

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

---

INVESTIGATION NO. 2724  
THE ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY  
REPORT IN RE ACCIDENT  
AT GALLUP, N. MEX., ON  
AUGUST 20, 1943

---

SUMMARY

---

Railroad: Atchison, Topeka & Santa Fe  
Date: August 20, 1943  
Location: Gallup, N. Mex.  
Kind of accident: Rear-end collision  
Trains involved: Passenger : Passenger  
Train numbers: Second 3 : Third 3  
Engine numbers: 3731 : 3763  
Consist: 18 cars : 19 cars  
Speed: Standing : 20 m. p. h.  
Operation: Timetable, train orders and  
automatic block-signal system  
Track: Double; tangent; 0.56 percent  
descending grade westward  
Weather: Clear  
Time: About 6:16 p. m.  
Casualties: 205 injured  
Cause: Failure to provide an adequate  
automatic block-signal system  
between signals 1561 and 1531  
Recommendation: That the Atchison, Topeka & Santa  
Fe Railway Company install con-  
tinuous track circuits and establish  
definite maximum authorized speeds  
for its trains

INTERSTATE COMMERCE COMMISSION

---

INVESTIGATION NO. 2724

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

THE ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY

---

November 9, 1943.

---

Accident at Gallup, N. Mex., on August 20, 1943, caused  
by failure to provide an adequate automatic block-  
signal system between signals 1561 and 1581.

---

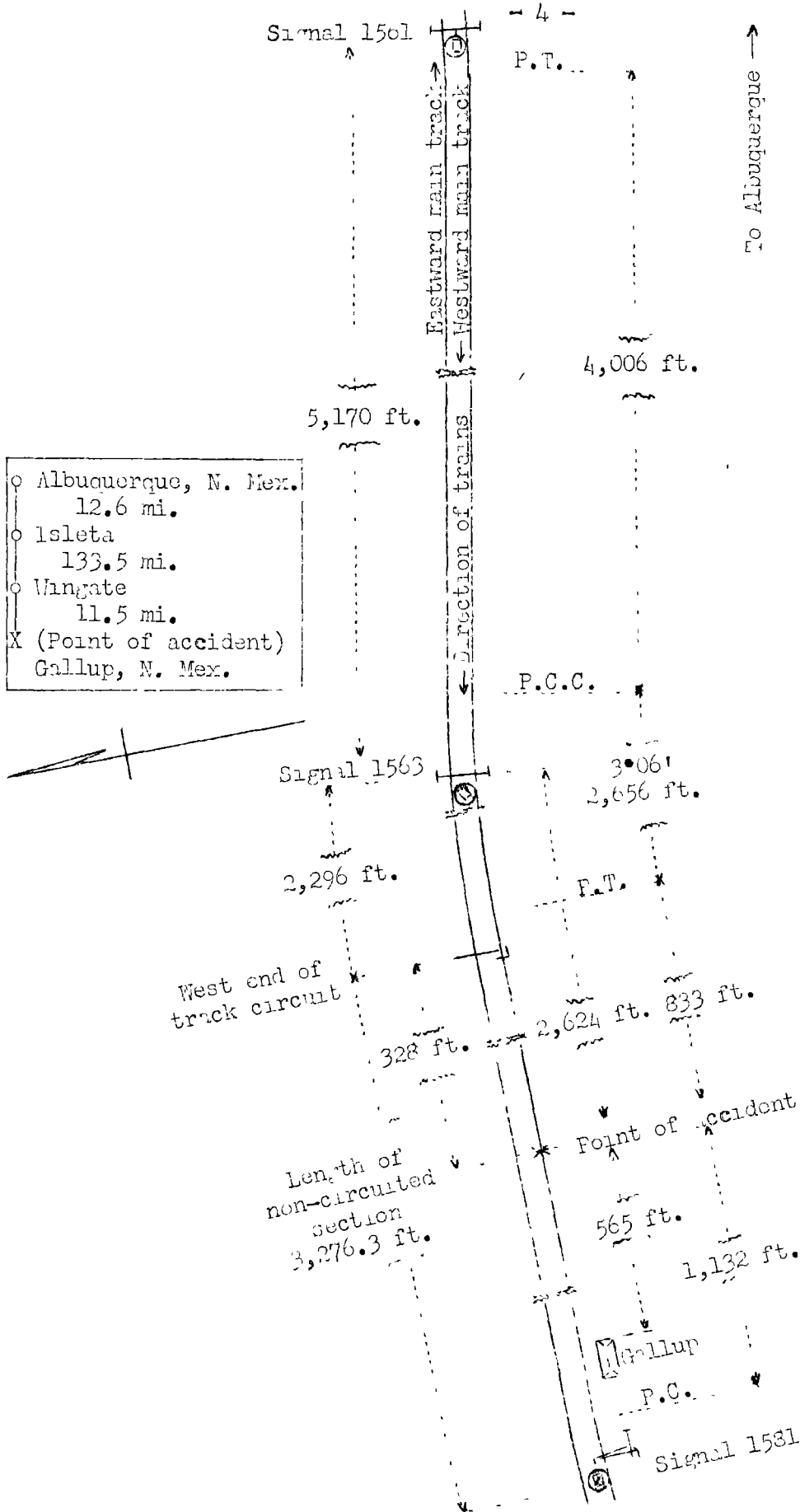
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On August 20, 1943, there was a rear-end collision between two passenger trains on the Atchison, Topeka & Santa Fe Railway at Gallup, N. Mex., which resulted in the injury of 190 passengers, 2 persons carried under contract, 3 Pullman employees, 6 dining-car employees and 2 train-service employees.

