

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2666
THE SOUTHERN PACIFIC COMPANY
REPORT IN RE ACCIDENT
NEAR SAN FRANCISCO, CALIF., ON
JANUARY 16, 1943

SUMMARY

Railroad: Southern Pacific
Date: January 16, 1943
Location: San Francisco, Calif.
Kind of accident: Side collision
Trains involved: Light engine : Light engine
Train number: : Extra 2468 West
Engine numbers: 2434 : 2468
Speed: Practically stopped : 10-15 m. p. h.
Operation: Interlocking
Track: Double; 6° curve; 0.05 percent
descending grade westward
Weather: Clear
Time: 4:20 p. m.
Casualties: 1 killed; 2 injured
Cause: Accident caused by failure to obey
interlocking signal indication

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2666

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

THE SOUTHERN PACIFIC COMPANY

February 24, 1943.

Accident near San Francisco, Calif., on January 16, 1943,
caused by failure to obey an interlocking signal
indication.

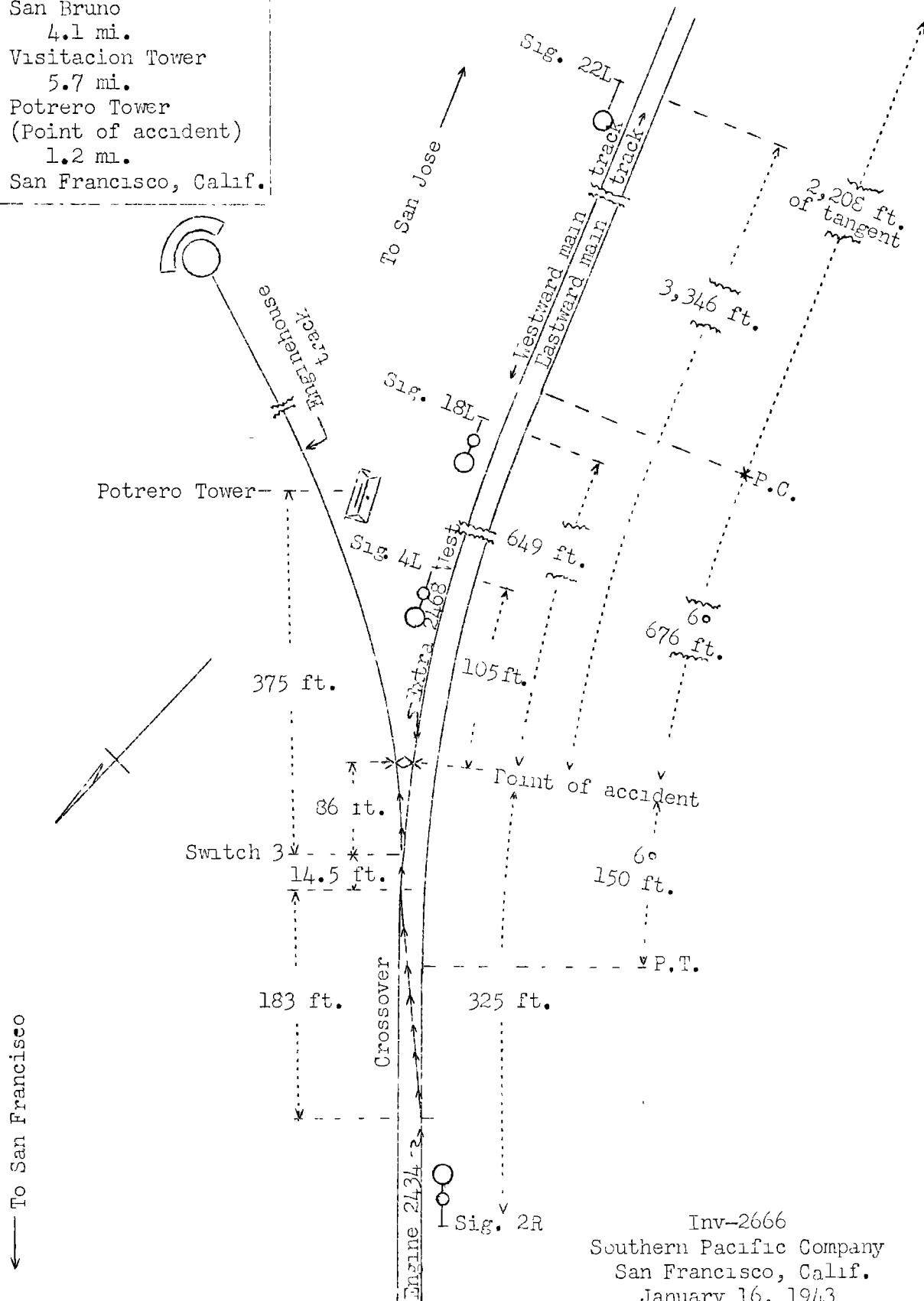
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On January 16, 1943, there was a side collision between two light engines on the line of the Southern Pacific Company near San Francisco, Calif., which resulted in the death of one employee off duty, and the injury of one employee on duty and one employee off duty. This accident was investigated in conjunction with a representative of the Railroad Commission of California.

