

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
CHICAGO, ROCK ISLAND & PACIFIC
RAILWAY

LA SALLE, ILL.

MARCH 6, 1936.

INVESTIGATION NO. 2050

SUMMARY

Railroad: Chicago, Rock Island & Pacific
Date: March 6, 1936.
Location: La Salle, Ill.
Kind of accident: Derailment and collision
Trains involved: Freight : Freight
Train numbers: Extra 2594 : Extra 2637
Engine numbers: 2594 : 2637
Consist: 39 cars and : 57 cars and cabooses
caboose
Speed: 17-20 m.p.h. : 18-25 m.p.h.
Track: Initial derailment on 1° curve; final
derailment and collision on tangent.
Weather: Clear
Time: 9:45 p.m.
Casualties: 4 injured
Cause: Condition of fourteenth car in the
train, which permitted the greater
weight to be carried on the right
side and allowed an excessive rocking
motion of the car when aggravated by
irregular track conditions.

May 13, 1936

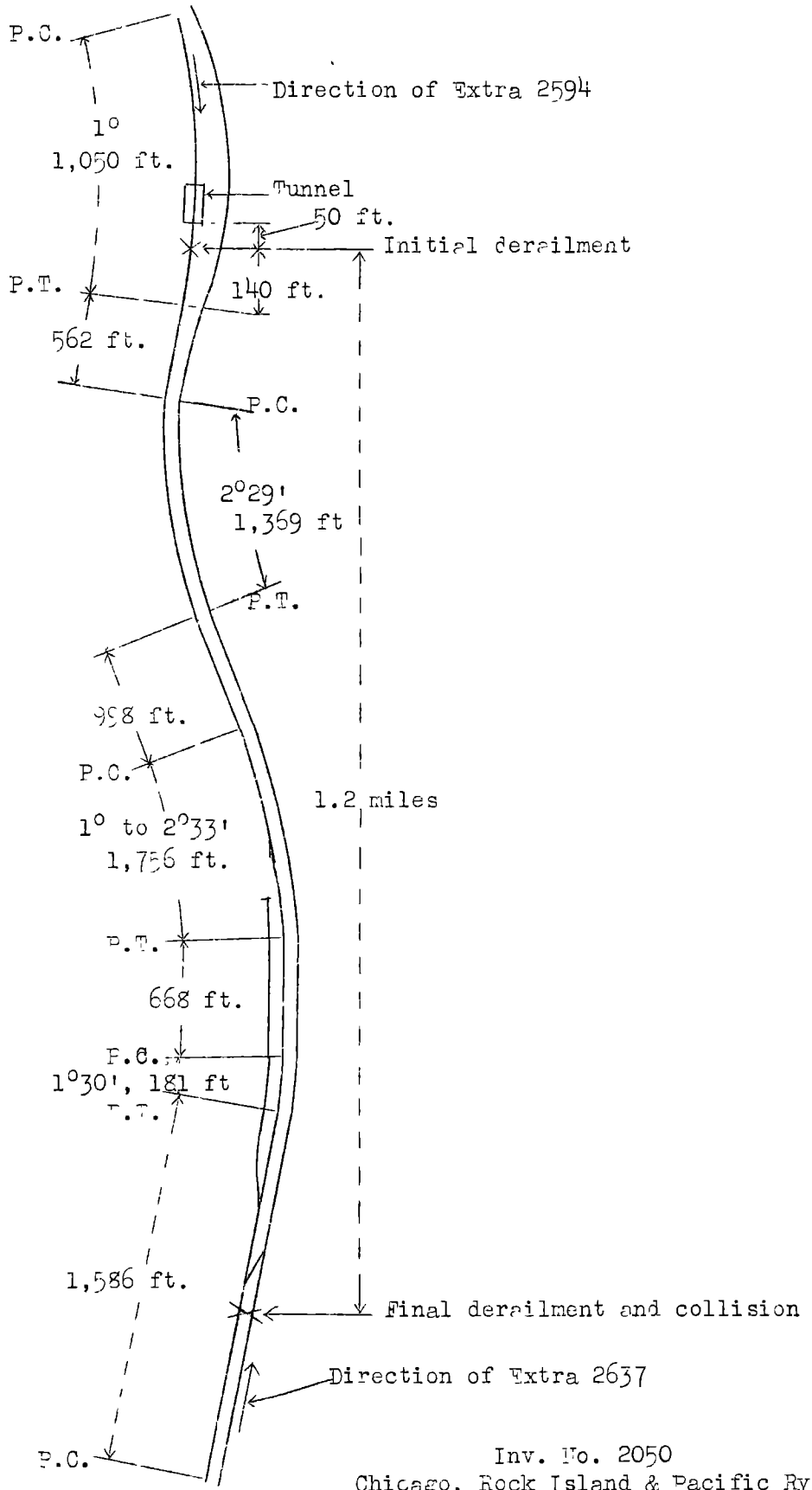
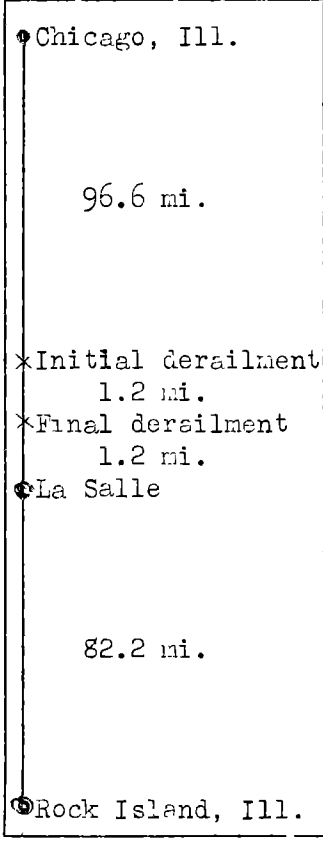
To the Commission:

