INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE PERE MARQUETTE RAILWAY NEAR FENWICK, MICH , ON JANUARY 16, 1929.

April 5, 1929

To the Commission:

On January 16, 1929, there was a derailment of a freight train on the Pere Marquette Railway near Fenwick, Mich., which resulted in the death of two employees and the injury of one employee The investigation of this accident was held in conjunction with a representative of the Michigan State Utilities Commission.

Location and method of operation

This accident occurred on Sub-division No. 3 of the Port Huron-Grand Rapids Division extending between Stanton and Haynor, Mich , a distance of 20 miles, and is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. Approaching the point of accident from the north there is a 2° 30' curve to the left 1,850 feet in length from which point the track is tangent for a distance of approximately 1,725 feet, the accident occurring on this tangent at a point 930 feet from its northern end. The grade is descending for southbound trains for a distance of about 2,300 feet, being 0.9 per cent at the point of accident. The maximum speed permitted for engines running in backward motion is 15 miles per hour.

In the vicinity of the point of accident the track is laid with 56-pound rails, 30 feet in length, with an average of 18 softwood ties to the rail-length on tangents and 19 hardwood ties on curves, and is ballasted with sand; no tie-plates or rail anchors are used.

The weather was clear at the time of the accident which occurred at about 4.30 p.m.

Description

Southbound freight train extra 346 consisted of four cars and a caboose, hauled by engine 346, backing up, and was in charge of Conductor Kunkle and Engineman Humphrey. This train departed from Sheridan, 4.45 miles north of Fenwick, at 3 35 p m., left Fenwick at about 4.15 p.m. and was derailed at a point 2.12 miles south of Fenwick while traveling at a speed estimated by the crew to have been from 10 to 15 miles per hour.

The engine was derailed to the west and came to rest at right angles to the track, partly overturned, the tender was on its left side beyond the engine and practically parallel with it. The first car and the forward truck of the second car were also derailed, while all of the derailed equipment was damaged more or less The employees killed were the fireman and head brakeman.

Summary of evidence

On account of his condition as a result of injuries sustained in the accident Engineman Humphrey could not be questioned in detail. His statement in substance was to the effect that he merely glanced around his engine while oiling it before departing from Ionia on the northbound trip prior to the trip southbound on which the accident occurred, not making a careful inspection of the engine, and during that trip he noticed some rough spots in the track but considered it would be safe for careful running. On the return trip one car was picked up at Fenwick and then the train proceeded. As soon as it started down the grade on which the accident occurred he shut off steam and the train was still drifting when he observed that the rear end of the tender was off the track, this being followed immediately by the derailment of the engine He said the air brakes had been working properly and that he did not apply them until he saw that the tender was derailed He estimated the speed at the time of the accident at not more than 10 miles per hour.

Conductor Kunkle stated that after the car was picked up at Fenwick the air was coupled up and the train departed at about 4.15 p.m., the air gauge in the caboose registering 70-pounds pressure at the time. No stops were made after leaving Fenwick and a uniform speed of between

12 and 15 miles per hour was maintained. He was riding in the cupola of the caboose approaching the point of accident and observed that steam was shut off when the train started down the grade but he did not know whether the brakes had been applied on the grade and did not notice anything unusual until the sudden jar at the time of the accident As soon as the train came to a stop he started toward the head end and upon examining the track he noticed wheel marks which extended for a distance of from 60 to 80 feet and which terminated where the engine left the roadbed. He had noticed nothing wrong with track conditions on the northbound trip nor had he received any complaint from the engine crew as to the condition of the engine. He also said that there are no facilities for turning engines at Sheridan and for this reason it is necessary to run engines in backward motion from that point to Ionta.

The statements of Brakeman Robbins, who was also riding in the cupola of the caboose, practically corroborated those of Conductor Kunkle as to train performance prior to the accident, he thought the speed of the train was uniform on the descending grade and that the brakes were applied in emergency at the time of the accident. He said he did not particularly notice any rough spots in the track while moving northward but the caboose appeared to ride rougher than it did on another division.

Section Foreman Simmons stated that he has had charge of the section on which the accident occurred for the past three years. During the afternoon on the day of the accident he passed over his section on a motor car at a speed of about 8 miles per hour but noticed no rough spots in the vicinity of the point of accident, this is the only method used in inspecting the track. He arrived at the scene of accident at about 8 p.m. but made no inspection to determine its cause. He said that no general work had been performed in that locality since last November while the track had not been gauged since August, 1928 It also appeared from his statements that some trouble is experienced during the summer months due to the creeping of the track, causing it to kink, which condition he attributed to ascending grades in both directions from the point of accident. It was his opinion that the track was safe at a speed of 20 miles per hour for freight trains.

Track Supervisor Phillips stated that during the fall of 1927 the track in the vicinity of the point of accident was gone over thoroughly, and during the fall of the following year approximately 150 ties per mile were renewed. He made what he considered a thorough inspection of the track in November, 1928, by passing over it in a motor car, while his last trip over this subdivision was made in December riding in a caboose, At the time he inspected the track the only exception noted was a rough spot about 1½ miles south of Sheridan. He said the ties were good for that class of railroad and that he did not think a dangerous condition existed unless they were rail-cut to a depth of at least 2 inches. From his experience in riding on an engine he considered the track perfectly safe for a speed of 20 miles per hour for certain types of engines Supervisor Phillips further stated that during the summer they had considerable trouble from creeping rails but this occurred at only one point which was about 1 or 1½ miles south of the point of accident. He never knew of any irregular track conditions in the vicinity of the point of accident and did not think that such a condition caused the accident.

