident soon after its occurrence. He examined the track and engine 1804. The broken rail was found to be as previously described. On the tread of the right No. 1 engine-truck wheel there was a cut at right angles to the flange, 1/16 inch deep, about 2-1/2 inches in length, and wide enough to indicate that a gap existed in the head of the rail. There was a cut in the flange of the right No. 2 engine-truck wheel. These cuts were new. The right front sand-pipe was crushed backward as though it had been struck by some object. In his opinion the rail was broken before engine 1804 passed over it. At 10:45 p. m., March 29, he was on the engine of Second 188 when it passed over the rail involved at a speed of 80 miles per hour; at that time there was no indication of defective track.

Superintendent of Motive Power Grant stated that he arrived at the scene of the accident about 6 a. m. He examined the equipment and the track and found them to be as previously described. In his opinion the mark on the right No. 1 engine-truck wheel indicated that the rail was broken and there was a small gap in the head of the rail before engine 1804 passed over it; the engine-truck wheels shoved the rail out of the angle bars, and the rail then was broken into a number of pieces.

Trainmaster Covin stated that after the track was restored to service signals 5615 and 5627 functioned properly.

The members of the crew of Extra 1609 North, a north-bound freight train, stated that about 1 hour before the accident occurred their train moved over the rail involved. There was no indication of rough or irregular track in the vicinity of the point of accident.

General Superintendent Walker stated that on January 23, 1940, a detector car was operated over the track in the territory involved, but he said that because the transverse fissure was located between the end of the rail and the bond-wire connection it could not have been detected by a rail detector car.

According to data furnished by the railroad company, the rail involved was a 39-foot, 100-pound rail, heat No. 816368, ingot No. 1, rolled by the Tennessee Coal and Iron Company in 1929, and was laid in the track on June 4, 1929.

During the 30-day period prior to the occurrence of the accident the average daily movement over the track at the point involved was 27 trains.

Observations of the Commission's Inspectors

The Commission's inspectors examined the rail involved and found it to be as previously described. The transverse fissure covered about 95 percent of the cross-sectional area of the head of the rail. The top surfaces of the angle bars were freshly marked at the location of the first break in the rail by cuts about 1/8 inch deep and 5/8 inch wide; these marks indicated that there was a gap of approximately 5/8 inch in the head of the rail and that the leaving end of the first piece and the receiving end of the second piece rose and fell under the wheels. The receiving end of the second piece was badly battered. The bond wires, which were about 42 inches long, remained attached to the leaving end of the rail immediately north of the rail involved. The track was inspected a considerable distance north of the point of accident and no evidence of defective track or equipment was found.

Discussion

According to the evidence, First 71 was moving at a speed of 72 miles per hour when it became derailed at a point 341 feet north of the south siding-switch at O'Neal, on which territory the maximum authorized speed was 80 miles per hour. Prior to the time of the accident, the engine and cars had been riding

smoothly, and there was no indication of defective track or equipment, nor of any obstruction on the track. The automatic signals displayed proceed. The engineman heard a sound similar to that produced by the breaking of a rail, saw some object thrown from beneath the engine, and felt the engine drop suddenly on the right side and then right itself.

After the occurrence of the derailment, a broken rail with a transverse fissure in the head was found on the west side of the track. The rail was broken into 12 pieces. The fissure was located about 10 inches from the receiving end of the rail, about 2 inches north of the south ends of the angle bars and between the end of the rail and the point where the bond wires were attached to the rail. The fissure covered about 95 percent of the cross-sectional area of the head and extended downward through the head and base; it had not progressed to the outer surface and the remainder of the cross-sectional area had been freshly broken. The other breaks in the rail appeared to have resulted during the process of the derailment, and no other transverse fissures were found. The receiving end of the second piece of rail bore batter marks made by wheels striking it and there was a cut on the right No. 1 engine-truck wheel and a cut on the flange of the right No. 2 engine-truck wheel; these marks indicated that the rail was broken and separated prior to the time the engine of First 71 moved over it. The last train prior to First 71 which moved over the point involved was a north-bound freight train which passed about 1 hour before the occurrence of the accident; the crew of this train did not observe any irregular track condition. The track involved was last inspected from a motor-car on the day before the accident occurred and no defective condition was found. A detector car was last operated over this district on January 23, 1940. It was the opinion of the general superintendent that a defect located between the extremities of a rail bond would not be detected by a detector car.

As the initial break in the rail was located between the end of the rail and the bond wire connection, the automatic block-signal system gave no indication of this defective condition of the track. Had rail-head bonds been in use it is probable that this rail fracture might have been detected by the display of restrictive signal indications.

From the investigation of this accident it is questioned whether inspection of the track in this territory is sufficiently frequent and thorough to insure that the track is properly maintained for the maximum authorized speed of 80 miles per hour.

Cause

It is found that this accident was caused by a broken rail, as a result of the presence of a transverse fissure.

Dated at Washington, D. C., this twenty-ninth day of May, 1941.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL) Secretary.