INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE INTERNATIONAL-GREAT NORTHERN RAILROAD, MISSOURI PACIFIC LINES, NEAR ENCINAL, TEXAS, ON FEBRUARY 12, 1931.

March 17, 1931.

To the Commission:

On February 12, 1931, there was a derailment of a passenger train on the International-Great Northern Railroad, Missouri Pacific Lines, near Encinal, Texas, which resulted in the death of one employee and the injury of one employee.

Location and method of operation

This accident occured on the Laredo District of the San Antonio Division, which extends between San Antonio and Laredo, Texas, a distance of 153.3 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred 3 21 miles north of the station at Encinal, the track being tangent this entire distance and for several miles beyond the point of accident. The grade for northbound trains is level for a distance of 8,800 feet to within approximately 300 feet of the point of accident, and then it is 0.4 per cent descending for a distance of 1,500 feet.

The track is laid with 75-pound relaid rails, 32 feet in length, with an average of 18 gum and pine ties to the rail-length, single-spiked, and about 40 per cent tie-plated. The ballast consisted of native soil, which was sandy with a little clay and loam. In the vicinity of the point of accident the track was not properly maintained. The maximum speed permitted for passenger trains is 45 miles per hour.

The weather was clear at the time of the accident, which occurred at 4.52 p.m.

Description

Northbound passenger train No. 8 consisted of three baggage cars, one mail car, one coach, one Pullman cafe car and one Pullman sleeping car, hauled by engine 379,

and was in charge of Conductor Gwinn and Engineman Bain. The first five cars were of all-steel construction and the last two cars were of steel-underframe construction with steel sheathing. This train departed from Encinal at 4.47 p.m., 10 minutes late, according to the train sheet, and was derailed shortly afterwards while traveling at a speed estimated to have been between 35 and 45 miles per hour.

The engine, tender, first five cars, and the front truck of the sixth car were derailed to the right, coming to rest with the pilot of the engine 553 feet beyond the first mark of derailment The engine and tender turned over on their right sides, with the head end of the engine fouling the track and the rear end about 8½ feet from the center of the track, the rear end of the tender was about 4½ feet from the center of the track and was uncoupled from the following car. The first car was leaning toward the right at an angle of about 45° with its head end on the road bed and the rear end about 12 feet from the center of the track. All the derailed cars remained coupled, practically upright in general line with the track, and were not seriously damaged The employee killed was the engineman and the employee injured was the fireman.

Summary of evidence

Fireman Chevalier stated that after leaving Encinal the train was traveling at a speed of about 40 miles per hour when he heard an unusual noise and on looking back he saw the rear end of the tender jumping around; he called to the engineman to stop the train and the engineman at once applied the air brakes in emergency, the engine turning over immediately afterwards. The engine was working steam at that time. He had passed over the track in this vicinity that morning, southbound, and did not notice anything unusual, nor did he notice any rough riding or unusual rocking of the engine just prior to the derailment. He thought that the rear truck of the tender was the first to be derailed, and that the engine had not been running on the ties before it turned over. Fireman Chevalier further stated that before their departure from Laredo, their initial terminal, the air brakes were tested and a running test was also made; a car was picked up at Encinal and a running test was again made after departure from that point.

Conductor Gwinn stated that he was riding in the fifth car after leaving Encinal, the train was traveling at a speed of about 45 miles per hour when he felt the air brakes applied in emergency, the coach reeled

and the train came to a stop. He held no slow orders effective in the vicinity of the point of accident and considered the track was good for the speed allowed.

Brakeman Rogers stated that the train was traveling at a speed of 35 or 40 miles per hour when he felt the air brakes applied in emergency, the train running about four or five car-lengths before it came to a stop, he had noticed no unusual rocking of the train just prior to the time of the derailment. The statements of Train Porter Walker, Express Messenger Parker and Mail Clerk Burton brought out nothing additional of importance.

Section Foreman Juarez, in charge of the section on which this accident occurred, stated that he passed over this track about 5 or 10 minutes prior to the occurience of the accident and noticed nothing wrong, he took his motor car off the track about 1 mile south of the point of accident, where train No. 8 passed him at a speed of about 50 miles per hour. He went to the scene of the accident immediately after its occurrence and found two broken rails under the train and was of the opinion that the accident was caused by a broken rail. His section force had been limited to three men for the last two or three months, but during the last week, on account of heavy rains which necessitated more men to maintain the track, his force was increased to six men. He last worked on the track in the vicinity of the point of accident about a week previously, the work consisting of raising joints, renewing ties, and making general repairs. Section Foreman Juarez further stated that his section consists of 11 miles of main line and 2 miles of siding.

Roadmaster Hawkes stated that he arrived at the scene of the accident soon after its occurrence. He was of the opinion that the derailment was caused by the train traveling at too high a rate of speed over one or two bad places in the track, permitting the engine and tender to turn over He had been over the track twice on the previous day and it appeared to be all right at that time. Roadmaster Hawkes further stated that the regular force assigned to this section consists of four men, but had been reduced to three men until about February 2 or 3, when it had been necessary to increase it to six men on account of heavy rains He also stated that the track was very well drained, and he did not observe any ties in the vicinity that were center-bound.

