

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT NO. 3438 ✓  
MISSOURI PACIFIC RAILROAD COMPANY  
IN RE ACCIDENT  
AT RIVERSIDE, MO., ON  
NOVEMBER 1, 1951

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**SUMMARY**

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Date: November 1, 1951

Railroad: Missouri Pacific

Location: Riverside, Mo.

Kind of accident: Side collision

Trains involved: Freight : Mail-and-express

Train numbers: Extra 2110 North : Second 8

Engine numbers: 2110 : 2113

Consists: 22 cars, caboose : 19 cars

Estimated speeds: Standing : 30 m. p. h.

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

Track: Single; 2°36' curve; 0.14 percent descending grade northward

Weather: Cloudy

Time: 2:47 a. m.

Casualties: 2 killed; 3 injured

Cause: Train fouling main track immediately in front of following train

INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3438

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

MISSOURI PACIFIC RAILROAD COMPANY

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January 18, 1952

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Accident at Riverside, Mo., on November 1, 1951, caused by  
a train fouling the main track immediately in front  
of a following train.

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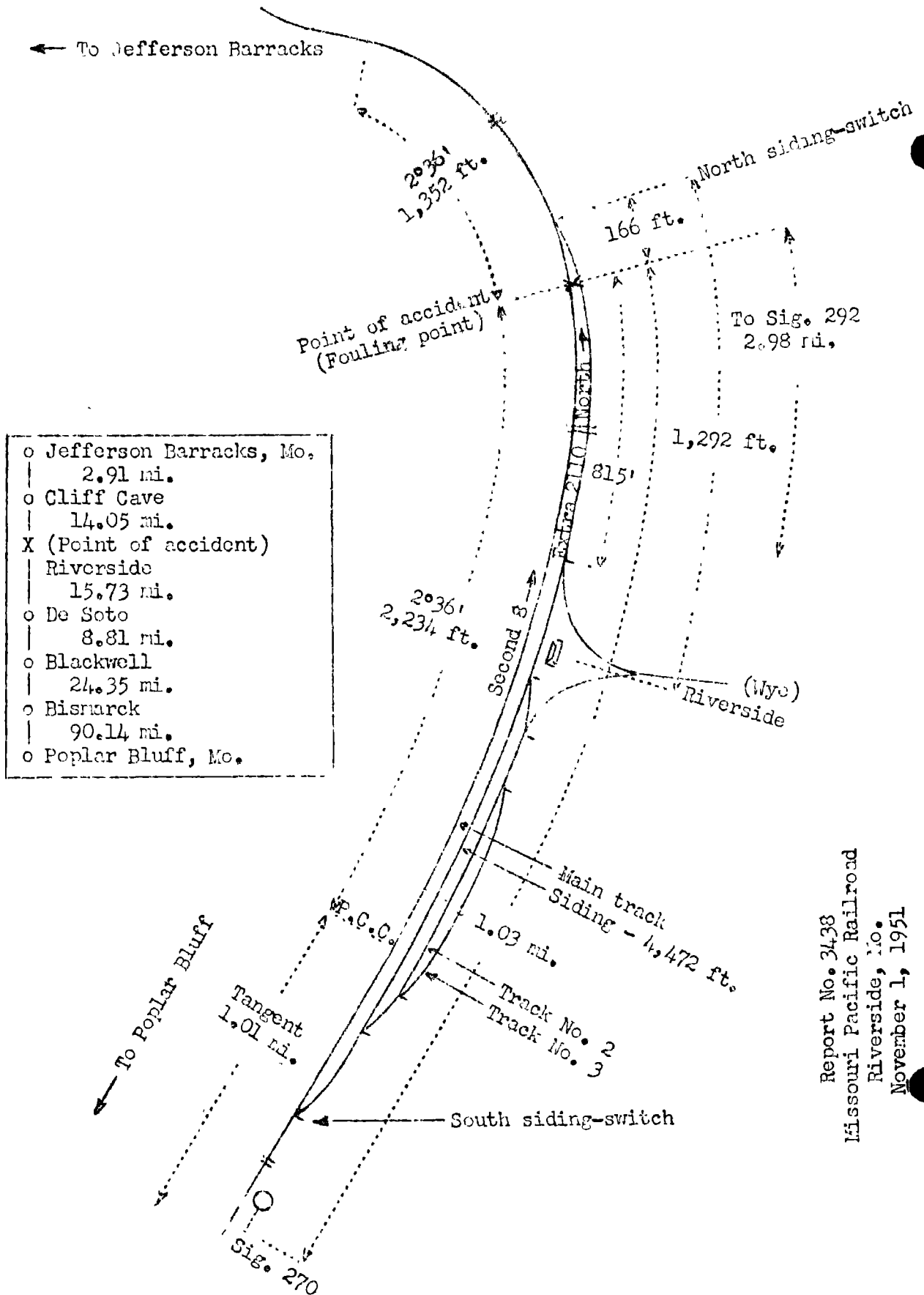
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On November 1, 1951, there was a side collision between a freight train and a mail-and-express train on the Missouri Pacific Railroad at Riverside, Mo., which resulted in the death of two employees and the injury of three employees.

