INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3415

WABASH RAILROAD COMPANY
AND
THE NEW YORK, CHICAGO AND ST. LOUIS
RAILROAD COMPANY

IN RE ACCIDENT

AT NEW HAVEN, IND., ON

JULY 16, 1951

SUMMARY

Date:	July 16, 1951	
Railroads:	Wabash	: New York, Chicago and St. Louis
Location:	New Haven, Ind.	
Kind of accident:	Side collision	
Trains involved:	Passenger	: Freight
Train numbers:	13	: 51
Engine numbers:	1678	: 767
Consists:	4 cars	: 63 cars, caboose
Estimated speeds:	5 m. p. h.	: 45 m. p. h.
Operation:	Interlocking	
Tracks:	Single; tangent; level	: Single; tangent; 0.12 percent ascending grade westward
Weather:	Clear	
Time:	9:22 p. m.	
Casualties:	4 killed; 13 injured	
Cause:	Failure to operate Wabash train in accordance with signal indication	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3415

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

WABASH RAILROAD COMPANY
AND
THE NEW YORK, CHICAGO AND ST. LOUIS RAILROAD COMPANY

September 26, 1951

Accident at New Haven, Ind., on July 16, 1951, caused by failure to operate the Wabash train in accordance with a signal indication.

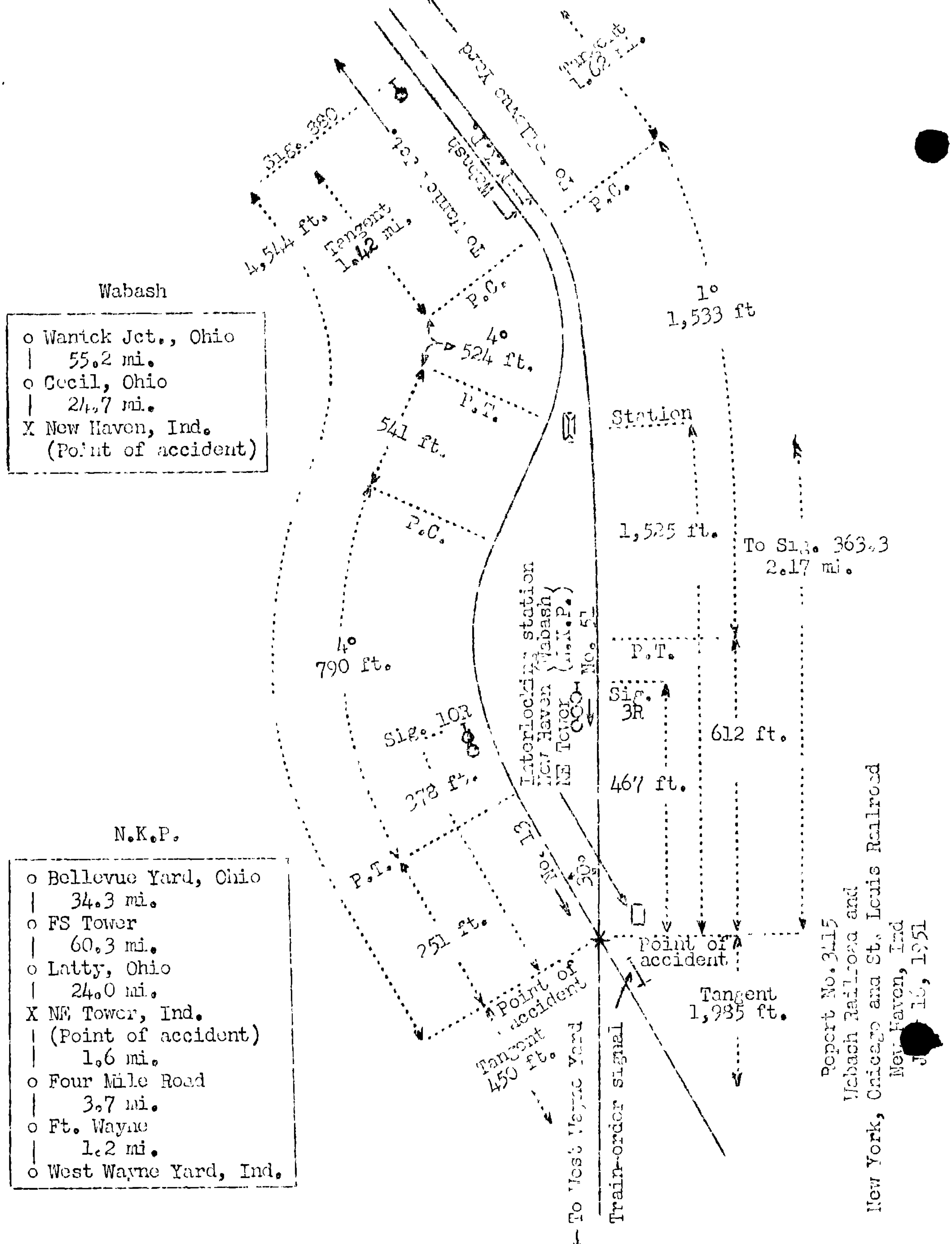
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On July 16, 1951, there was a side collision between a passenger train on the Wabash Railroad and a freight train on the New York, Chicago and St. Louis Railroad at New Haven, Ind., which resulted in the death of two passengers, one train-service employee, and one employee not on duty, and the injury of five passengers, six train-service employees, one sleeping-car porter, and one employee not on duty.

