

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE LEHIGH VALLEY RAILROAD NEAR BEAR CREEK JUNCTION, PA., ON MAY 18, 1930.

June 28, 1930.

To the Commission:

On May 18, 1930, there was a rear-end collision between two freight trains on the Lehigh Valley Railroad near Bear Creek Junction, Pa., which resulted in the injury of three employees.

Location and method of operation

This accident occurred on that part of the Wyoming Division extending between Ransom and Penn Haven Junction, Pa., a distance of 53.52 miles; in the immediate vicinity of the point of accident this is a three-track line over which trains are operated by time-table, train orders, and an automatic block-signal and train-stop system. The accident occurred on the eastbound main track at a point approximately 3.6 miles west of Bear Creek Junction, approaching this point from the west there is a series of curves and short tangents, followed by a $20^{\circ} 30'$ curve to the right 776 feet in length, then tangent track for a distance of 1,785 feet, the accident occurring on this tangent at a point 857 feet from its eastern end. The grade for eastbound trains is 1.209 per cent descending for a distance of about 3 miles to the point of accident and for a considerable distance beyond that point.

The signals involved are signals 1532 and 1542, of the single-arm, three position, upper quadrant type, and are located 228 feet and 10,166 feet, respectively, west of the point of accident. The automatic train stop device in use on this line is of the intermittent inductive type with fore-stalling device.

The weather was clear at the time of the accident, which occurred about 1.56 p.m.

Description

Eastbound extra freight train symbol Advance BJ-4 consisted of 64 cars and a caboose, hauled by engine 2107, and was in charge of Conductor Corcoran and Engineman Conniff. This train departed from Coxton, 37 miles west of Bear Creek Junction, at 11.50 a.m., left Gracedale, 9.1 miles west of Bear Creek Junction at about 1.33 p.m., and was approaching Bear Creek Junction when it was stopped due to an undesired emergency application of the brakes. It had been standing at this point approximately 6 minutes when it was struck by train MG-2.

Eastbound extra freight train symbol MG-2 consisted of 45 loaded and 5 empty cars and a caboose, hauled by engine 380, with a total of 2167 gross tons, and was in charge of Conductor Boyle and Enginemen Meimeyer. This train left Coxton at 12.01 p.m., left Gracedale about 1.43 p.m., passed signal 1542 which was displaying a caution indication, passed signal 1932 displaying a stop indication and collided with train BJ-4 while traveling at a speed estimated to have been between 15 and 20 miles per hour.

The caboose of train BJ-4 was demolished and the wreckage consumed by fire. The rear truck of the 60th car and the 61st to 64th cars, inclusive in this train were derailed, the 61st and 63rd cars being destroyed and the other derailed cars damaged. Engine 380 and its tender were overturned on their right sides and stopped 233 feet east of the point of collision, about 25 feet from the track, and were considerably damaged. The forward truck of the first car in train MG-2 was also derailed and slightly damaged.

Summary of evidence

Engineman Conniff, of train BJ-4, stated that when he stopped at Pittston Junction, 1.1 miles east of Coxton, for the purpose of coupling on a pusher engine, he made a 5 to 7-pound brake-pipe reduction but the brakes applied in emergency, which he thought at the time was caused by some one opening the brake valve at the rear of the train, as he had no previous difficulty with the brakes. Upon examination of the train it was found that the knuckle on the rear end of the first car was broken and the car off center. This car was set out and after recoupling the engine to the train, the train line was recharged and a standing brake-test was made by reducing the brake-pipe pressure several times. The

air-brake inspector then gave him a card showing the brakes were operative on all of the cars and the train departed. The next stop was at Mountain Top, 10.3 miles from Bear Creek Junction, where he made a service application and at that time the brakes functioned properly. The pusher engine placed the caboose on the rear of the train and coupled behind at this point and the train proceeded to Gracedale where a stop was made for water, this stop being made by using the independent engine brake. After water had been taken the train continued with the pusher engine assisting for a short distance. The train passed over the summit of the mountain at a speed of 4 or 5 miles per hour and when it reached a point just beyond signal 1532 and while traveling at a speed of 25 or 30 miles per hour he made another brake-pipe reduction of 6 or 7 pounds and the brakes again went into emergency, breaking the knuckle on the forward end of the leading car and bringing the train to a stop. Engineman Conniff did not know that a collision occurred while standing at that point until informed of the fact by a brakeman. Some time after the accident he handled the forward part of the train to Mahoney yard and on the way down the mountain six or seven service applications of the brakes were made and on the last occasion they again applied in emergency, breaking a knuckle on the first car for the third time. As soon as repairs were made he continued to his destination but he controlled the speed of the train by use of the independent brake.