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<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.



Report No. 3438  
Missouri Pacific Railroad  
Riverside, Mo.  
November 1, 1951

Location of Accident and Method of Operation

This accident occurred on that part of the Missouri Division extending between Poplar Bluff and Jefferson Barracks, Mo., 155.99 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable, train orders and an automatic block-signal system. At Riverside, 139.03 miles north of Poplar Bluff, a siding 4,472 feet in length parallels the main track on the east. The north switch of this siding is 1,292 feet north of the station. The accident occurred at the fouling point of the siding and 166 feet south of the north siding-switch. From the south there are, in succession, a tangent 1.01 miles in length, and a compound curve to the left, having a maximum curvature of  $2^{\circ}36'$ , 2,234 feet to the point of accident and 1,352 feet northward. Throughout a distance of 3,702 feet immediately south of the point of accident the grade for north-bound trains varies between 0.57 percent and 0.14 percent descending, and at that point it is 0.14 percent descending northward.

Automatic signals 292 and 270, governing north-bound movements on the main track, are located, respectively, 2.98 miles and 1.03 miles south of the point of accident. These signals are of the color-light type and each displays three aspects. They are continuously lighted. The aspects applicable to this investigation and the corresponding indications, names and rule numbers are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>	<u>Rule</u>
292	Green	Proceed	CLEAR	281
270				

The controlling circuits are so arranged that when the blocks of signals 292 and 270 are unoccupied and the next northward signal displays an aspect more favorable than Stop, these signals indicate Proceed. When the north siding-switch is open or a train occupies any portion of the block of signal 270, including occupancy of the turnout at the north siding-switch, signal 270 indicates Stop and Proceed and signal 292 indicates Approach.

The switch stand of the north siding-switch is of the intermediate-stand type and is provided with a single target. The switch stand is located on the east side of the main track. When the switch is lined for movement from the siding a two-lobe red target 2 feet 10 inches long and 1 foot 2 inches

wide is displayed at right angles to the track. The center of the target is 5 feet 2-1/2 inches above the tops of the ties. No switch lamp is provided.

This carrier's operating rules read in part as follows:

11. Fusee Signals.--A train or engine finding a fusee burning on or near its track must stop, \* \* \*. After stopping, train or engine will then proceed at restricted speed \* \* \*

\* \* \*

11 (a) Torpedo Signals.--Torpedoes must be placed on the rail two rail lengths apart on engineer's side. \* \* \*

\* \* \*

14. Engine Horn or Whistle Signals.--\* \* \*

\* \* \*

NOTE.--The signals prescribed are illustrated by "o" for short sounds; "--" for longer sounds. \* \* \*

Sound,

Indication.

\* \* \*

(c) — o o o

Flagman go back and protect rear of train.

\* \* \*

35. Flagging Signals.--The following signals will be used by flagmen:

\* \* \*

Night signals ( A red light,  
( A white light,  
( Torpedoes and  
( Red fusees.

99. Flagging Rule.--\* \* \*

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 red fuses. When recalled and safety to the train will permit, he may return, and except in territory where Rule 99 (j) is in effect, he will leave the torpedoes and a lighted red fusee.

When a train is seen or heard approaching before a flagman has reached a sufficient distance, he must immediately place torpedoes and continue toward the approaching train, giving stop signals.

99 (a). When rear end protection is required, the engineer will immediately sound Signal 14(c)  
\* \* \*

99 (e). Within ABS territory, a train or engine must not enter or foul a main track at a non-electrically locked hand operated \* \* \* switch until proper protection has been afforded against following trains \* \* \*

#### 104. Hand Operated Switches.--

\* \* \*

(5) A train or engine must not foul a main track \* \* \* until switches connected with the movement are properly lined.

\* \* \*

(15) At main track switches in ABS territory, where view is not clear for at least one mile in each direction, train and yard men will operate switch and wait 3 minutes at the switch before giving signal for train or engine movement to main track \* \* \*

\* \* \*

The 3 minute wait does not relieve employees from protecting the movement.

FORMS OF TRAIN ORDERS.

\* \* \*

B.

Directing a Train To Pass Or Run Ahead Of  
Another Train

\* \* \*

(2) Extra 594 North run ahead of No 6 Eng 71  
M to K.

The first-named train will, unless delayed, run ahead of the second-named train between the points designated.

