INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ATLANTIC COAST LINE RAILROAD AT BUFFALO BLUFF, FLA., ON OCTOBER 11, 1931.

December 8, 1931.

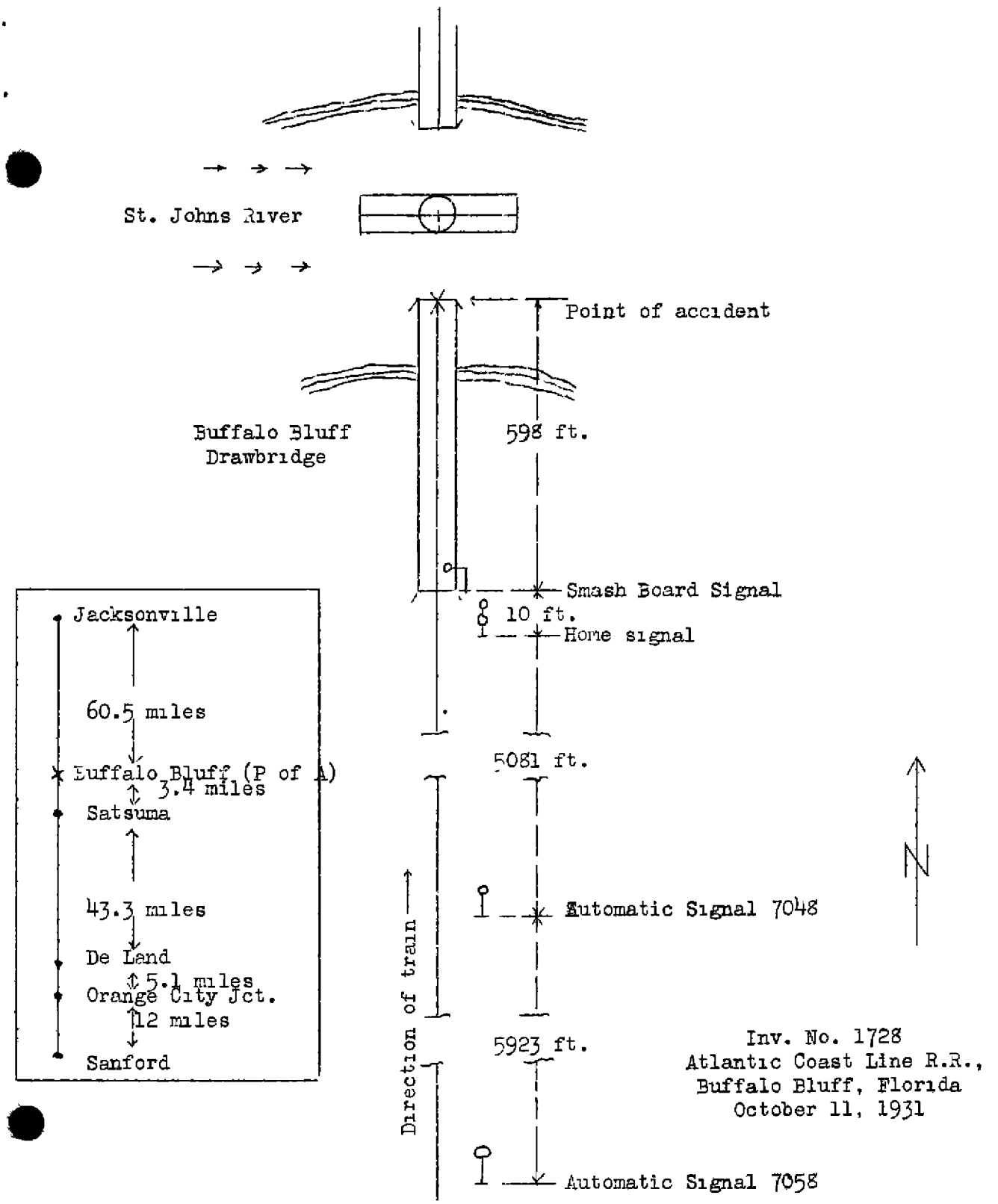
To the Commission:

On October 11, 1931, there was a derailment of a freight train on the Atlantic Coast Line Railroad at Buffalo Bluff, Fla., which resulted in the death of one employee.