Fireman Klaproth, of train BJ-4, stated that a message was received at Athens stating that some wheels were sliding in the train. The train was stopped, the air bled off from one car, and the train continued to Pittston Junction. When the brakes were applied in making the stop at this point he felt a jerk from the rear of the train which broke the knuckle on the rear of the first car. This car was set out and the train then proceeded with no further trouble with the brakes until they were applied in the vicinity of signal 1532 and when this was done they went into emergency. Fireman Klaproth said that when the engineman started to apply the brakes near signal 1532, he made a remark which indicated that he anticipated another undesired emergency application.

Conductor Corcoran, of train BJ-4, stated that while his train was passing the station at Sayre some one called to them that some of the brakes were sticking, and

when the train arrived at Athens, the next station in advance, they received a message to the same effect. The train was stopped at this point and an examination revealed that the brakes were sticking on the 23rd car from the caboose. After releasing the brakes on this car the train proceeded and no more trouble was noticed until the train reached a point in the vicinity of Sugar Run and then it was discovered the brakes were sticking on the rear car. He stopped the train by means of the emergency valve in the caboose and the air was bled off this car and the train continued to Coxton with no further trouble. When the brakes were applied to stop at Pittston Junction, a kicker in the train caused them to go into emergency. After the caboose was coupled to the train at Gracedale he noticed the caboose gauge registered 70 pounds pressure and observed that it registered the same when the train started down the grade on which the accident occurred. He did not know how fast the train moved over the top of the hill but it was moving down the grade at a speed of 25 or 30 miles per hour when the train was again stopped by an emergency application of the brakes. Thinking that an air hose had burst he started forward and at the same time instructed the flagman to go back to protect. Upon reaching the 23rd car from the caboose he found the wheels heated and he started to close the cut-out cock, thinking that this was the car which was causing the trouble. He was under this car attempting to close the crossover valve when the car suddenly surged forward due to the collision. He said that the train stopped at 1.50 p.m., and he thought the accident occurred from 7 to 10 minutes later.

The statements of Flagman McDonald, of train BJ-4, substantiated those of Conductor Corcoran as to difficulty experienced with the brakes en route and as to the action taken to remedy the situation. He said that each time the train stopped he went back to flag, and when the last stop was made, at 1.50 p.m., he immediately went back with a flag and two torpedoes. When he reached a point at about the leaving end of the curve west of the point of accident he heard train MG-2 approaching and almost immediately the engine appeared around the curve about six or seven car-lengths distant. He gave stop signals with his flag which were acknowledged by the engine whistle of the approaching train; he did not place the torpedoes as he did not have time to do so before the engineman answered his flag. When the engine of that train passed him he noticed that sand was running on the rails and from the sound of the

exhaust it appeared that the engine was in reverse motion, he did not hear the grinding of the brakes. He estimated the speed of the train at the time it passed him at 35 miles per hour and said it did not seem to be reduced prior to the accident, which according to his watch occurred at 1.56 p.m. Immediately after the accident he started forward toward the point of accident and on his way he noticed that the retainers on about 25 cars in that train were not set in holding position. He did not see anyone on top of the train, and Brakeman Firestone and Conductor Boyle came up to the point of accident walking on the ground, one on each side of the train. He said Engineman Neimeyer made a remark "that never happened to me before, that is what a man gets for running without retainers."