Under Examples \* \* \* (2), when a train is delayed after receiving authority to run ahead of a superior train, it will allow the superior train to pass. \* \* \*

\* \* \*

Form B orders relieve the inferior train ahead from clearing the following superior train \* \* \* but do not confer superiority upon the inferior train, nor relieve the preceding train from protecting as prescribed by Rule 99.

In the vicinity of the point of accident the maximum authorized speeds were 55 miles per hour for the mail-and-express train and 50 miles per hour for the freight train.

Description of Accident

Extra 2110 North, a north-bound freight train, consisted of engine 2110, 82 cars and a caboose. Before departing from Bismark, 48.89 miles south of Riverside, at 9:50 p. m., the crew received copies of train order No. 61 reading as follows:

Eng 2110 run extra Bismark  
to Jefferson Barracks and run  
ahead of Second 8 Eng 2113  
Blackwell to Jefferson Barracks

This train departed from De Soto, the last open office, 15.94 miles south of the point of accident, at 12:23 a. m., entered the siding at Riverside and stopped clear of the main track about 1:25 a. m. The engine was then detached to perform switching service. About 1 hour 22 minutes later the engine, coupled to 17 cars, moved from an adjoining track northward to the siding and then stopped on the turnout of the north siding-switch with the front end of the engine about 135 feet south of the switch. A few seconds later it was struck by Second 8.

Second 8, a north-bound first-class mail-and-express train, consisted of engine 2113, five sleeping cars, one express car, two mail cars, two express cars, one mail car, one express car, one mail car, one express car, one mail car, three sleeping cars, and one coach, in the order named. All cars were of steel construction. This train departed from De Soto at 2:26 a. m., 5 hours 6 minutes late, and while moving at an estimated speed of 30 miles per hour it struck the engine of Extra 2110 North at the fouling point of the main track and the north end of the siding at Riverside.

No equipment of Extra 2110 North was derailed. The engine and the tender, the first car, the front truck of the second car, the rear truck of the fourteenth car and the front truck of the fifteenth car of Second 8 were derailed. The engine stopped on its left side, with the front end 188 feet north of the point of accident and 8 feet west of the track. The tender remained coupled to the engine and stopped with the rear end at an angle of about 45 degrees to the engine and 28 feet west of the track. It was overturned and leaned against an embankment west of the track. A separation occurred between the tender and the first car. The first car stopped with the front end against the rear of the tender and its rear end about 5 feet west of the track. It leaned toward the west at an angle of about 15 degrees, with its front end against the embankment. The front truck of the second car stopped on the roadbed. The second car remained upright and about in line with the track. The fourteenth and the fifteenth cars stopped in line with the track. The rear end of the fourteenth car was crushed inward a distance of about 2 feet by the fifteenth car. The engine and the tender of each train were badly damaged. There was no damage to the cars of Extra 2110 North. The first and the second cars of Second 8 were badly damaged, the seventh, fourteenth and fifteenth cars were considerably damaged and the sixth car was slightly damaged.

The engineer and the fireman of Second 8 were killed. The engineer and the front brakeman of Extra 2110 North and the baggageman of Second 8 were injured.

The weather was cloudy at the time of the accident, which occurred about 2:47 a. m.

### Discussion

Extra 2110 North entered the siding at Riverside at the south siding-switch to meet No. 7, a south-bound first-class passenger train, due at that station at 1:33 a. m., and to perform switching. The train parted while it was entering the siding. After the train was clear of the main track the engine was detached to perform switching service. The engineer and the fireman were on the engine, the front brakeman was in the vicinity of the front end of the train, the conductor and a road foreman of engines were in the vicinity of the station and the flagman had proceeded southward to provide protection while the train was entering the siding. The flagman said he placed and left two torpedoes on the rail and returned to the train. He then proceeded to the vicinity of the station and was instructed by the conductor to open the south siding-switch in preparation for a reverse movement. After the movement was made and the train was clear of the main track, he restored the south siding-switch to normal position and returned to the caboose. He said that the markers on the caboose were lighted and displayed red toward the rear. The engine then was detached and backed over a wye track to an interchange track where it was coupled to 17 cars. These cars were then moved to the clearance point between the wye track and the siding. After other switching was performed the engine again was coupled to the 17 cars on the wye track preparatory to adding them to the train. This last movement would have completed the work of Extra 2110 North at Riverside. While these operations were in progress the road foreman of engines had copied a train order which required No. 7 to wait at Cliff Cave until 3:01 a. m. for Extra 2110 North. The conductor said that the road foreman of engines informed him that Second 8 had departed from De Soto and they discussed the advisability of preceding that train or sending a flagman on it to provide protection for the movement of Extra 2110 North to Cliff Cave for No. 7, but no decision was reached. The conductor accompanied the engine and coupled it to the 17 cars on the wye track. He said that he gave proceed signals and, after the engine and cars had moved northward, proceeded to restore the switch of the interchange track to normal position. The rear three cars were standing on the wye track when the movement stopped.

