

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2753
THE ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY
REPORT IN RE ACCIDENT
AT GALLUP, N. MEX., ON
DECEMBER 18, 1943

SUMMARY

Railroad: Atchison, Topeka & Santa Fe

Date: December 18, 1943

Location: Gallup, N. Mex.

Kind of accident: Side collision

Trains involved: Yard engine and cars : Passenger

Train number: : Third 3

Engine numbers: 1126 : 3769

Consist: 6 cars : 18 cars

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

Operation: Automatic block-signal system;
yard limits

Track: Double; 3°06' curve; 0.56 percent
descending grade westward

Weather: Dense fog

Time: 1:45 a. m.

Casualties: 3 killed; 48 injured

Cause: Failure to provide an adequate block-
signal system between signals 1561
and 1581, and engine fouling main
track without proper protection
immediately in front of approaching
train

Recommendation: That the Atchison, Topeka & Santa Fe
Railway Company install continuous
track circuits between signals 1563
and 1581, and at other similar non-
circuited sections in automatic block-
signal system territory on its line

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2753

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

THE ATCHISON, TOPEKA & SANTA FE RAILWAY COMPANY

January 28, 1944.

Accident at Gallup, N. Mex., on December 18, 1943, caused by failure to provide an adequate block-signal system between signals 1561 and 1581, and by an engine fouling a main track without proper protection immediately in front of an approaching train.

