

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE CHICAGO, ROCK ISLAND & PACIFIC RAILWAY AT HAVANA, ARK.; ON NOVEMBER, 22, 1930.

December 17, 1930.

To the Commission:

On November 22, 1930, there was a derailment of a freight train on the Chicago, Rock Island & Pacific Railway at Havana, Ark., which resulted in the death of one trespasser and the injury of one trespasser.

Location and method of operation

This accident occurred on Subdivision 51 of the Arkansas-Louisiana Division of the Second District, which extends between Little Rock and Booneville, Ark., a distance of 118.9 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and a manual block-signal system. The derailment occurred near the east switch of the house track, 725.8 feet east of the station, approaching this point from the east, the track is tangent for a distance of approximately 3,000 feet, this tangent extending for a considerable distance beyond the point of accident. The grade is 0.2 per cent ascending for westbound trains. The house track, 1,320 feet in length, parallels the main track on the north, and a passing track, 1,975 feet in length, parallels the main track on the south.

The track is laid on a slight fill, with 85-pound rails, 33 feet in length, with an average of 19 creosoted pine ties to the rail-length, and is single-spiked and fully tie-plated, with four anti-rail creepers to the rail-length. The track is ballasted with crushed stone to a depth of about 10 inches and is well maintained. The maximum speed permitted by time-table on tangent track for trains handling loaded tank cars is 35 miles per hour.

The weather was clear at the time of the accident, which occurred about 1.15 p.m.

Description

Westbound freight train extra 1725 consisted of 35 loaded cars, some of which were tank cars, and a caboose, hauled by engine 1725, and was in charge of Conductor Pearce and Engineman McDonald. This train departed from Biddle, Ark., near Little Rock, 93.5 miles from Havana, at 9.43 a.m.,

passed Belleville, 4.9 miles east of Havana, at 1.08 p.m., according to the train sheet, and was derailed at Havana while traveling at a speed estimated to have been about 30 miles per hour.

Ten cars in about the center of the train were derailed, the head portion, consisting of the engine and 17 cars, stopped with its rear end 875 feet beyond the wreckage. The eighteenth to the twenty-seventh cars, inclusive, came to rest at various angles to the track within a distance of approximately 301 feet, two of them were demolished and the others were more or less badly damaged.

Summary of evidence

Engineman McDonald stated that the first intimation he had of anything wrong was when he felt a slight jerk of the train and noticed the sudden reduction in brake-pipe pressure, at which time the engine was about 100 or 200 feet west of the station at Havana, and he said the head end of the train traveled a distance of 700 or 800 feet before it came to a stop. Two stops were made en route between Biddle and the point of accident, and the brakeman inspected the train at both stops, while Engineman McDonald said he looked back over his train at every opportunity, but at no time did he see any indication of anything wrong. He also saw section men while his train was passing through Danville and Belleville, 9.3 miles and 4.9 miles east of Havana, respectively, but he did not receive any signals from any of these men; he did, however, receive proceed signals from the rear of his train at those points. Engineman McDonald further stated that the air brakes were tested at Biddle and they worked properly en route, and he estimated the speed of the train at the time of the accident to have been 28 or 30 miles per hour. The statement of Fireman Infield substantiated those of Engineman McDonald.

Head Brakeman Pruett stated that he rode on the engine most of the time during the trip and looked back over the train from time to time; he noticed no unusual amount of dust as the train passed over highway crossings and saw no indication of anything dragging, in fact, he noticed nothing wrong until he saw the cars leave the track, at which time the speed of the train was about 30 miles per hour. He inspected the first half of the train at both stops en route and noticed nothing wrong, while after the accident he made an inspection of the track and observed flange marks on the north rail near the east house-track switch.

Conductor Pearce stated that at Ola, their last stop, 20.3 miles east of Havana, he and the brakeman inspected the train and found nothing wrong. He was riding on the left

side of the cupola upon passing Danville and noticed nothing wrong at that time and did not see any dust at any of the highway crossings after leaving that point. His inspection of the derailed equipment revealed a broken arch bar on one of the trucks, which in his opinion was the cause of the accident. It appeared to be a clean break and he did not think that an inspection of this truck would have disclosed any defect, he himself inspected this car twice before the derailment.

