Inv-2260

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

ILLINOIS CENTRAL RAILROAD

CARBONDALE, ILL.

MARCH 14, 1938.

INVESTIGATION NO. 2260

SUMMARY

INV-2260

Railroad:	Illinois Central	
Date:	March 14, 1938	
Location:	Carbondale, Ill.	
Kind of accident:	Head-end collision	
Trains involved:	Freight	:Freight
Train numbers:	Extra 1391	:Extra 1384
Engine numbers:	1391	:1384
Consist:	24 cars and caboose	:37 cars and :caboose
Speed:	Starting backup movement	:25-30 m.p.h.
Track:	Tangent; slightly descending grade for north-bound trains.	
Weather:	Slightly foggy; visibility good	
Time:	4:55 a.m.	
Casualties:	2 killed	
Cause:	Failure of crew of Extra 1384 properly to observe and obey signal indications and to comply with the requirements of rule 93.	

April 12, 1938.

To the Commission:

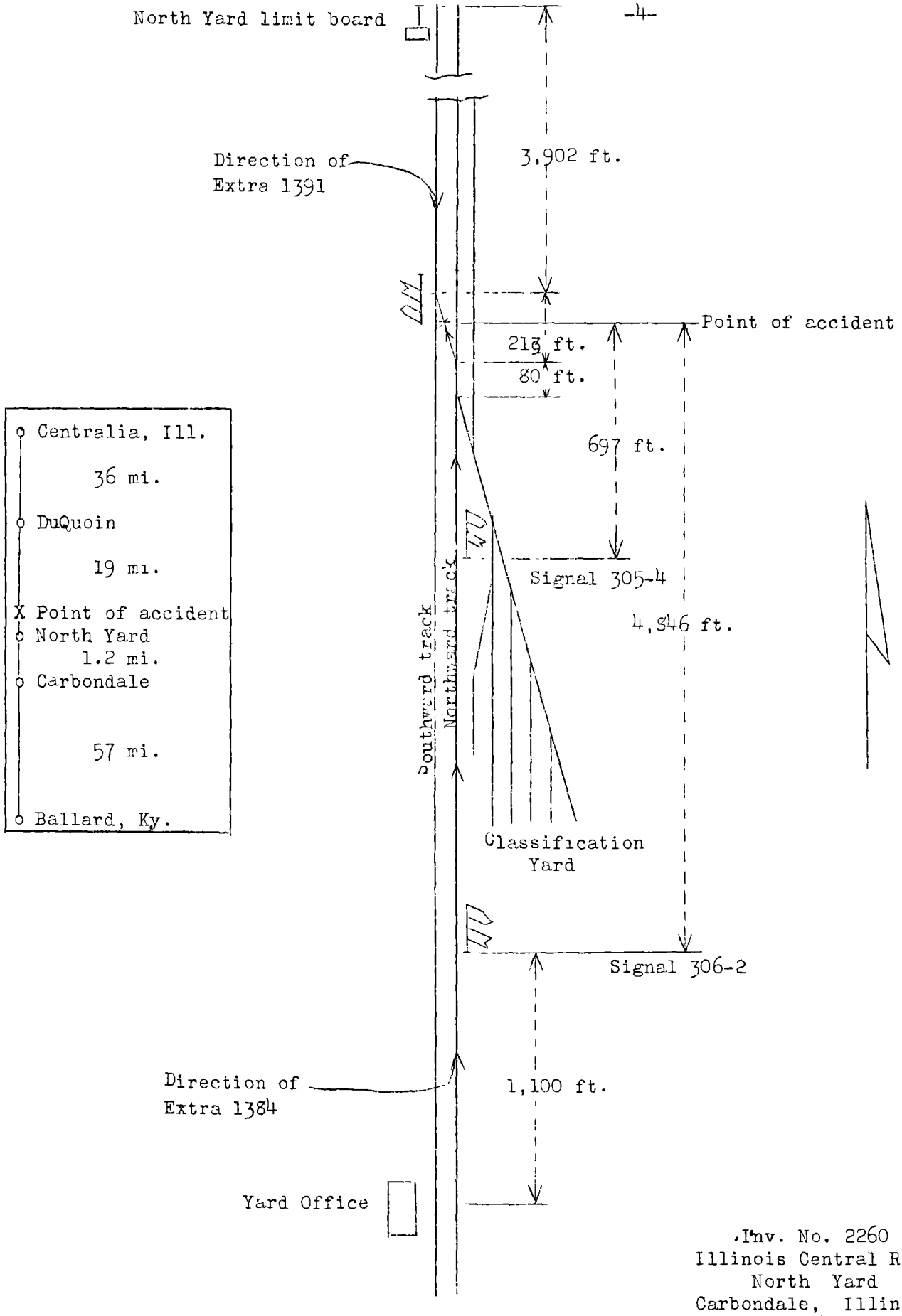
On March 14, 1938, there was a head-end collision between two freight trains on the Illinois Central Railroad at North Yard, Carbondale, Ill., which resulted in the death of two employees. The investigation of this accident was made in conjunction with a representative of the Illinois Commerce Commission.

