

In re Investigation of an accident which occurred on
the line of the Southern Pacific Company
at Hefed, Nevada, on August 14, 1917.

September 21, 1917.

On August 14, 1917, there was a head-end collision between two freight trains on the line of the Southern Pacific Company at Hefed, Nevada, which resulted in the death of three employees and a trespasser. After the investigation of this accident the Chief of the Division of Safety reports as follows:

This accident occurred on the Sparks subdivision of the Salt Lake Division of this railway, which extends between Sparks, Nevada, and Imley, Nevada, a distance of 137.9 miles. The line is single track from Sparks to Menzel, but between that place and Imley, 26.3 miles, there is double track. Train movements are governed by time-table and train orders, supplemented by an automatic block signal system.

Eastbound extra 2516 consisted of 55 loaded cars, 1 empty car and a caboose, hauled by locomotive 2516, and was in charge of Conductor Swartz and Engineer Guise. It left Sparks at 3.57 p. m., the crew holding train order No. 144, which read in part as follows:

"Engine 2516 run extra Sparks to Imley; take siding, not leave Clark until extra 2790 west has arrived; take siding, not leave Fernley until extra 2402 west has arrived; has right over extra 2792 west Sparks to Clark; over No. 311 and extra 2402 west Sparks to Fernley; over other westbound extras Sparks to Menzel; wait at Sparks until three fifty-five 3.55 p. m.
Vista until four five 4.05
Hefed until four fifteen 4.15."

This train passed Vista, 2.9 miles from Sparks, at 4.08 p. m., and at about 4.17 p. m., while traveling at a speed of about 10 or 15 miles an hour, collided with train No. 311 at a point 100 feet east of signal 2534, the east home signal for Hefed, which station is 4 miles beyond Vista.

Westbound local freight train No. 311 consisted of 7 loaded cars, 20 empty cars and a caboose, hauled by locomotive 1743, and was in charge of Conductor Fving and Engineer Remussen. At Fernley, 23 miles east of Hefed, order No. 144 was received; the train passed Fifth, 4.2 miles east of Hefed, at 4.04 p. m., and when it collided with extra 2516 it had been brought almost to a stop.

At Hefed there are two passing tracks, one on the north side of the main track about 3,000 feet in length, and one on the south side about 2,900 feet in length. The station at Hefed is located about midway of the north passing track. Just west of the west switch to that passing track, which is about 700 feet beyond the west switch

to the south passing track, there is located signal 2528, for east-bound trains. This signal has two arms, the upper one being the west home signal for Hated and the lower one the distant signal for east home signal 2534, which is located 3,652 feet east of signal 2528, or 72 feet east of the east switch of the south passing track. Almost directly across the track from signal 2534 is signal 2535, the east home signal for westbound trains. The distant signal for east home signal 2535 is signal 2539, located 2,000 feet east of it; signal 2524, the distant signal for the home arm on signal 2528, is 2,000 feet west of that signal. The distant arm on signal 2528 moves to the caution position when a westbound train passes a point 5,000 feet west of the west passing track switch at Ditho.

The point of collision was on a 3-degree curve to the left for eastbound trains, about 1,300 feet in length, the accident occurring approximately 337 feet from its eastern end. Approaching the curve from the west the track is tangent for a distance of about 3,500 feet; approaching it from the east the track is also tangent for some distance. The track at the point of collision is laid in a cut, the embankment on the inside of the curve extending about 450 feet east and 200 feet west of the point of accident; the maximum depth of the cut is about 20 feet. The grade is slightly descending for eastbound trains.

Thirteen cars of freight in extra 2516 were destroyed; one car in extra 2516, two cars in train 311, and both locomotives were badly damaged. The greatest damage was caused by fire, the wreckage having ignited almost at once. The engineman and head brakeman of train No. 311, and the fireman of extra 2516 were killed in the collision. The weather was clear.

Engineman Guise, of extra 2516, stated that after passing distant signal 2524 he received a proceed signal from the head brakeman; upon rounding the curve a short distance west of signal 2528 he found the distant arm in the caution position; he at once shut off steam, the speed then being about 30 miles an hour, and just before reaching that signal he looked at his watch and it was 4.17 p. m. He stated that when passing the signal he made a 7 or 8-pound reduction of the air, did not release the brakes, and let the train drift to about the middle of the length of the siding there; the speed had then been reduced 8 or 10 miles an hour and he made a reduction of 9 or 10 pounds, after which he crossed over to the fireman's side of the engine in order to get a better view of the east home signal, which was located on the curve. He stated that he did this because, while the caution signal had indicated that the east home signal was in the stop position, he thought that possibly, as in other instances, that signal would be found clear when his train approached, either by reason of an opposing train having gotten into clear or by a train in the same direction having advanced a sufficient distance ahead of him, and if so, it would not be necessary for him to bring his train to a stop. He stated that he first saw the east home signal when about

