INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LINE OF THE READING COMPANY NEAR MERKLE, PA., ON APRIL 29, 1930.

May 19, 1930.

To the Commission:

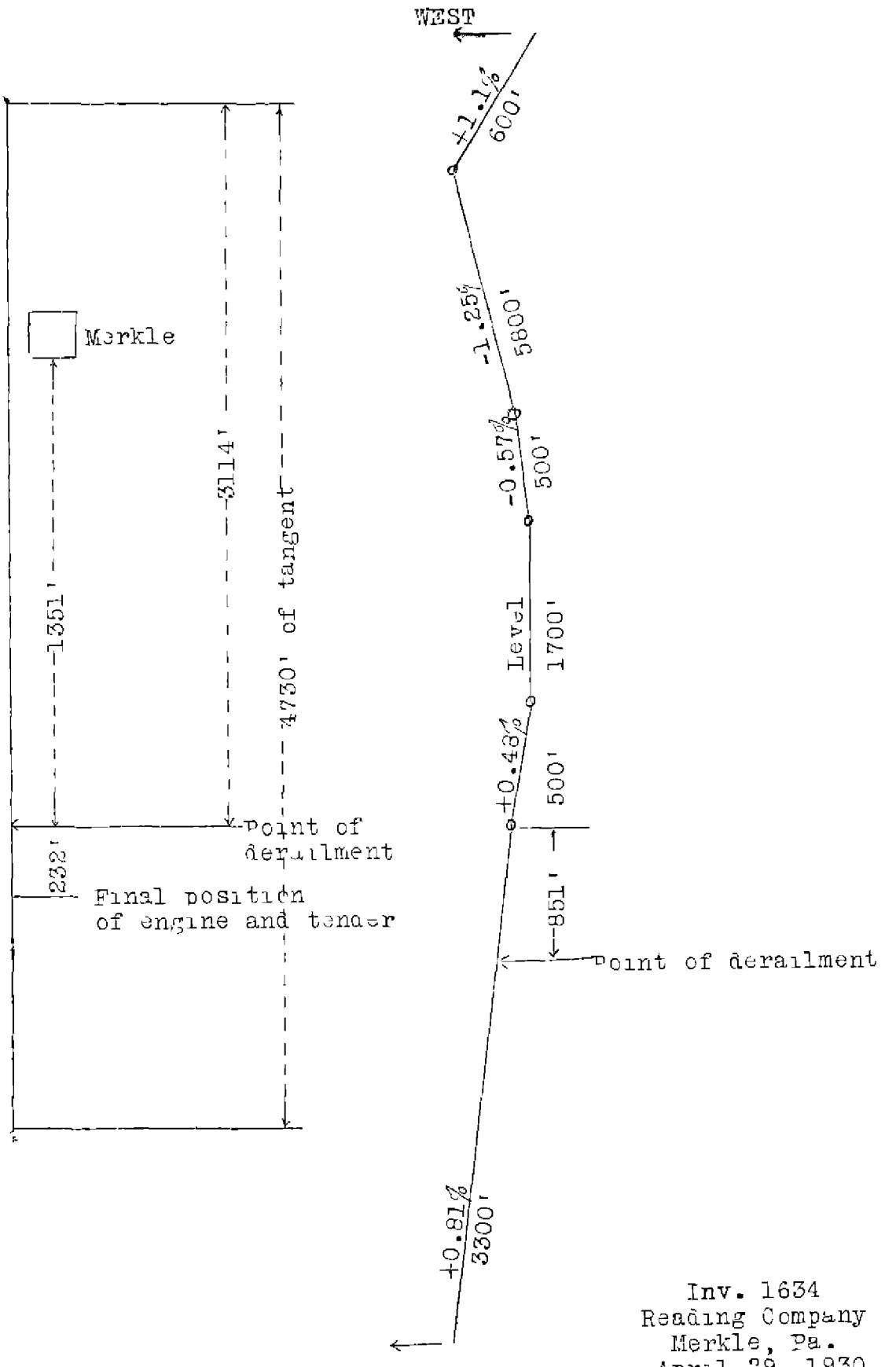
On April 29, 1930, there was a derailment of a freight train on the line of the Reading Company near Merkle, Pa., which resulted in the death of three employees and the injury of three employees. This investigation was made in conjunction with a representative of the Public Service Commission of Pennsylvania.