Location and method of operation

This accident occurred on that part of the St. Louis Division, designated as the Centralia District which extends between Centralia, Ill., and Ballard, Ky., a distance of 113 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred within yard limits on a cross-over connecting the northward and southward main tracks, located near the north end of the yard. The crossover is 213 feet in length and the turnouts are facing-point switches for trains moving with the current of traffic. Approaching the point of accident from either direction the tracks are tangent for more than 1 mile. The grade for north-bound trains is slightly ascending for a distance of 2,900 feet, level for a distance of 1,300 feet, and then 0.204 percent descending for a distance of 500 feet to the point of accident and for some distance beyond.

South-bound trains en route from the Centralia District to the Johnson City District move through the crossover involved to the northward main track, continue on this track for a distance of 80 feet and then proceed through another switch leading to the tracks of a classification yard which parallels the main tracks on the east. A track in this yard is kept open for trains moving between these districts. The switch leading to the yard tracks has a high-type switch stand located 9½ feet east of the center of the northward track; it is equipped with a single target and switch lamp, the center of the lens being approximately 7 feet above the top of the rail. The south cross-over switch, located 80 feet north of the yard-track switch, has a low-type switch stand situated 6½ feet east of the center of the northward track; this stand is equipped with a switch lamp, the center of its lens being 1 foot 10½ inches above the top of the rail. The lights are so focused that they do not interfere with each other.

The automatic block signals involved are signals 306-2 and 305-4, governing northward movements, and are located 4,846 feet and 697 feet, respectively south of the point of accident.



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Illinois Central R.R.
North Yard
Carbondale, Illinois
Mar. 14, 1938

These signals are of the 2-arm, 2-position, lower quadrant, semaphore type; night indications are green over green for proceed, green over yellow for proceed at medium speed prepared to stop at the next signal, and red over yellow for stop; then proceed. The track circuits are so arranged that when either cross-over switch is open an approach indication is displayed by signal 306-2 and a stop and proceed indication by signal 305-4.

Rule 93 of the Transportation Rules provides as follows:

"Within yard limits the main track may be used, clearing the time of first class trains. Second and third class and extra trains must move within yard limits prepared to stop unless the main track is seen or known to be clear. In case of accident the responsibility rests with the approaching train.

"Trains and yard engines occupying the main track within yard limits must be protected by flagman during fogs, storms or other unfavorable conditions; also, where the view of an approaching train is obstructed by curvature or other conditions. Trainmen and yardmen will be held responsible for any failure to exercise reasonable precaution in protecting their trains under such condition."

The weather was slightly foggy but visibility was good at the time of the accident, which occurred at 4:55 a.m.