15 car lengths distant, found that it was against him, rushed over to his side of the engine and made an emergency application of the brakes, the speed then being 12 or 15 miles an hour; but did not know how much train line pressure was available for that application, as he did not look at the air gauge. He said that the train appeared to be coming to a stop nicely, but suddenly seemed to surge ahead. Enginemen Guise stated that he understood that, under rule 302, upon finding the distant arm on signal 2528 in the caution position he should have brought his train under control at once, so as to be able to stop before reaching the next home signal, but that he did not consider it necessary to apply the brakes when he rounded the curve and first saw the caution signal, as there was a long stretch of tangent track there and he could ordinarily have stopped long before reaching the next home signal. He said that before leaving Sparks the brakes on his train were tested; that the inspectors, as is customary in the inspection of freight trains, said nothing to him about the condition of the brakes, but he thought they would have told him if there had been anything wrong, and therefore, so far as he knew, the brakes were in working order when he left there; that between Sparks and Hefed he had no occasion to use the air, but that he knew there was sufficient pressure. He further stated that both service applications made when approaching Hefed took effect properly, and that if the emergency application had come on the train would have come to a stop before reaching the next home signal. He further stated that he did not see train No. 311 until it was but a few feet distant.

Conductor Swartz, of extra 2516, stated that when his caboose was passing distant signal 2524, west of Hefed, he had his rear brakemen give the enginemen a proceed signal, because it was already later than the waiting time at Hefed specified in train order No. 144; when his caboose passed that distant signal he noted that it was 4.17 p. m. He stated that the speed was then about 30 miles an hour, and that almost immediately he felt the air being applied; and about when his caboose was passing signal 2528 he felt an emergency application being made; he thought the speed of the train was about 15 or 18 miles an hour when the collision occurred, which was about 4.18 p. m. Conductor Swartz stated that when the enginemen applied the brakes approaching Hefed, the air was working through the train line satisfactorily, because he noticed the air gauge in the caboose. He did not know how many brakes in the train were working, but knew when he made the emergency application because the air-gauge went to zero.

Middle brakemen Mullen, of extra 2516, stated that approaching Hefed he was on the fifteenth car in the train, and that when the engine passed signal 2528, the distant arm was in the caution position and he felt an application of the

brakes. He looked at his watch and it was 4.15 p. m. When his train was about at the middle of the north passing track he felt another application of the brakes, and about a car length from the point of collision he got down off the car and jumped to the ground. He looked at his watch immediately after the accident and saw that it was 4.17 p. m. He said that the speed of his train was 6 or 8 miles an hour when the collision occurred. He further stated that the brakes were working properly when they were applied, approaching Hefed.

Head Brakeman Ford, of extra 2516, stated that he was riding on the third car in the train and saw that the distant arm of signal 2528 was in the caution position. He said that an application of the air was made after the train had gone 25 car lengths beyond the caution signal, and that an emergency application was made when about 5 car lengths from the east home signal. He said the speed was 25 miles an hour when the first application was made, and 20 miles an hour when the second application was made. Upon looking ahead he could see the locomotive of train 311 in the cut and saw the brakeman jump from it and run up the bank immediately before the collision.

Fireman Earl, of train No. 311, stated that his train passed Litho at 4.04 p. m., and that he knew that his train could not reach Hefed by 4.10 p. m., which was necessary in order to clear the time of extra 2516 by five minutes as required by rule. He stated that he called the engineer's attention to the time and the engineer looked at his watch; nothing however was said about bringing the train to a stop. After leaving Litho trouble was experienced because of the engine leaking, but he nevertheless thought that his train would reach Hefed by the time extra 2516 was due to leave there. He said that, it was his opinion that his engineer was relying on the block signals for protection. He stated that it was between 4.13 and 4.14 p. m. when his engine passed the distant signal east of Hefed in the caution position and the engineer reduced the speed to about 15 miles an hour, but no one was sent ahead to flag; that when about 3 or 4 car lengths from the east home signal the engineer called to him to jump and, looking ahead, he saw the approaching train and jumped just before the accident occurred; and that the train was almost stopped when the collision occurred.

