

Inv-2138

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE
SOUTHERN PACIFIC RAILROAD

BLUE CANON, CALIF.

JANUARY 28, 1937

INVESTIGATION NO. 2138

SUMMARY

Inv-2138

Railroad: Southern Pacific
Date: January 28, 1937
Location: Blue Canon, Calif.
Kind of accident: Rear-end collision
Trains involved: Rotary snow plow : Freight
Train numbers: Extra 4108 West : Extra 4148 West
Engine numbers: 4108 : 4148
Consist: Rotary plow shoved : 64 loads, 4 emp-
ahead of engine : ties, caboose
backing up :
Speed: Standing : 8-25 m.p.h.
Track: Series of curves and tangents, followed
by 6° 40' left curve 1,553 feet long;
accident occurred at extreme western
end thereof. Mountain grade 2 percent
descending at point of accident; auto-
matic block signals
Weather: Snowing and blowing; with 10 feet of
snow on ground.
Time: 3:55 p.m.
Casualties: 6 injured
Cause: Failure properly to observe and obey
automatic block-signal indications and
stop signals of flagman

Inv-2138

March 29, 1937.

To the Commission:

On January 28, 1937, there was a rear-end collision between a snow-plow train and a freight train on the line of the Southern Pacific Company near Blue Canon, Calif., which resulted in the injury of 6 employees. This accident was investigated in conjunction with the Railroad Commission of California.

Location and method of operation

This accident occurred on that part of the Sacramento Division extending between Sparks, Nev., and Roseville, Calif., a distance of 138.9 miles; in the immediate vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the west-bound main track, at a point about 0.9 mile east of Blue Canon; approaching this point from the east there are a series of curves and tangents, followed by a 6° 40' curve to the left 1,553 feet in length, the accident occurring at the extreme western end of this curve. The grade is 2 percent descending westward at the point of accident.

The signals involved are automatic signals 1677 and 1687, located approximately 67 feet and 6,292 feet, respectively, east of the point of accident. These signals are of the color-light type, displaying red, yellow and green, for stop, caution and proceed, respectively.

Under normal weather conditions the view of signal 1677 is restricted to a distance of about 500 feet from the cab of a west-bound engine, due to passage through a deep cut. The maximum speed authorized for freight trains in this vicinity is 20 miles per hour.

Locomotives of the type involved in this accident burn oil and are arranged for running with the locomotive reversed, so that the cab is at the extreme front end. The smoke box and stack are thus at the rear, and the tender is coupled to that end of the locomotive. The engineman occupies a position on the right side of the cab.

It was snowing and blowing, and there was about 10 feet of snow on the ground at the time of the accident, which occurred about 3:55 p.m.

Signal 1677 →

P.C.

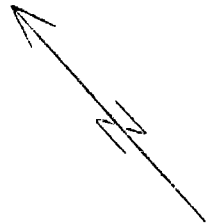
Curve No. 242

P.T.

P.C.

Curve No. 241

P.T.



o Sparks, Nevada
45.6 mi.
o Andover, Calif.
22.3 mi
o Crystal Lake
6.5 mi.
o Emigrant Gap
5.2 mi.
X (Point of accident)
o Blue Canon
0.7 mi.
o Knapp
58.6 mi.
o Roseville, Calif.

P.C.

Curve No. 240

6°58'

2,126 ft

388 ft.

← Signal 1678

Direction of trains

P.C.

6°40'

1,553 ft

Curve No. 239

P.T.

Signal 1677 →

POINT OF ACCIDENT

P.C.

Curve No. 238

Inv. No. 2138
 Southern Pacific Co
 Blue Canon, Calif.
 Jan. 28, 1937

Description

Extra 4108 West consisted of a rotary snow plow, headed west, shoved by engine 4108, backing up, and was in charge of Conductor Welton and Engineman Zell. This train left Emigrant Gap, 5.2 miles east of Blue Canon, at 3:15 p.m., according to the train sheet, and had stopped at a point 67 feet west of signal 1677, to extinguish a fire on the plow and also to build up steam pressure in the boiler of the rotary, when it was struck by Extra 4148 West.

Extra 4148, a west-bound freight train consisting of 64 loaded and 4 empty cars and a caboose, hauled by engine 4148, and in charge of Conductor Marling and Engineman Strube, left Emigrant Gap at 3:43 p.m., according to the train sheet, passed signal 1687, and, due to weather conditions, failed to observe its indication, passed the flagman of Extra 4108 who was located about 2,000 feet from the rear of his train, passed signal 1677, which was displaying a stop indication, and collided with Extra 4108 while traveling at a speed variously estimated at from 8 to 25 miles per hour.

Engines 4108 and 4148 were considerably damaged. The forward pair of driving wheels of Engine 4148 and both tender trucks were derailed; the first car in the train was demolished and the next 5 cars were derailed. The employees injured were the machinist, engineman and fireman of the rotary plow, the head brakeman of Extra 4148, a relief engineman who was deadheading on engine 4148, and a roadmaster.