¹Under 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.

- San Jose, Calif.
35.9 mi.
- San Bruno
4.1 mi.
- Visitacion Tower
5.7 mi.
- X Potrero Tower
(Point of accident)
1.2 mi.
- San Francisco, Calif.



Inv-2666
Southern Pacific Company
San Francisco, Calif.
January 16, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Coast Division which extends between San Jose and San Francisco, Calif., a distance of 46.9 miles. This is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. Yard limits extend eastward from the station at San Francisco a distance of 11.5 miles. At Potrero interlocking, 1.2 miles east of the station at San Francisco, an enginouse track connects with the westward main track at a point about 375 feet west of the tower. The switch of this turnout is trailing-point for west-bound movements, and is designated as switch 3. A facing-point crossover connects the eastward and the westward main tracks. The east and west switches of this crossover are located, respectively, 14.5 feet and 197.5 feet west of switch 3. The accident occurred within interlocking limits at the fouling point of the enginouse track at a point 86 feet east of switch 3 and 289 feet west of the tower. Approaching from the east on the westward main track there is a tangent 2,208 feet in length, which is followed by a 6° curve to the left 676 feet to the point of accident and 150 feet beyond. At the point of accident the grade for west-bound trains is 0.05 percent descending.

The interlocking machine is of the electro-pneumatic type and consists of 20 working levers in a 23-lever frame. Route, approach, time and detector locking are provided. Signal 22L and home signals 18L and 4L, which govern west-bound movements on the westward main track, are located, respectively, 3,346, 649 and 105 feet east of the point of accident. Home signal 2R, located 325 feet west of the point of accident, governs east-bound movements on the eastward main track, movements from the eastward main track through the crossover involved to the westward main track, and from the westward main track to the enginouse track. These signals are of the search-light type and are approach-lighted. The involved aspects and corresponding indications of these signals are as follows:

	<u>Aspect</u>	<u>Indication</u>
Signals 22L and 18L	Yellow	Proceed prepared to stop at next home signal
Signal 4L	Red-over-red	Stop
Signal 2R	Red-over-green	Proceed on diverging route with caution

Operating rules read in part as follows:

DEFINITIONS

With Caution--To run at reduced speed, according to conditions, prepared to stop short of a train, engine, * * *, or other obstruction, or before reaching a stop signal. * * *.

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

605. Interlocking signals govern the use of the routes of an interlocking plant, and, as to movements within interlocking limits, their indications supersede the superiority of trains, but do not dispense with the use or the observance of other signals whenever and wherever they may be required.

663. A train or engine must not pass a signal in stop position without stopping. After stopping, it may proceed through the interlocking limits * * * with caution not exceeding twelve miles per hour, under the following conditions:

- (a) Upon receiving hand signal * * *.
- (b) Upon receiving authority by telephone from the signal operator.
* * *

In the territory involved the maximum authorized speed is 25 miles per hour.

