

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING
AN ACCIDENT ON THE CLEVELAND, CINCINNATI, CHICAGO & ST.
LOUIS RAILWAY AT DANVILLE, IND., ON APRIL 7, 1933.

June 12, 1933.

To the Commission:

On April 7, 1933, there was a rear-end collision between two passenger trains on the Cleveland, Cincinnati, Chicago & St. Louis Railway at Danville, Ind., which resulted in the injury of 53 passengers, 4 mail clerks, and 5 employees. This accident was investigated in conjunction with the Public Service Commission of Indiana.


Location and method of operation

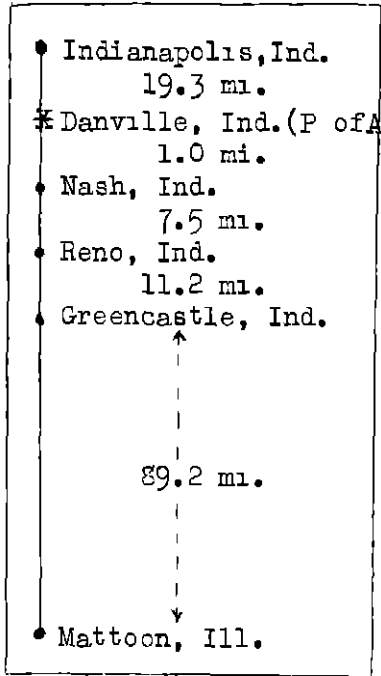
This accident occurred on that part of the St. Louis-Terre Haute Division extending between Mattoon, Ill., and Indianapolis, Ind., a distance of 128.2 miles; in the vicinity of the point of accident this is a double-track line over which trains are operated by time table, train orders, and an automatic block-signal and train-stop system, the latter being of the intermittent induction type. The accident occurred opposite the west end of the platform of the passenger depot at Danville, approaching this point from the west, the track is tangent for several miles and then there is a $0^{\circ} 45'$ curve to the right 1,500 feet in length, followed by 2,093 feet of tangent to the point of collision, this tangent extending for a considerable distance beyond that point. The grade for east-bound trains is 0.385 percent descending.

Nash tower is located about 1 mile west of Danville and between these two points there is a passing track 3,315 feet in length which parallels the main tracks on the south, the east switch being located 424 feet east of the leaving end of the curve. At the time of the accident freight cars were stored on this passing track for almost its entire length.

The east-bound home signal at Nash is located 411 feet west of the tower, while east-bound signal 212 is located 6,203 feet west of the home signal. Signal 182 is located almost $1\frac{1}{2}$ miles east of the east-bound home signal, or about 1,725 feet east of the passenger depot at Danville. The interlocking home signal is of the semaphore type, while the other signals are 3-indication color-light signals. All

Sig. 182

DANVILLE STA.  Point of Accident




NASH TOWER 

2093 ft.
P.T.

0° 45'
1500 ft.


P.C.

1946 ft.

E.B. Home Signal 

Tangent Track Several Miles

6200 ft.

Sig. 212 

INV. NO. 1816
CLEV., CIN., CHI., & ST. LOUIS R
DANVILLE, IND.
April 7, 1933.

high signals are approach lighted. Since August, 1932, the interlocking at Nash tower has been disconnected, so that all switches are hand thrown, and the semaphore blades have been removed, with the exception of the top arms. The control circuits have been revised so that these signals are operated automatically when the tower is closed, and semi-automatically when the tower is open; the interlocking plant is open from 8 p.m. to 5 a.m., within which period the accident occurred.

The view of signal 212 and also of the home signal at Nash tower is unobstructed, but the view of the rear end of an eastbound train at the passenger depot at Danville is obstructed by the south bank of a cut, approximately 25 feet in height, and by overhead bridges and a pole line, and at the time of this accident by freight cars which were standing on the passing track. The first view the engineer of an east-bound engine could get of signal 182 would be on reaching a point near the eastern end of the curve.

The weather was cloudy at the time of the accident, which occurred about 10:25 p.m.

Description

East-bound passenger train No. 20 consisted of 6 baggage cars, 1 refrigerator car, 1 combination passenger and baggage car, 1 coach, 3 Pullman sleeping cars and 1 cafe-lounge car, in the order named, hauled by engine 6609, and was in charge of Conductor Bristow and Engineman Andrews. The fourth, seventh, and thirteenth cars were of steel-underframe construction, while the remainder were of all-steel construction. This train left Greencastle, 18.7 miles west of Nash, at 10.01 p.m., according to the train sheet, 11 minutes late, passed Nash at 10:22 p.m., 7 minutes late, stopped at Danville, 1 mile beyond, to discharge a passenger, and had proceeded about five car lengths when the rear end of the train was struck by train first No. 40.