---

[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.


Wabash
o Wanick Jct., Ohio
55.2 mi.
o Cecil, Ohio
24.7 mi.
X New Haven, Ind.
(Point of accident)
N.K.P.
o Bellevue Yard, Ohio
34.3 mi.
o FS Tower
60.3 mi.
o Latty, Ohio
24.0 mi.
X NE Tower, Ind.
(Point of accident)
1.6 mi.
o Four Mile Road
3.7 mi.
o Ft. Wayne
1.2 mi.
o West Wayne Yard, Ind.
To Toledo, Ohio
Wabash
To Bellevue Yard
4,544 ft.
Tangent 1.42 mi.
P.C.
4° 524 ft.
P.T.
541 ft.
P.C.
4° 790 ft.
Sig. 10R
378 ft.
P.T.
251 ft.
Point of accident
Tangent 450 ft.
To West Wayne Yard
Train-order signal
No. 13
Interlocking station
New Haven (Wabash)
NE Tower (N.K.P.)
No. 5
Station
1° 1,533 ft
P.C.
1,525 ft.
P.T.
Sig. 3R
467 ft.
612 ft.
Point of accident
Tangent 1,985 ft.
Report No. 3415
Wabash Railroad and
New York, Chicago and St. Louis Railroad
New Haven, Ind.
1951

Location of Accident and Method of Operation

This accident occurred at the intersection of the Wabash Railroad and the New York, Chicago and St. Louis Railroad, hereinafter referred to as the N.K.P., at New Haven, Ind. An interlocking station at the crossing is designated as New Haven by the Wabash, and as NE Tower by the N.K.P. The designation New Haven is used in this report. The crossing is located on that part of the Montpelier Division of the Wabash extending between Wanick Jct., Ohio, and New Haven, 79.9 miles, and on that part of the Fort Wayne Division of the N.K.P. extending between Bellevue Yard, Ohio, and West Wayne Yard, Ind., 125.1 miles. New Haven is 118.6 miles west of Bellevue Yard. Between points approximately 1.83 miles and 2,145 feet east of the crossing, the Wabash track parallels the N.K.P. track on the north at a distance of 39 feet. The tracks cross at an angle of 30 degrees. Eastward from New Haven the Wabash is a single-track line, over which trains are operated by timetable, train orders and a manual block system. From the east there are, in succession, a tangent 1.42 miles in length, a 4° curve to the right 524 feet, a tangent 541 feet, a 4° curve to the left 790 feet, and a tangent 251 feet to the crossing and 450 feet westward. The grade for west-bound trains is, successively, between 0.01 percent and 0.29 percent descending a distance of 2,500 feet, between 0.02 percent and 0.32 percent ascending 840 feet, and level 60 feet to the crossing and 300 feet westward. In the vicinity of the point of accident the N.K.P. is a single-track line, over which trains are operated by signal indications. From the east there are, in succession, a tangent 1.62 miles in length, a 1° curve to the right 1,533 feet, and a tangent 612 feet to the crossing and 1,985 feet westward. The grade for west-bound trains is approximately 0.15 percent descending a distance of 2,200 feet, and then approximately 0.12 percent ascending 1,000 feet to the crossing. A station building used by both lines is located between the tracks and 1,525 feet east of the crossing.