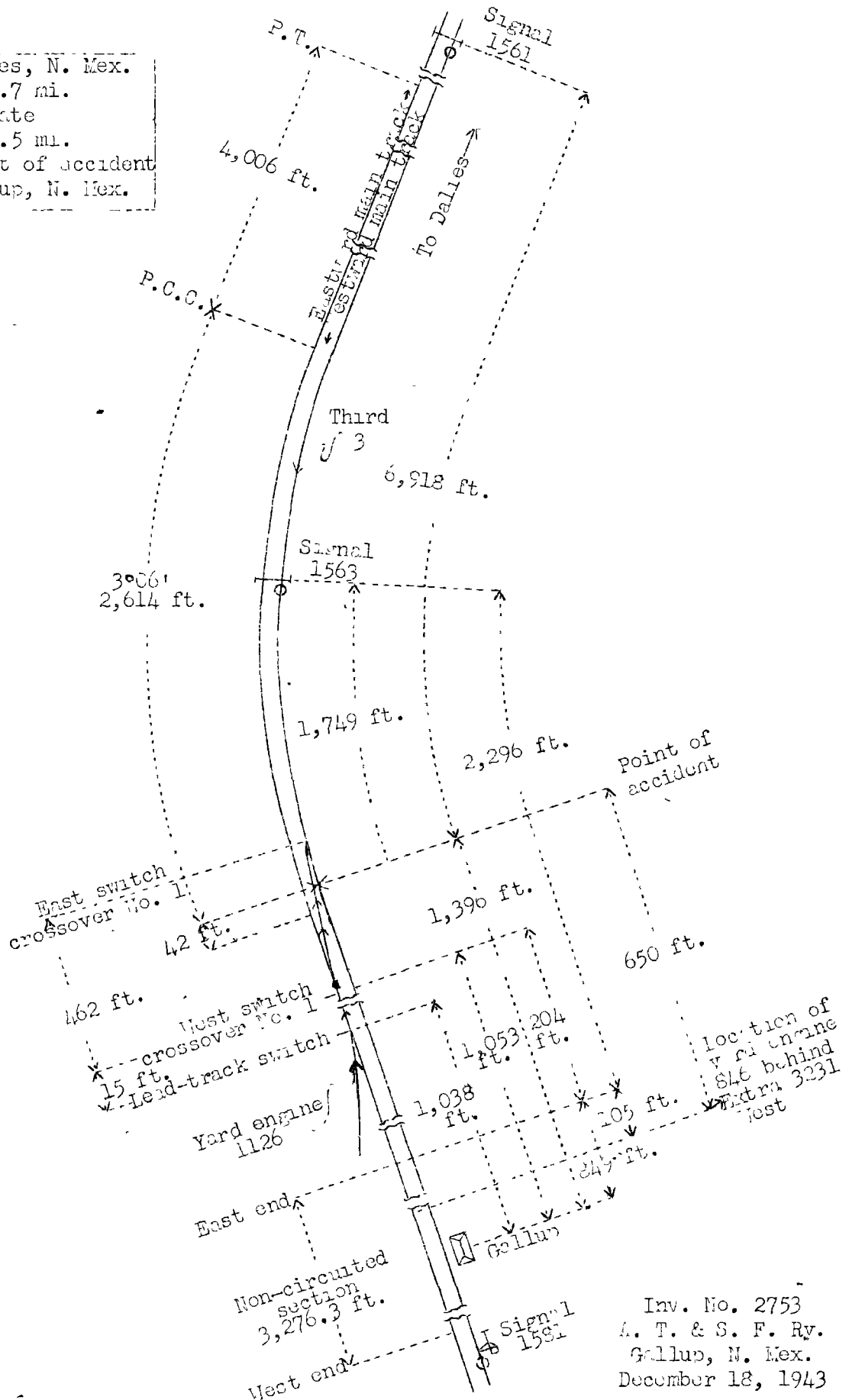
REPORT OF THE COMMISSION¹

PATTERSON, Chairman:

On December 18, 1943, there was a side collision between an engine and a passenger train on the Atchison, Topeka & Santa Fe Railway at Gallup, N. Mex., which resulted in the death of 3 employees, and the injury of 46 passengers and 2 employees.

¹
Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Chairman Patterson for consideration and disposition.

- o Dalles, N. Mex. 118.7 mi.
- o Wingate 11.5 mi.
- X Point of accident Gallup, N. Mex.



Inv. No. 2753
A. T. & S. F. Ry.
Gallup, N. Mex.
December 18, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Albuquerque Division extending between Dalles and Gallup, N. Mex., 130.2 miles. This was a double-track line over which trains moving with the current of traffic were operated by an automatic block-signal system, the indications of which superseded time-table superiority. The current of traffic was to the left. On the north side of the main tracks at Gallup a lead track about 475 feet long connected several yard tracks and the eastward main track. The lead-track switch was 1,038 feet east of the station. The west switch of a facing-point crossover 462 feet long, hereinafter referred to as crossover No. 1, which connected the eastward and westward main tracks, was 1,053 feet east of the station. The accident occurred within yard limits 1,396 feet east of the station at Gallup, at the fouling point of the westward main track and crossover No. 1. From the east on the westward main track there was a tangent 4,006 feet in length, which was followed by a compound curve to the left 2,656 feet, having a maximum curvature of 3°06'. The accident occurred 42 feet east of the western end of this curve. The grade varied between 0.05 and 0.58 percent descending westward, and was 0.56 percent descending at the point of accident.

Automatic signals 1561 and 1563, which governed west-bound movements on the westward main track, were, respectively, 6,918 feet and 1,749 feet east of the point of accident. These signals were of the color-light type, and were continuously lighted. Signal 1561 was a three-indication signal and signal 1563, a two-indication signal. The involved aspects and corresponding indications and names of these signals were as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
1561	Green	Proceed.	Clear Signal.
1561	Yellow	Proceed at restricted speed.	Restricted Speed Signal.
1563	Yellow	Proceed at restricted speed.	Restricted Speed Signal.
1563	Red	Stop - Then proceed in accordance with Rule 830.	Stop and Proceed Signal.

The controlling track circuit on the westward main track extended only to a point 2,296 feet west of signal 1563, and the section from this point to the next signal westward, a distance of 3,276.3 feet; was non-circuited. The west crossover-switch was located 204 feet east of the west end of the circuited section. The controlling track circuit was so arranged that, when either switch of crossover No. 1 was lined for movement through the crossover or when a train occupied the track between signal 1563 and the end of the circuited section, signal 1561 would display yellow, and signal 1563 would display red. When a train passed beyond the end of the circuit and if no switch between signal 1563

and the end of the circuited section was open, signal 1561 would display green and signal 1563 would display yellow.

A switch indicator at the west end of crossover No. 1 was of the light type, and its control circuit extended to a point 5,138 feet east of signal 1561.

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:

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

15. The explosion of two torpedoes is a signal to proceed at restricted speed, * * *. The explosion of one torpedo will indicate the same as two, but the use of two is required.

86. Unless otherwise provided, an inferior train must clear the time of a superior train in the same direction not less than five minutes, but must be clear at the time a first class train in the same direction is due to leave the next station in the rear, where time is shown.