East-bound passenger train first No. 40 consisted of 1 mail car, 1 baggage car, 1 combination passenger and baggage car, 1 coach, 3 Pullman sleeping cars, 1 dining car, and 1 club car, in the order named, all of steel construction, hauled by engine 6629, and was in charge of Conductor Powell and Engineman Mitchell. This train passed Greencastle at 10:07 p.m., according to the train sheet, 2 minutes late, passed signal 212, which was displaying a caution indication, passed the east-bound home signal, the indication of which is in dispute, passed Nash at 10:24 p.m., 1 minute ahead of time and only 2 minutes behind train No. 20, and collided with the rear end of that train while traveling at a speed believed to have been at least 20 miles per hour.

Considerable damage was sustained by the seventh, eighth and thirteenth cars in train No. 20; the forward truck of the eighth car was derailed and that car was shoved partly through the rear end of the seventh car, which was overturned on its left side, all the other cars in this train were slightly damaged. Engine 6629 was considerably damaged and all of the cars in train first No. 40 were slightly damaged, although none was derailed. The employees injured were the conductor, brakeman, and the baggageman of train No. 20, and the brakeman and the baggageman of train first No. 40.

Summary of evidence

Engineman Mitchell, of train first No. 40, stated that after passing Greencastle the speed of his train was from 65 to 75 miles per hour until Reno was reached, 11.2 miles distant, where an approach signal indication was received, whereupon he reduced speed to about 30 or 35 miles per hour. From that point eastward he ran on the yellow at all signal locations up to and including the east-bound home signal at Nash, and at each signal he operated the forestalling device of the automatic train stop system. Engineman Mitchell emphatically maintained that the home signal was displaying an approach indication, saying that the yellow light was burning dimly and that the indication was called by the fireman; he saw the yellow light when it was about 1/8 mile distant, and it continued to display the same indication as his engine passed it, Engineman Mitchell saying that the reflection from the headlight shone upon the top blade of the semaphore and that on nearing it he looked up and saw the blade in diagonal position. After drifting around the curve at a speed of 30 or 35 miles per hour he observed that the first signal east of Danville station, signal 182, was displaying a proceed indication, and he therefore assumed that the train ahead of him had increased the distance between them sufficiently to permit the signals to clear up behind it. Engineman Mitchell knew that Danville was a conditional stop for train No. 20, but was not expecting to find the block occupied after seeing the proceed indication displayed by signal 182, and for some unknown reason he did not see the rear end of train No. 20 until it was only 150 or 200 feet distant, at which time he applied the air brakes in emergency; he had not seen the markers and did not know whether they were burning. Engineman Mitchell said that the air brakes had been tested and worked properly en route, while the headlight was burning brightly. He understood that he was required to operate under control after accepting an approach indication, expecting to find the next signal displaying a stop or approach indication, and he realized that in this instance he was not operating his train under absolute control, although he seemed to think that the real reason for his failure to stop was the fact that he did not see the rear end in time to stop.

Fireman White gave testimony similar to that of Engineman Mitchell as to what transpired prior to the accident, Fireman White also emphatically maintained that the east-bound home signal at Nash was displaying an approach indication for his train and he said that on account of the fact that the light was burning dimly he called the indication twice to the engineman. Fireman White could not account for the yellow light being displayed with the block ahead occupied, unless it was a false indication, and both he and Engineman Mitchell mentioned previous occurrences when false clear signal indications had been received at other locations. Conductor Powell, Baggage man Love and Brakeman Sullivan were unaware of anything wrong until the air brakes were applied in emergency just prior to the accident; after the accident Brakeman Sullivan went back to flag, continuing west of the east-bound home signal, and he observed that it was displaying a stop indication, while later on when an east-bound engine approached he walked west of the signal and observed that it lighted up properly.

Conductor Bristow, of train No. 20, knew that train first No. 40 was closely following his own train, but did not think they were within 3 or 4 miles. He was riding in the tenth car and said the stop at Danville consumed only a few seconds, the train just stopping and then immediately starting again, and after it had proceeded about 700 feet down grade, and was traveling at a speed of about 20 miles per hour, the collision occurred. Flagman Payne stated that he assisted the passenger off the day coach, which was the ninth car, and then closed the door and took his lantern into the baggage car and at about that time the collision occurred. Flagman Payne also knew that train first No. 40 was following closely, but did not provide protection, as his train had signal protection and train first No. 40 was not due by Nash, the next station in the rear, at the time his own train left Danville.

Engineman Andrews and Fireman Dugan, of train No. 20, stated that the east-bound home signal at Nash was displaying a proceed indication when their engine passed it; the light was burning dimly, but there was no difficulty in discerning the indication displayed. Engineman Andrews did not think it necessary to afford rear-end protection for making such a short station stop. In this connection, Assistant General Manager White stated that flag protection was not required when a train makes a brief station stop, regardless of whether or not it is on the time of another train, and he also stated that there was no objection to a train running 2 or 3 minutes ahead of time in double-track territory operated entirely on signal indication.