On March 6, 1936, there was a derailment of a freight train on the Chicago, Rock Island & Pacific Railway near La Salle, Ill., the wreckage of which was struck by a freight train traveling in the opposite direction on an adjacent track, resulting in the injury of 3 employees and 1 person carried under contract.

Location and method of operation

This accident occurred on Sub-division 2 of the Illinois Division which extends between Chicago and Rock Island, Ill., a distance of 181.1 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 automatic block-signal and train-control systems, the latter being a speed-control device of the intermittent electrical contact type. A tunnel, 162 feet in length, is located 2.4 miles east of the station at La Salle, and the initial derailment occurred on the west-bound track at a point 50 feet west of the west portal of this tunnel, while the final derailment occurred 1.2 miles farther west after the train encountered a trailing-point switch leading to a spur track and a crossover connecting the two main tracks; the wreckage was then struck by an east-bound train. Approaching the initial point of derailment from the east there is a 1° curve to the right 1,050 feet in length, the derailment occurring on this curve at a point 140 feet from its western end. The track then consists of a succession of tangents and curves, the final derailment and collision occurring at approximately the center of a tangent 1,586 feet in length. Approaching the point of collision from the west the track is tangent for 2,811 feet, followed by a $1^{\circ} 30'$ curve to the left 242 feet long and then the tangent on which the accident occurred. The grade is level at the initial point of derailment but from that point westward to La Salle it is slightly undulating.

The track is laid with 100-pound rails, 39 feet in length, with an average of 24 ties to the rail length, single-spiked, fully tieplated, and is ballasted with crushed gravel to a depth of 14 inches. The maximum speed permitted for freight trains over the division is 45 miles per hour, and 20 miles per hour maximum through the tunnel; however on the day of the accident, due to rough track, the speed of all trains was restricted to 20 miles per hour through the tunnel. Yard limits extend 2 miles beyond La Salle station in both directions.



Inv. No. 2050
 Chicago, Rock Island & Pacific Ry.
 La Salle, Ill.
 Mar. 6, 1936.

The weather was clear at the time of the accident, which occurred about 9:45 p.m.

Description

Extra 2594, a west-bound freight train, consisted of 39 cars and a caboose, hauled by engine 2594, and was in charge of Conductor Stare and Engineman Boysen. This train passed Ottawa, 14.5 miles from La Salle, at 9:19 p.m., according to the train sheet, and was derailed while traveling at a speed estimated to have been between 17 and 20 miles per hour.

Extra 2637, an east-bound freight train, consisted of 57 cars and a caboose, hauled by engine 2637, and was in charge of Conductor Reimers and Engineman Ley. This train departed from Rock Island, 82.1 miles from La Salle, at 7:00 p.m., according to the train sheet, passed La Salle at 9:39 p.m., and collided with the wreckage of Extra 2594 while traveling at an estimated speed of between 18 and 25 miles per hour.

