

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

---

INVESTIGATION NO. 2610  
THE MISSOURI PACIFIC RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
NEAR WAVERLY, MO., ON  
AUGUST 1, 1942

---

- 2 -

SUMMARY

---

Railroad:	Missouri Pacific
Date:	August 1, 1942
Location:	Waverly, Mo.
Kind of accident:	Rear-end collision
Trains involved:	Freight : Freight
Train numbers:	Extra 1430-1522 East: 62
Engine numbers:	1430-1522 : 5338
Consist:	109 cars, caboose : 72 cars, caboose
Speed:	Standing : 10-30 m. p. h.
Operation:	Timetable and train orders
Track:	Single; tangent; 0.11 percent ascending grade eastward
Weather:	Clear
Time:	1 p. m.
Casualties:	2 injured
Cause:	Accident caused by failure to provide adequate protection for preceding train
Recommendation:	That the Missouri Pacific Railroad Company establish an adequate block system on the line involved in this accident

INTERSTATE COMMERCE COMMISSION

---

INVESTIGATION NO. 2610

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

THE MISSOURI PACIFIC RAILROAD COMPANY

---

September 9, 1942.

---

Accident near Waverly, Mo., on August 1, 1942, caused by  
failure to provide adequate protection for preceding  
train.

---

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

PATTERSON, Commissioner:

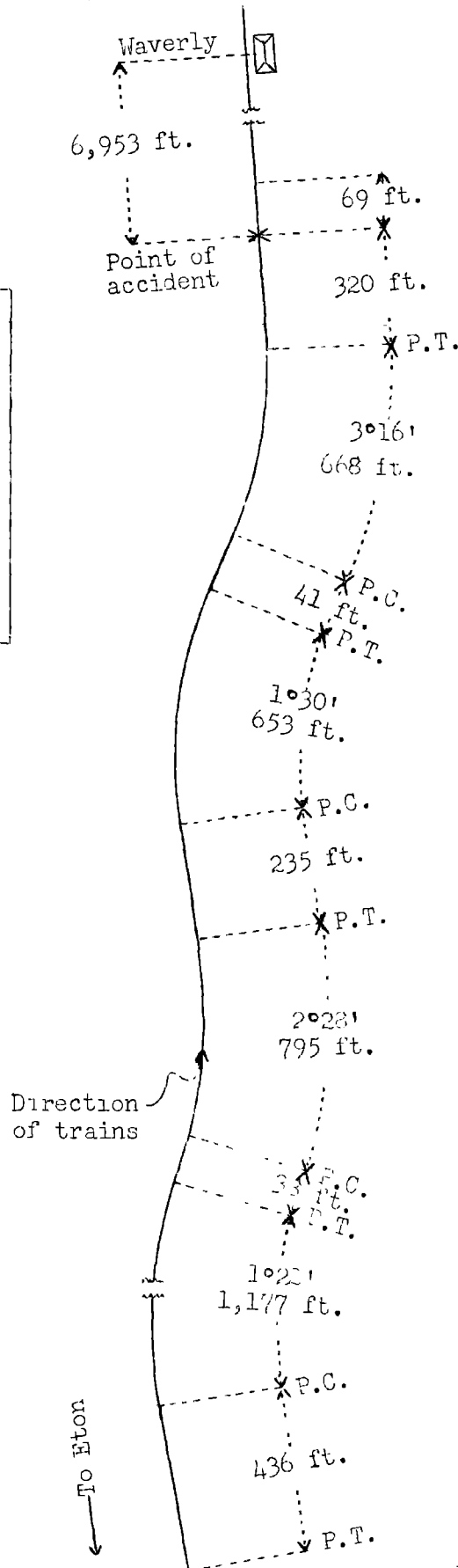
On August 1, 1942, there was a rear-end collision between two freight trains on the Missouri Pacific Railroad near Waverly, Mo., which resulted in the injury of two employces. This accident was investigated in conjunction with a representative of the Missouri Public Service Commission.

---

<sup>1</sup>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.

River Subdivision	○ SR Jct., Mo.
	96.62 mi.
	○ Waverly
	1.31 mi.
	X Point of accident
	21.75 mi.
	○ Myrick
○ Eton	28.60 mi.
	10.56 mi.
	○ East Yard,
	Kansas City, Mo.

To SR Jct.



Inv. No. 2610  
Missouri Pacific Railroad  
Waverly, Mo.  
August 1, 1942

Location of Accident and Method of Operation

This accident occurred on that part of the Eastern Division designated as the River Subdivision and extending between Eton and SR Jct., Mo., a distance of 148.28 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred on the main track at a point 6,953 feet west of the station at Waverly. As the point of accident is approached from the west there are, in succession, a tangent 436 feet in length, a 1°22' curve to the right 1,177 feet, a tangent 38 feet, a 2°28' curve to the left 795 feet, a tangent 235 feet, a 1°30' curve to the right 653 feet, a tangent 41 feet, a 3°16' curve to the left 668 feet, and a tangent 320 feet to the point of accident and 69 feet beyond. At the point of accident the grade for east-bound trains is 0.11 percent ascending.

