

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2700  
THE LOUISVILLE & NASHVILLE RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
AT HAZEL PATCH, KY., ON  
MAY 20, 1943

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SUMMARY

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Railroad: Louisville & Nashville

Date: May 20, 1943

Location: Hazel Patch, Ky.

Kind of accident: Side collision

Trains involved: Work : Freight

Train numbers: Work Extra 1271 : Extra 1910-1899  
North

Engine numbers: 1271 : 1910-1899

Consist: 6 cars, caboose : 107 cars, caboose

Speed: 4-5 m. p. h. : 10 m. p. h.

Operation: Timetable, train orders and  
automatic block-signal system

Track: Double; 8°13' curve; 0.13 percent  
descending grade northward

Weather: Clear

Time: About 11:35 a. m.

Casualties: 1 killed; 4 injured

Cause: Accident caused by failure to  
provide adequate flag protec-  
tion for a work train

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2700

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

THE LOUISVILLE & NASHVILLE RAILROAD COMPANY

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June 28, 1943.

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Accident at Hazel Patch, Ky., on May 20, 1943, caused by  
failure to provide adequate flag protection for a  
work train.

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REPORT OF THE COMMISSION<sup>1</sup>

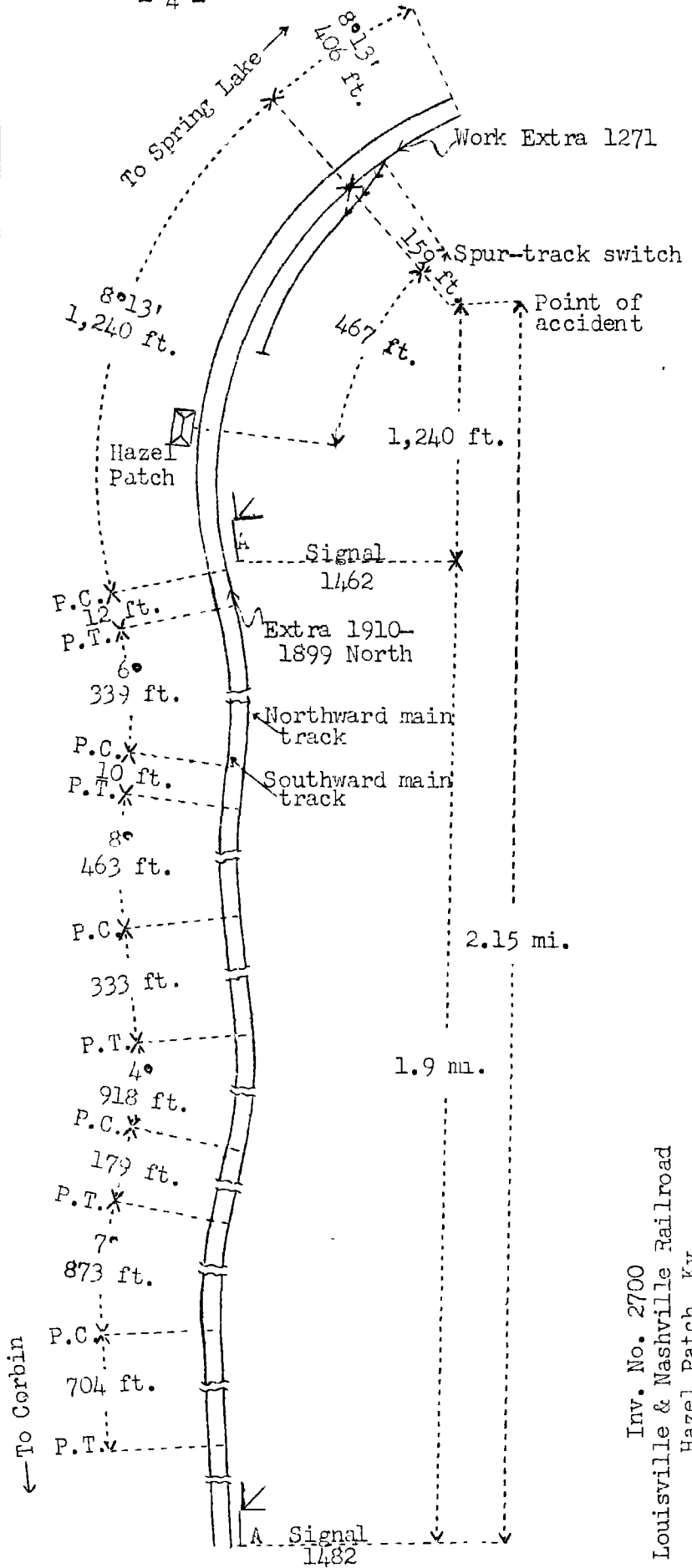
PATTERSON, Commissioner:

On May 20, 1943, there was a side collision between a  
work train and a freight train on the Louisville & Nashville  
Railroad at Hazel Patch, Ky., which resulted in the death of  
one employee and the injury of four employees.