Engine 2594 and the first thirteen cars of that train remained coupled and were not derailed. The fourteenth to the twenty-first cars inclusive were derailed and badly damaged. The fourteenth car stopped south of the east-bound track and the sixteenth car was broken in two, the front portion stopping on the east-bound track east of engine 2637, while the rear portion of that car and the other derailed cars in Extra 2594 stopped in various positions on and to the right of the west-bound track. Engine 2637 was derailed but remained upright diagonally across both tracks and parallel with the fifteenth car in Extra 2594. The tender and eight cars in Extra 2637 were derailed, three of the cars being destroyed. The employees injured were the engineman, the head brakeman and the conductor of the east-bound train.

Summary of evidence

Engineman Boysen, of Extra 2594, stated that he handled the train in the usual manner and did not exceed the speed limits at any point. On approaching the tunnel near La Salle he reduced speed to 20 miles per hour in accordance with a slow order through the tunnel, and he did not release the brakes until reaching a point about 20 or 25 car lengths west of the tunnel, at which time the speed was about 17 or 18 miles per hour, and the speed was not increased up to the time of the accident. After passing through the tunnel Engineman Boysen looked back for a signal from the rear end but due to the smoke coming down along the train he was unable to see any signal. His train

entered yard limits shortly after leaving the tunnel and it was necessary to keep a lookout for yard engines, but he did look back along the train on curves and at no time did he see anything wrong. Engineman Boysen further stated that he did not notice any rough spots in the track on passing through the tunnel, but as engine 2594 was a new engine and the speed was low, rough spots might not have been noticeable. He did notice that the track was a little rough west of the tunnel and there was also one place where the track sagged, but that was outside the limits of the slow order. His first intimation of anything wrong was when the air brakes were applied in emergency when the train line parted. At that time engine 2637 East was passing his own engine; he called to his fireman and head brakeman and sounded the whistle, to stop the other train, but by that time the cab of engine 2637 had passed. The front portion of his train traveled a distance of about 6 car lengths beyond the wreckage. He immediately whistled out a flag and looked at his watch, which showed 9:45 p.m., and he later compared time with the conductor and their watches agreed.

The statements of Fireman Nowers, Head Brakeman Edwards and Flagman Chapman, of Extra 2594, corroborated those of the engineman as to the speed of their train on passing through the tunnel and up to the time of the accident. They looked back along the train after passing through the tunnel but at no time did they see sparks flying or anything wrong. The fireman stated that he saw the rear end of the train coming out of the tunnel, but he saw no signal. Head Brakeman Edwards stated that he looked back on the fireman's side but on account of smoke trailing along the train he was unable to see any signal from the rear end, while Flagman Chapman stated that he looked back from the engineman's side of the cab on one occasion after passing the tunnel. They all stated that a gradual stop was made at the time of the accident, and there was no lunge or jerk when the train broke in two. Flagman Chapman went back to flag immediately after the accident and he asked the tunnel watchman if he had seen anything wrong with the train. The watchman said that he saw fire flying from the brake shoes, and later when the section foreman arrived and asked the watchman the speed of the train as it passed him, the watchman replied that he did not know, but all the brakes were applied. Head Brakeman Edwards stated that he looked at his watch at the time the train broke in two and it was 9:45 p.m.

Conductor Stare, of Extra 2594, stated that on approaching the tunnel he was on the left side of the cupola and at no time did he see any sparks flying or anything else to indicate there was anything wrong with the train. On leaving the slow-speed territory he did not give a proceed signal as it could not have

been seen from the head end of the train. On the curve to the left he was able to see for a distance of but 20 car lengths on account of trailing smoke and poles and wires along the right-of-way. Conductor Stare stated that cars were picked up and set out en route and that Erie 31891, the fourteenth car in the train, was the first car to become derailed and was the head car picked up at Joliet, 59.2 miles from La Salle; he noticed nothing unusual about the car when it was picked up. The train was inspected at Morris, 21.5 miles west of Joliet, and the last inspection prior to the accident was made at Marseilles, 21.7 miles from La Salle. The car involved was loaded with coal and when he walked back over the track after the accident he saw marks on the ties but did not see any coal scattered along the track.

