

BUREAU OF SAFETY

REPORT NO. 1937

Railroad: Chicago, Rock Island & Pacific
Date: October 12, 1934.
Location: Downey, Iowa.
Kind of accident: Derailment and collision
Trains involved: Passenger and passenger
Casualties: 2 killed; 8 injured
Summary of facts: First train derailed account broken
rail; other train was too close to be
stopped and collided with wreckage.
Cause of accident: Broken rail

1937

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN
ACCIDENT ON THE CHICAGO, ROCK ISLAND & PACIFIC RAILWAY
NEAR DOWNEY, IOWA, ON OCTOBER 12, 1934.

November 26, 1934.

To the Commission:

On October 12, 1934, there was a derailment of a passenger train on the Chicago, Rock Island & Pacific Railway near Downey, Iowa, following which the wreckage fouled the adjacent track and was struck by a passenger train traveling in the opposite direction; this accident resulted in the death of 1 passenger and 1 employee, and the injury of 6 passengers and 2 employees. The investigation of this accident was held in conjunction with a representative of the Iowa Board of Railroad Commissioners.

Location and method of operation

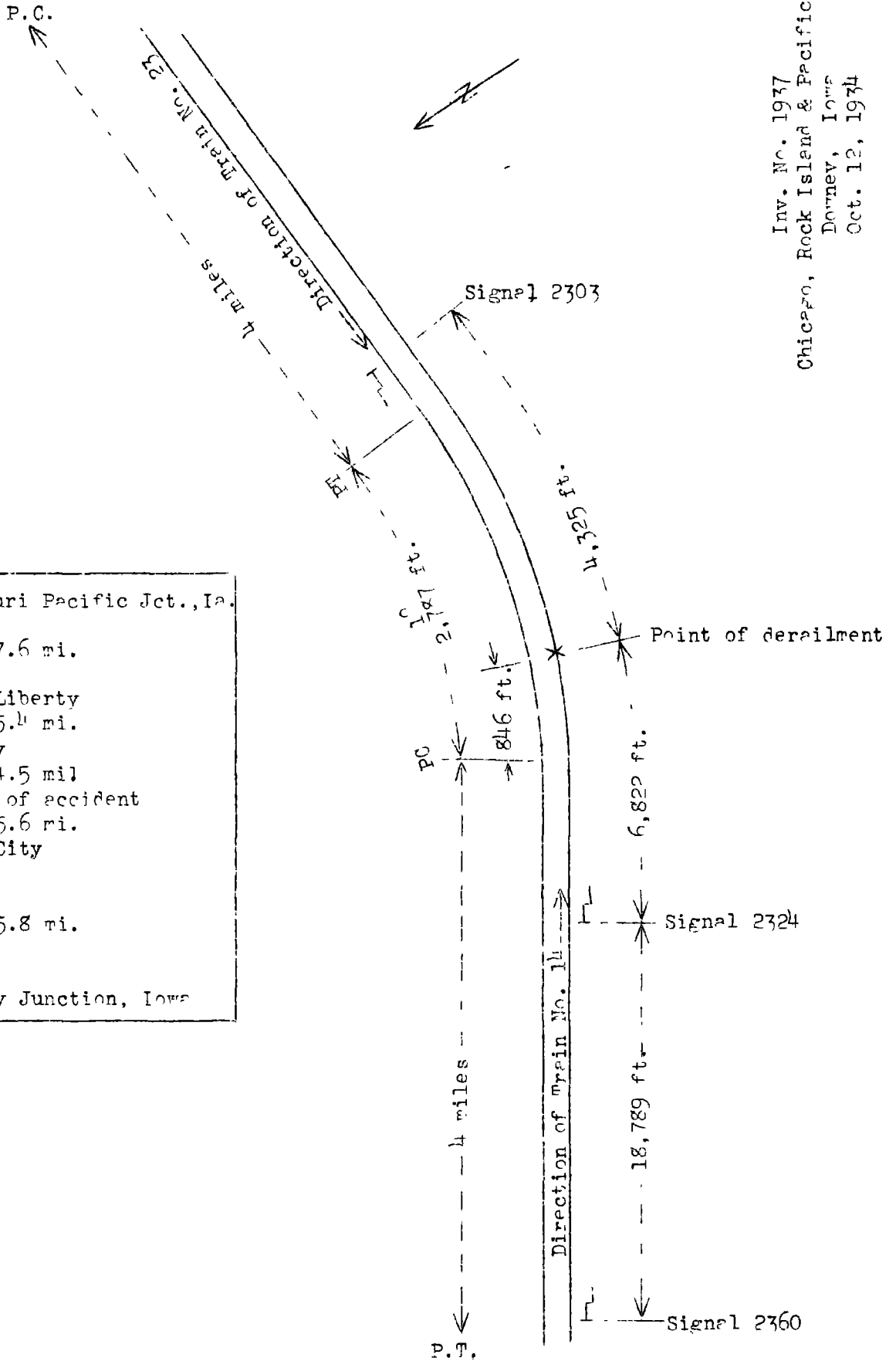
This accident occurred on Sub-Division 4 of the Iowa-Minnesota Division, extending between Valley Junction and Missouri Division Junction, Iowa, a distance of 178.9 miles; in the vicinity of the point of accident this is a double-track line over which trains are operated by time table, train orders, and an automatic block-signal system. The accident occurred at a point approximately 4.5 miles west of Downey; approaching this point from the west, the track is tangent for a distance of more than 4 miles, followed by a 1° curve to the left 2,787 feet in length, the derailment occurring on this curve at a point 846 feet from its western end. Approaching from the east, the track is tangent for over 4 miles, this tangent being followed by the curve on which the accident occurred. At the point of accident the grade is 0.4 percent ascending for eastbound trains.