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<sup>1</sup>Under authority of section 17 (2) of the Interstate Com-  
merce Act the above-entitled proceeding was referred by the  
Commission to Commissioner Patterson for consideration and  
disposition.

- Spring Lake, Ky.  
143.17 mi.
- Sinks  
3.20 mi.
- Livingston  
5.80 mi.
- ✱ Hazel Patch (P. of A.)  
6.40 mi.
- East Bernstadt  
19.90 mi.
- Corbin, Ky.



Inv. No. 2700  
Louisville & Nashville Railroad  
Hazel Patch, Ky.  
May 20, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Cincinnati Division extending between Corbin and Spring Lake, Ky., 178.47 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. At Hazel Patch a spur track 708 feet in length parallels the main tracks on the east and is connected with the northward main track by a trailing-point switch for north-bound movements at a point 623 feet north of the station. The accident occurred on the northward main track at a point 159 feet south of the spur-track switch, at the fouling point of the turnout. Approaching from the south there are, in succession, a tangent 704 feet in length, a 7° curve to the right 873 feet, a tangent 179 feet, a 4° curve to the left 918 feet, a tangent 333 feet, an 8° curve to the right 463 feet, a tangent 10 feet, a 6° curve to the left 339 feet, a tangent 12 feet and an 8°13' curve to the right 1,240 feet to the point of accident and 406 feet beyond. Throughout a distance of 2 miles immediately south of Hazel Patch, the grade for north-bound trains varies between 1.33 and 0.13 percent descending and is 0.13 percent at the point of accident.

Automatic signals 1482 and 1462, governing north-bound movements on the northward main track, are located, respectively, 2.15 miles and 1,240 feet south of the point of accident. These signals are of the one-arm, three-position, upper-quadrant, semaphore type, and are approach lighted. The day aspects and corresponding indications and names of these signals are as follows:

<u>Day Aspect</u>	<u>Indication</u>	<u>Name</u>
Vertical	Proceed.	Clear.
45 degrees	Prepare to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach.
Horizontal	Stop; then proceed in accordance with rule 509 (B).	Stop and Proceed.

## DEFINITIONS.

\* \* \*

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

Operating rules read in part as follows:

15. The explosion of one torpedo is a signal to stop; the explosion of two torpedoes, not more than 200 feet apart, is a signal to proceed at restricted speed. \* \* \*

\* \* \*

35. The following signals will be used by flagmen:

Day signals--A red flag,  
Torpedoes and  
Fuseses.

\* \* \*

97 (a). When a work extra is working under protection of signals and the flagman is instructed to notify approaching trains to look out for such work extra at a certain point or points, the conductor of the work extra must write and sign two copies of instructions for each train signaled; the flagman of the work extra must deliver one copy each to the engineman and conductor of all trains signaled. \* \* \* As an additional precaution in all such cases, the work extra when standing at a place where it can not be plainly seen by an approaching train must be protected by a second flagman.

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection. At a point one-fourth of a mile from the rear of his train, he will place one torpedo on the rail; continuing back to a distance of not less than one-half mile from the rear of his train, he will place two torpedoes on the rail one rail length apart. If on descending grade, or the view is obscured by curve, \* \* \*, he must go as much farther as may be necessary to reach a point where he is absolutely sure he can be seen by a train at a sufficient distance in which to stop.

When the two torpedoes have been placed at the proper distance, he may then return to the single torpedo, where he must remain until any approaching train has been stopped, or he is recalled by the whistle of his engine; \* \* \*. When he comes in he will remove the one torpedo nearest his train, leaving a lighted red fusee between the rails at the point where the one torpedo is removed.

#### FORMS OF TRAIN ORDERS.

\* \* \*

D-H

#### WORK EXTRA.

- (1) Eng 292 works extra on \_\_\_\_ track, or \_\_\_\_ tracks, 6 45 six forty five a m until 5 45 five forty five p m between D and E

The work extra must, whether standing or moving, protect itself within the working limits against extra trains moving with the current of traffic on the track or tracks named. \* \* \*

\* \* \*

#### AUTOMATIC BLOCK SYSTEM RULES.

509 (B). When a train is stopped by a Stop and Proceed signal it may proceed at once at restricted speed.

In the immediate vicinity of the point of accident, the maximum authorized speed for all trains is 20 miles per hour.