Movements over the crossing are governed by interlocking signals. Automatic signal 880 and semi-automatic signal 10R, governing west-bound movements on the Wabash, are located, respectively, 4,544 feet and 378 feet east of the crossing. These signals are of the searchlight type and are approach lighted. Signal 880 displays three aspects, and signal 10R displays four aspects. These signals form part of an automatic block-signal system which extends westward from New Haven. Automatic signal 363.3 and semi-automatic signal 3R, governing west-bound movements on the N.K.P., are located, respectively, 2.17 miles and 467 feet east of the crossing. These signals

are of the color-light type and are continuously lighted. Signal 363.3 displays five aspects, and signal 3R displays four aspects. These signals form part of a traffic-control system which extends between FS Tower, 24.3 miles east of New Haven, and Four Mile Road, 1.6 miles west of New Haven. Aspects applicable to this investigation and the corresponding indications and names are as follows:

Signal	Aspect	Indication	Name
880	Yellow	Proceed preparing to stop at next signal; train exceeding medium speed must at once reduce to that speed.	APPROACH
10R	Red-over-red	Stop. * * *	STOP
10R	Green-over-red	Proceed.	CLEAR
363.3	Green-over-red	Proceed.	Clear.
3R	Yellow-over-green-over-red	Proceed approaching next signal at medium speed.	Approach medium.
3R	Red-over-red	Stop.	Stop.

The control circuits are so arranged that when the block of signal 880 is unoccupied and signal 10R indicates Proceed, signal 880 indicates Proceed. When the block of signal 880 is unoccupied and signal 10R indicates Stop, signal 880 indicates Approach. When the block of signal 363.3 is unoccupied and signal 3R displays an aspect to proceed, signal 363.3 indicates Proceed.

The interlocking station is located in the southeast angle of the crossing. Mechanical, time, route, and indication locking are provided. The mechanical locking and the control circuits are so arranged that a controlled signal can display an aspect to proceed only when conflicting routes through the interlocking are unoccupied and all signals governing movements through conflicting routes are displaying aspects to stop. If a controlled signal displays an aspect to proceed, the route cannot be lined for a conflicting movement until the train for which the signal was displayed

has passed through the interlocking limits or until a predetermined time interval has elapsed after the signal has been caused to display an aspect to stop. The predetermined time interval for signal 10R is 4 minutes 2 seconds, and for signal 3R it is 4 minutes 44 seconds. Visual indicators are provided in the interlocking station which indicate track occupancy of the approach circuits and of the routes of the interlocking, the position of controlled switches, and whether controlled signals display aspects to proceed. West-bound Wabash trains enter the approach circuit at a point 1.48 miles east of the crossing, and west-bound N.K.P. trains enter the approach circuit at a point 4.47 miles east of the crossing.

The control machine of the traffic-control system of the N.K.P. is located at Fort Wayne, 5.3 miles west of New Haven. The controlling circuits are so arranged that before a controlled signal at New Haven can display an aspect to proceed, the route must be lined by the operator at New Haven and the corresponding control code must also be transmitted from the control machine of the traffic-control system. The control machine is provided with visual indicators which indicate track occupancy of the N.K.P. tracks within interlocking limits at New Haven, track occupancy of the approach circuits, and whether the controlled signals of the N.K.P. display aspects to proceed.