Operating rules read in part as follows:

DEFINITIONS

\* \* \*

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

\* \* \*

11. A train finding a fusee burning on or near its track must stop and extinguish the fusee. Train may then proceed at restricted speed.

35. The following signals will be used by flagmen:

Day signals--	A red flag,
	Torpedoes and
	Fusees

\* \* \*

85. \* \* \* extra trains may pass and run ahead of second and third class trains and extra trains. \* \* \*

\* \* \*

91. Unless some form of block signal is used:

Trains in the same direction must keep not less than five minutes apart, except in closing up at stations.

\* \* \*

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, placing two torpedoes, and when necessary, in addition, displaying lighted fuses.

When recalled and safety to the train will permit, he may return.

When the conditions require, he will leave the torpedoes and a lighted fuse.

\* \* \*

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fuses must be thrown off at intervals.

In the vicinity of the point of accident the maximum authorized speed for freight trains is 45 miles per hour.

#### Description of Accident

Extra 1430-1522 East, an east-bound freight train, consisted of engines 1430 and 1522, coupled, 76 loaded and 33 empty cars and a caboose. After a terminal air-brake test was made this train departed from East Yard, Kansas City, Mo., 62.21 miles west of Waverly, at 8 a. m., according to the dispatcher's record of movement of trains, departed from Myrick, 23.06 miles west of Waverly and the last open office, at 11:58 a. m., and stopped on the main track at Waverly at 12:46 p. m., with the caboose standing 6,953 feet west of the station. About 14 minutes later the caboose was struck by No. 62.

No. 62, an east-bound second-class freight train, consisted of engine 5338, 1 auxiliary water car, 67 loaded and 4 empty cars and a caboose. At East Yard, Kansas City, a terminal air-brake test was made and the brakes functioned properly en route. This train departed from East Yard at 10:55 a. m., according to the dispatcher's record of movement of trains, 1 hour 55 minutes late, passed Myrick at 12:25 p. m., 1 hour 51 minutes late, and while moving at an estimated speed of 10 to 30 miles per hour it collided with the rear end of Extra 1430-1522 East.

In the vicinity of the point of accident the track is laid on a hillside cut. Trees and dense vegetation are adjacent to the track on each side. The view from the cab of an east-bound engine is considerably restricted because of numerous curves and the trees and vegetation.

The caboose and the rear four cars of Extra 1430-1522 were derailed and demolished. The fifth car ahead of the caboose was derailed but remained upright on the roadbed and was slightly damaged. The rear truck of the sixth car ahead of the caboose was derailed. Engine 5338, of No. 62, was derailed and stopped, upright and in line with the track, at a point 270 feet east of the point of collision. The front end of the engine and the cab were demolished. The front truck of the tender was derailed.

It was clear at the time of the accident, which occurred at 1 p. m.

The employees injured were the engineer of No. 62, and a student fireman who was on the engine of No. 62.

#### Data

Marks made by an exploded torpedo were found after the accident on the head of the south rail at a point 2,331 feet west of the point of accident. The remains of a freshly burned fusee were found at a point 1,359 feet west of the point of accident.

A braking test of an east-bound freight train was made in the vicinity of the point of accident. This train consisted of the same class of engine as engine 5338, 1 auxiliary water car, 54 loaded and 15 empty cars and a caboose. Of these cars, 37 were equipped with K-2 triple valves and 34 with AB valves. The piston travel varied between 6-1/4 inches and 10 inches. At a point 8,621 feet west of Waverly the speed was 45 miles per hour and the throttle was open. As a result of a service brake application, which consisted of reductions of 9, 6, and 5 pounds, the train stopped in a distance of 3,514 feet. During this test the steam pressure in the cylinders was gradually reduced proportionately to the speed.

During the 30-day period preceding the day of the accident, the average daily movement in the vicinity of the point of accident was 16.6 trains.

#### Discussion

The rules governing operation on the line involved provide that when a train is moving under circumstances in which it may be overtaken by another train the flagman must take such action as may be necessary to insure full protection. By day, when the

view is obscured, lighted fusees must be thrown off at proper intervals. 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. When a crew finds a lighted fusee on the track or near it, the train must stop and may then proceed but it must be prepared to stop short of a train or obstruction. All members of both crews involved understood these requirements.