#### Description of Accident

At Livingston, 5.8 miles north of Hazel Patch, the crew of Work Extra 1271 received copies of train order No. 213 reading in part as follows:

Eng 1271 works extra on both tracks  
6 30 six thirty a m until 8 30 eight  
thirty p m between Sinks and Corbin  
Protecting against second class trains. \* \* \*

Sinks and Corbin are, respectively, 9 miles north and 26.3 miles south of Hazel Patch. Work Extra 1271 departed from Livingston about 7 a. m., according to statements of the crew, proceeded to East Bernstadt, 6.4 miles south of Hazel Patch, crossed over to the northward main track, proceeded northward and arrived at Hazel Patch about 10 a. m. At Hazel Patch this train, consisting of engine 1271, headed north, one auxiliary water car, one spreader, one dump car, one ditcher, one dump car, one auxiliary water car and a caboose, in the order named, performed ditching work east of the spur track near the switch. It backed into clear on the spur track to permit several north-bound trains to proceed. About 11:30 a. m. Work Extra 1271 again moved to the northward main track to perform ditching work. About 5 minutes later it started to back into clear on the spur track, and while moving at an estimated speed of 4 or 5 miles per hour it was struck by Extra 1910-1899 North.

Extra 1910-1899 North, a north-bound freight train, consisted of engines 1910 and 1899, coupled, 106 loaded cars, 1 empty car and a caboose. At Corbin, the last open office, the crew received copies of train order No. 213. After a terminal air-brake test was made, this train departed from Corbin at 10:10 a. m., according to the dispatcher's record of movement of trains, passed signal 1432, which displayed proceed, passed signal 1462, which displayed stop-and-proceed, and while moving at an estimated speed of 10 miles per hour it collided with Work Extra 1271 at a point 150 feet south of the spur-track switch. The brakes of this train had functioned properly en route.

From a north-bound engine the view of signal 1462 and the point where the accident occurred is materially restricted because of hillside cuts and vegetation adjacent to the track, and track curvature.

Engine 1271 and its tender were derailed and stopoed on their right sides east of the spur-track turnout and parallel to it, with the front end of the engine 90 feet south of the switch. The left cylinder of engine 1271 was damaged and the left side of the tender was torn open. The first car was derailed but remained upright and in line with the track. Engines 1910 and 1899, remaining coupled, were derailed and stopped upright and in line with the northward main track, with the front end of the first engine 413 feet north of the point of collision. The right cylinder and the right end of the pilot beam were broken. The first nine cars of Extra 1910-1899 were derailed and stopped in various positions on both main tracks. Of these cars, seven were badly damaged and the remainder were slightly damaged.



It was clear at the time of the accident, which occurred about 11:35 a. m.

The employee killed was the engineer of Work Extra 1271. The employees injured were the fireman of Work Extra 1271, the fireman of the first engine, and the engineer and the fireman of the second engine of Extra 1910-1899.

### Discussion

The rules governing operation on the line involved provide that in double-track territory a work extra must be authorized by train order and, unless otherwise provided, move with the current of traffic, and whether standing or moving, it must protect itself against extra trains moving with the current of traffic. When a flagman is sent with instructions to flag certain trains, the instructions must be in writing and the flagman must deliver a copy of the instructions to the engineer and the conductor of each train affected. In addition, when a work extra is standing at a place where it cannot be seen plainly from an approaching train, the work extra must provide a second flagman for additional protection. All the surviving employees of both trains understood these requirements.

The crews of both trains held copies of train order No. 213, which authorized Work Extra 1271 to work on both main tracks between Sinks and Corbin. The work extra was required to move with the current of traffic, to clear first-class trains, and to provide protection against second-class and extra trains.

Work Extra 1271 entered the northward main track at East Bernstadt, 6.4 miles south of Hazel Patch, and proceeded northward. About 1-1/4 miles south of Hazel Patch, the flagman alighted to provide flag protection while his train was working in this territory. The conductor gave the flagman oral instructions to stop all north-bound trains except first-class trains, and to inform the conductors and the engineers that Work Extra 1271 was working in the vicinity of Hazel Patch. On two occasions Work Extra 1271 backed into clear on the spur track at Hazel Patch to permit north-bound trains to proceed. About 11:30 a. m., after a north-bound freight train had passed, the work extra entered the main track to perform ditching service east of the spur track near the location of the switch. At this time the rear of the train was standing in the spur track. Soon afterward the middle brakeman observed Extra 1910-1899 North approaching and gave signals to the engineer to back. The work extra started to back into clear, but before it was clear of the fouling point, engine 1271 was

struck by Extra 1910-1899 North.