A train-order signal governing Wabash trains is located between the interlocking station at New Haven and the Wabash track. This signal is of the two-position semaphore type. The normal indication of the signal is Stop. The signal indicates Proceed for a movement in either direction only when the controlling lever is in the proper position and, in addition, when the interlocking signal governing movements in that direction displays an aspect to proceed or the track within interlocking limits over which the signal governs is occupied.

Operating rules of the Wabash read in part as follows:

DEFINITIONS.

Medium Speed.--A speed not exceeding one-half the authorized speed, but not exceeding 30 miles an hour.

34. All members of train and engine crews must, when practicable, communicate to each other by its name the indication of each signal affecting the movement of their train or engine.

725. Firemen must be in position to see governing signal at each railroad crossing, interlocking, * * * train order signal, * * * and must call to the engineman the position as he (the fireman) sees signal * * *. * * * the engineman must, in turn, see the signal and repeat aloud after the fireman * * * and be governed accordingly.

* * *

Operating rules of the N.K.P. read in part as follows:

34. All members of engine and train crews must, when practicable, communicate to each other by its name the indication of each signal affecting the movement of their train or engine.

The maximum authorized speed for the Wabash train was 50 miles per hour, but it was restricted to 15 miles per hour on the curve immediately east of the point of accident. The maximum authorized speed for the N.K.P. train was 60 miles per hour.

Description of Accident

No. 13, a west-bound first-class Wabash passenger train, consisted of engine 1678, one mail car, one baggage car, one coach, and one sleeping car, in the order named. All cars were of all-steel construction. This train departed from Cecil, 55.2 miles west of Wanick Jct. and the last open office east of New Haven, at 8:42 p. m., 13 minutes late, passed signal 880, which indicated Approach, passed signal 10R, which indicated Stop, and while moving over the crossing at New Haven at an estimated speed of 5 miles per hour the third car was struck by No. 51.

No. 51, a west-bound third-class N.K.P. freight train, consisted of engine 767, 63 cars and a caboose. This train passed Latty, 94.6 miles west of Bellevue Yard and the last open office east of New Haven, at 8:58 p. m., passed signal 363.3, which indicated Proceed, passed signal 3R, which indicated Stop, and while moving at an estimated speed of 45 miles per hour it struck the third car of No. 13.

The second car of No. 13 was slightly damaged. The third car was moved westward along the N.K.P. track and stopped upright, about 10 feet north of the N.K.P. track and parallel to it, with its west end 174 feet west of the crossing. It was demolished. The fourth car was overturned to the right and stopped in the northwest angle of the intersection. It was badly damaged. The engine and the tender of No. 51 overturned to the left. The engine stopped across the N.K.P. track, with its front end against the third car of No. 13. The tender remained coupled to the engine and stopped south of the N.K.P. track and approximately parallel to it. Both the engine and the tender were badly damaged. The first 10 cars and the front truck of the eleventh car of No. 51 were derailed. The first 10 cars stopped in various positions on or near the track. They were badly damaged. The eleventh car stopped upright and in line with the track. It was not damaged.

The conductor of No. 13 was killed. The flagman of No. 13 and the engineer, the fireman, the front brakeman, the conductor, and the flagman of No. 51 were injured.

The weather was clear at the time of the accident, which occurred at 9:22 p. m.

Discussion

As No. 13 was approaching signal 880 the speed was between 30 and 40 miles per hour. The enginemen were maintaining a lookout ahead from their respective positions on the engine. The headlight was lighted brightly. The brakes of the train had been tested and had functioned properly when used en route. Signal 880 indicated Approach, and the indication was called by the enginemen. As the train approached the curve to the right immediately east of New Haven, the speed was reduced to about 15 miles per hour. Because of curvature of the track and buildings adjacent to the track, signal 10R was not visible to the enginemen until the engine reached a point several hundred feet east of the station. The engineer said that as the engine was approaching the station the fireman called the indication of the signal as "All clear." About the same time, the engineer observed that the signal indicated Proceed. He also glanced at signal 3R on the N.K.P., but he did not notice the aspect displayed by that signal. After the engine entered the curve to the right, the front of the engine obstructed the engineer's view of signal 10R until the train was closely approaching the signal, which was located