Rear Brakeman Estes stated that at Ola he inspected the cars on the right side from the caboose to within the fourth car from the engine and found no defects, he rode in the cupola, on the right side, after leaving that point, noticed nothing unusual until the time of the accident, and gave the engineman proceed signals when passing Danville and Belleville. After the accident he went back to flag and at a point about $1\frac{1}{2}$ miles from the point of accident he noticed marks on the planks and cattle guards at a crossing which appeared to have been recently made.

Brakeman Thompson stated that he inspected the left side of the train at both of the stops which were made en route, that he rode on the left side of the cupola except when passing through Danville, when he went to the rear platform, and that he noticed nothing unusual at any time prior to the occurrence of the accident.

Extra Section Foreman E. E. Owens, who was working near the west switch at Havana, saw extra 1725 approaching from the east and witnessed the accident. Shortly afterwards he examined the east house-track switch and saw a flange mark on top of the north or right main rail and a scar on the right side of the turnout rail, indicating that something had come in contact with the rail.

Section Foreman E. T. Owens, of Belleville, stated that he was working along the track at Belleville when extra 1725 approached, he stationed his men on each side of the track and then watched the train from the engineman's side as it passed, but did not see anything wrong with it. He saw some one in the rear of the caboose and gave a proceed signal after the train passed, but did not know whether or not his signal was answered. About one-half hour later he heard of the occurrence of the accident, he then inspected the switches and crossings and found a mark on the plank of a highway crossing, on the north side of the track, about 9 inches from the outside of the rail and about $1\frac{1}{2}$ inches wide.

Section Foreman Patterson, of Danville, stated that he was at the tool house as extra 1725 passed, he watched it, saw nothing wrong, and as he saw no one on the rear of the caboose he made no attempt to give them a signal. Section Foreman Patterson then went back to work, and as he approached the east passing-track switch he noticed two rails had been torn out of the passing track. He ran back to

the station, had the operator call Belleville, and upon being informed that extra 1725 had passed that point he told the operator to call Havana and tell the operator there to stop the train, as there was something wrong. There was no damage done to the west end of the passing track at Danville, although there was a mark on one of the rails indicating that something had passed over it. The statements of Telegraph Operator Hudson, of Danville, corroborated those of Section Foreman Patterson as to their efforts to try to stop the train before the occurrence of the accident.

General Car Foreman Page stated that the car involved, MDKX 24, arrived at Biddle Yard in train No. 94 at 9 p.m., November 21, all the cars were inspected and found to be all right with the exception of one which was set out on account of a broken truck bolster. These cars were made up in the train of extra 1725, received an outbound inspection before departing from Biddle on the morning of the accident, and were reported in good condition. Car Foreman Page stated that he made an examination of the broken truck at the scene of the derailment and was of the opinion that it was the cause of the accident. The break was in the bottom arch bar on the right side, at the bottom bend just in front of the column post. There was a very small flaw in the metal, about one-sixteenth of an inch in depth and one-half of an inch in length, this flaw appearing on the top side of the bar and close to the inner edge. Car Foreman Page was of the opinion that this flaw originated at the time the arch bar was made, and could have been caused at the time the arch bar was bent to shape, making it appear like a fissure, and he said a defect of this kind could not be detected by an ordinary train yard inspection, saying that the only way it could have been discovered would have been by cleaning the arch bar of all paint and dirt. He further stated, however, that he did not attribute the breaking of this bar to the presence of the flaw.

Examination of the track at Havana showed that the first mark was on the outside of the ball of the north stock rail of the east house-track switch, extending for a distance of 4 or 5 feet, it then showed on top of the rail for a distance of 20 inches. This rail was not moved from its original position. These marks were apparently caused by dragging column bolts. The first flange mark was found on the north rail of the main track, 24 feet 10 inches west of the switch, and this mark continued across the ball of the rail for a distance of 4 feet 7 inches to where the wheel left the rail and dropped to the ties. The ties were then marked for a distance of approximately 81 feet to where the switch ties ended, beyond this point the ground was torn up, and in the center of the main track there were so many flange marks that it was impossible to follow them. The truck with the broken arch bar was found about 155 feet west of the last wheel