Summary of evidence

Conductor Welton, of Extra 4108, stated that he was not aware that Extra 4148 was the next train behind the plow and when the plow was stopped to extinguish a fire caused by the ignition of grease and oil that had collected around the atomizer of the fire box of the rotary boiler, he informed Flagman De Vries that they were on the time of passenger Train No. 289, and told him to go back immediately and flag. The flagman immediately started back with full flagging equipment, and went back out of sight in the snow storm. After the fire on the rotary had been extinguished Conductor Welton conferred with the rotary engineman regarding the length of time required to raise the steam pressure on the boiler, and then reported to Roadmaster Notley who was in the cab of the rotary plow. At about that time the muffled sound of an engine whistle became audible and immediately afterward

the collision occurred. After the accident, he was informed by Engineman Strube, of Extra 4148, that Flagman De Vries was back about 2,000 feet.

Statements of Engineman Zell, Fireman Phelps and Brakeman Hocker, of Extra 4108, were to the effect that their train stopped about 3:33 or 3:35 p.m.; that the flagman immediately started back and was lost to sight about 8 or 10 car lengths away; that their train had been standing about 15 or 20 minutes prior to the accident with the straight air brake applied, and that the speed of Extra 4148 was from 10 to 25 miles per hour when the collision occurred.

Flagman De Vries, of Extra 4108, stated that when his train stopped he immediately went back to flag as he knew that they were almost on the time of passenger Train No. 289. After passing signal 1677 he noted that it was displaying a red indication. In spite of the bad footing in the snow he made rather good time going back, and when he had reached a point about $\frac{1}{4}$ mile east of the rear of his train he placed one torpedo on the rail. When he had progressed another 25 or 30 car lengths, a train came into view about 8 or 10 car lengths from him, and he crossed over the snow core to the east-bound track, lighted the red fusee which he had in readiness and waved it across the core in front of the approaching train until the engine passed him at a speed of 25 to 30 miles per hour, the engineman in the meantime having answered the flag. The train he had flagged was not Train No. 289, however, but Extra 4148; he did not notice any immediate reduction in the speed of the train which he had flagged but later the brakes seemed to become effective and the train stopped with the caboose about eleven car lengths east of the point from which he had given the flag signal. He estimated that he had reached a point almost $\frac{1}{2}$ mile to the east of the rear of his train in the time at his disposal, which was about 15 minutes.

Engineman Strube, of Extra 4148, stated that the air brakes were tested before leaving Sparks, and worked properly en route, and there was nothing wrong with the condition of the engine or train. He had been operating on the mountain for about 21 years and was thoroughly familiar with conditions. On the trip under investigation snow swirling up in front of the engine made it difficult to judge speed and to determine exact locations; at times it was impossible for him to see signal indications, and at other times the fireman would not be able to see them, but between both of them they managed to see all signal indications except signal 1687.

Because of the flying snow it was impossible to see out of an open window so all windows in the cab were kept closed. They had intended clearing Train No. 289, which was running 40 minutes late, at Crystal Lake, 6.5 miles east of Emigrant Gap, but there was insufficient room on the siding at that place and they therefore proceeded to Emigrant Gap; at this point the switches were packed with snow and ice to such an extent that it was decided to go to Knapp, 5.9 miles further west, and there permit Train No. 289 to pass. At Emigrant Gap three members of a relief engine and train crew boarded the engine and when they departed from that point there were six men in the cab. Because of the swirling snow both he and the fireman missed seeing the indication displayed by signal 1687, but someone in the cab called "clear signal" and notwithstanding the fact that he knew it was required of him by the rules to know the indication of each signal, he proceeded past the signal because he knew that all of the men in the cab were experienced employees and he felt he could rely on their declaration of the position of the signal. At that time the rate of speed was less than 20 miles per hour and had not been increased at the time he saw the flagman giving stop signals with a lighted fusee from the east-bound track. This flagman was about fifteen car lengths east of signal 1677; both the flagman and the block signal came into view at about the same time, and realizing the possibility of immediate danger he made every effort to get the train stopped, but as he had already initiated a service application of the train brakes no emergency action resulted from placing the brake valve in emergency position. He heard no torpedoes explode, but explained that the pilot plow would probably have scraped torpedoes off the rail had any been placed upon the track. He first saw the headlight of engine 4108 when about 6 or 7 car lengths from the snow plow train, and at that time the speed of his own train had been reduced to about 8 miles per hour and the brakes were holding properly.

Fireman Chapman, of Extra 4148, a promoted man, stated that it was snowing hard and blowing, and that he had difficulty in observing signal indications; approaching signal 1687 he had his side window open and two men were sitting ahead of him on the seat box. Although he missed seeing the indication of signal 1687, he heard someone call "clear signal." He did not hear the explosion of any torpedoes nor did he see any flagman but someone in the cab gave warning of flagging ahead, and the engineman acknowledged the flag by sounding the whistle. At that time the speed was about 17 miles per hour and the engineman made a service brake applica-

tion, after which the engine traveled about 40 car lengths, or 1,800 feet, to the point where the collision occurred. He estimated that the speed had been reduced to about 8 miles per hour at the time of the accident.