on a curve to the left. The engineer said that he momentarily saw the signal immediately before the engine passed it, and that the signal indicated Proceed. The fireman said that when the engine entered the curve to the right he observed that signal 10R indicated Proceed. He called the indication to the engineer, and the engineer answered him. He also glanced at signal 3R, but he did not notice the aspect displayed by that signal. During this time he was experiencing difficulty in starting the injector, and after he obtained his first view of signal 10R he devoted his attention to the injector and did not again look at the signal. As the engine was closely approaching the train-order signal, the fireman observed that the signal indicated Stop. He called the indication to the engineer, who immediately made a brake application. After the engine had passed over the crossing the fireman observed the approach of No. 51. Both the engineer and the fireman thought that the speed of their train had been reduced to about 5 miles per hour when the accident occurred. The flagman said that as the train was approaching New Haven he was in the rear vestibule of the third car and the conductor was in the front vestibule of the fourth car. The vestibule door on the south side of the fourth car was open. He also said that, when the train was a short distance west of the station, the conductor, who was looking ahead from the open vestibule door, called "All clear" and then proceeded into the third car. A short time later the flagman proceeded to the open vestibule door and looked ahead, but at that time his view of signal 10R was obstructed by the front of the train. He did not notice the indication of signal 3R. He thought that the speed of the train was about 10 miles per hour when the collision occurred.

As No. 51 was approaching the point where the accident occurred the speed was 60 miles per hour. The enginemen and the front brakeman were maintaining a lookout ahead from their positions in the cab of the engine, and the conductor and the flagman were in the caboose. The headlight was lighted brightly. The brakes of the train had been tested and had functioned properly when used en route. Signal 363.3 indicated Proceed, and the indication was called by the employees on the engine. The engineer said that when signal 3R first became visible to him he observed that the signal indicated Stop. He immediately placed the brake valve in emergency position, opened the sander valve, and closed the throttle. The engineer and the front brakeman thought that No. 13 was not moving when it was struck by their train. They thought that the speed of their train had been reduced to 45 or 50 miles per hour when the collision occurred. The fireman did not see No. 13 before the collision occurred.

About 5 minutes before the accident occurred, the train dispatcher at Fort Wayne instructed the operator at New Haven to line the route for No. 51 through the interlocking. When No. 51 entered the approach circuit, the operator lined the route for the movement of that train. The indicator of both the traffic-control machine at Ft. Wayne and of the interlocking machine at New Haven then indicated that signal 3R displayed an aspect to proceed. About 1 minute after the route was lined for the movement of No. 51, No. 13 entered the approach circuit of the Wabash. As No. 13 was closely approaching signal 10R, it appeared to the operator that the train would not stop short of the signal. He immediately checked the indicators and the positions of the levers of the interlocking machine, and he said that the levers were in the proper position for the movement of No. 51 and the indicators showed that signal 3R displayed an aspect to proceed and that signal 10R indicated Stop. No. 13 passed signal 10R and proceeded upon the crossing. The operator thought that the train was stopped before the collision occurred. The train dispatcher at Fort Wayne said that the indicators of the traffic-control machine indicated that signal 3R displayed an aspect to proceed for several minutes after No. 51 entered the approach circuit and then displayed an aspect to stop for several seconds before this train passed the signal.

The signal maintainer of the N.K.P. arrived at the interlocking station about 10 minutes after the accident occurred. The signal maintainer of the Wabash arrived about 10 minutes later. They said they found the levers of the interlocking machine in proper position for the movement of No. 51, and the interlocking machine, the time releases, and the relay cases all properly locked in such a manner that they could not be tampered with. They then inspected signals 10R and 3R and found that each signal indicated Stop. A short time later, the interlocking machine and all instrument cases, signals, and junction boxes of the interlocking were sealed in order to preserve the conditions which existed immediately before the accident occurred. Inspections and tests of the undamaged signal equipment were begun by signal forces of both carriers about 14 hours after the accident occurred. No condition was found which would have caused an improper operation of the signal system. The train-order signal and one cable terminal box of the Wabash and one switch operating mechanism together with junction box and controlling cable and several single conductor track cables of the N.K.P. were destroyed in the accident. After the damaged equipment was replaced, complete tests of the interlocking were made. None of the tests revealed any condition which could have caused signal 3R and signal 10R to

display aspects to proceed simultaneously or would have permitted a route to be changed in less than the prescribed time interval after a signal governing movements through the interlocking had been caused to display an aspect to stop.

