

**IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED
ON THE "JOINT TRACK" OF THE ATCHISON, TOPEKA
& SANTA FE RAILWAY, AND THE COLORADO AND
SOUTHERN RAILWAY, NEAR SOUTH DENVER,
COLORADO, ON DECEMBER 12, 1917.**

February 7, 1918.

On December 12, 1917 there was a collision near South Denver, Colo., on the "Joint Track" used by the Atchison, Topeka & Santa Fe Railway and the Colorado & Southern Railway, between Atchison, Topeka & Santa Fe train No. 5 and a yard engine of the Colorado & Southern Railway, resulting in injuries to 8 employees and 13 passengers.

After an investigation of the causes of this accident, the Chief of the Bureau of Safety reports as follows:

The "Joint Track" extends from Pueblo, Colo., north to Denver, a distance of 118.5 miles, and is used jointly by the Atchison, Topeka & Santa Fe railway and the Colorado & Southern Railway. It is for the most part a single track line, but is double tracked from South Denver to Denver Union Station. From Pueblo to the yard limit or "Joint Terminal Road," approximately 6 miles south of Denver Union Station, the line is under control of the Atchison, Topeka & Santa Fe Railway, forming the 2nd District of the Colorado Division of that railroad; from the yard limit board to the Union Station it is operated as part of the Denver Terminal Division of the Colorado & Southern Railway. It was on the section operated by the Colorado & Southern Railway, a little over a half mile south of South Denver station that the accident occurred. The movement of trains is by train orders and time table, and trains are protected by a manual block system. Trains moving towards Denver Union Station are classed in the Atchison, Topeka & Santa Fe Railway time table as westbound, though actually moving north, and in the Colorado & Southern Railway time table as northbound.

Beginning at the "Joint Terminal Board," the dividing line between the two operating divisions, and proceeding north in the direction in which train No. 5 was moving, the track is straight for 4,300 feet, when there is a 2° curve to the left 1,000 feet long, after which the track is tangent for about 780 feet to the point of accident, about 75 feet north of the Mississippi Avenue crossing. The grade is descending .15% proceeding north from the "Joint Terminal Board" for 2,600 feet, then it is level to the point of accident. From the engineer's side of an approaching northbound train, the Mississippi Avenue crossing can not be seen until the engine is

-2-

at the north end of the curve, about 70 feet distant, but the fireman has a clear view of 2,000 feet except such slight interference with the vision as arises from a line of telegraph poles. At the north end of the curve there is a spur track on the east side leading to the south, known as "Carney's Switch."

The trains involved in this accident were Colorado & Southern Railway yard engine 312, in charge of Foreman Patten and Enginemen Rice, working in the Mississippi Yard, and Atchison, Topeka & Santa Fe Railway passenger train No. 5, consisting of 11 cars, in charge of Conductor Judd and Enginemen King, en route from Chicago to Denver.

On the date of the accident switch engine 312 commenced work on the Denver Terminal at 9 a. m., and in its usual routine of work proceeded to South Denver. After clearing No. 1 track in Mississippi yard from the north end, this engine proceeded through that track to the south end and headed in on track No. 2, coupling onto 24 cars on that track which Foreman Patton decided to pull out and shove through on track No. 1. To do this it was necessary to pull out onto the main line and the switch engine had backed out just over the switch when it was struck by train No. 5. Before starting his work Foreman Patton had secured a "line up" on approaching trains, showing train No. 5 as 1 hour and 40 minutes late, and later another one showing that train as 2 hours and 15 minutes late.

Atchison, Topeka & Santa Fe train No. 5 left Pueblo at 8.47 a. m., 3 hours and 17 minutes late; left Colorado Springs at 10.22 a. m., 2 hours and 57 minutes late, and left Englewood, 3.8 miles from South Denver at 12.07 p. m., 2 hours and 30 minutes late. It collided with switch engine 312 after running about 3.3 miles from Englewood at 12.12 p. m. At the time of the accident the weather was clear but cold.