Operator Huron, at Greencastle, and Operator Bales, at Nash, stated that the markers on the rear end of train No. 20 were burning properly when that train passed their respective stations. Operator Bales also stated that he went outside on the ground to exchange signals with train No. 20 and after it passed he did not see the blade of the east-bound home signal although it should have been in stop position, and so far as he knew it was operating properly. He went back upstairs and the dispatcher was calling him for an "OS", and as he was going around the end of the interlocking machine to answer the call he operated the levers to release the east-bound home signal for train first No. 40, but he said that this would in no way cause the signal indication to change so long as the block was occupied. Operator Bales then reported train No. 20 to the dispatcher and while looking out of the window he saw train first No. 40 approaching, he picked up a lantern and started downstairs, but only got half-way down when the engine passed the tower at a speed of 40 or 50 miles per hour, with the brakes applied. The track diagram in the tower and the chart light indicated that the block east of Nash was occupied, and he reported to the dispatcher that he thought train first No. 40 had run a red signal as train No. 20 was still in the block, and shortly afterwards he heard them hit.

Engineman Denham and Fireman Swisher were instructed to proceed with engine 6053 to the scene of the accident in order to take the cars of train first No. 40 to Indianapolis; they stated that as their engine approached Nash from the west, distant signal 212 was displaying an approach indication and the home signal was displaying a stop indication, this latter indication being distinct and visible for a considerable distance.

Signal Maintenance Foreman Carsmen said the globe in the lamp of the east-bound home signal at Nash was loose in its socket, causing it to be out of alinement and to result in a slight dimming of the light, it did not, however, interfere materially with visibility; he had noticed it when on train No. 20 a few nights prior to the accident, lighting up as soon as the engine reached the circuit 6,200 feet from the signal. On account of the arrangement of the circuits it would have been impossible for the home signal at Nash to display a yellow indication with train No. 20 in the block and the next signal in advance clear. Under these conditions had the indication changed from red a green or clear indication, instead of yellow, would have been displayed.

A thorough examination and test made of the signal apparatus disclosed it to be functioning properly. There was no evidence of replacements or adjustments, nor any indication of mechanical fouling or undue friction of parts. The east-bound track circuits were shunted in advance of the east-bound home signal for the approach locking, and also in

the inside and the outside circuits in the rear of this signal for the control circuits. The operation of the signal was observed from a position at the mechanism case, also on the ground and in the tower, and its performance also was observed when operated by passing trains. The plant was opened and closed by the manipulation of the knife switches used for that purpose, and during all of these operations and tests the performance of the signal in question, as well as all other signals, was as intended. The integrity of the automatic train-stop device is not involved, as the engineman of train first No. 40 stated that he operated the forestalling switch when passing over the inductors at each approach signal indication, including the east-bound home signal at Nash, and that the device functioned as intended.

Conclusions

This accident was caused by the failure of Engineman Mitchell, of train first No. 40, properly to observe and obey signal indications, and to maintain a proper watch of the track ahead of his train.

Engineman Mitchell emphatically maintained that the east-bound home signal at Nash was displaying an approach indication, in which contention he was supported by Fireman White. However, if this were the case, the signal was displaying a false indication for the block was still occupied by train No. 20 and the signal should have been displaying a stop indication. Furthermore, the circuits are so arranged that had a false indication been displayed it would have been green instead of yellow. Immediately after the occurrence of the accident the brakeman of train first No. 40 found the signal in stop position, and it was still in that position when the relief engine arrived from the west, at which time the signal lighted up properly as soon as the engine entered upon the lighting circuit. Careful examination and test made by representatives of the signal department shortly after the accident and by representatives of this Commission during a period of several days following the occurrence of the accident, failed to disclose any condition that could have caused the signal to operate improperly. It is therefore believed that this signal was displaying a stop indication at the time train first No. 40 approached it and that for some reason this indication was not properly observed by the engine crew of that train.

Had the signal been displaying an approach indication as he thought, Engineman Mitchell would have been authorized under the rules to proceed at not exceeding 30 miles per hour prepared to stop at the next signal. He said his train drifted around the curve beyond the signal at a speed of 30 or 35 miles per hour and that he then observed the succeeding signal displaying a proceed indication, which led him to

believe that train No. 20 had run away from them and that he had clear track ahead. He did not see the markers on the rear of train No. 20, which the evidence indicates were burning properly, nor did he see the rear end of that train until it was only 150 or 200 feet distant although the track approaching the point of accident is straight for about 2,000 feet. Even under these conditions had Engineman Mitchell been operating his train within the speed limit prescribed by the rules, maintaining a proper watch of the track ahead, he should have been able to stop in time to avoid an accident.

Respectfully submitted,

W. P. BORLAND,

Director.