Description

Extra 1391, a south-bound freight train, consisted of 24 cars and a caboose, hauled by engine 1391, and was in charge of Conductor Norbury and Engineman Rushing. This train departed from DuQuoin, Ill., 18.3 miles from North Yard, at 4:22 a.m., according to the train sheet, and stopped at the cross-over switch at the North Yard at 4:52 a.m., according to the statements of the engine crew. After the route was lined the train started through the crossover, but before reaching the northward track, the north-bound train was seen approaching and Extra 1391 had just started to back up when it was struck by Extra 1384.

Extra 1384, a north-bound freight train, consisted of 26 loaded cars, 11 empty cars and a caboose, hauled by engine 1384, and was in charge of Conductor Golliher and Engineman Ruffing. This train departed from Cairo Junction, 54.73 miles from North Yard, at 3:05 a.m., according to the train sheet, passed Carbondale, 1.29 miles from North Yard at 4:51 a.m., passed the yard

office at North Yard at 4:54 a.m., passed signal 306-2, the indication of which is in question, passed signal 305-4 displaying a stop and proceed indication, entered the open cross-over switch and struck Extra 1391 while traveling at a speed estimated to have been between 25 and 30 miles per hour.

Extra 1391 was shoved back a distance of 64 feet, and the engine stopped on the southward track clear of the cross-over switch. The rear or north trucks of the first car were derailed, and the second, third and fourth cars buckled and stopped in various positions on both tracks; gasoline contained in the fourth car, a tank car, became ignited. The front ends of the engines were locked together, and the front end of engine 1384 was raised slightly from the track. The tender and first six cars were derailed and badly damaged, stopping in various positions across the tracks. The employees killed were the engineman and the fireman of Extra 1384.

Summary of evidence

Engineman Rushing, of Extra 1391, stated that the air brakes functioned properly en route, but when he stopped his train to enter the crossover at the North Yard at Carbondale he misjudged his speed and ran by the switch a few feet and had to back up; as he backed up the head brakeman unlocked the switch. He stopped at the switch at 4:52; at that time it was slightly foggy but he saw a headlight in the vicinity of the coal chute or yard office, more than 1 mile distant. The head brakeman lined the cross-over switches as well as the switch leading to the yard track, and when the fireman informed him that the route was lined Engineman Rushing started the train and had just entered the crossover when the fireman warned him of the approaching train and advised him to get off. He immediately stopped, and had just started to back up when the collision occurred; it was then 4:55 a.m. His headlight was burning brightly and the switch lights were also burning. Engineman Rushing further stated that in the vicinity of Carbondale it is his practice to operate at a reasonable speed, and he thought that on a north-bound train, after passing the yard office and the block signals a speed of 30 or 35 miles per hour was not unreasonable if the way was seen to be clear.

Fireman Cook, of Extra 1391, stated that when his train first stopped at the crossover he saw the headlight of a northward train which appeared to be south of the yard office. When the cross-over route was lined he saw the arms of signal 305-4 go to stop position. Just as his train started into the crossover he saw the approaching train and his head brakeman giving stop signals and he called a warning to his engineman; the head brakeman closed the switch to the yard track, but was not able to get back to the cross-over switch to close it. When Fireman Cook jumped from his engine just before the collision the approaching

engine was working steam as it entered the cross-over.

Head Brakeman Shaw, of Extra 1391, stated that as he threw the first cross-over switch he saw a headlight in the vicinity of the yard office, and after lining the yard-track switch he saw the train was approaching and was about 35 car lengths from him or about 30 car lengths south of signal 305-4; it was working steam and he gave stop signals with his white lantern, but as his signals were not answered and the engine of the approaching train continued to work steam he ran back and closed the yard entrance switch and then continued toward the cross-over switch. He had run a total distance of about 250 feet and had just reached the cross-over switch when the train passed him at a speed of about 30 miles per hour, still working steam, and with no indication that the air brakes had been applied. Head Brakeman Shaw stated that after opening the cross-over switches he observed the arms of signal 305-4 in stop position, and while he could not see signal 306-2, it was his opinion that the north-bound train was south of that signal when he threw the first switch. He further stated that he hurried in lining the route for his train and there was no delay in unlocking the switches. It was hazy but visibility was good.

