

## INTERSTATE COMMERCE COMMISSION.

-----

REPORT OF THE CHIEF OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE EL PASO & SOUTHWESTERN SYSTEM NEAR CABEZA, N. MEX., ON OCTOBER 25, 1922.

December 11, 1922.

To the Commission:

On October 25, 1922, there was a derailment of a freight train on the El Paso & Southwestern System near Cabeza, N. Mex., which resulted in the death of 2 employees, and the injury of 2 employees.

Location and method of operation.

This accident occurred on that part of the El Paso & Southwestern System extending between Dawson and Tucumcari, N. Mex., a distance of 132.03 miles, this being a single-track line over which trains are operated by time-table and train orders. The accident occurred at a point about 2½ miles west of Cabeza, on an 8-degree reverse curve. Beginning about 4,000 feet west of Mosquero, which is 4.7 miles east of Cabeza, the grade is descending practically all the way to Cabeza, being 1 per cent for the greater portion of this distance; the grade is then level for about 3,200 feet, followed by 2-per cent descending grade extending nearly to Medio, 5.65 miles west of Cabeza. The weather was clear at the time of the accident, which occurred at about 6.50 p.m.

Description.

Westbound freight train extra 299 consisted of 43 loaded cars and a caboose, hauled by engine 299, and was in charge of Conductor Beekman and Engineman Hinds. On account of engine trouble, engine 286, in charge of Engineman Carroll, was coupled to the train at Solana, 13.15 miles from Cabeza, and the train departed from Solana at 6.05 p.m. with engine 286 as the leading engine. All westbound trains are required to stop at Cabeza for inspection and the turning up of retainers, but the brakes on this train were found to be inoperative, extra 286 passing this point at a speed of 25 miles an hour, and after traveling a distance of about 2 miles on the 2 per cent descending grade west of Cabeza was derailed while traveling at a speed, as shown by a speed recorder, of 65 miles an hour.

Both engines and 36 cars were derailed and piled up within a distance of 325 feet. The employees killed were the engineman of the second engine and the head brakeman.

#### Summary of evidence.

Engine 286 reached Solana at 5.45 p.m., for the purpose of assisting extra 299, and when it came in sight Fireman Wingrove, of engine 299, drew the fire in accordance with instructions he said he had received from Engineman Hinds, after which the fireman went back to the caboose. In the meantime, Head Brakeman Cantrell, according to Conductor Beekman, coupled engine 286 to engine 299, and the conductor said he saw the brakeman cut in the air and was positive he turned the two angle cocks. No test of the air brakes was made, however, and the train departed from Solana at 6.05 p.m., with all members of the crew in their usual places with the exception of the fireman of engine 299 who was in the caboose.

According to the statements of Engineman Carroll, before coupling to the train at Solana he adjusted the feed valve so as to increase brake-pipe pressure to 90 pounds, main-reservoir pressure being 100 pounds. When the brakeman coupled engine 286 to the train, the brake-pipe indicator on the air gauge in his engine dropped to 25 pounds, and he thought the air was connected through the train and that there had been some pressure in the train line at the time his engine was coupled on. There was no test of the brakes made after his engine was coupled to this train. When the train departed from Solana, the gauge showed 95 pounds main-reservoir pressure and 90 pounds brake-pipe pressure. He attempted to make the first application of the air brakes at a point approximately 1 mile west of Mosquero, at which point the train was starting down the 1 per cent grade, this application consisting of a 10-pound reduction made at a speed of about 25 miles an hour and he could feel the slack run up. The brake pipe exhaust stopped suddenly, however, and seeing that the brakes did not seem to be having much effect, he made a 30-pound reduction and realizing that the brakes were not operating and that the train was getting beyond control he told the fireman to go back to the second engine and tell the engine crew that he did not have any air; at the same time he sounded the whistle signal calling for the application of hand brakes. The speed continued to increase, but he thought that with only a 1 per cent grade and with several men on each end of the train it would be possible to stop the train before reaching Cabeza. After calling for the brakes, he looked back and when the train rounded a curve saw fire

fl, in, from the wheels under about the first five cars of the train, indicating that the brakes on those cars had been applied. When the train reached Cabeza he released the driving-wheel brakes, reversed the engine, and started back over the train, tried the hand brakes on some of the cars and found them set, and had gotten back about 12 car-lengths when the accident occurred. Engineman Carroll further stated he started the train out of Cabeza without having to take the slack, although on a slight ascending grade at that point, and was sure there could not have been any brakes sticking, also that he used the driving-wheel brakes in holding the train at one or two points between Solana and Mosquero, and that to the best of his knowledge the brakes on engine 286 were in good condition and had been throughout the day. As to the failure to make an air-brake test before leaving Solana, he said it was not customary to do so under similar circumstances, and the only test he usually made was a running test, but that he did not even make this test on this occasion, his reason for not doing so being that on account of brake-pipe pressure being nearly equalized with main-reservoir pressure he thought he would not be able to release the brakes without stalling the train.