Location and method of operation

This accident occurred on the Catasauqua and Fogelsville Branch of the Reading Division, which extends between Catasauqua and Rittenhouse Gap, Pa., a distance of 19.1 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. The accident occurred at a point 1,351 feet east of the station at Merkle; approaching this point from the west, the track is tangent for a distance of 3,114 feet, this tangent extending a distance of 1,616 feet beyond the point of accident. The grade for eastbound trains is 1.1 per cent ascending for a distance of 600 feet, followed by 1.25 per cent descending for a distance of 5,800 feet, 0.57 per cent descending for 500 feet, level for a distance of 1,700 feet, and then 0.48 per cent ascending for 500 feet, which grade increases to 0.81 per cent ascending for a distance of 3,300 feet, the derailment occurring on this latter grade at a point 851 feet from its western end. Engines running backwards on this branch are restricted to a speed of 15 miles per hour.

In the vicinity of the point of accident, the track is laid on an earth fill, with a shoulder from 5 to 6 feet wide on each side. The track is laid with 90-pound rails, 33 feet in length, single-spiked, fully tie-plated, and fastened with 6-hole splice bars; it is ballasted with cinders to a depth of from 20 to 24 inches, and is maintained in good condition.

The weather was clear at the time of the accident, which occurred about 2.10 p.m.



Inv. 1634
Reading Company
Merkle, Pa.
April 29, 1930.

Description

Extra 1502 traveled westbound over the East Pennsylvania and Lebanon Valley Branches from Allentown to Alburtis, and upon its arrival at Alburtis, the engine and caboose reversed their positions in the train. Eastbound freight train extra 1502 then consisted of 2 loaded cars, 31 empty cars, and a caboose, in the order named, hauled by engine 1502, of the double-cab type, headed west, and was in charge of Conductor Weaver and Engineman Bauer. It departed from Alburtis, which is 1.6 miles west of Merkle, at 2.04 p.m., and was derailed a short distance beyond Merkle while traveling at a speed estimated by the surviving members of the crew to have been from 15 to 35 miles per hour.

The tender, engine, and first six cars, were derailed, the tender and engine, still coupled, coming to rest on their right sides at a right angle to the track at a point 232 feet from the point of derailment, while the six cars were torn from their trucks but remained upright in various positions on the roadbed and in the adjoining field. The seventh car and the front truck of the eighth car were also derailed; none of the remaining equipment was damaged. The employees killed were the engineman, conductor, and a brakeman, and those injured were the fireman, a brakeman, and the flagman. All of these employees were riding on the engine with the exception of the flagman.

Summary of evidence

Fireman Black stated that he was on the tender upon leaving Alburtis, the two brakemen were riding on the left side of the cab, and he did not know at that time whether or not the conductor was riding with the engineman, but he was told after the occurrence of the accident that he was. The fireman was occupied with the fire and was also watching the steam gauge, as it was sticking, but he thought the train was operated at its usual speed. The engine was working steam from Alburtis until the time of the accident, and he noticed nothing unusual until he felt a jar and braced himself just before the tender went down the bank and turned over. After the derailment, the driving wheels revolved until the steam was exhausted. The fireman stated that he was no judge of speed, yet he repeatedly said that the train did not exceed a speed of 15 miles per hour - the speed it was traveling at the time of the accident. Fireman Black furtner stated that the only knowledge he had concerning the air brakes was when the engine was coupled to the east end of the train at Alburtis, at

which time he heard the brakes applied and released, and at no time after leaving Alburtis did he notice an application of the brakes.

Brakeman Hagenbuch, who was seriously injured, was interviewed briefly at the hospital, at which time he stated that when the engine and caboose exchanged places at Alburtis, he coupled the air hose and opened the angle cocks, but he did not remember whether or not an air-brake test was made. Upon leaving Alburtis, he was riding on the left side with the other brakeman, and the conductor was riding on the right side of the cab with the engineman. He stated that the train was not traveling any faster than usual on the descending grade, that the air brakes were not applied, and that the engineman was using steam. Brakeman Hagenbuch estimated the speed at the time of the accident to have been between 30 and 35 miles per hour.