Engineman Neimeyer, of train MG-2, stated that after coupling his engine to the train upon its arrival at Coxton he tested the brakes and found very little leakage, he estimated it at 3 or 4 pounds per minute. He knew that another train was to precede his own train from Coxton as he had to wait until that train departed, and was also aware that he was following that train closely due to the fact that the first automatic signal east of Coxton was in caution position and the signal at Mountain Top was in stop position, he stopped the train at the latter point by using the automatic brakes. The next signal was in caution position, which he acknowledged by means of the train control device in the engine cab, and the train continued to Gracedale where water was taken. From that point all of the signals were clear until the train was passing over the summit, when he observed the first signal east of that point, signal 1542, was displaying a caution indication. Before reaching that signal he made a brake-pipe reduction of about 7 pounds and the sound of the train line exhaust indicated the brakes were in good condition. He passed this signal, operating the forestalling lever of the train stop device, and left the brakes applied until the train reached the curve just west of Conety's Fill where he moved the brake valve to full release position, when he placed the brake valve in running position the train-line gauge registered 71 or 72 pounds, the normal pressure being about 75 pounds. He estimated the speed of his train at 30 miles per hour at the time the brakes were applied, and at 15 miles per hour when they were released. The train began to gain momentum and when the speed had increased to about 20 miles per hour he made another reduction of about 10 pounds, but this application did not take proper hold and after traveling a distance of about 10 car-lengths he made a further reduction of 10 pounds which did not have any more effect than the former reduction, and he immediately moved the brake valve handle into the

emergency position which caused only a slight shock to the train. At the time of the emergency application he was not yet in sight of signal 1533, which did not come into view until his engine was rounding the curve west of it, and he then saw that it was in stop position. A short time later he saw a flagman giving stop signals which he acknowledged by two blasts of the whistle, and then he saw the rear end of the train ahead. Realizing that his train was beyond control he told the fireman that the safest thing for them to do was to jump. He did not sound the whistle signal for hand brakes. When the engine was five or six car-lengths from the point of accident, Engineman Neimeyer jumped from the lower step on the left side of the engine. Although injured as a result of falling when he jumped off, he was fully conscious and remembered talking to some of the employees about how the brakes operated, but did not recall saying anything to Flagman McDonald about running without retainers. He thought some of the retainers were turned up, although he had not told the brakeman how many to turn up. He further stated that he noticed nothing unusual about the functioning of the brakes until after the train had started down the grade on which the accident occurred.

Fireman Eckrote, of train MG-2, stated that they passed the first signal east of Coxton under a caution indication and kept gaining on the train ahead until they were only a short distance behind them as the trains approached Gardner's Run. In order to permit the first train to get farther ahead, his train stopped for water at this point. All signals were clear from this point until they reached the first signal west of Mountain Top, which signal was displaying a caution indication, and when they reached the signal at Mountain Top it was in the stop position. His train was delayed at this point for some time, due to the pusher engine of train BJ-4 changing the position of the caboose. As soon as they received a clear board his train proceeded to Graceville, took water and then continued, and while approaching signal 1562, located approximately 200 feet west of the summit, it was in caution position but before the engine reached this signal it assumed the clear position. After the engine passed over the summit he started fixing the fire and did not see the indication of signal 1542 although when the engine was about a train-length down the grade he felt an application of the brakes which appeared to properly check the speed.

In the vicinity of Conety's Fill and while the train was traveling at a speed of about 25 miles per hour the engine-man made another service application of the brakes but this application did not seem to take proper hold, and the engine man then applied the brakes in emergency which reduced the speed slightly but did not have the proper effect. Shortly afterwards the engineman sounded two short blasts of the whistle, indicating that a flag was being acknowledged, and upon looking out the gangway on the left side of the engine he observed the caboose of train BJ-4 approximately 35 or 40 car-lengths distant. He got down on the steps and when it became certain that a collision would occur he jumped off, he estimated the speed of his train at this time at 20 or 25 miles per hour.

Conductor Boyle, of train MG-2, stated that the helper engine coupled the caboose to the rear of the train at Mountain Top and when the air was cut through he noticed the gauge registered 80 pounds pressure, the brakes were not tested after this shift was made. The speed of his train was about 20 miles per hour when it passed the apex of the grade west of the point of accident, but was increased to 22 or 23 miles per hour approaching signal 1542. He said that apparently this signal was displaying a caution indication as the brakes were applied and the speed reduced to approximately 15 miles per hour, when the brakes were released. Speed was again increased to about 25 miles per hour when the brakes were applied the second time, which appeared to be an emergency application as the caboose received a severe shock. This application reduced the speed to about 20 miles per hour when the train came to a sudden stop, which he thought at the time was due to a derailment. He immediately left the caboose and went to the head end of the train, and on his way he turned down four or five retainers that had been set up by the brakeman. Subsequent to the accident he accompanied all of the equipment of his train, except the engine and first car, to Mahoning, and on this trip he noticed nothing unusual about the operation of the train brakes.