Description of Accident

Engine 2434 departed from the station at San Francisco and moved eastward in backward motion on the eastward main track en route to the enginehouse near Potrero interlocking. This engine passed signal 2R, which displayed red-over-green, moved through the crossover, entered the enginehouse track at switch 3 and was practically stopped when the rear end of the tender was struck by Extra 2468 West at a point 100.5 feet east of switch 3.

Extra 2468 West consisted of engine 2468. This train passed Visitation Tower, 5.7 miles east of Potrero Tower and the last open office, at 4:03 p. m., passed signal 22L, which displayed yellow, passed signal 18L, which displayed yellow, passed signal 4L, which displayed red-over-red, and while moving at an estimated speed of 10 to 15 miles per hour it collided with engine 2434 at a point 105 feet west of signal 4L.

The air brakes of both engines had been tested previously and had functioned properly at all points where used en route. There was no condition of the engines that distracted the attention or obscured the vision of the members of the crews.

From the left side of a west-bound engine the view of signal 4L is restricted to about 775 feet, and from the right side, to about 100 feet, because of buildings adjacent to the track and track curvature.

The tender of engine 2434 was derailed to the north and stopped, badly damaged, at right angles to the enginehouse track and across adjacent yard tracks. The cab was demolished. Engine 2468 was derailed to the south and stopped, badly damaged, upright and in line with the main tracks.

It was clear at the time of the accident, which occurred about 4:20 p. m.

The employee killed was an engineer deadheading on engine 2434, and the employees injured were the engineer of engine 2434 and an engineer deadheading on this engine.

Data

In tests after the accident the interlocking signals functioned as intended.

Discussion

The rules governing operation on the line involved provide that when a signal displays proceed-with-caution, a train or engine must be operated at reduced speed and be prepared to stop at the next signal. An interlocking signal displaying stop must not be passed by a train or engine without stopping. After a train stops, it may proceed through the interlocking limits after it has received proper authority from the signal operator. Trainmen and enginemen must, when practicable, observe signals and communicate their indications to each other.

About 4:18 p. m. the signal operator at Potrero interlocking lined the route for engine 2434, which was moving eastward in backward motion, to move from the eastward to the westward main track and to enter the enginehouse track at switch 3. Signals 22L and 18L displayed proceed-with-caution and signal 4L displayed stop for Extra 2468 West. About 2 minutes later, Extra 2468, moving westward on the westward main track, passed signal 4L and struck the tender of engine 2434 at the fouling point of the enginehouse track.

Engine 2434 was moving at a low speed as it was moving through the crossover from the eastward to the westward main track. The fireman called a warning when he saw Extra 2468 pass signal 4L. The engineer of engine 2434 immediately moved the brake valve to emergency position and the engine was practically stopped when the collision occurred.

The crew in charge of Extra 2468 West consisted of the engineer and the fireman. A student fireman also was on the engine. As this train was approaching Potrero interlocking,

the speed was about 15 miles per hour, in compliance with the proceed-with-caution indications displayed by signals 22L and 18L. After the engine passed signal 18L the fireman crossed from the left side to the right side of the engine deck and the student fireman was on the left seatbox. The engineer was on the right seatbox and, because his view of the track ahead on the curve was obscured by the boiler of the engine, he was depending on the student fireman to call the indication displayed by signal 4L. When the engine reached a point about 500 feet east of signal 4L, the engineer and the fireman understood the student fireman to say that this signal was displaying either clear or yellow. The student fireman said he was watching the water-glass and attending to other duties, and did not see the signal nor call its aspect. The engineer observed the red-over-red aspect displayed by signal 4L when his engine was about 100 feet east of the signal and he immediately moved the brake valve to emergency position, but the distance was insufficient to stop short of the signal or engine 2434. The rules required the engineer and the fireman to communicate to each other the indication of each signal affecting the movement of their train, and they understood these requirements. The student fireman had not been examined on the rules and he was not familiar with the location of the signals in the territory involved. If the fireman had communicated the stop indication displayed by that signal to the engineer, as required by the rules, it is probable that this accident would have been averted.

Cause

It is found that this accident was caused by failure to obey an interlocking signal indication.

Dated at Washington, D. C., this twenty-fourth day of February, 1943.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.