

1-4-38

RIR

to H-407 11/17/38
ack 11/17/38
JUS

Inv-2222

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
WESTERN PACIFIC RAILROAD

PULGA, CALIF.

NOVEMBER 11, 1937.

INVESTIGATION NO. 2222



SUMMARY

Inv-2222

Railroad: Western Pacific
Date: November 11, 1937.
Location: Pulga, Calif.
Kind of accident: Derailment
Train involved: Passenger
Train number: No. 2
Engine number: 325
Consist: 11 cars
Speed: 25 m.p.h.
Track: 0°20' right curve; 1.14 percent ascending eastward.
Weather: Rain and wind
Time: 2:40 a.m.
Casualties: 2 killed
Cause: Rock on track

December 11, 1937.

To the Commission:

On November 11, 1937, there was a derailment of a passenger train on the Western Pacific Railroad, near Pulga, Calif., which resulted in the death of two employees. The investigation of this accident was made in conjunction with a representative of the California Railroad Commission.

Location and method of operation

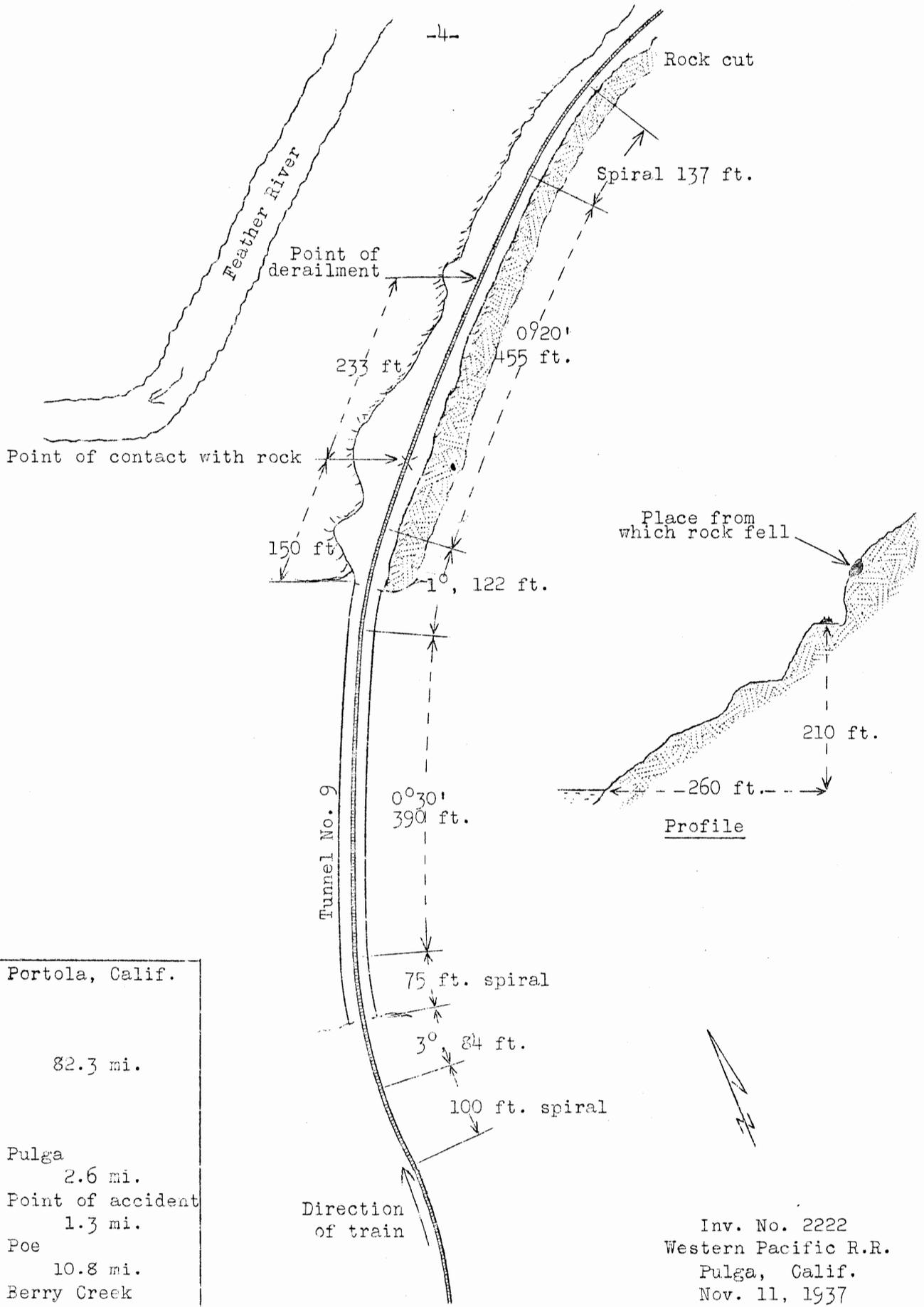
This accident occurred on the Third Subdivision of the Western Division, which extends between Oroville and Portola, Calif., a distance of 116.3 miles. This is a single-track line over which trains are operated by timetable and train orders, no block-signal system being in use. The accident occurred 2.6 miles west of Pulga, a short distance east of Tunnel No. 9. Beginning at the west portal of this tunnel, which is 528 feet in length, there is a spiral 75 feet in length, then a $0^{\circ}30'$ curve to the right 390 feet in length, followed by a 1° curve to the right which extends 63 feet to the east portal and 59 feet beyond, then a $0^{\circ}20'$ curve to the right 455 feet in length. The derailment occurred on the last-mentioned curve at a point 323 feet from its western end. The grade is 1.14 percent ascending for east-bound trains. The maximum authorized speed for passenger trains is 35 miles per hour.