Flagman Miller stated that a regular air-brake test was made at the initial terminal, and also at Alburtis after the caboose and engine were exchanged. He was riding in the caboose and the air gauge registered 70 pounds pressure when leaving Alburtis. According to the flagman's statements, the engineman was using steam up until the time of the accident, the air brakes were not applied at any time after leaving Alburtis, and the train had attained a speed of 15 miles per hour when it reached the beginning of the descending grade, yet he said that the speed was not any greater than 15 miles per hour at the time of the accident.

Superintendent Tyson arrived at the scene of the accident about two hours after its occurrence, and his inspection of the track disclosed marks on the rail which indicated that a flange had mounted the rail and run along on top of the rail a distance of 26 feet 2 inches, where it dropped down and struck the ties 8 inches from the rail. He also said that the division engineer took the usual measurements of the track, and it was found to be in good condition. At only one point was there a joint to which any exceptions could be taken, this being the second joint back of the point of derailment, which was $\frac{1}{2}$ inch low. However, the joint and ties supporting it were not loose, and the joint did not give when the derrick of the wreck train passed over it. Superintendent Tyson stated that in his opinion this condition could not have contributed other than remotely to the cause of the accident. Examination was made of the engine and tender and nothing was found that could have contributed to the cause of the accident. The watches of both the engineman and conductor who were killed in the accident showed they stopped at 2.09.45 and

2.10 respectively. Superintendent Tyson further stated that shortly after his arrival at the scene of the accident, he met Mr. Stein of Merkle, Pa., who said that he and his son were standing close to a crossing, located 151 feet west of the point of derailment, when extra 1502 passed them, and his son commented on the fact that the tender was shaking. Mr. Stein said that he thought the train was traveling at a speed of at least 25 or 30 miles per hour.

Master Mechanic Heinbach also stated that he found nothing on the engine or tender which could have caused the accident, and on the day following the occurrence of the accident the wheels on the engine and tender were again inspected and gauged and they were found tight on the axles and the flanges were in good condition.

Division Engineer Dunn stated that the track in the vicinity of the point of accident was surfaced and lined about two weeks prior to the date of the accident. The track-walker in charge inspected this track on the morning of the accident and it was found in good condition.

Statements were obtained from the members of the crew of extra 576, which was the last train to pass over the track before the occurrence of the accident, and they stated that they noticed nothing unusual with the track and that the train rode smoothly.

Engine 1502 is of the double-cab, 2-8-0 type, and is used in road service for both passenger and freight trains over this branch, running both forward and backward. A thorough examination was made of this engine and nothing was found that could have caused the accident. A complete inspection of the track and roadbed at the point of accident also was made, and no trace of anything dragging on the ties or roadbed west of the first marks of derailment could be found.

Conclusions

This accident is believed to have been caused by the operation of extra 1502, with the engine running backwards, at an excessive rate of speed, for which Engineman Bauer and Conductor Weaver are responsible.

The maximum speed permitted for engines running backwards over this branch is 15 miles per hour. According to the statements made by the surviving members of the crew, steam was used during the entire trip after

leaving Alburtis, and at no time was an air-brake application made. It was stated that the train had attained a speed of 15 miles per hour at the top of the 1.1 per cent ascending grade, that while descending the 1.25 per cent grade the engineman continued using steam, and that at no time did he apply the brakes, which is also evident from the fact that the driving wheels on the engine continued to revolve after the engine overturned, until steam was exhausted. Under these circumstances, it is clear that the train was traveling at a much higher rate of speed than 15 miles per hour at the time of the accident, as stated by Fireman Black and Flagman Miller, and it is apparent that Brakeman Hagenbuch's estimate of 30 or 35 miles per hour is more nearly correct. The distance from the initial point of derailment to the point where the engine and tender came to rest and the condition of the wreckage also indicate that the maximum rate of speed permitted for a movement of this character was being greatly exceeded, and it is very probable that the swaying of the tender, due to the speed, was such as to lift the truck wheels high enough to permit the flange to ride the ball of the rail, as evidenced by the marks on the top of the rail, resulting in the engine and tender being derailed and overturned.

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.