Conductor Beekman and Fireman Wingrove said the gauge in the caboose showed a brake-pipe pressure of 65 or 70 pounds when extra 286 departed from that point. The statements of these employees, as well as those of Flagman Vance, were to the effect that they heard the brakes released after leaving Solana, the fireman and conductor thinking it was just after the train departed, while the flagman said the only release he heard was in the vicinity of Mosquero. The first indication the conductor had of anything wrong was when the train had reached a point about 1 mile from Cabeza, when he noticed that the train was moving rapidly, and on looking at the gauge saw that it indicated a brake-pipe pressure of only 5 pounds. He opened a side door and looked out, at which time the train was passing Cabeza, and saw fire flying from some of the wheels. He had not heard any whistle signal calling for brakes and did not make any attempt to have them applied at this time, cut out of the caboose and allowed it to follow the train down the grade to the point where the accident occurred. Conductor Beekman's statement concerning the air brakes on his train were to the effect that a test was made by car men before the train left Dawson, but that no information was given to the crew as to the condition of the brakes, although it was stated by the car inspectors who made this test that all the brakes were in use. No difficulty in handling the train was experienced when making stops en route. It had been necessary to double a hill while en route, and one car had

to be cut out from the middle of the train at that time, but no air-brake test was made after the train was coupled together again in readiness to proceed, this was customary procedure. After engine 286 was coupled to the train at Solana, no air brake test was made and Conductor Beekman said he had not made any such test within the past 12 years, and did not know of any one who had.

According to Fireman Wingrove, just before engine 286 arrived there was 80 pounds steam pressure on engine 289, while there was 48 or 50 pounds air pressure and the pump was still working. Fireman Wingrove saw Brakeman Cantrell make the coupling between the two engines, but did not notice the air gauge, nor did he know whether the pump was ever shut off. He also said the driving-wheel brakes on engine 289 had been cut in on that day, but that he did not know whether they were cut in when the train left Solana as he had returned to the caboose after drawing the fire.

Coal Chute Foreman Holland, located at Cabeza, had heard 9 blasts on the whistle sounded by the engineman of extra 286 as it approached Cabeza, and supposed that he wanted 9 tons of coal. He was close to the track when the train passed and saw fire flying from the wheels only as far back as the second or third car of the train.

Road Foreman of Engines Hull said that after the accident he found both engines in forward motion, and there was no evidence to indicate that they had been reversed. The driving-wheel brakes were cut out on each engine, and the absence of burned marks on the wheels indicated that they had not been used. His statements that neither engine had been reversed was verified by Master Mechanic Gordon, who also stated that he had talked with both enginemen before they were removed from the scene of the accident. As to his conversation with Engineman Hinds, who afterwards died of his injuries, he quoted the latter as saying Engineman Carroll let the train get too much of a start on leaving Mosquero, that on looking at the gauge it indicated a pressure of 90 pounds, that a 20-pound reduction was made which did not seem to have any effect, and that this was followed by another 20-pound reduction, after which Engineman Hinds realized that they had no air, as the indicator dropped back too quickly, that he then looked back along the track, saw that they had only 4 or 5 cars of air and started back over the train to notify the train crew there was something wrong.

### Conclusions

This accident was caused by failure of the crew of extra 286 to make an air-brake test after the relief engine was coupled on, and this train running away on a heavy descending grade due to the fact that the air-brake system was not operating throughout the train.

Statements of certain employees were to the effect that when extra 286 left Solana the brake-pipe gauge in the caboose indicated 65 or 70 pounds pressure, and only 5 pounds when approaching Cabeza. Such a brake pipe reduction could hardly have occurred without a noticeable application of the brakes, and in view of the circumstances it is believed the brake-pipe pressure on this train leaked off while standing at Solana for about an hour and a half, and that the brake pipe between the two engines was not properly coupled or the angle cocks were not opened when engine 286 was coupled on.

Rule 31 of the air brake rules reads as follows:

"After coupling to train, and before leaving a terminal or car inspection station, the engineer must apply the brakes by gradual reduction to full force, and hold them on while the inspectors go over the train to make sure that all the brakes are set. Upon signal from the inspectors, the brakes may be released, then wait for the inspectors' report regarding condition and number of brakes, before starting out. Similar precautions must be taken where trains are made up, or cars are taken in or set out of trains at intermediate stations. (See Rule 67.)"

Rule 67 provides in part that after picking up or setting out cars, changing engines, etc., the rear brakeman shall slowly open the train line at the rear of the train, allowing enough air to escape to apply the brakes, after which he is to close the angle cock and observe if the brakes release immediately, indicating that there is nothing to prevent the passage of the air through the train line.

The train involved in this accident departed from its terminal without the crew in charge knowing anything of the condition of the air brakes, while en route the train was cut in two for the purpose of doubling a hill, at which time a car was set out, while at another point an engine was coupled to the train for the purpose of handling it to its destination, yet on none of these occasions did the crew make the tests of the brake system as required by the rules above referred to. Had proper tests been made before departure from Solana, it would undoubtedly have been discovered that the brake pipe was not properly connected and that the air brakes were not operating throughout the train, and necessary corrective measures could then have been taken. There was ample opportunity for such tests to be made as the train stood at Solana about 20 minutes after engine 286 was coupled on, and there can be no excuse for failure of the crew of this train to comply with the rules requiring air brake tests to be made in such circumstances. The observance of such rules is a necessary safeguard. However, the statements of the employees were to the effect that they were not in the habit of making the prescribed tests. Proper supervision of the part of the operating officials would have detected the existence of these conditions, and measures should have been adopted to see that the rules were observed by all concerned.

The employees involved were experienced men, At the time of the accident the crew of engine 286 had been on duty about 8½ hours, while the remainder of the crew had been on duty about 11½ hours, previous to which these employees had been off duty 19½ and 10½ hours, respectively.

Respectfully submitted,

W. P. Borland,

Chief, Bureau of Safety.