The track is laid with 112-pound rails, 39 feet in length, with an average of 24 ties and 14 rail anchors to the rail length. It is fully tie-plated and has 4 spikes to each plate on curves of 3° or less. The track, which is well maintained, has 16 inches of ballast. In the immediate vicinity of the point of accident the track is laid on a hillside cut of serpentine rock formation, approximately 875 feet in length at grade, with a nearly vertical wall 75 feet in height on the south. The Feather River is about 210 feet below the level of the rails and about 260 feet horizontally distant from the track on the north side. The toe of the slope ends at the river bank.

The weather was rainy and the wind was blowing at the time of the accident, which occurred at 2:40 a.m.

Description

No. 2, an east-bound passenger train, consisting of 1 mail car, 2 baggage cars, 2 coaches, 2 tourist sleepers, 1 diner, 2 standard sleepers and 1 observation car, in the order named, all



o	Portola, Calif.	
		82.3 mi.
o	Pulga	2.6 mi.
X	Point of accident	1.3 mi.
o	Poe	10.8 mi.
o	Berry Creek	19.3 mi.
o	Droville, Calif.	

Inv. No. 2222
 Western Pacific R.R.
 Pulga, Calif.
 Nov. 11, 1937

of all-steel construction, hauled by 2-8-2 type locomotive 325, was in charge of Conductor Brown and Engineman Potee. This train left Oroville, 31.4 miles west of the point of accident, at 1:20 a.m., according to the train sheet, on time; left Berry Creek, 12.1 miles west of the point of the accident, after meeting No. 1 at that point, at 2:11 a.m., according to the train sheet, 13 minutes late, and while traveling at a speed estimated at 25 miles per hour struck a rock weighing about 3 tons at a point 1.3 miles east of Poe, and was derailed after having shoved the rock forward a distance of 233 feet.

The engine toppled over a 25-foot retaining wall, and then rolled down the slope into the Feather River; the mail car followed the engine but stopped on the toe of the slope, badly damaged. The forward trucks and one pair of wheels of the rear truck of the second car were derailed but the car remained upright and was only slightly damaged. The employees killed were the engineman and fireman.

Summary of evidence

Conductor Brown stated that when he delivered train orders to the engineman at Oroville the latter appeared to be in normal condition. He observed the headlight burning brightly while the train was at Berry Creek. He said the engineman was losing schedule time on the trip; the brakes worked properly en route. Approaching the scene of the accident he was in the forward end of the first coach; the speed was about 25 miles per hour; he felt an emergency application of the brakes and the train stopped within a distance of about 2 car lengths. This was at 2:40 a.m. When he walked to the head end he found that the engine and first car were missing. It was raining hard and there was a strong wind.

Head Brakeman Van Natta, who was also in the first coach, corroborated the statements of Conductor Brown and added that after the accident he went out to the head end of the train and found several small rocks and one large rock on the track; also, many broken ties.

Rear Brakeman Barton, who was in the rear car, corroborated the statements of the conductor and head brakeman concerning the condition of the headlight and the speed of the train.

Engineman Elam, of train No. 1, the last train to pass the point of accident before its occurrence, stated that he passed Pulga about 1:30 a.m. At that time it was cloudy but not raining. He saw the trackwalker about 1 mile east of Tunnel No. 9. He did not encounter any rocks on the track between Pulga and Tunnel No.

9. He reduced speed to 20 miles per hour in the vicinity of the point of accident for the reason that two slides had occurred there recently and slow orders had been in effect for some time but had been annulled. He stated that it was his experience that he could not see the track for at least a distance of 50 feet after leaving the tunnel, especially during the winter time, due to smoke and steam following the engine.

Roadmaster Richards stated that a trackwalker was assigned to patrol the track from 9:00 p.m. to 5:00 a.m. The assignment covers a distance of 5 miles, which includes the vicinity of the point of accident. During bad weather the trackwalker makes two round trips over two miles of this territory. The roadmaster said that two slides had occurred in the immediate vicinity of the point of accident, one on October 14 and the other on October 16. He did not consider the point where the accident occurred a particularly bad place. He had last passed this point on October 28.