When the reflection of a headlight from the south indicated that Second 8 was closely approaching Riverside he observed the front brakeman running southward on the west side of the main track in the vicinity of the station and giving stop signals with a lighted fusee. The conductor did not hear torpedoes exploded by Second 8 and he observed that the brakes of the train were applied after the engine and two cars had passed the station. He thought that the speed was reduced to about 30 miles per hour when the collision occurred. The front brakeman said that he had obtained a fusee from the fireman after the engine had been coupled to the 17 cars on the wye track. When he observed that the north siding-switch was open and heard Second 8 approaching he immediately ran southward and gave stop signals with a lighted fusee, but his signals were not acknowledged and he threw the fusee to the ground on the east side of the track just before the train passed him, in an effort to attract the engineer's attention. The engineer said that the road foreman of engines brought him the copy of the train order received at Riverside and discussed it with him and the conductor, and he understood that his train was to proceed from Riverside ahead of Second 8. He also said he observed by the headlight of his engine while it was on the turnout of the wye track switch, about 1,000 feet south of the north siding-switch, that the switch was open. This was about 4 or 5 minutes before the collision occurred and he could not again see the switch until after the engine occupied the turnout at the north end of the siding. When the fireman called a warning he applied the independent brake and alighted from the engine before the accident occurred. The fireman said that he was maintaining a lookout for a signal from the rear during the movement from the wye track and did not look at the switch. When he observed Second 8 closely approaching he warned the engineer and alighted from the engine. The road foreman of engines said that when he copied the train order for the crew of Extra 2110 North the train dispatcher had informed him that Second 8 was at De Soto and had suggested that Extra 2110 North proceed to Cliff Cave on that train's authority, if necessary, as No. 7 could not leave that point until after the arrival of Second 8. He said that he had given this information and a copy of the train order to the conductor and to the engineer. When engine 2110 moved northward on the siding before it was coupled to the 17 cars on the wye track he informed the members of the crew that he would open the north siding-switch. He said that he looked at his watch before he opened the switch and it was then about 2:35 a. m.

After he operated the switch he remained in the immediate vicinity. He did not hear the flagman recalled and he thought that proper protection for the movement was being provided. The flagman was on the rear platform of the caboose when Second 8 passed and he said he did not hear the explosion of a torpedo by that train.

As Second 8 was approaching Riverside the engineer and the fireman were on the engine and the members of the train crew were at various locations throughout the cars of the train. The headlight was lighted brightly. The brakes of this train had been tested and had functioned properly when used en route. The enginemen were killed in the accident. However, the brakes were applied in emergency when the engine was in the vicinity of the station. No surviving member of the crew observed the aspects displayed by signals 292 and 270, but no reduction in speed was made until immediately before the accident occurred.

The rules of this carrier provide that, in automatic block-signal territory, a train or engine must not enter or foul a main track at a non-electrically locked hand-operated switch until proper protection has been afforded against following trains. The rules also provide that at main track switches in automatic block-signal territory where the view is not clear for at least one mile in each direction, a train or engine cannot foul or occupy the main track within 3 minutes after the switch has been operated. The 3-minute wait does not relieve employees from protecting the movement. A train authorized to proceed ahead of a superior train must provide protection as prescribed by Rule 99.

The engine of Extra 2110 North fouled the main track and was still moving when the fireman observed Second 8 closely approaching and at a speed which would have prevented engine 2110 from being backed into clear on the siding. Neither the conductor nor the flagman was aware that the movement would foul the main track, the engine whistle signal for the flagman to protect the rear of the train was not sounded and the flagman did not provide flag protection against the following train. When the front brakeman observed that the engine had fouled the main track and that Second 8 was closely approaching, he gave stop signals with a lighted fusee but the distance was insufficient in which to stop the following train. Second 8 was being operated as though the last signal indicated Proceed and it is evident that the engineer was alert because the brakes were applied in emergency about the time the engineer could have seen that Engine 2110 was

fouling the main track. If the north siding-switch was open while No. 8 was approaching signal 270, that signal should have displayed its most restrictive aspect. However, the signal system was tested after the accident occurred and no defective condition which could have caused the signal to display an improper aspect was found. Under the conditions present when the accident occurred, the crew of Extra 2110 North were required to provide protection against the following train moving at maximum authorized speed before fouling or again occupying the main track.

Cause

It is found that this accident was caused by a train fouling the main track immediately in front of a following train.

Dated at Washington, D. C., this eighteenth day of January, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.