Engineman Ley, of Extra 2637, stated that when passing through La Salle he was operating his train at a speed of about 25 miles per hour. He saw the train on the west-bound track and just as his engine had passed the west-bound engine his brakeman said that the other train had broken in two, and his engine then struck the cars of that train. Fireman Ogier estimated the speed of his train was about 18 or 20 miles per hour passing through La Salle, although it may have been increased 2 or 3 miles at the time of the accident. Head Brakeman Dickman estimated the speed to have been between 20 and 25 miles per hour at the time of the accident.

Conductor Reimers and Flagman Hook, of Extra 2637, estimated the speed of their train to have been 18 or 20 miles per hour at the time of the accident, and also stated that the accident occurred about 9:45 p.m.

Tunnel Watchman Thomas stated that he was about 200 feet east of the tunnel when Extra 2594 passed him. He thought the speed was greater than that of other trains - more than 20 miles per hour and possibly 30 or 35 miles per hour, although he had no knowledge of how to determine the speed of a train. He saw sparks flying from the engine brakes, but did not see any from the cars, and he saw nothing wrong with the train.

Car Foreman Gregory arrived at the scene of the accident before any of the equipment had been moved. He found Erie hopper car 31891 lying south of the east-bound track. The marks on the body and on the underframe and dumping devices of this car indicated that the A end was the west or lead end of the car. One wheel showed gravel marks and heavy scratches around the tread and the flange of this wheel was broken in two places, one piece was 19 inches long and another $14\frac{3}{4}$ inches long. He thought

this flange was broken when it struck the turnout rail of the spur track or the cross-over just before the collision occurred. There were deep burned marks on the north side of the center sill at the west end of the car about 36 inches from the center plate, which indicated that the lead wheel of the lead truck was the first to be derailed, the north wheel rubbing against the sill. One truck side of the lead truck was badly bent and cracked and the opposite side was newly broken off, with every indication of having been dragging. It was his opinion that the truck side failed in the derailment and was not a cause of the accident. The truck springs showed evidence of the coils striking; the oil box bolts were intact and the nuts tight, and there was no evidence of hot boxes or hot or loose wheels, and nothing to indicate that brake rigging had been dragging. The Barber roller casting at one end of the truck bolster was missing, but he thought a wooden filler block had been used to fill this space, although no block was found. Car Foreman Gregory inspected the track for two miles east of the point of collision; the first mark of derailment was a flange mark on top of the south or left rail extending a distance of 38 feet, and at a point $2\frac{1}{2}$ feet farther west there were marks on the spikes on the outside of the south rail and the gauge side of the north rail. Wheel marks then appeared on the ends of the ties and between the rails approximately 25 inches from the gauge side of the south rail for a distance of 14 rail lengths; these marks then continued for some distance between the rails varying from 17 to 25 inches from the south rail, but those on the outside of the rail disappeared, although farther west there were indistinct marks in the cinders and gravel. The ties were badly broken up at the switch leading to the spur track and also at the crossover. Car Foreman Gregory was of the opinion that the speed of the train had not been in excess of 25 miles per hour, stating that if the train had been running at a high rate of speed the wheels would have cut out and the final derailment would have occurred at a location farther in advance. He was of the opinion that the derailment was caused by a rocking movement of the car to which the high, short car, the way the load was being carried, and the track conditions might have been contributing factors - the track being frozen in the tunnel and soft outside.

General Car Foreman Helmer was present when all parts of Erie 31891 which could be found were assembled several days after the accident. Due to the fact that the truck side bearings were missing it was impossible to determine the side bearing clearance prior to the accident. The heavy burned mark on the right side of the center sill at the A end of the car indicated that it had been made by a revolving wheel and this wheel must

have been the right lead wheel of the car. The north half of the center casting at the A end was bright and showed signs of wear, while the south half did not show wear; the body side bearing on the right side was also bright, showing wear, while the south side bearing on body showed no wear. The Barber roller casting, which measured $10 \frac{3}{8}$ inches wide, $10 \frac{1}{2}$ inches long, tapering in a wedge shape from 2 to 4 inches, was intact on the north side of the lead truck, but on the south side this casting was missing, the rust and corrosion indicated that the roller casting had been missing for some time. When the Barber roller assembly is complete the casting is covered with a plate and if the plate is in place the absence of the casting cannot be detected without dismantling the truck. The plate was missing at the time of his inspection, but the broken ends remaining on the truck bolster showed evidence that it had been broken recently, the break being mostly a new break.