Location and method of operation

This accident occurred on the Jacksonville District of the Third Division, extending between Sanford and Jacksonville, Fla., a distance of 124.3 miles; this is a single-track line over which trains are operated by time-table, train orders, and an automatic block-signal system. The accident occurred at the south end of the draw span of Buffalo Bluff drawbridge over St. Johns River, approaching this point from the south the track is tangent for a distance of about 5 miles. The grade is generally descending for northbound trains, varying from 0.66 to 1.26 per cent between Satsuma and Buffalo Bluff for a distance of about 1½ miles, then it is slightly undulating for a distance of about 1¾ miles to the drawbridge, being 0.06 per cent ascending for the last 1,850 feet to the draw span.

The drawbridge is a bent frame structure, with a ballast deck and a steel draw span of the pivot type; the total length of the trestle and span is 1,036 feet, the span being 238 feet in length and the southern trestle approach thereto being 598 feet in length. The river flows under the bridge from west to east and the channel is about 40 feet in depth, the draw span being about 15 feet above the water. The bridge operator's tower is located on the east side of the draw span, at the center of the span. There is a marine lamp on the draw span that displays a red indication to an approaching train when the draw is open.



Inv. No. 1728
Atlantic Coast Line R.R.,
Buffalo Bluff, Florida
October 11, 1931

A smash board signal, mechanically operated by the bridge tender, is located 538 feet south of the end of the trestle off which the train plunged, a disk of red reflex buttons is attached to the arm of the smash board, these buttons casting a red reflection when the rays from the headlight of an approaching engine shine upon them.

The interlocking and automatic signals involved are of the color-light type, approach-lighted. The home signal governing northbound movements over the bridge is located 10 feet south of the smash board signal, or 608 feet south of the end of the trestle off which the train plunged, it has two panels, the top panel displaying three indications, while a fixed red light is displayed by the bottom panel. A clear indication, green, is displayed on the top panel when the draw is closed and the track in advance is unoccupied, the draw span can not be opened unless a stop indication is displayed by the home signal and the smash board extended horizontally in position to be struck by the engineman's cab in the event the train runs by it. Automatic block signal 7048 is located 5,081 feet south of the home signal and displays three indications, while signal 7058 is located 5,923 feet south of signal 7048.

The interlocking at Buffalo Bluff drawbridge is of the electro-mechanical type. In order to open the draw, with no train approaching, the bridge operator must first set the home signal at stop and place the smash board in extended position, after which he may release the rail locks and wedges which are used to secure the draw in closed position. The circuits are so arranged that the lever controlling the rail locks and wedges can not be operated to permit the opening of the draw after a train has passed automatic block signal 7058 without operating a time-release, which requires about two minutes to function.

The speed of trains handling perishables, such as was involved in this instance, is limited to 45 miles per hour between Jacksonville and Sanford, while over drawbridges the speed of all trains is limited to 20 miles per hour.

The weather was clear at the time of the accident, which occurred about 2.57 a.m.

Description

Northbound freight train extra 1657 consisted of 25 loaded cars, 6 empty cars, and a caboose, hauled by engine 1657, and was in charge of Conductor Torrible and Engineman Torrence. This train passed DeLand, the last open office, approximately 46.7 miles south of Buffalo Bluff drawbridge, at 1.54 a.m., according to the train sheet, passed signal 7058, which was displaying a clear indication, passed signal 7048, which was displaying an approach indication, passed the home signal, which was displaying a stop indication, struck and broke the smash board signal, and then plunged off the bridge at the open draw while traveling at a speed which, it was estimated, had been reduced from about 40 or 45 miles per hour to from 15 to 25 miles per hour.

Engine 1657, its tender, and the first four cars went off the bridge and were submerged, while the rest of the cars in the train stopped on the track. The employee killed was the engineman.

Summary of evidence

Fireman Williams stated that the train was traveling at a speed of about 35 or 40 miles per hour on passing over the top of Satsuma hill and that the engineman eased off and worked a light throttle all the way down the grade. Signal 7058 was displaying a green indication; after passing that signal he heard Brakeman Thomas call "yellow" for the indication of signal 7048, at which time the speed of the train was 35 or 40 miles per hour, the fireman went over behind the engineman, looked ahead out of the front window, and then also called "yellow board", saying that the engineman made no reply, but only looked across the cab toward the brakeman. Just as they passed signal 7048 the engineman made a light brake-pipe reduction, how much air being drawn off the fireman could not say, but judging from the exhaust it was not much. Owing to the speed and the fact that the train was going down hill the brakes did not seem to hold very well, although the fireman felt that the train would get stopped for the home signal, which was displaying a stop indication. Fireman Williams said that both he and the brakeman called "red board" for the indication of the home signal and that the engineman looked ahead, having hold of the sander wheel with one hand and the brake valve with the other. About half way between signal 7048 and the home signal the engineman made another brake-pipe reduction, and while the fireman could not say how much air was drawn off on this occasion, he did say that it was more than was drawn off for the first reduction,