The automatic signals are of the 3-position, upper-quadrant semaphore type, equipped with approach lighting. East-bound signals 2360 and 2324 are located 25,611 feet and 6,822 feet, respectively, west of the point of derailment, while west-bound signal 2303 is located 4,325 feet east of that point.

The track is laid with 100-pound rails, 33 feet in length, with an average of 20 hardwood ties to the rail length, fully tieplated and spiked, and is ballasted with gravel and stone to a depth of about 13 inches; the track is well maintained.

Inv. No. 1937
 Chicago, Rock Island & Pacific Ry.
 Downey, Iowa
 Oct. 12, 1934

o Missouri Pacific Jct., Ia.	
	37.6 mi.
o West Liberty	5.4 mi.
o Downey	4.5 mi.
X Point of accident	5.6 mi.
o Iowa City	
	125.8 mi.
o Valley Junction, Iowa	



The weather was clear at the time of the accident, which occurred about 2:13 a.m.

Description

East-bound passenger Train No. 14 consisted of 3 baggage cars, 2 coaches, 1 cafe-lounge car, 4 Pullman sleeping cars and 1 Pullman club car, all of steel construction and in the order named, hauled by engine 4048, and was in charge of Conductor Ludwig and Engineman Beveridge. This train passed Iowa City, 10.1 miles from Downey, at 1:58 a.m., on time; signal 2360 was in caution position, the signal assuming clear position before the train passed it. Signal 2324, which was in stop position, changed to caution and then back to stop; the train stopped at the signal, then proceeded at reduced speed, and was derailed while traveling at a speed estimated at not more than 10 miles per hour.

West-bound passenger Train No. 23 consisted of 4 baggage cars, 1 mail car, 1 coach, 2 Pullman sleeping cars and 2 deadhead dining cars, in the order named, and all of steel construction, hauled by engine 4041, and was in charge of Conductor McKinley and Engineman Thorpe. This train left West Liberty, 5.4 miles east of Downey, at 1:59 a.m., 17 minutes late, and collided with the derailed equipment of Train No. 14 west of Downey while traveling at a speed estimated to have been between 35 and 40 miles per hour.

Train No. 14 stopped with the forward pair of wheels of the rear truck of the second car and the rear truck of the fourth car derailed, while the fifth to the eighth cars, inclusive, were entirely derailed, the latter cars slightly fouling the west-bound track, where they were struck by Train No. 23; the second coach fouled the west-bound track slightly and the cafe-lounge and two sleeping cars fouled it about 1 foot at the floor and 20 inches at the roof, the track itself not being damaged. The second, third, fifth and ninth cars in Train No. 14 were slightly damaged and the sixth to the eighth cars, inclusive, were badly damaged, while the engine and all of the cars in Train No. 23 were more or less damaged but not derailed. The employee killed was a dining-car employee in the cafe-lounge car on Train No. 14.