Brakeman Firestone, of train MG-2, stated that while the train was standing at Mountain Top he walked for-
ward alongside the train and inspected it, but noticed nothing out of the ordinary. When he reached the leading car he started back over the train, setting up retainers, and estimated that he turned them up on 30 or 35 cars. He rode on top of the train after leaving Mountain Top, and while approaching signal 1542 he observed that it was in

cation position. The engineman applied the brakes when the engine reached a point about five car-lengths beyond this signal, and they seemed to take proper hold, reducing the speed from 35 miles per hour to 13 or 15 miles per hour and then the brakes were released, which in his opinion was for the purpose of preventing the stalling of the train. In the vicinity of Conety's Fill the brakes were again applied, but it did not appear to be an emergency application, as they applied gradually. This second application did not seem to have the same effect as the previous application, although the speed was gradually reduced until the collision occurred, he estimated the speed at the time of the accident at from 15 to 20 miles per hour.

Flagman Crowley, of train MG-2, stated that while the train was ascending the grade west of the point of accident he noted the gauge in the caboose registered 80 pounds pressure. After the helper engine placed the caboose on the rear of the train at Mountain Top he coupled the air to the caboose and again noticed the gauge showed a pressure of 80 pounds. When the brakes were applied, approximately 200 feet east of the apex, he observed an air reduction of 8 or 10 pounds but did not look at the gauge again to see if the train-line was properly recharged. Another application of the brakes was made when the engine reached a point, according to his estimation, 15 or 20 car-lengths west of signal 1533, and from the surge of the caboose they functioned properly. He thought the speed at the time his train passed the apex was about 15 miles per hour and 20 to 25 miles per hour at the time the first application was made on the descending grade, which reduced the speed to 13 or 20 miles per hour, and he did not think this speed was increased prior to the second application just before the collision occurred.

Master Mechanic Jefferson stated that engine No 380 was inspected and declared in good road condition immediately prior to being dispatched for service from Coxton on the day of the accident.

About 2 hours and 45 minutes after this accident occurred, before the equipment of train MG-2 was moved, an inspection of the brakes was made which disclosed that all retainers were turned down and that the brakes were still applied on 38 cars and released on 12 cars. Subsequent inspection and test of this equipment showed that on the 50 cars piston travel was from 6 to 9 inches and 45 retainers were in proper condition.

Conclusions

This accident was caused by the failure of Engineman Neimeyer, of train MG-2, properly to control the speed of his train on a descending grade.

The rules provide that when a caution signal is passed the speed of the train must be under control to approach the next signal if set at danger, prepared to stop. According to the evidence there was no difficulty experienced with the brakes prior to passing over the summit west of the point of accident. When Engineman Neimeyer observed distant signal 1542 displaying a caution indication he made a service application of the brakes and at that time they properly retarded the speed of the train. He operated the forestalling device of the automatic train stop while passing this signal, and when he thought the speed of the train had been sufficiently reduced he released the brakes, which resulted in an increase of speed on the descending grade. When he made another application of the brakes they appeared to have little or no effect and after the train traveled a short distance he made a further brake-pipe reduction, but this still failed to reduce the speed of the train and he then applied them in emergency, the latter application caused a slight lurch of the train but did not have the desired emergency effect.

Under special instructions contained in the timetable, freight trains are required to use 75 per cent of the retainers between Glen Summit and White Haven, in which territory this accident occurred. The evidence is conflicting as to the number of retainers set up on train MG-2. Brakeman Firestone maintained that before departing from Mountain Top he set up the retainers on 30 or 35 cars at the head end of the train, and that as soon as the collision occurred he turned them all down so that another engine could handle the equipment from the scene of accident. Engineman Neimeyer said he thought some of the retainers were turned up. Brakeman McDonald stated, however, that immediately after the accident he returned to the point of collision from his position where he flagged the

approaching train, and he observed that all of the retainers on the forward part of the train were turned down. From the statements of Engineman Neimeyer as to the manner in which he handled the brakes prior to the accident, as well as the remark Brakeman McDonald stated he made about "running without retainers", it is evident that the required number of retainers were not set in holding position, and that when he made the second application of the brakes, the air-brake equipment was not fully recharged, resulting in his being unable to stop the train in time to prevent the accident. This is also evidenced by the fact that the first application on the descending grade properly controlled the speed, by the results of inspection and tests of brake equipment after the accident, and by the fact that the equipment of train MG-2 was handled to its destination and no further trouble was experienced with the air brakes.

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.