Conductor Ewin, of train No. 311, stated that it was 4.02 or 4.03 p. m. when the engineer sounded the whistle signal for Litho, and he had his brakemen give the engineer a proceed signal; and that when passing the west switch at Litho they had 11 minutes in which to reach Hefed before the time extra 2516 would be permitted by train order No. 144 to leave there. The

engine then seemed to be working all right, although on several occasions on the trip it had worked badly, trouble having been experienced with the steam. When about two miles from Hefed he noticed the speed decreasing, saw black smoke rising from the engine, and knew that further trouble was being had, in spite of which, however, he thought his train would reach Hefed by 4.15 p. m. He said the train had come almost to a stop east of Hefed when he heard a short blast of the whistle, looked out and saw extra 2516 coming around the curve. Conductor Zwarg stated that if the engine on his train had worked properly he believed they could have reached Hefed in time to clear extra 2516 three or four minutes, thus consuming only seven or eight minutes after passing Litho, as his was not a heavy train. He said that approaching Hefed his train failed to clear the time of train extra 2516 and that he expected that, if it was found that the train could not be gotten into clear there by 4.15 p. m., the engineer would send some one ahead with a flag, although he said that he himself would have thought that the engineer, in failing to send out a flagman, was undoubtedly depending on the block signal for protection and that the train had just come to a stop at the time of the collision.

Chief Car Inspector Guinan, at Sparks, stated that, in addition to his men who inspected extra 2516, he personally examined it and found the brakes all right. He said that the brakes were set and released; that on leaving Sparks all of the brakes were cut in and were in operative condition, and the piston travel was from 5-1/2 to 7 inches; and that there were 80 pounds train line pressure. He stated that nothing was said to the engineer about the condition of the brakes, as it was not the practice to report it to a train crew, because trains are never allowed to leave there with any brakes cut out or in defective condition. His statement as to the condition of the brakes was corroborated by those of Car Inspectors Giannetti and Carpenter; the latter stated that the condition of the brakes is not reported to the engineer on freight trains, as all the brakes on those trains must be operating properly before they are permitted to leave there.

Rule "90, of the operating rules of the Southern Pacific Company, provides as follows:

"At meeting points between trains of different classes the inferior train must take siding and clear the superior train at least five minutes, and must pull into the siding when practicable. If necessary to back in, the train must first be protected as prescribed by rule 90, unless otherwise provided."

Rule 302 provides as follows:

"Enginemen finding a Distant Signal at 'caution' must immediately bring their trains under control, and be prepared to stop before reaching the Home Signal. They are reminded that although the Distant Signal indicates the position of the Home Signal, the Home Signal may assume the STOP position after the Distant Signal has given the CLEAR indication, and while the train is between the Distant and Home Signal. For this reason enginemen and trainmen must be on the alert, prepared to bring the train to a stop if the Home Signal indicates STOP, and be governed by Rule 504."

The direct cause of this accident was train No. 311 occupying the main track on the time of a superior train, for which Conductor Bring and Enginemen Rasmussen were responsible.

According to train order No. 144 extra 2516 had rights over train No. 311. Sparks to Fernley, on was required to wait at Hefed only until 4.15 p. m. Under rule 49, it was necessary for train No. 311 to be into clear at 4.10 p. m. It was about 4.07 p. m. when train No. 311 passed Witho; the crew realized that they could not get into clear at Hefed by 4.10 p. m., the speed limit for freight trains being 35 miles an hour, and therefore, instead of proceeding toward that place as they did, they should have waited at Witho until extra 2516 reached that place. Any regard for the safety of their train should have prompted the sending out of a flagman when their time on extra 2516 expired and had such a precaution been taken this accident might have been averted.

A contributing cause was the failure of Enginemen Guise, of extra 2516, to comply with the requirements of rule 302 and bring his train under control upon finding distant signal 2528 in the caution position, in order to be able to bring his train to a stop before reaching the east home signal. Enginemen Guise attributed his failure to stop the train in time to the fact that the brakes did not appear to take hold as effectively as they should have, after an emergency application. However, he stated that he had previously made two service applications, one of 7 or 8 pounds and one of 9 or 10 pounds, both of which appeared to be effective, clearly establishing the fact that the air brakes were working and had they been used properly the train would have been brought to a stop before reaching the home signal.

This division of the Southern Pacific Railroad is equipped with automatic block signals that were working as intended and were for the express purpose of preventing just such accidents as this. Had Enginemen Guise complied with the requirements of rule 302 and obeyed the caution signal indication this accident would not have occurred.

Conductor Ewing was employed as a brakeman by this company in 1901, was promoted to conductor in 1906. Engineman Rasmussen was transferred to this division as an engineman in 1899. Engineman Guise was employed as a fireman in 1906, was promoted to engineman in 1916. Each of these employees had a clear record.

At the time of the collision the crew of train No. 311 had been on duty 9 hours and 45 minutes, and the crew of extra 2516 had been on duty only one-half hour.

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