As a west-bound Wabash train approaches New Haven, signals 3R and 10R are visible at intervals from the cab of the engine. On the night of July 19, 1951, with weather conditions similar to those which prevailed at the time of the accident, tests were made to determine locations from which these signals were visible. Engine 1678, the engine which was used on No. 13 on the day of the accident, was used in making these tests. From the engineer's usual position on the engine, N.K.P. signal 3R was visible while the engine was moving between points 1,735 feet and 1,543 feet east of signal 10R. Wabash signal 10R was visible while the engine was moving between points 1,517 feet and 1,305 feet east of the signal. Neither signal then was visible until the engine was 245 feet immediately east of signal 10R, which then was visible until the engine passed it. From the fireman's usual position on the engine, signal 10R first was visible at a point 1,408 feet east of the signal. Signal 3R first was visible when the engine was 1,348 feet east of signal 10R. Both signals remained in view until the engine was 162 feet east of signal 10R, at which point the view of that signal was obstructed by the front of the engine. Tests also were made to determine the distance from which signal 3R is visible to the enginemen of a west-bound N.K.P. train. From the engineer's usual position on an engine of the same type as the engine of No. 51 on the day of the accident, signal 3R was visible between points 1,945 feet and 1,779 feet east of the signal, and also throughout a distance of 1,461 feet immediately east of the signal. Because of curvature of the track, the signal was not visible at any time from the fireman's position on the engine.

Immediately after No. 51 entered the approach circuit on the N.K.P., the traffic control machine at Ft. Wayne and the interlocking machine at New Haven were operated to line the route through the interlocking for No. 51 and each indicated that signal 3R displayed an aspect to proceed. In addition, approach signal 363.3 indicated Proceed when No. 51 passed it. After No. 13 entered the Wabash approach

circuit, the operator at New Haven observed that the indicator light on the control machine indicated that Wabash signal 10R was not displaying an aspect to proceed. The Wabash approach signal indicated Approach when No. 13 passed it, and this is the proper indication if the block is unoccupied and signal 10R indicates Stop. About 20 minutes after the accident occurred the signal maintainer for each line observed that the levers of the interlocking machine were in position for a west-bound movement on the N.K.P. and that the interlocking machine, time releases, and other controlling apparatus were locked. Immediately afterward, they observed that signals 10R and 3R each indicated Stop. Tests of the interlocking disclosed no condition which would have caused Wabash signal 10R to indicate Proceed under the conditions which obtained immediately before the accident occurred. The engineer of No. 13 had not made a westward trip between Wanick Jct. and New Haven during a period of about 11 months prior to the day of the accident. The fireman entered the service of the Wabash Railroad as a fireman on May 26, 1951, and had made three westward trips between Wanick Jct. and New Haven. He had no previous experience as a fireman. The flagman was regularly assigned to freight service on another district of the railroad. The conductor, the only member of the crew who was regularly assigned to No. 13, was killed in the accident. In view of the inexperience of the fireman and the fact that the engineer had not made a westward trip through the interlocking at New Haven during a period of 11 months before the accident occurred it may have been that in the vicinity of the station at New Haven they mistook the Proceed aspect displayed by N.K.P. signal 3R for an aspect displayed by signal 10R. Then the fireman became engaged in other duties and did not again observe either signal, and the engineer's view of both signals was obscured until the engine was a short distance east of signal 10R.

Cause

It is found that this accident was caused by failure to operate the Wabash train in accordance with a signal indication.

Dated at Washington, D. C., this twenty-sixth day of September, 1951.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.