Assistant Roadmaster Menking, who was relieving Roadmaster Richards at the time the accident occurred, stated that upon arrival at the scene at 11:30 a.m. he found the track badly torn up for a distance of 200 feet. At the eastern end of the damaged track he found a large boulder on the track at the point where the engine went over the embankment. He then went down to the point where the engine was in the river and on examination found the engineer's brake valve in emergency position, throttle closed and the valve motion in reverse. It was his opinion that the boulder on the track was the cause of the derailment.

Section Foreman Cunningham, located at Pulga, stated that he arrived at the scene of the accident at 4:35 a.m. He observed that a large rock had been under the engine before it left the track.

Section Foreman Harvey, who has charge of the section on which the accident occurred, stated that he did not consider the territory in the vicinity of the point of accident especially dangerous. The slide of October 14 occurred about 100 feet east of the one involved in this accident and there was no relation between the two. The slide of October 14 was a small slide and occurred as a freight was passing, resulting in the derailment of an oil car in that train. The slide of October 16 was caused by combing down the rocks in which the use of powder was involved.

Trackwalker Hunter stated that his district extended a distance of 5 miles and he had been employed in that capacity for 11 years. When he went on duty at 9:00 p.m., November 10, it was raining. He first walked from Pulga to Tunnel No. 9, a distance

of 2.6 miles, arriving at the latter point shortly after 10:00 p.m., following which he walked eastward about $1\frac{1}{2}$ miles, then returned to the tunnel about 12:15 a.m. During these trips he found only a few small rocks on the track. He then went to Tunnel No. 11 and returned to Tunnel No. 9 at 2:10 a.m. and found no slides on this trip. Immediately following this, he went eastward. He said the storm during the night of the accident was the most severe storm this fall. Prior to this accident he never had found any rock slides east of Tunnel No 9.

Division Engineer Williams, who arrived at the scene of accident about 11:50 a.m., stated that the rock which caused the derailment weighed about 3 tons; it had dropped from a point about 75 feet above the track. He said some blasting had been done 90 feet east of this point on October 16 in order to comb down rocks but that the charge was not heavy enough to loosen the rock which caused the derailment. He did not consider the vicinity of the point from which the rock fell a particularly bad one. It was his opinion that this territory was properly protected to avoid accidents. He said that recently there had been blasting in the construction of a new highway on the north side of the Feather River, resulting in some rocks landing on the track but he did not think the highway was close enough for the blasting to affect the bank adjacent to the track.

Roundhouse Foreman Studt, Night Roundhouse Foreman Egan and Machinist Inspector Smith, all located at Oroville Shops, made statements to the effect that when engine 325 left Oroville on No. 2 the night of the accident it was in good condition.

Car Inspectors Huggins and Grisley assisted in making an air-brake inspection on No. 2 at Oroville and found all brakes operating properly.

Trainmaster Duggan, after examining the track, was of the opinion that the accident was caused by the engine of No. 2 striking the large rock which had fallen to the center of the track. The engine shoved the rock forward a distance of 233 feet, breaking ties and pushing some of them ahead. The rock was shoved towards the river side, the rail was broken and the engine toppled over the retaining wall which was 25 feet in height, 10 feet 6 inches from the track center and level with the subgrade of the track.

Superintendent of Motive Power O'Neil stated that the pilot of engine 325 was equipped with a device which operated to cause an emergency application of the brakes when the pilot was bent downward and backward or when the engine-truck wheels became derailed. It was his opinion that this device functioned at the

scene of accident before the engineman could make the emergency application, and this, no doubt, prevented more equipment from going over the embankment.

Discussion

The evidence is to the effect that while moving at a speed of about 25 miles per hour No. 2 struck a large rock that had fallen upon the track at a point about 150 feet east of the east portal of Tunnel No. 9 and shoved it forward a distance of 233 feet where a rail was broken, and the engine and first two cars were derailed. Due to having just emerged from the tunnel there is a probability that smoke and steam following and enveloping the engine, and also the heavy rain falling at the time, so interfered with the vision of the engineman that he did not have opportunity to take any action to stop the train before striking the rock. The engineman and fireman were killed in the accident and there was no witness who observed whether or not the headlight was burning approaching the scene of the accident; however, the testimony was to the effect that the headlight was burning brightly at Berry Creek. No. 1 passed the point of accident about 1:40 a.m. and the trackwalker last visited that point at 2:10 a.m.; therefore, it is apparent that the rock fell upon the track between 2:10 and 2:40 a.m.

From November 1, 1936 to November 11, 1937, 28 slides occurred between Oroville and Portola, 6 of which occurred in the vicinity of the point of accident.

In order to protect against the hazards in this territory, trackwalkers are employed and also locomotives are equipped with devices designed to start an emergency application of the brakes as early as possible when a slide is struck or engine truck wheels become derailed. Intermittent or periodic inspection by trackwalkers patrolling sections of track is not as efficient in guarding against trains striking slides as continuous protection which would be afforded by slide detector fences or other similar devices.

Conclusion

This accident was caused by the presence of a large boulder on the track at a point where the range of vision of enginemen was restricted.

Recommendation

It is recommended that the officials of this railroad give serious consideration to the installation of some form of slide detector.

Respectfully submitted,
W. J. PATTERSON,
Director.