as he could tell by the exhaust, as a result of this latter reduction the brakes took hold gradually and held pretty well. On nearing the home signal the fireman was standing on the steps on the left side of the engine, the brakeman already having jumped, and the fireman said that the engineman, who was still sitting on the seat box, looked across and said "you had better look out". The fireman then jumped off, about opposite the smash board, at which time he estimated the speed to have been between 15 and 20 miles per hour. Fireman Williams did not see the engineman make any attempt to get off, nor did he know whether the engineman continued to work steam while applying the air brakes, but he said that at no time did the engineman apply the air brakes in emergency, the engine was not reversed, and he did not know for sure whether the engineman opened the sanders, but he thought that they were opened. Fireman Williams further stated that he did not think the air brakes were handled as they should have been, saying that Engineman Torrence approached about four or five telegraph-pole lengths nearer the drawbridge than other enginemen do before applying the air brakes, and he also said that every signal en route was called until signal 7048 was reached, this being the first signal, to his memory, that the engineman did not call back. The engineman was awake, and, in the opinion of the fireman, in normal condition throughout the entire trip.

Head Brakeman Thomas gave testimony similar to that of Fireman Williams, except that he thought the speed was about 45 miles per hour when passing signal 7048. He did not know how much the speed of the train was reduced by the second reduction, saying that he stood on the engine steps at the time and saw fire flying from the wheels, and that he jumped on reaching a point about two or three telegraph-pole lengths south of the home signal. Brakeman Thomas did not know whether the engineman opened the sanders just prior to the accident, saying that the last time he looked, the engineman was sitting on the seat box, with his hand on the brake valve. The engineman was awake, apparently normal and on the alert at the time both reductions were made, and the reason the brakeman was afraid when passing signal 7048 was because the engineman did not begin braking soon enough, saying that other enginemen usually start braking before the signal is reached, after steadying their train by means of the air brakes when they come over Satsuma hill, and then drifting down toward the signal. Brakeman Thomas inspected the train following the accident, about daylight or a little

afterwards, and at that time the brakes were still applied.

Conductor Torrible stated that the air brakes in his train were tested by two car inspectors before departing from the yard at Sanford, also that he conversed with Engineman Torrence at Sanford and that the engineman appeared to be perfectly normal. At Orange City Junction, located 51.8 miles south of Buffalo Bluff drawbridge, 18 empty cars next to the engine were set out, the conductor then looked over about 15 cars in the train on his way back toward the caboose, and noticed that the pistons were out on these cars, and he had reached a point about three car-lengths from the caboose when the engine recoupled to the train, whereupon he heard the brakes release. He then got on the caboose and noticed that the air gauge registered a brake-pipe pressure of between 50 and 60 pounds. After leaving Orange City Junction the air brakes were applied at DeLand, 5.1 miles north, in order to pick up a train order, and the gauge registered about 60 pounds pressure before this application was made, the brakes took proper effect and the speed was reduced from about 40 miles per hour to between 20 and 30 miles per hour. Conductor Torrible said there was only a little variation in the speed after leaving DeLand, and at no time did he consider it excessive; it was the highest going down the hills at Pierson, located 13.1 miles north of DeLand, and again at Satsuma, and he estimated it to have been between 35 and 45 miles per hour between Satsuma and signal 7048. The first reduction the conductor noticed was after or while the caboose was passing signal 7048, at which time the caboose gauge showed that between 15 and 20 pounds was drawn off, and he could feel the brakes holding; he did not observe what pressure was registered on the gauge prior to this reduction, but said it had not exceeded 62 pounds at any time after passing DeLand. Conductor Torrible did not notice a second reduction, nor any emergency application, saving that the caboose did not come to a sudden stop and that he was unaware of anything wrong until he started ahead and learned about the accident from Brakeman Thomas. Conductor Torrible said that the home signal then was displaying a stop indication, both top and bottom panels displaying red lights, and that the dash board signal was broken, but that he had not observed signal indications ahead of his train prior to the accident. Conductor Torrible further stated that although pressures of 70 and 90 pounds are usually carried on the train, he could not account for the caboose gauge only registering 60 pounds pressure. When the air brakes were applied in the vicinity of signal 7048, however, they worked effectively, seeming to hold about as well as usual. Conductor Torrible inspected the

train about 30 minutes after the occurrence of the accident and the pistons were then out on all of the cars, no excessive piston travel being observed.