Summary of evidence

Engineman Beveridge, of Train No. 14, stated that as his train approached signal 2360 it lighted and displayed a yellow indication, but before the train reached this signal the indication changed to clear and he passed it while it was displaying this indication. Signal 2324 was in stop position

and he stopped the train before passing it, whistled for flag protection, and then recalled the flagman almost immediately. Before starting again the signal assumed the caution position and the train had just started when the signal went back to stop. He proceeded into the block under the latter indication, working steam on the ascending grade and was moving at a speed of 8 or 10 miles per hour, closely watching the track ahead for some condition that might affect the block signals, when the train was stopped suddenly by an emergency application of the brakes; prior to that time he had felt no unusual motion of the engine. He again whistled out a flag and dimmed the headlight while the fireman got off with a torch and a red light, and about the same time the head brakeman came forward and said that he had to protect against Train No. 23. Engineman Beveridge then lighted a fusee and threw it off from the left side of the engine, the fusee striking the side of Train No. 23, which was passing at the time, traveling at high speed; his train had been standing not more than 1 minute before Train No. 23 arrived. After the accident he examined the track and observed a broken rail on the north side of the east-bound track.

Fireman Guild, of Train No. 14, corroborated the statements of Engineman Beveridge as to the indications displayed by signals 2360 and 2324, and the way in which the train was handled up to the time it stopped; he had not felt the engine run over a broken rail. After his train stopped he put on the blower, glanced at the water glass as he lighted a torch and then got off with a torch and red light with the intention of flagging Train No. 23, but before he reached the head end of the engine the brakeman ran past him and said to flag the train, and he then returned to the gangway of his engine and called for a fusee; by that time Train No. 23 was closely approaching and he got out of the way. He did not check the time his own train stopped or the time Train No. 23 passed, but estimated the interval to have been about 1 minute.

Head Brakeman Burns, of Train No. 14, stated that when the train stopped at signal 2324 he got off for the purpose of relaying signals from the flagman to the engineman. While the train was approaching the point of accident, traveling at low speed, he stood on the rear trap door of the fourth car with the vestibule door open and was looking ahead around the curve for the indication of the next automatic signal when the car suddenly became derailed; he ran into the car and pulled the signal cord and the train stopped immediately. As he had previously seen Train No. 23 approaching some distance away he got off with a white electric lantern, ran towards the approaching train giving stop signals from the middle of the west-bound track, and had reached a point about 15 feet ahead of his engine when he had to get off the track to avoid being struck, and was still swinging the white lantern when the

engine of the approaching train passed him, with the brakes applied. He said the regular flagging equipment for the head brakeman is carried on the engine, but that he did not stop to get it as the approaching train was too close. He also was of the opinion that his train had not been standing over 1 minute before the derailed equipment was struck by Train No. 23.

Conductor Ludwig, of Train No. 14, stated that the train stopped at signal 2324 at 2:04 a.m., departed 3 minutes later, and did not exceed a speed of 10 miles per hour to the point of derailment. He was in the fourth car making out reports and when the car began to jolt he immediately applied the brakes by means of the conductor's valve; the brakes functioned properly and the train stopped within a distance of about half a car length. He went to the front vestibule and on opening the door on the south side he saw that the rear truck of the fourth car was derailed with the fifth car leaning toward the north, and told a brakeman in the vestibule, who was deadheading, to stop Train No. 23. He thought it was about 45 seconds after his train stopped that Train No. 23 collided with the derailed equipment and he immediately noted the time, which was 2:13:30 a.m. After the accident he examined the track under his train and found broken rails on both sides, which he thought caused the derailment.

Rear Brakeman Boyne, of Train No. 14, stated that when the train stopped at signal 2324 he went back and placed two torpedoes and a red fusee on the track and when recalled he returned and gave a signal to proceed. From that point he rode in the rear car until the train came to another and abrupt stop, and immediately went back again with flagging equipment, without waiting for a whistle signal, but reached a point only about two or three car lengths from his train when he heard the crash of the collision.

Engineman Thorpe, of Train No. 23, stated that his train was approaching the point of accident at a speed of 50 or 55 miles per hour when he observed the headlight of Train No. 14 about $1\frac{1}{2}$ miles distant. He passed signal 2303 under a clear indication and then the headlight on Train No. 14 was extinguished. When his engine reached a point approximately 200 yards from Train No. 14 he received stop signals given with a white light by some one on the west-bound track about 25 or 50 feet ahead of Train No. 14, and he immediately applied the brakes in emergency; he thought the speed had been reduced 10 or 15 miles per hour from the maximum speed before the collision occurred. As soon as possible after the accident he looked at his watch and it was then 2:13 a.m.