D-152. On portions of the railroad so specified in the time-table, trains will be run with the current of traffic by block signals, whose indications will supersede time-table superiority.

D-153. Within yard limits, where current of traffic rules are in effect, all trains and engines may use the main track not protecting against trains shown in time-table as second or third class, or extra trains, but will give way as soon as possible upon their approach. All except trains shown in time-table as first class will move within yard limits at restricted speed; the responsibility for accident with respect to second or third class or extra trains rests with the approaching train.

The time of trains shown in time-table as first class must be cleared as prescribed by Rule 86.

830. When a train is stopped by a stop and proceed signal it may:

* * *

(b) On two or more tracks proceed at once at restricted speed.

Time-table special rules read in part as follows:

12. * * * Yard limits are located at * * *
Gallup * * *

32. Double track with automatic signals between
Dabies and Gallup. Trains must keep to the left.

* * *

Bulletin No. 6639, effective November 16, 1943, read in
part as follows:

* * *

Between Belen and Seligman, trains will run as
prescribed by Rule D-152. * * *

* * *

Belen is 140.3 miles east, and Seligman 271.2 miles west
of Gallup.

Description of Accident

Yard engine 1126, headed west, was coupled to the east end
of a cut of 6 cars, and was en route from yard tracks on the
north side of the main tracks at Gallup to yard tracks on the
south side. About 1:45 a. m., after this engine had entered
crossover No. 1 at the west switch and stopped with the engine
fouling the westward main track, it was struck by Third 3.

Third 3, a west-bound first-class passenger train, con-
sisted of engine 3769, 1 express car, 2 baggage cars, 1 mail-
express car, 1 baggage car, 3 coaches, 1 tourist sleeping car,
6 coaches and 3 tourist sleeping cars, in the order named. The
cars were of steel construction. This train passed Wingate, 11.5
miles east of Gallup and the last open office east of Gallup, at
1:23 a. m., 10 hours 6 minutes late, passed signal 1561, which
displayed green, passed signal 1563, which displayed red, and
while moving at an estimated speed of 30 miles per hour it col-
lided with engine 1126 about 1,750 feet west of signal 1563.

Engine 1126 was derailed and stopped, considerably damaged,
on its right side on the eastward main track and in line with it.
Engine 3769 was derailed and stopped, considerably damaged,
practically upright, 31 feet south of the westward main track,
with the front end 213 feet west of the point of collision. The
tender stopped upright, across the westward main track and at
right angles to the engine. The first six cars of Third 3 were
derailed and stopped in various positions across the westward
main track. The first car was demolished and the second to
seventh cars, inclusive, were considerably damaged.

There was a dense fog at the time of the accident, which occurred about 1:45 a. m.

The engineer of Third 3, and the engineer and the fireman of engine 1126 were killed. The conductor and the front brakeman of Third 3 were injured.

Discussion

About 1:30 a. m. Extra 3231 West, consisting of 18 cars and a caboose, stopped at the station at Gallup, with the caboose standing about 2,500 feet west of signal 1563, about 400 feet west of the west crossover-switch, and about 200 feet west of the end of the track-circuited section. Immediately after this train stopped, yard engine 846 proceeded to the rear of the train, and the engine was coupled to the caboose. Preparations were being made to move the caboose to another track when the collision between yard engine 1126 and Third 3 occurred about 650 feet east of yard engine 846. Between 1:44 and 1:45 a. m., yard engine 1126 entered crossover No. 1, stopped about 120 feet west of the east crossover-switch, where it fouled the westward main track, and immediately afterward it was struck by Third 3, a west-bound first-class train. No instruction restricting the authority of Third 3 to proceed had been issued.

The rules governing operation on this line provide that within yard limits the main tracks may be used without protecting against second and inferior class trains, extra trains and engines, but second class and inferior class trains, extra trains and engines must clear the time of first-class trains.

As Third 3 was approaching Gallup, the speed was about 60 miles per hour. A road foreman of engines, who was on the left side of the engine, and the enginemen were maintaining a lookout ahead. Because of dense fog, visibility was restricted to a distance of about 300 feet. Signal 1561 displayed proceed. The first the employees on the engine knew of any abnormal condition ahead was when their engine reached a point about 900 feet east of signal 1563, where two torpedoes were exploded. The engineer made a service brake-pipe reduction and, when the engine was about 300 feet east of signal 1563, the speed was reduced to about 55 miles per hour, then the fireman observed simultaneously the signal displaying red and lighted fuses in the vicinity of the signal. He immediately called a warning to the engineer, who moved the brake valve to emergency position. The speed of Third 3 was reduced to about 30 miles per hour at the time of the collision, which occurred at a point 1,749 feet beyond signal 1563.