Head Brakeman Stanley, of Extra 4148, stated that he did not see the indication of signal 1687 nor did he hear anyone call it, neither did he hear any torpedoes explode. An effort was being made to get out of the way of a following passenger train and the speed of his train was about 20 or 25 miles per hour when the flagman with the lighted fusee came into view and the engineman applied the brakes. From the time the flagman was first seen until the accident occurred the train covered a distance of between 1,800 and 2,100 feet.

Statements of Relief Engineman Zucke, Relief Fireman Rowe and Relief Brakeman Curran, all of whom were riding engine 4148, were to the effect that they intended to relieve the train and engine crew of Extra 4148 at the expiration of that crew's 16-hour period of duty, or 4:30 p.m. The windows of the cab were covered with snow, but the clear vision window on the engineman's side was open and snow was blowing through it into the cab. Both Engineman Zucke and Fireman Rowe stated that they did not see anything outside of the cab or hear anybody in the cab call anything at any time. Fireman Rowe said that a heavy service application was made and was followed almost immediately by an emergency application, and at that time engine 4148 was about 1 or 1½ car lengths east of signal 1677, which he could see through the open clear vision window was displaying a stop indication. At the same time he saw the headlight of engine 4108 a short distance beyond the signal. Brakeman Curran stated that he did not see signal 1687, nor did he call the indication of that signal, but he saw Flagman De Vries, who was standing on the east-bound track at a point not more than 200 feet west of signal 1678, and gave warning of the flag. Engineman Strube then made a service application and later on made an emergency application. After the collision Brakeman Curran went back and located Flagman De Vries' footprints in the snow at a point about 2,000 feet east of the point of accident. He gave the time of leaving Emigrant Gap as 3:43 p.m., and the time of the accident as 3:55 p.m.

Conductor Marling, Brakemen Thompson and Beaumont, and Relief Conductor Lytle and Relief Brakemen Spanger and Aureguy were in the caboose. Their testimony was to the effect that Extra 4148 was on the time of Train No. 289, due to

inability to get into clear at Crystal Lake and Emigrant Gap; Flagman Anslinger was left at Emigrant Gap to protect. Sufficient retainers were turned up, the train handled properly and there was no excessive speed. They were not aware of anything wrong until a heavy brake application occurred and the train immediately stopped, within a distance of about 200 feet according to marks on the rail. After the accident, Flagman Anslinger arrived on the flanger and he said that signal 1687 behind Extra 4148 West was displaying a stop indication.

Discussion

In the territory involved in this accident, the railroad passes over the Sierra Mountain Range which is subject to heavy snowfall and generally bad weather during the winter months, making considerable snow removal work necessary; there was approximately 10 feet of snow on the ground at the time of the accident, 10 inches of which had recently fallen. The track is laid on a series of sharp curves, short tangents and heavy grades, the grade being 2 percent descending westward at the point of accident.

The evidence indicates that when Extra 4108 West stopped with the rear of its train a short distance west of signal 1677, the flagman immediately started back with full flagging equipment and upon reaching a point about one-fourth mile behind his train, placed one torpedo on the rail and then continued on his way; due to the amount of snow on the track, which made walking difficult, he had been able to proceed a distance of but 1,800 or 2,100 feet when Extra 4148 was seen approaching. He flagged that train with a lighted red fusee, which was acknowledged by the engineman of that train. It appears, however, that due to weather conditions, neither the engineman nor the fireman of Extra 4148 had observed the indication displayed by signal 1687 when their train passed it, although it was claimed that some one of the 6 men in the engine cab called the signal indication as being clear at that time; Extra 4148 was running at the maximum authorized speed for freight trains in this vicinity and due to the engineman having made a service application of the brakes immediately prior to seeing the flagman's signals, the full effect of an emergency application was not obtained when the brake valve was placed in emergency position, resulting in inability to stop the train before colliding with the train ahead.

Under the rules, the absence of a signal at a place where a signal is usually shown must be regarded as the most restrictive indication that can be given by that signal. Under this rule, the location of signal 1687, having been passed without the engineman or the fireman of Extra 4148 having seen the indication displayed by the signal, the most restrictive indication of the signal should have been observed, which in this case, under the rules, would have required that the train be brought to a stop and then continue at a speed not exceeding 12 miles per hour until the rear of the train has passed the next signal; this requirement, however, was not observed.

Between Andover and Emigrant Gap, on this subdivision, a distance of 28.8 miles, there is an automatic train-stop system in use and the accident occurred at a point about 4.3 miles outside the limits of this installation. The average daily movement during the 30-day period preceding the date of the accident, was approximately 12 trains east-bound and 21 trains and helper engines west-bound. In view of the numerous curves, heavy grades and the severe weather conditions existing at certain times of the year in this territory, it is believed that the circumstances are such as to justify the extension of the automatic train-stop system on this subdivision.

Conclusion

This accident was caused by failure to observe and obey automatic block-signal indications and to obey the stop signals of a flagman.

Respectfully submitted,

W. J. PATTERSON,

Director.