Engineman Daily, of east-bound freight Train No. 96, the last train to pass over the track at the point of accident, approximately 1 hour prior to Train No. 14, stated that his train traveled at a speed of 35 or 40 miles per hour between Iowa City and Downey and that all of the signals were in clear position, with no indications of any of them pumping, and there was nothing unusual about the riding of the engine to indicate that it had passed over a broken rail. The statements of Fireman Hartman, Head Brakeman Creager and Rear Brakeman Coody, all of whom were on the engine, substantiated those of Engineman Daily, while Conductor Rowland said there was no roughness or anything about the riding of the engine that would indicate there was something wrong with the track.

Roadmaster Warren, who was a passenger on Train No. 14, got out as soon as possible after the accident and on examining the track saw a broken rail on the north side of the east-bound track; all the fractures that he saw revealed the presence of transverse fissures.

Section Foreman Waller, on whose section the accident occurred, stated that for the past 60 days no work had been performed on the track at the point of accident although he had been over it frequently, the last trip on the east-bound track having been made about 8:30 a.m., October 11, and there was no indication of a broken rail at that time. After the accident he inspected the rail that failed and found it broken into seven pieces, each of the broken parts showing evidence of a transverse fissure.

Track Inspector Neubauer stated that he made daily inspections on a motor car, the last trip over the east-bound track having been between 1:10 and 1:20 p.m., October 11, and at that time the track appeared to be in normal condition. After the accident he inspected the broken rail and was of the opinion that it failed due to transverse fissures; each break was fresh, with no indications of rust. Roadmaster Pugh stated that he rode over the track on October 9 and it was then in very good condition. He also stated that a rail detector car had not been operated in this territory.

During the morning of October 12 Division Engineer Bradley made an examination of the track to determine the cause of the accident and found it resulted from the rail failure on the north side of the east-bound track. He was familiar with the characteristics of transverse-fissured rails and said the rail involved broke on account of these defects; it was laid in the track in 1919.

Assistant Signal Supervisor Nordholm stated that signals

2360 and 2324 are of the approach-lighting type and are lighted when an east-bound train reaches a point 3,900 feet and 6,800 feet, respectively, from the signals. After the track was repaired he tested these signals and found them to be in proper working order, and it was his opinion that their irregular operation, as described by the engine crew of Train No. 14, was caused by a broken rail and that either the broken ends contacted intermittently or else the pumping was because they were on the same tie plate.

The rail involved was in the north side of the east-bound track, on the inside of the curve; it was a 100-pound rail, 33 feet in length, rolled in December, 1918, by the Illinois Steel Co., heat 47183 "C". The rail was broken into seven pieces, the first break occurring 20 feet 6½ inches from the receiving end; all of the breaks were fresh and showed distinct transverse fissures of varying sizes, the maximum covering 56.1 percent of the area of the ball of the rail; the head of the rail was worn 6.04 percent. Another rail, on the south side of the track a short distance east of the first-mentioned rail was broken into two pieces; this latter rail, which also showed a transverse fissure, was rolled by the same steel company, bore heat No. 47483 "A", and was laid in the track in 1919.

Conclusions

This accident was caused by a broken rail.

Examination of the track after the accident disclosed that a rail on the north side had broken into several pieces, all of the fractures being due to the presence of transverse fissures. The largest of these fissures, at the point where the first and second breaks occurred, covered an area of more than half of the head of the rail. According to the evidence, there was no indication of a broken rail or other defect at the time an east-bound train passed the point of accident about 1:25 a.m., but from the statements of the engine crew of Train No. 14 the two automatic signals west of the point of accident were pumping when their train approached, indicating that the rail was broken at that time. The evidence also indicates that the derailed equipment in Train No. 14 did not damage the west-bound track and that west-bound Train No. 29, approaching at high speed, passed the last automatic signal under a clear indication and was too close at the time of derailment to allow the crew of Train No. 14 sufficient time to provide adequate flag protection.

Respectfully submitted,

W. J. PATTERSON

Director.