Division Engineer Thompson stated that at the time of the accident there were slight variations in the alignment of the track and, due to weather conditions, it was not level. The track through the tunnel was still frozen while outside the tunnel it had begun to settle, and as a result of these conditions a slow order of 20 miles per hour had been placed for all trains. He thought, however, that the track was safe for speeds in excess of 20 miles per hour, and it was his opinion that the accident was caused by excessive speed. Measurements taken of the track for a distance of 600 feet east of the point of derailment showed the gauge varied from 4 feet $8 \frac{1}{2}$ inches to 4 feet $8 \frac{7}{8}$ inches, it being 4 feet $8 \frac{7}{8}$ inches 15 feet east of the point of accident. The superelevation varied from $2 \frac{1}{32}$ inches to $3 \frac{23}{32}$ inches, and was $2 \frac{9}{32}$ inches at the point of derailment. The deflection under load varied from $\frac{1}{16}$ inch to $\frac{3}{8}$ inch, it being $\frac{3}{8}$ inch on the left rail and $\frac{1}{4}$ inch on the right rail at the point of accident.

Inspection of the track by the Commission's inspectors disclosed, in addition to the marks described by Car Foreman Gregory, that the tunnel guard rail which extends for 380 feet west of the tunnel, was marked along the base for about 300 feet and was then crowded over or torn out. It had been replaced and spiked in its proper position at the time of this inspection. The turnout rail of the spur track was torn out, but the cross-over was not badly damaged. Inspection of Erie 31891 and examination of the center plate and body side bearing on the A end of the car showed that the north side of the car had been carrying the greater part of the weight for some time; the body side bearing on the south side was rusty and the south half of the

center plate showed no signs of recent friction. The rusty and corroded appearance of the underside of the truck bolster on the south side did not indicate that the Barber roller casting had been riveted to it recently.

Erie 31891 was built in December, 1913; light weight 39,300 pounds; capacity 100,000 pounds, and at the time of the accident was loaded with 100,500 pounds of coal. It was an open top, hopper car, outside length 32 feet 3 inches, overall outside width 10 feet 1 1/8 inches, and overall height 11 feet. The trucks were Andrews, steel truck-side type, with Huntoon type truck bolster and Barber rollers. The journals were 5 1/2 by 10 inches. The records show that this car was received in interchange at Joliet from the E.J. & E. Ry., at 3:30 a.m., on the date of the accident and after inspection was taken to the repair track where minor repairs were made; the nature of these repairs had no bearing on the cause of the derailment. Before leaving Joliet in Extra 2594 it was again inspected by two car inspectors and no defects were noted.

Discussion

The evidence indicated that the front pair of wheels, lead truck, west end of Erie 31891, was the first to be derailed. The body side bearings and center plate showed that the A end of this car had been leaning to the right. The body side bearing on the opposite side, A end, was rusty which indicated that it had not recently come in contact with the truck side bearing. The flange mark on the south rail showed that a wheel flange had run along the top of this rail for a distance of 33 feet before the wheel dropped outside of the rail; the gradual divergence of the flange mark, for 33 feet across the rail, does not indicate high speed or a violent thrust, or sudden failure of track or equipment. The superelevation at the point of derailment was 2 9/32 inches and the deflection under load was 3/8 inch; if the deflection was at the maximum from the weight of the preceding car, it would leave the superelevation less than 2 inches when the leading wheel of Erie 31891 reached this point; with the car leaning toward the right it is believed that the lead wheel on the left side was raised sufficiently to mount the rail. The car then traveled a distance of 1 1/4 miles before the final derailment occurred.

While the evidence indicates that the members of the engine crew looked back over the train after leaving the tunnel, nothing wrong was noted by them. Due to smoke trailing along the train the conductor was unable to see ahead for any great distance after passing through the tunnel.

There was no evidence of excessive speed at the time of the accident.

Conclusion

It is believed that this accident was caused by the condition of the fourteenth car in the train, which permitted the greater weight to be carried on the right side and allowed an excessive rocking motion of the car when aggravated by irregular track conditions.

Respectfully submitted,

W. J. PATTERSON,

Director.