---

<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.



Inv-2724  
 Atchison, Topeka & Santa Fe Railway  
 Gallup, N. Mex.  
 August 20, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Albuquerque Division extending between Isleta and Gallup, N. Mex., 145 miles. In the vicinity of the point of accident this was a double-track line over which trains moving with the current of traffic were operated by timetable, train orders and an automatic block-signal system. The current of traffic was to the left. The accident occurred on the westward main track 565 feet east of the station at Gallup. From the east on the westward main track there were, in succession, a tangent 1,006 feet in length, a compound curve to the left 2,653 feet, having a maximum curvature of 3°06', and a tangent 853 feet to this point and 1,132 feet beyond. The grade varied between 0.05 and 0.58 percent descending westward.

Automatic signal 1563, which governed west-bound movements on the westward main track, was located 2,324 feet east of the point of accident. This signal was of the two-indication, color-light type, and was continuously lighted. The aspects and corresponding indications and names of this signal were as follows:

<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Yellow	Proceed at restricted speed	Restricted Speed Signal
Red	Stop-Then proceed * * *	Stop and Proceed Signal

The controlling track circuit was so arranged that when a train occupied the westward main track between signal 1563 and a point 2,296 feet westward, where the track circuit ended, the signal would display stop. When a train passed beyond the end of the circuit the signal would display yellow. The non-circuited section on the westward track extended to signal 1581, a distance of 3,276.3 feet.

Operating rules read in part as follows:

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

11. A train finding a fusee burning on or near its track must stop and wait until it has burned out, before proceeding.

14. ENGINE WHISTLE SIGNALS.

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

SOUND.

INDICATION.

\* \* \*

(e) _____	(Single and double track). Flagman may return from east or north, as pre- scribed by Rule 99.
-----------	--

\* \* \*

15. The explosion of two torpedoes is a signal to proceed at restricted speed, \* \* \*.

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 signal \* \* \* 14(e) \* \* \* has been given to flagman and safety to the train will permit, he may return.

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

\* \* \*

Description of Accident

Second 3, a west-bound first-class passenger train, consisted of engine 3731, one refrigerator-express car, six baggage cars, four box cars, one refrigerator-express car, two baggage cars, one refrigerator-express car, two box cars and a coach, in the order named. The first, third, twelfth and fifteenth cars were of steel-underframe construction, and the remainder were of all-steel construction. This train stopped with the rear end standing 565 feet east of the station at Gallup at 5:55 p. m., 2 hours 20 minutes late, and about 21 minutes later it was struck by Third 3.

Third 3, a west-bound first-class passenger train, consisted of engine 3763, one box car, one refrigerator-express car, one baggage car, two refrigerator-express cars, three baggage-express cars, one combination-coach, one dining car, one coach, two chair cars, one coach, one chair car, one

smoking car, two standard Pullman cars and one tourist Pullman car, in the order named. The second to sixth cars, inclusive, and the eighth, seventeenth, eighteenth and nineteenth cars were of steel underframe construction, and the remainder were of all-steel construction. This train passed Wingate, 11.5 miles east of Gallup and the last open office, at 6:03 p. m., 2 hours 46 minutes late, passed signal 1563, which displayed yellow, and while moving at a speed of 20 miles per hour it collided with Second 3.