When Extra 3231 stopped at Gallup, Third 3 was overdue 9 hours 55 minutes at that station. Instructions had previously been issued for Extra 3231 to clear Third 3 10 hours late. The conductor of Extra 3231 thought his train would go into clear at Gallup for Third 3, but when it stopped he found that it was occupying the westward main track. He immediately instructed

his flagman to provide protection. The flagman proceeded to a point about 970 feet east of signal 1563 and placed two torpedoes on the north rail of the westward main track, then proceeded westward and had reached a point about 200 feet east of signal 1563 when he saw the reflection of the headlight of Third 3. He placed a lighted fusee on the westward main track, and was giving stop signals with another lighted fusee when Third 3 passed him. A member of the crew of yard engine 846 was in the vicinity of signal 1563, and he displayed a lighted fusee about the same time the flagman of Extra 3231 lighted the first fusee.

The foreman of yard engine 1126 said that a few minutes after Extra 3231 stopped at the station he instructed the members of his crew to use crossover No. 1 for the movement of a cut of cars from the north side to the south side of the yard. It had been the practice for yard engines to occupy the main tracks at Gallup under flag protection on the time of first-class trains. He was aware that Third 3 was overdue but, because he had received information from members of the crew of Extra 3231 that their flagman was furnishing flag protection against Third 3, he did not instruct any member of his crew to furnish flag protection for the intended movement. He said that, after the west crossover-switch was opened and his engine had stopped on the crossover just west of the east switch, the switch indicator displayed a light, which indicated there was no approaching west-bound train within 2-1/2 miles; however, other evidence definitely established the fact that Third 3 had passed signal 1561 before the west crossover-switch was opened. One of his switchmen was proceeding toward the east crossover-switch to open it when the accident occurred. Because of dense fog, no member of the crew of yard engine 1126 was aware that Third 3 was closely approaching until immediately prior to the collision.

If the switches of the crossover had been equipped with electric switch-locking, it would not have been possible to operate the switches for a movement on the crossover when a train was closely approaching, and this accident would not have occurred.

However, if Third 3 had not collided with yard engine 1126, it would have collided with yard engine 846 on the main track near the station, since it was moving at a speed of 30 miles per hour at a point only 650 feet from engine 846. The situation was similar to that involved in the accident which occurred at Gallup on August 20, 1943. In the Commission's report covering the investigation of that accident, the following statement was made:

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.

As a result of that investigation the Commission found that the accident was caused by failure to provide an adequate block-signal system between signals 1561 and 1581, and recommended that the carrier install continuous track circuits and establish definite maximum authorized speeds for its trains. However, no action was taken by the carrier to correct the condition which had been pointed out or to conform to the recommendation in the report, and the accident here under investigation resulted. In each case a train was standing on the non-circuited section of the westward main track, and the approaching train received a proceed indication at signal 1561. Had continuous track circuits been installed, Third 3 in each case would have received an approach indication at signal 1561, and these accidents could have been prevented.

Two days after the occurrence of the second accident, the carrier rearranged the signal system so that after a train has passed beyond the end of the circuited section on the westward main track, both signal 1561 and signal 1563 will display proceed-at-restricted speed. However, this

expedient does not meet the recommendation contained in the former report, nor comply with the intent of the provision in the Commission's order of April 13, 1939, that automatic block signals shall be automatically controlled by continuous track circuits.

Cause

It is found that this accident was caused by failure to provide an adequate block-signal system between signals 1561 and 1581, and by an engine fouling a main track without proper protection immediately in front of an approaching train.

Recommendation

It is recommended that the Atchison, Topeka & Santa Fe Railway Company install continuous track circuits between signals 1563 and 1581, and at other similar non-circuited sections in automatic block-signal system territory on its line. A rule to show cause why it should not do so between signals 1563 and 1581 will be served on said carrier.

Dated at Washington, D. C., this twenty-eighth day of January, 1944.

By the Commission, Chairman Patterson.

W. P. BARTEL,

(SEAL)

Secretary.