The force of the impact drove engine 312 backward a distance of about 100 feet through the car next to it, and destroyed the bodies of two of the cars to which it was coupled. Some damage was done to two other cars, and the engine was derailed and badly damaged. Engine 3517 was derailed and two of the cars of train No. 5 were somewhat damaged.

Operator Anderson, of South Denver, stated that when switch crews go south of South Denver to occupy the main track of the Santa Fe, it is necessary for them to have authority from the dispatcher, and when this is received, the operator at South Denver transmits it verbally to the foreman of the switch crew, but it is not customary for the engineman to receive the instructions. When the switch crew is working in the block no

- 3 -

trains are allowed to enter the block until the switch crew reports the block clear. She further stated that she had not given Foreman Patten any "line up" on the day of the accident showing that Santa Fe train No. 5 would arrive at 12:01 p. m., nor did he have from her office any authority to use the main track. The block was given to Englewood at 12:00 for train No. 5, and the first she knew of the accident was at 12:15 or 12:20 p. m., when a switch foreman working near came to the office to order the wrecker.

Operator Hunt, of Englewood, stated that train No. 5 left his station at 12:07 p. m.; that he had no orders for it, and gave it a clear signal. Since October, 1915 a positive block has been operated between Englewood and South Denver and permissive cards were not issued when a switch engine is using the main line. When it is desired for switch engines to use the main track, the operator at South Denver gets the block from the Englewood operator. This is done verbally, and there is no record except the block sheet. He did not know that switch engine 312 was in the block on the day of the accident, and had not on that day received any request for the block for that engine.

Foreman Patton of switch engine 312 stated that when he left the Denver yard office he had a "line up" showing Santa Fe train No. 5 to be 1 hour and 40 minutes late; later he got a statement that this train would be 2 hours and 15 minutes late. On arriving at South Denver he first switched the cars on Mississippi yard track No. 1, using the Old Line. Then an engine came in off the Old Main Line, so he decided to run through Mississippi track No. 1, and head in on track No. 2 from the south end of the yard and coupled on to 24 cars which were about 600 feet from the south end of the track. He looked over these cars to see what they were, taking about 20 minutes, and after noting the time, instructed Switchman Ulwelling to throw the main line switch and go back to flag so that they could pull out on the main track in order to shove back on track No. 1. He stated he waited about 2 minutes for the flagman to get back, and when he had reached Corney's switch, signalled the engineman to come out. He first saw train No. 5 after his engine had started to shove back into the yard, and he saw that the train would be unable to stop, having run by the flagman. He estimated the speed of train No. 5 as 50 miles per hour, a higher rate of speed than usual, when it struck his engine. He stated that he had notified the engineman and fireman of the "line up" he had received, but the other members of the crew did not know of it unless they were there when he notified the engine crew. He considered that he had a right to occupy the main track if properly protected, under the provisions of Rule No. 2 in the

-4-

Denver Terminal time table. He stated further that he understood it is necessary to ask the dispatcher for use of the main track when work is to be done on the industry tracks, and that he usually requested 40 minutes for this work, notifying the operator at South Denver when he has again cleared the block. At other times, when it is necessary to use the main track to run around cars in Mississippi yard tracks, he secured the block, and there was no confusion in his mind regarding the necessity for observing the Santa Fe block rules when using the main track. The engineman made no objection to going out on main line when signaled to do so.