Head Brakeman Tapprich, of Extra 1384, stated that he was on the brakeman's seat on the fireman's side when they passed signal 307-2, located 2,351 feet south of signal 306-2. It displayed a proceed indication and at the same time he observed that signal 306-2 was also displaying a proceed indication. He called the indication of signal 307-2 and soon after passing that signal Engineman Ruffing called the indication of signal 306-2. It was still displaying a proceed indication when the head brakeman last observed it, at which time his engine was a short distance beyond the yard office or about 10 or 12 car lengths from the signal. He estimated the speed of his train to have been about 20 miles per hour at that time and it was then increased to about 25 miles per hour. He saw the south-bound train which appeared to be clear on the southward track and he called attention to this train, referring to it by number. He did not see either signal 305-4 or the switch lights, nor did he see any one giving stop signals, and he did not realize that a collision was imminent until his engine entered the crossover, at which time he thought he heard an application of the air brakes. The signal lights in that vicinity are bright and can be seen for a considerable distance. The engine cab is equipped with storm windows and there is nothing in the cab to interfere with the view through these windows. No one in the cab called the indication of signal 305-4, and he was unable to explain his failure to see that

signal unless it was due to a little fog blowing over the cab or because the headlight of the south-bound train blinded him. Coming through town the cab window on the left side was closed, but the cab window on Engineman Ruffing's side was open. Engineman Ruffing appeared to be in normal condition.

Conductor Golliher, of Extra 1384, stated that Engineman Ruffing appeared to be in normal condition when they left Cairo. The train, consisting mostly of perishables, was operated in the usual manner. The air brakes functioned properly en route, and on approaching Carbondale the speed was reduced by an application of the air brakes. Passing through Carbondale the speed was about 15 or 20 miles per hour; he was on the rear platform of the caboose until the train passed the yard office, after which the speed was increased and he went inside the caboose. He did not see the block-signal indications nor did he hear an engine whistle. The speed was about 25 miles per hour when he felt an emergency application of the air brakes; there were three severe jars and the train stopped within about 30 seconds. After the accident when he went toward the head end of his train he observed signal 305-4 displaying a stop indication. It was his opinion that at the rate of speed his train was traveling, a person would have to work fast to line the cross-over route involved after the engine of his train passed signal 306-2. It was hazy, but not sufficiently to interfere with the visibility; the view was clear for a mile. Operation of his train through the yard limits at Carbondale was at about the usual speed for that territory.

Flagman Wilson, of Extra 1384, stated that he was on the rear platform of the caboose with the conductor while passing through Carbondale and he did not see the indications displayed by the signals involved. He also stated that the air brakes were applied in emergency just before the accident occurred.

Yardmaster Mountain stated that he was at his desk in the yard office when Extra 1384 approached. It passed the office at a speed of between 20 and 25 miles per hour. He noticed that signal 306-2 was displaying a proceed indication until Extra 1384 was about 5 car lengths south of the signal, but due to smoke from the engine obscuring his view he was not positive as to its indication when the engine passed it.

Traveling Engineer McIntyre stated that he arrived at the scene of the accident about 25 minutes after its occurrence. Inspection of engine 1384 showed the reverse lever in full forward motion, the sanders open, the brake valve handle broken off and the throttle stem was bent and appeared to have been

about 1/8 inch open. There was no indication of slid flat wheels, nor of heavy braking before reaching the cross-over.

Division Engineer Harrington arrived at the scene about one-half hour after the accident. The cross-over switch lights were burning red and the switch light governing the switch to the yard was green. Signal 305-4 displayed a stop indication. There was no fog at that time and visibility was good.

Supervisor of Signals Goddard stated that after the track had been cleared of the wreckage, the signals involved were tested and found to be operating properly and there was no evidence of any signal displaying a false indication.