Division Engineer [illegible] stated that he arrived at the scene of the accident about five hours after its occurrence and made an examination of the track which disclosed marks where the wheels had apparently climbed the east rail, he measured the distance this mark extended on top of the rail and then took the elevation of the track. The joint at the point where the wheel first climbed the rail was about 1 inch low, the first joint 16 feet back was level, while the next joint back was about 1 inch above the west rail, the next two joints were a little low, and from there on back to the twenty-third joint the east rail was low. He stated that the rail was good relay rail, laid with pine and gum ties, of which about 25 or 30 per cent were gum ties, and a check of the tie situation showed that about 10 or 11 per cent were due to be renewed. He was of the opinion that the derailment was caused by irregularities in the track, these irregularities being due to churning joints, or ties being centerbound in places, causing the engine to rock, and that the front truck of the tender was the first to be derailed.

Mechanical Superintendent Householder stated that he arrived at the point of accident on the following morning, the equipment had not been disturbed. The position of the equipment indicated that the forward truck of the tender was the first to be derailed. He also inspected the track and found that it was not level, which condition he believed caused the tender to rock and pull the engine off the track.

Assistant General Manager Davis, who also arrived at the scene of the accident on the following morning before the equipment was moved, inspected the track and found a swing in it and also irregular cross level from the east to the west rail, just back of where the wheel mark appeared on the ball of the rail, this mark extended about 12 feet and indicated that the wheels then dropped off on the ties on the right side of the track. It was his opinion that the irregularities in the track caused by the swinging joints were the cause of the derailment; the ground was soft from recent rains and the irregular cross levels resulting from the churning of the ties worked the forward truck of the tender off the rail. The front tender-truck wheels were the only ones that showed marks caused by the derailment. There was no indication of any of the other engine or tender wheels having come in contact with either the soil, rail or ties, with the exception of a small piece broken out of the flange of the left front driving wheel of the engine. The position of the equipment also led him to believe that the forward truck of the tender was the first to be derailed and that it pulled the rear end of the engine off just before it turned over.

The first indication of derailment was a flange mark on the ball of the east or right rail, which appeared at a point 12 inches from its receiving end This mark extended along the ball of the rail for a distance of about 17 feet to where the wheel dropped off, and the mark then appeared on the ties at the base of and on the outside of the rail. A corresponding flange mark appeared on the ties on the gauge side of the left or west rail. These two flange marks then diverged to the right for a distance of 40 feet 5 inches, where the right wheel left the ends of the ties, and from this point the track was demolished for a distance of 495 feet.

On the day following the accident a check was made of the cross levels, gauge, and bad-order ties for a distance of 30 rail-lengths south of the point of derailment Beginning at the joint at the south or receiving end of the east rail on which the flange mark appeared, and continuing southward, using the west rail as a base rail, measurements were taken at the joints and centers of each successive right or east rail. The first joint was three-fourths of an inch low, while the center was one-half inch high, the next joint and center were each 1 inch high, and the following joints and centers were low, ranging from 1/4 to 1 1/2 inches, with the exception of two joints and two centers which were level. From 1 to 5 bad-order ties were found to each rail, with a total of 57 bad-order ties to the 30 rail-lengths, approximately 10.5 per cent of the ties were decayed or broken and nearly all were centerbound. Practically all of the joints were swinging and they were deflected from one-half to three-fourths of an inch under a slow-moving train The gauge was good and alinement fair.

Engine 379 is an oil burner of the 4-6-0 type, and weighs loaded 182,000 pounds. The tender weighs loaded 161,000 pounds, and has a capacity of 8,000 gallons of water and 3,360 gallons of oil At the time of the accident the water cistern was full of water, and the oil cistern had been full of oil upon leaving Laredo, 41.3 miles south of the point of accident. There was no evidence that any of the driving wheels had been on the ground before the engine turned over. The back driver brake beam indicated that the rear driving wheels had been derailed on the ties and that the brake beam had been dragging on the rail before the engine turned over, and the sand board of the front tender truck also showed it had been chafing the rail while the truck was in a diagonal position to the track;

the bottom truck rod of this truck had been dragged off, apparently as the truck was dragged along the track and through the dirt. Examination of the engine and tender failed to disclose any defect which could have contributed to the occurrence of the accident.

Conclusions

This accident was caused by defective track which had not been maintained in condition to provide for the safe movement of trains at authorized speed

The track approaching the point of accident was found to be in very bad condition, many of the ties were broken or decayed, the native soil ballast had been softened by recent rains, and there were a great many swinging joints and centerbound ties These conditions caused the surface of the track to be very uneven, and it is clearly apparent that when the engine and tender encountered this uneven track, running at a speed close to the maximum permitted for passenger trains, the tender rocked from one side to the other, allowing the front tender-truck wheels to mount and ride over the east rail, which resulted in bunching and breaking the ties, derailing the following tender truck and cars, and then dragging the engine off the track.

The section of track on which this accident occurred consisted of 11 miles of main track and 2 miles of side track, and the regular force to maintain this track consisted of four men, but during the past two months a force of only three men in addition to the section foreman had been assigned to this section. There had been an unusually heavy rainfall during January and the first part of February and about one week prior to the occurrence of this accident the section force had been increased from three to six men. This, however, was not a sufficient precaution. It is obvious that this track was badly in need of repairs and had been for some time, in view of the further weakening of the track as a result of the heavy rains the maximum speed permitted should have been reduced to a rate where trains could be operated in safety.

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.