mark on the switch ties. At Danville, 9.3 miles east of Havana, a mark was found on the outside of the stock rail, about 1 foot east of the heel of the switch points of the east passing-track switch and about 9 inches from the gauge side of the north rail. The first rail west of the stock rail was torn loose, shearing off some of the spikes and bending others, and the rail was moved over against the running rail, this rail was also badly bent. There were marks at the west switch of this passing track and on the wing of the spring frog, these marks were approximately 9 inches from the gauge side of the running rail. At Belleville, 4.9 miles east of Havana, similar marks were found at both the east and west switches of the passing track and on the gin-track switch. Crossing planks on road crossings just east and west of Belleville were marked about $9\frac{1}{2}$ inches from the rail, these marks were $1\frac{1}{2}$ inches wide and from $1/8$ to $1/2$ inch in depth, and extended the full length of the planks. At the road crossing about 1 mile east of Havana a similar mark was found on a crossing plank, and the posts on the west cattle guard at this crossing showed marks of having been struck. All of the marks between Danville and Havana were found on the right or north side of the track, about 9 or $9\frac{1}{2}$ inches from the gauge side of the rail, and were apparently caused by dragging column bolts.

The front truck of the nineteenth car, MDKY 24, was found approximately 235 feet west of the east house-track switch at Havana, lying between the house track and the main track, quite badly damaged, the rear truck was buried in the wreckage. This car was equipped with trucks of the arch-bar type, and had a capacity of 80,000 pounds. All top arch bars were of $1\frac{1}{2}$ by $4\frac{1}{2}$ -inch material, bottom arch bars on the right or north sides of both trucks were of $1\frac{3}{8}$ by $4\frac{1}{2}$ -inch material, not gibbed at the ends, while the bottom arch bars on the left side were of $1\frac{3}{4}$ by $4\frac{1}{2}$ -inch material and were gibbed at both ends. The tie bars on the right sides were of $5/8$ by $4\frac{1}{2}$ -inch material and the tie bars on the left sides were of $3/4$ by $4\frac{1}{2}$ -inch material. The bottom arch bar on the right side of the front truck failed at the bend in the bar just in front of the column post casting, the metal of the bar extended approximately $3/8$ inch from the column post casting, on the top side of the bar, and $1\frac{1}{8}$ inches on the bottom side. The failure appeared to be a clean break and extended almost straight across the bar. Examination developed that there was a small mark that appeared to be a flaw, or fissure, in the material at the inside edge of the bar and extending downward from the top surface; this mark was about $5/8$ by $5/8$ inch and did not appear to be of recent origin. At the time of this inspection, there was a gap of approximately 3 inches between the ends of the broken parts of the arch bar. Neither the top arch bar, tie bar, column castings, column bolts, journal box nor journal box bolts were broken, but the entire truck bolster had sagged downward on this side, the arch bars were bent out of line, and the front column bolt nut was badly scored, evidently caused by rubbing and striking

against the rails of the various side tracks encountered en route, the bottoms of each column bolt were marked, apparently as a result of passing over the tops of the rails and crossing planks. The rear column bolt nut had a notch cut in the side, evidently caused by rubbing along the edge of the rail. The flanges of all the wheels of this car were in good condition. The weighmaster at Biddle said it had an allowable gross weight of 137,000 pounds, and according to the way bill, its gross weight at the time of the accident was 131,800 pounds.

Conclusions

This accident was caused by the failure of an arch-bar truck.

The investigation disclosed that the bottom arch bar on the right side of the front truck of the nineteenth car failed at the bend in the bar in front of the forward column post casting, allowing the parts to separate, and under the weight of the car and contents, causing the truck to sag until the column bolts were so low as to strike the crossing planks and side-track rails. Apparently this arch bar failed somewhere between Ola and Danville, a distance of 11 miles, the first mark being visible at Danville, where it struck and dislodged a rail at the east end of the passing track, a rail at the west end of this passing track was also marked, while marks also were found at Belleville and at various road crossings east of Havana. At the latter point the damaged truck encountered the stock rail at the east end of the house track, and the marks showed that the front column bolt nut followed the outside of this rail for a distance of between 4 and 5 feet, while the leading wheel was pulled across the north rail and later dropped to the ties, tearing up the track and precipitating the derailment.

The car involved had been inspected both on its arrival at and on its departure from Biddle yard, and no exceptions were taken as to its condition. The train also had been inspected by members of the train crew at two different points en route, the last point being at Ola, Ark., a distance of 20.3 miles from Havana, but no defective condition was discovered.

All of the employees involved were experienced men, and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland,

Director.