Flagman Stephenson estimated the speed to have been about 40 or 45 miles per hour when north of Satsuma and located the caboose as being from 10 to 15 car-lengths north of signal 7048 when the air brakes were applied, saying that he did not feel a second reduction. He did not observe the gauge in the caboose but said that the air brakes had been tested and appeared to work properly en route.

Bridge Tender Sweat, at Buffalo Bluff drawbridge, stated that when a train is coming, or is due within five minutes, at the time a boat whistles for the draw, it is his practice to give the train preference, but he said that under government navigation rules the boat must not be delayed over 10 minutes. In this instance, the boat whistled for the draw about 2.38 a.m., whereupon he opened it, and the boat passed through at 2.55 a.m. Bridge Tender Sweat first noticed the approach of extra 1657 when it was about 2 miles away, but he did not definitely realize that an accident was imminent until the train passed the home signal, saying that the headlight blinded him, he then stopped the operation of the draw, which was about two-thirds closed when the engine and cars plunged off the bridge at the open draw at a speed of about 25 miles per hour. Bridge Tender Sweat said that all the marine lamps on the open draw were burning, and that the lamp on top of the draw, located about 35 to 40 feet above the track, was burning and displaying a red indication to the approaching train.

Car Inspectors Williams and Raburn stated that the air brakes on extra 1657 were tested before the train departed from Sanford and operated properly

Roundhouse Foreman Benson arrived at the scene of the accident by automobile about 7.45 a.m., October 11, in company with Trainmaster Jones and Roadmaster Turner. While walking alongside the train Mr. Benson paid particular attention to whether or not sand had been used in stopping extra 1657, but saw no such indication. About 10.15 a.m. the remaining cars were pulled back to Satsuma, where an engine was placed on the rear end and the air

brakes then applied, making a 15-pound reduction, and in company with Road Foreman of Engines Shelly and White, Conductor Torrible and Wreckmaster Tew, the air brakes were inspected and found to be operating properly. This engine was then uncoupled and another engine was placed on the head end of the train and a test made of the air brakes, using the same train line pressure, 70 pounds, which test again disclosed that the brakes were operating properly. Later on, the cars were handled from Satsuma to Buffalo Bluff drawbridge and another test was made of the air brakes; a speed of about 30 miles per hour was attained and about a 12-pound application was made right at signal 7048, the brakes working properly and bringing the speed of the train down to about 7 miles per hour, whereupon they were released, when it was obvious that the train could have been brought to a stop at least 450 feet south of the home signal. Road Foreman of Engines Shelly stated that under the rules, Engineman Torrence should have approached the home signal prepared to stop, and that in order to have done so the engineman should have begun to brake as soon as signal 7048 was observed to be displaying an approach indication, so he could have had the train under control on passing signal 7048 and then have kept it under control prepared to stop before the home signal was reached.

Tests of the signal apparatus involved made after the accident by Signal Engineer Adams and Signal Maintainer Rollison, disclosed it to be functioning properly.

The body of Engineman Torrence was found on the evening of October 12 and after the performance of an autopsy an inquest was held and a verdict returned to the effect that Engineman Torrence died from heart failure before his train ran into the river; it is understood also that there was no water found in the lungs.

Conclusions

This accident was caused by failure to obey signal indications.

The evidence is clear that the automatic and interlocking signals were displaying the proper indications when extra 1657 approached the open drawbridge, and the statements of the fireman and the head brakeman were to the effect that the indications were clearly visible and that Engineman Torrence was conscious and had appeared

up to that time to be in normal condition, in fact, the fireman said that the engineman spoke to him and told him to get off, this conversation having taken place when the engine was nearing the home signal. It is also to be noted that up to this time the only unusual condition noticed by either the fireman or the head brakeman was the fact that Engineman Torrence did not begin braking at the customary point. The subsequent examination of the body of Engineman Torrence, however, indicated that he was dead when his engine went into the water, due to heart failure, and under these circumstances it is a question whether he was not so afflicted at the time his train was closely approaching the drawbridge as to account for his failure to take the necessary steps to bring it to a stop. It is entirely a matter of conjecture as to exactly when Engineman Torrence first began to lose control of his faculties due to the trouble which subsequently resulted in his death.

Engineman Torrence was born on July 7, 1866, he entered the service of this railroad as engineman on December 24, 1913. At the time of the accident the entire crew had been on duty about 2½ hours, prior to which they had been off duty for 22 hours and 40 minutes or more.

Respectfully submitted,

W. P. BORLAND,
Director.