As Extra 1430-1522 East was approaching Waverly, the engineer of the first engine decided it was necessary to stop at Waverly for water, and when his engine passed the station sign, 1.6 miles west of the station and 1.26 miles west of the water column, he began to reduce speed to stop at the water column. The train stopped on the main track at Waverly at 12:46 p. m., with the rear end standing 6,953 feet west of the station. At 12:55 p. m. the engine-whistle signal was sounded for the flagman to return from the west, and at 1 p. m. the rear end was struck by No. 62.

As No. 62 was approaching the point where the accident occurred, the throttle was open and the speed was about 45 miles per hour. The members of the crew on the engine were maintaining a lookout ahead. When the engine reached a point about 2,350 feet west of the point where the accident occurred two torpedoes were exploded and the engineer closed the throttle. Immediately afterward the fireman observed a red fusee burning on the track about 1,000 feet in front of the engine and warned the engineer, who placed the brake valve in emergency position but the distance was not sufficient for No. 62 to stop short of the preceding train. The members of the crew of No. 62 variously estimated the speed as 10 to 30 miles per hour at the time of the collision. The brakes of this train had been tested and had functioned properly at all points where used en route.

Under the rules, when Extra 1430-1522 was moving at reduced speed in preparing to stop at Waverly, the flagman was required to drop lighted fusees at proper intervals to provide protection for his train. After Extra 1430-1522 stopped at Waverly, the flagman was required to proceed to the rear a sufficient distance to provide adequate protection. According to the statement of the conductor, after his train departed from Myrick, 21.75 miles west of the point of accident, he instructed the flagman to protect against No. 62. The flagman said that throughout that distance he dropped off a total of five lighted fusees at intervals of about 9 minutes and at 12:43 p. m. he dropped off a lighted fusee about 3,000 feet west of the point of accident. Just before his train stopped at 12:46 p. m., he alighted and proceeded westward, and within a period of 9 minutes reached a point about 2,300 feet west of the rear of his train. At 12:55 p. m., the engine whistle sounded the signal for the flagman to



return to his train. He said that he placed a lighted fusee on the track at a point about 150 feet east of the torpedoes; however, the burned remains of a fusee, which was identified by the fireman of No. 62 as being at the location where he observed a burning fusee, were found 1,359 feet west of the point of accident. When the flagman reached a point about 850 feet west of the rear of his train he heard No. 62 approaching, then again started westward giving stop signals. When No. 62 passed him he observed that the train brakes were applied. The conductor of Extra 1430-1522 said that after his train stopped he inspected the rear cars until the flagman was recalled. Soon afterward he heard the explosion of torpedoes and saw No. 62 approaching. At that time his flagman was not within the range of his vision. The flagman said that his experience was limited and that this was the second trip in which he had performed a flagman's duties. He understood that after being recalled he must not return to his train unless conditions permitted; however, he thought the torpedoes and the fusee had been placed a sufficient distance to permit him to return to his train.

In the vicinity of the point of accident there is no restriction to prevent a following freight train from proceeding at the maximum authorized speed of 45 miles per hour. The rules require that flag protection be provided a sufficient distance for following trains to stop from their maximum authorized speed, short of a preceding train. The investigation disclosed that several employees thought a distance of 1 mile was necessary for east-bound freight trains to stop from a speed of 45 miles per hour by a service brake-pipe reduction. The conductor of No. 62 said that he instructs his flagmen to proceed to the rear not less than 3,200 feet. The flagman of No. 62 said that a distance of not less than 3,900 feet was necessary to provide adequate protection. In a test made in the vicinity of the point of accident, a freight train somewhat similar to No. 62 was stopped in a distance of 3,514 feet from a speed of 45 miles per hour by a brake application which consisted of a series of brake-pipe reductions that totaled 20 pounds. The superintendent said flagmen are instructed that if the engine-whistle signal is sounded to recall the flagman before he reaches a sufficient distance to insure full protection the signal is to be disregarded until he reaches the required distance and places torpedoes and a lighted fusee. The investigation disclosed that during the 14-minute interval which the flagman had at his disposal, he could have proceeded to a point where adequate flag protection would have been provided.

In the territory involved, trains are operated by timetable and train orders only. On July 17, a rear-end collision resulting in the death of three and the injury of three persons occurred on the subdivision involved at a point 22 miles east

of Waverly. On this subdivision, the carrier operates trains by an automatic block-signal system between CR Jct. and SR Jct., a distance of 49.25 miles. The western end of this installation is located 47.37 miles east of Waverly. If an adequate block system had been in use in the territory involved, these accidents would have been prevented.

Cause

It is found that this accident was caused by failure to provide adequate protection for the preceding train.

Recommendation

That the Missouri Pacific Railroad Company establish an adequate block-signal system on the line involved in this accident. A rule to show cause why it should not do so will be served on said carrier.

Dated at Washington, D. C., this ninth  
day of September, 1942.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.