Observations of Commission's Inspectors

Tests were conducted to determine the visibility of the signal indications displayed by signals 305-4 and the switch lights at the cross-over. A south-bound engine with a lighted headlight of the same type and installation as that on engine 1391 was placed on the cross-over at a point 50 feet south of the north switch. An engine of the same type as engine 1384 was started on the north-bound track at a point 1,800 feet south of the point of accident and 1,103 feet south of signal 305-4, and as it advanced toward the cross-over the red light on the signal and the light on the south cross-over switch as well as the light on the switch leading to the classification yard were plainly visible and not affected by the headlight of the engine standing on the cross-over. The lower or yellow light on signal 305-4, however, was very dim until about 600 feet from it, after which it could be seen plainly.

Another test was made to determine the time consumed in opening the cross-over switches and the switch leading to the yard tracks. After the north cross-over switch was opened, the operator consumed 1 minute in walking to and opening the south cross-over switch; an additional 40 seconds were consumed in opening the main line switch leading to the classification yard, and 40 seconds more were required to reach the point specified by Brakeman Shaw as that at which he turned to go back to close the switches. A third test was made by opening the north switch of the crossover and checking the time required to move the signal arms on signals 305-4 and 306-2 from the 45° to the horizontal position; these arms responded in less than 3 seconds.

Discussion

Extra 1384 was being operated at a speed of between 20 and 25 miles per hour passing the yard office, approximately 1,100 feet south of signal 306-2, after which the speed was increased.

Although it cannot be definitely stated what the indication of this signal was just before it was passed by engine 1384 the evidence is to the effect that it was displaying a proceed indication when the engine was about 5 car lengths south of the signal. Using as a basis for calculation the time consumed in opening the cross-over switches during a test conducted after the accident, it appears that signal 306-2 would have displayed an approach indication and signal 305-4 a stop and proceed indication approximately 2½ minutes before the accident occurred. A train traveling at a speed of 25 miles per hour would consume 2 minutes 10 seconds traversing the distance between signal 306-2 and the point of accident, and this would indicate that the signal displayed an approach indication before engine 1384 passed it. Twenty five miles per hour was the lowest estimate of the speed of Extra 1384 in the vicinity of signal 306-2.

There is conclusive evidence that signal 305-4 displayed a stop and proceed indication and that the cross-over switch displayed a red indication; in addition, Brakeman Shaw gave a stop signal when the train was approximately 30 car lengths south of the block signal. Apparently none of these warning signals were seen by any of the employees on engine 1384. The engineman and fireman were killed in the accident, and Head Brakeman Tapprich could give no explanation for his failure to see the signals unless it was due to slight fog blowing over the cab of the engine or to being blinded by the headlight of the train on the southward track. Other employees stated that the weather was slightly foggy or hazy, but the visibility was good for a distance of approximately 1 mile.

Tests conducted after the accident showed that the signals functioned as intended, and that switch indications adverse to the movement of Extra 1384 were displayed in time for that train to have been brought to a stop before passing the clearance point of the switches. Regardless of block-signal indications, weather conditions, or the effect of the headlight of the southbound engine upon visibility, this accident would have been averted had Extra 1384 been operated within the yard limits in compliance with the requirements of rule 93.

The line on which this accident occurred forms a part of the route from Chicago and St. Louis on the north to New Orleans and other southern points and it carries relatively heavy traffic. During the 30-day period preceding the date of this accident traffic at this point averaged approximately 27 trains per day, of which 14.8 were passenger trains. The report upon an accident which occurred on this line at Centralia, Ill., 56 miles north of Carbondale, on November 7, 1928, due to a similar cause, con-

tained the following statement which also applies in this case:

> Extending northward from Branch Junction, 2.3 miles north of Centralia, to Champaign, a distance of 121.8 miles, there is an automatic train control installation in service; this automatic train control system is designed to prevent accidents such as that here under investigation. In view of this accident it is believed the carrier should seriously consider whether the automatic train control system now in use should not be extended southward from Branch Junction.

Conclusion

This accident was caused by the failure of the crew of Extra 1384 properly to observe and obey signal indications and to comply with the requirements of rule 93.

Respectfully submitted,

W. J. PATTERSON,

Director.