Road Foreman of Engines Coppernoll stated that he arrived at the scene of the accident between 6.10 and 6 20 p.m. on the day of its occurrence and after the equipment that remained on the track had been pulled away from the wreckage he examined the track and found flange marks on the top of the west rail followed by wheel marks on the ties for a distance of 40 or 45 feet. He also found a broken rail on the west side of the track about 1½ rail-lengths beyond the initial point of derailment. As soon as the engine had been derailed he observed that the throttle was closed and the reverse lever in backward motion, he could not determine the position of the brake valve as the handle had been removed in releasing the engineman. He estimated that the tender was about one-half full of water and contained about 13 tons of coal at the time of the accident. In his opinion it is safe to operate an engine of the type involved at a speed of 15 miles per hour at some points on this subdivision but at other points it is not safe.

Superintendent Grigware stated that in September, 1928, he made an inspection of Sub-division No. 3 and at that time the only unusual condition noted was the fact that the rails were creeping in a northerly direction on the entire branch This condition did not make it necessary to change the class of power, load limit or speed

restrictions, these restrictions being 20 miles per hour for engines running in forward motion and 15 miles per hour for engines backing up. He said there are no regular passenger or mixed trains operated over this branch and that extra trains are run once each week unless business warrants additional trips.

Engine 346 is of the 2-8-0 type with a rigid wheel base of 24 feet 4 inches and has a total weight of 163,000 pounds. The wheel base of the tender is 16 feet 3 inches and it has a height of 11 feet 6 inches above the tops of the rails, it is equipped with splash plates and weighs, loaded, 103,500 pounds. This engine received class 3 repairs in November, 1928. An examination of the tender subsequent to the accident disclosed that the rear truck remained intact. One pair of wheels in the forward truck was torn from the frame, the left side of the frame was crushed and the left side bearing missing. There were no defects found that would have caused the derailment.

The first mark of derailment was a flange mark 19¾ inches in length on top of the west rail. This mark first appeared 11¼ inches from the receiving end of the rail and 1 3/8 inches from the gauge side, the other end of the mark being 3/8 inch from the same side of the rail, there was no other mark on this rail. This was followed by wheel marks on the ties on the inside of the west rail for a distance of 31 feet, where the following rail was broken at a point 42 inches from its receiving end, from this point the marks on the ties ran diagonally to the west for 10 feet to the ends of the ties. At the time the track was examined repairs had been made and it was impossible to determine what condition it was in prior to the accident. An inspection of the track from the initial point of derailment for a distance of approximately 3,000 feet northward, however, developed that many of the ties were rail cut to a depth of from 1 to 4 inches, many of the spikes were pulled and in some instances they were found to be 1 inch from the base of the rail, permitting a lateral movement of the rails under a passing train. The bunched condition of the ties at rail joints indicated that the track had been creeping to the north, while the rails were badly worn and kinked. Measurements of the gauge and elevation were taken for a distance of about 3,000 feet north of the derailment and showed that the gauge varied from one-fourth inch tight to 1 inch wide. The elevation on the curve just north of the point of

accident varied considerably and at several points the outside rail was lower than the inside rail, on the tangent track approaching the point of accident, 135 feet from the first mark of derailment, the east rail was 1/4 inch low, 90 feet away the east rail was 1 5/8 inches low, 60 feet away it was 2 inches low with gauge 1/2 inch wide, at 30 feet the east rail was 3/8 inch low and the gauge correct, and at 15 feet both surface and gauge were correct.

Conclusions

This accident apparently was caused by poor track conditions.

Before the arrival of the Commission's inspectors at the scene of the accident repairs had been made to the track in the immediate vicinity to permit the safe movement of the wrecker in rerailing the equipment, therefore the exact condition of the track prior to the accident could not be ascertained An inspection of the track for a considerable distance northward, or beyond where repairs had been made, disclosed that the track was very poorly maintained, the ties were badly rail-cut, the east rail was as much as 2 inches low at a point less than 100 feet from the first mark of derailment, the gauge varied from one-fourth inch narrow to 1 inch wide, the rails were badly worn and kinked, and in some cases the spikes were so far away from the base of the rail as to permit them to move laterally, or to one side, under a passing train. It is believed that these conditions caused the tender to sway and rock to such an extent that one wheel of the tender mounted the west rail where it rode for a short distance, then was raised in the air again, and then dropped off on the inside of the rail and continued on the ties until the final derailment occurred.

The maximum speed for freight trains is 30 miles per hour but this is further restricted to 15 miles per hour for engines backing up. According to the evidence steam was shut off at the start of the descending grade and the train allowed to drift on the grade of practically 1 per cent until it was derailed; under these circumstances it is probable that its speed was in excess of

15 miles per hour at the point of accident On the other hand, however, it does not appear that the track is sufficiently well maintained to permit even the moderate rates of speed allowed for these engines on this branch of the railway.

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.