The force of impact moved Second 3 forward 40 feet. The rear car was suspended above the rails, on the front end of engine 3763. The rear end of the second rear car was telescoped about 5 feet. The seventh car telescoped the front end of the eighth car. The front end of engine 3763 was badly damaged. The third, sixth and seventh cars of Third 3 were slightly damaged.

It was clear at the time of the accident, which occurred about 6:16 p. m.

A helper-conductor and the flagman of Third 3 were injured.

#### Discussion

Second 3 stopped at the station at Gallup at 5:55 p. m., with its rear end standing 328 feet west of the end of the track circuit controlling signal 1563. About 6:12 p. m. the engine whistle was sounded for the flagman to return to the train; however, because of additional express to be loaded, the train did not start after the return of the flagman. About 6:13 p. m. the rear end was struck by Third 3. Third 3 was moving under a yellow signal aspect, which required that train to be operated prepared to stop short of a train or an obstruction.

As Third 3 was approaching Gallup the speed was 68 miles per hour, and the enginemen were maintaining a lookout ahead. The engineer said that when the engine was about 5,000 feet east of signal 1563 he made a 12-pound brake-pipe reduction, which was followed by a 5-pound reduction, and this application was not released. Signal 1563 displayed yellow, and the engine passed the signal at a speed of about 45 miles per hour. However, the tape of the speed recorder indicated that a brake application was made about 3,000 feet east of the signal, and the speed was about 55 miles per hour at the signal. When his engine was about 1,500 feet east of the point where the accident occurred, the engineer observed simultaneously the rear end of Second 3 and the flagman of that train giving stop signals with a red flag from a point about 400 feet to the rear

of his train. He immediately placed the brake valve in emergency position, but he could not stop his train short of Second 3. The engineer said that if torpedoes had been exploded in the vicinity of signal 1563 he would have taken action at that point and would have stopped his train short of Second 3. However, if Third 3 had been operated beyond the signal in such manner that it could be stopped short of another train, the accident would not have occurred.

As Second 3 was entering the station at Gallup the flagman alighted at a point about 1,500 feet east of the point where the rear of his train stopped, and remained at that location until he was recalled at 6:12 p. m. He proceeded westward and had reached a point about 200 feet to the rear of his train when he observed that express was still being loaded; therefore, he stationed himself at that point and continued to provide flag protection. Soon afterward he observed Third 3 approaching, and, running toward that train, he gave stop signals with a red flag. He had reached a point about 400 feet to the rear of his train when Third 3 passed him. The flagman understood that Third 3 was overdue and that proper flag protection was required, but did not leave torpedoes or a lighted fusee to protect his train during the time he was returning to it.

The automatic block-signal system was not complete at this point. The track circuit which controlled signal 1563 extended only to a point 2,296 feet west of that signal, then there was a non-track-circuited section 3,276.3 feet in length, which extended to the next westward signal. Signal 1561, 5,170 feet east of signal 1563, was arranged to display proceed and signal 1563 to display proceed-at-restricted-speed whenever a west-bound train cleared the track-circuited section west of signal 1563, and these indications would be displayed irrespective of whether the train was on the dead section at Gallup or had departed from that territory. In the instant case, Third 3 was authorized to operate at maximum speed from signal 1561 to signal 1563, but it was required to stop short of a train or an obstruction at any point between signals 1563 and 1581. However, when Second 3 was on the non-circuited section there was no approach indication for signal 1563; therefore, the movement of Third 3 at restricted speed west of signal 1563 depended entirely upon the engineer taking necessary action at a considerable distance east of this signal where he was authorized by signal indication to operate at maximum speed. The Commission's order of April 13, 1939, prescribing rules, standards, and instructions for installation, inspection,



maintenance, and repair of signal systems, provides that automatic block-signals shall be automatically controlled by continuous track circuits on main tracks and on other tracks where medium speed is permitted. Medium speed is defined in this order as a speed not exceeding one-half authorized speed. In the territory involved, there is no definite maximum authorized speed for passenger trains, but the average schedule speed of No. 3 throughout 6 miles immediately east of Gallup is 40 miles per hour. If the track circuits had been continuous in this territory, Third 3 would have received an approach indication at signal 1561 and a stop-and-proceed indication at signal 1563. It would have been required to stop at the latter signal, and the accident would have been averted.

Cause

It is found that this accident was caused by failure to provide an adequate block-signal system between signals 1561 and 1581.

Recommendation

It is recommended that the Atchison, Topeka & Santa Fe Railway Company install continuous track circuits and establish definite maximum authorized speeds for its trains.

Dated at Washington, D. C., this ninth day of November, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.