Switchman Ulwelling of switch engine 312 stated that after the engine came through No. 1 track from the north end and went in on track No. 2, he stayed at the switch for about 10 minutes. Then he went back to the engine, and walked down along the cars towards Foreman Patton, who was returning to the engine. When they were about two car lengths apart, Foreman Patton gave the signal to start, and before reaching the main line switch, while still moving, he said "Look out for that hind end." He ran for the switch, threw it, continued on back, and went 500 or 600 feet out, when he saw train No. 5 approaching 1,000 or 2,000 feet away. He swung his hat and called to the engineman as the engine passed him, but apparently without effect, as the cab windows were closed and he could not see the engineman. At the time train No. 5 passed him he was not on the curve, but probably 100 feet from it. The speed was about 50 miles per hour and the brakes were not applied until the train had passed him about two car lengths, when they were applied in emergency. He stated further that during the 17 days he had been working at South Denver, this move had been made several times, always under protection of a flag. He had seen no train orders at any time, but had seen the "line up" saying train No. 5 was late. Foreman Patton told him when going through track No. 1 that train No. 5 would be there at 12 o'clock. He did not take a red flag or torpedoes back with him, and did not know at that time that they were on the engine.

Switchman Madden of yard engine 313 stated that he was on the rear car when they started to pull off Mississippi track No. 2. After they had gotten out on the main line a distance of 4 or 5 car lengths, they started to shove in again, when they were struck by train No. 5. He saw the flagman go out but did not see him flag, nor did he hear any whistle from train No. 5. He saw the "line up" the foreman had, who also told him as they were running down to the south end of the yard that train No. 5 was due about 12 o'clock. He does not think they stopped from the time

-5-

they started to back out until they started to shove ahead again.

Engineman Hize of switch engine 312 stated that he had notice that Santa Fe train No. 5 was 1 hour and 40 minutes late, it being due at South Denver at 9:15 a. m., although Foreman Patton told him later the train was due at 12 o'clock. After they came to the south end of the yard and had headed in on track No. 2, they waited for about 17 minutes, when Foreman Patton signaled him to back out, at 12:06 or 12:08 p. m. He moved back slowly, as the engine could not start the cars readily, and did not think he stopped for the switch to be thrown. He saw the flagman go back, but did not know whether he flagged train No. 5 or not. His attention was called to the approaching train by Fireman Hage, who was watching, and he once set the brakes. When first seen the train was possibly 1,200 feet away, but he heard no whistle. He said he always received his instructions from the foreman, and depended on the flagman when making moves of this kind. He was familiar with the rule that if a passenger train is 10 minutes late it will keep a sharp lookout, and also knew of Rule 2 of the Denver Terminal time table but did not know where the yard limit board was located. He estimated the speed of train No. 5 as not less than 40 miles per hour when it struck his engine, but did not know the speed limits for trains in this vicinity.

Fireman Hage of switch engine 312 stated that after coupling on to the cars on Mississippi track No. 2, they pulled down to clear the main line and stood there about 2 minutes. While there, at about 12:08 or 12:10 p. m., he heard Engineman Hize ask Foreman Patton if they were going out, and heard him reply that as No. 5 was not coming they had time to get out and come back. They then started, and after the engine and one car were over the Mississippi Avenue crossing train No. 5 showed up, at which time he called to the engineman. When the train passed the flagman without answering, he jumped off and tried to flag it, the switch engine having started ahead in an attempt to get into clear. He could see the flagman about 600 feet back, and while it was stormy, he did not think it enough so to interfere with the men on the engine of train No. 5 seeing ahead.

Conductor Judd of train No. 5 stated that he did not know the time his train passed Littleton or Englewood, neither did he know that they were inside the yard limit board. He estimated that they were running 30 miles per hour just previous to the accident, but did not know whether this was in excess of the speed limit or not, as this was his second trip over this

-6-

district. He stated that he was working under the Santa Fe book of rules until South Denver was reached, and these rules did not restrict the speed.