As Extra 1910-1899 North was approaching signal 1482, 2.15 miles south of the point of accident, the speed was about 10 miles per hour, and the engineer, the fireman and the front brakeman were maintaining a lookout ahead. This signal displayed a proceed indication, and at this time Work Extra 1271 was into clear on the spur track. Both the engineer and the fireman said that the speed increased to about 20 miles per hour and, when the engine was about 700 feet south of signal 1462, two torpedoes were exploded. The engineer immediately made a 10-pound brake-pipe reduction from a pressure of about 80 pounds. Soon afterward two more sets of two torpedoes each were exploded. When the engine was about 250 feet south of signal 1462, the fireman observed that the signal displayed stop-and-proceed, and called this indication to the engineer. Because of track curvature the engineer was unable to see this signal until the engine was about 100 feet south of it. At that point the speed was about 18 miles per hour. When the engine was about 350 feet north of signal 1462, the brake-pipe exhaust from the service application had not ceased, and the engineer observed the flagman of Work Extra 1271 giving stop signals with a red flag from a point about 400 feet farther north. The engineer immediately moved the brake valve to emergency position; however, because of the tonnage of Extra 1910-1899 and the descending grade he could not stop the train before it collided with Work Extra 1271 at a point about 500 feet beyond the flagman. The members of the crew on engine 1910 estimated that the speed of their train was about 10 miles per hour at the time of the collision.

Under the rules, the flagman of Work Extra 1271 was required to station himself at a sufficient distance from his train to insure full protection and to remain at that point until recalled. The territory throughout a distance of about 6 miles immediately south of Hazel Patch consists of numerous sharp curves and short tangents, and the grade is descending. The flagman said that he placed torpedoes about 1-1/4 miles south of Hazel Patch, then proceeded northward to a point where he could observe the indication displayed by signal 1462. About 10:50 a. m. Work Extra 1271 entered the spur track to clear for a north-bound first-class train, and signal 1462 displayed proceed. At that time the flagman returned to the caboose to eat his lunch. Before the work extra again entered the main track, the flagman proceeded southward to a point about 1,400 feet south of signal 1462 and flagged a north-bound freight train. After this train proceeded the flagman again placed two torpedoes on the rail. Signal 1462 changed to display approach, and he assumed that the work extra was remaining in the clear on the spur track, and he proceeded northward to the caboose

to obtain some water. Soon afterward he heard Extra 1910-1899 explode torpedoes and, running southward, he gave stop signals with a red flag; however, he had proceeded only about 600 feet when that train passed him.

The investigation disclosed that the conductor did not provide the flagman with written instructions to be given to the conductors and the engineers of trains which were to be flagged. The conductor said that it was impractical to issue written instructions because of the numerous changes in points where work was performed. The flagman returned to the train on two occasions, although he had not been recalled. On the first occasion the conductor was aware that the flagman had returned, but did not instruct him to provide flag protection immediately. The rules require that a second flagman must be provided when a work extra is working in territory where the view is restricted. In this instance, because he was required to assist with the handling of switches, the middle brakeman did not leave the vicinity of the rear of the work extra. Furthermore, he had been instructed by the conductor to listen for approaching trains so that the work extra could back into clear without delaying such trains. The middle brakeman was in the caboose when the flagman returned the second time, but did not proceed southward to provide flag protection during the time the flagman was at the caboose. The conductor had confidence that his train would be protected and had not instructed any member of the crew as to the manner in which full protection should be provided. The middle brakeman did not have flagging equipment in his possession. If proper flag protection had been provided, this accident would have been prevented.

The engineer of the first engine and both firemen of Extra 1910-1899 said that three sets of two torpedoes each were exploded south of signal 1462, but that the most southerly torpedoes were about 700 feet south of that signal; however, the flagman of the freight train which preceded Extra 1910-1899 said that his train stopped at signal 1462 and he placed two torpedoes about 2,400 feet south of that signal, but the members of the crew on the front end of Extra 1910-1899 did not hear any torpedoes exploded at this point. His train proceeded and then stopped again, and he placed two more torpedoes about 400 feet south of the signal. Under the rules, when a train explodes two torpedoes not more than 200 feet apart, speed must be reduced in such manner that the train can be stopped short of another train or an obstruction. Immediately after Extra 1910-1899 exploded the two torpedoes 700 feet south of signal 1462 the engineer took action to reduce the speed, but the

train was not stopped short of the fouling point at the switch even though an emergency application of the brakes was made before the exhaust of the first application had ceased. The engineer said that, since signal 1482 displayed proceed and there was no train or obstruction in the vicinity of signal 1462, he did not consider it necessary to make an emergency application of the brakes when he observed signal 1462 displaying stop-and-proceed.

Cause

It is found that this accident was caused by failure to provide adequate flag protection for a work train.

Dated at Washington, D. C., this twenty-eighth day of June, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. MARTEL,  
Secretary.