Engineer King, of Santa Fe train No. 5, stated that he struck the switch engine about 12:12 p. m., as he had looked at his watch at 12:11 p. m., just before he reached the curve south of Mississippi Avenue. The first indication he had that anything was on the main track was when the fireman called to him, about the time he left the curve going on to the straight track, and he immediately applied the air brakes in emergency, reversing the engine. He saw no flagman, but as he got within sight of the switch engine he saw some men running away from the track. As he approached the curve he had applied a little air, enough to steady the train, and he had reduced the speed when he hit the switch engine to about 25 miles per hour. He said he was familiar with the rules in the Santa Fe time table referring to speed limits, as well as the rule in the Denver Terminal time table, and also remembered a bulletin issued in 1911 regulating the speed of trains within the city limits. Although he did not know exactly where the mouth city limits were, he thought they were not far from Mississippi Avenue. He stated that he frequently asked the fireman if the track is clear north of South Denver, and cautioned all firemen with him to keep a sharp lookout on the curves. While there was a little snow or sleet blowing, he could have seen a flagman a sufficient distance to have stopped, as his side window and "clear-vision" windows were open. He stated that there is a positive block between Englewood and South Denver, and he has never entered it on a permissive order.

Fireman Townsend of train No. 5 stated that he had been firing, but looked out and saw a switch engine on the main track when they were about 10 car lengths from it, with a flagman out about 6 or 7 car lengths. He called to Engineer King, who did all he could to stop. He estimated the speed at about 25 miles per hour when they struck the switch engine.

This accident was caused by switch engine No. 112 occupying the main track in manual block territory without authority and without proper protection, for which Foreman Patton and Engineer Mize are responsible. Colorado & Southern Railway time table Rule 2 reads as follows:

"Speed---Within the limits of the Denver Terminals all trains must reduce speed sufficiently to enable them to stop within the distance seen to be clear; no train may stop on the main line without protecting itself.

"Unless fully protected, yard engines must not occupy the main line within ten minutes of the time of a

first-class train. They are not required to protect against other trains, but must keep a proper lookout."

At the time Foreman Patton signaled the switch engine to move out on the main track, train No. 5 was over-ran, according to the time he had received in his "line up," and why an experienced foreman and enginemen should make such a move under these conditions, particularly without sending a flagman out a sufficient distance to insure full protection, is inexplicable.

Contributing to the accident was the speed at which train No. 5 was running, in disregard of the rules and city ordinances. Enginemen King was familiar with this territory, and should have properly controlled his train.

This investigation developed the fact that some confusion existed in the minds of employees as to what rules were in effect in the vicinity of the accident. Enginemen King stated that he considered he was running under Santa Fe rules as far as South Denver. Santa Fe time table B C 39 says that trains will be governed by Denver Terminal division time table between Denver Union Depot and South Denver. Colorado & Southern time table 37 gives times only to South Denver, and neither time table refers to the yard limit board which is 1.79 miles south of South Denver. The fact that the Santa Fe time table shows speed restrictions over this district would give an employee of that company reason to believe that that company's rules were in effect, although this section of track is under the control of the Terminal Division of the Colorado & Southern Railway.

Rule 93 of the Santa Fe reads in part as follows:

"All except first-class trains will approach yard limits under control. The responsibility for accident at such points will rest with the approaching trains."

Time table B C 39 has the following speed restriction:

"Denver, south of Kentucky Street,
twenty (20) miles per hour."

Under rule 93 first-class trains would not be restricted, but under the special time table rule they would be limited to 20 miles per hour.

-8-

Rule 93 B of the Colorado & Southern reads in part as follows:

"Certain yards will be indicated by yard limit signs*****and first-class trains must also proceed at reduced speed. *****Special instructions will be issued governing movement in Denver Yards."

Rule No. 7 of the Denver & Grand Division time table No. 37 of the Colorado & Southern, quoted above, states that all trains must reduce speed within yard limits sufficiently to allow them to stop within the distance seen to be clear. A bulletin of the Colorado & Southern issued March 11, 1911 limits the speed in this territory for passenger trains to 25 miles per hour.

There is thus seen to be a discrepancy between the two sets of rules, clearly establishing the desirability of a system of uniform rules.

Both the foreman and engineman of engine 312 were experienced men with good records, and at the time of the accident they had been on duty a few minutes more than three hours.

G.F.E.