

BUREAU OF SAFETY

REPORT NO. 1982

Railroad: Denver & Salt Lake
Date: May 2, 1935
Location: Tolland, Colo.
Kind of accident: Rear-end collision.
Trains involved: Freight : Passenger
Train numbers: Extra 209 : Train No. 2
Engine numbers: 209 : 302
Consist: 35 cars & : Engine &
caboose : 4 cars
Speed: Standing : 15-25 m.p.h.
Track: 1°30' curve, then 358 feet of tangent;
2 percent descending grade
Weather: Cloudy, with light snow falling
Time: 3:51 p.m.
Casualties: 17 injured
Cause: Failure of flagman of Extra 209 to
provide proper flag protection when
standing on main track on time of
following superior train

1982

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN
ACCIDENT ON THE DENVER & SALT LAKE RAILWAY AT TOLLAND,
COLO., ON MAY 2, 1935.

June 26, 1935.

To the Commission:

On May 2, 1935, there was a rear-end collision between a freight train and a passenger train on the Denver & Salt Lake Railway at Tolland, Colo., which resulted in the injury of 8 passengers, 3 persons carried under contract, and 6 employees, 3 of whom were off duty.

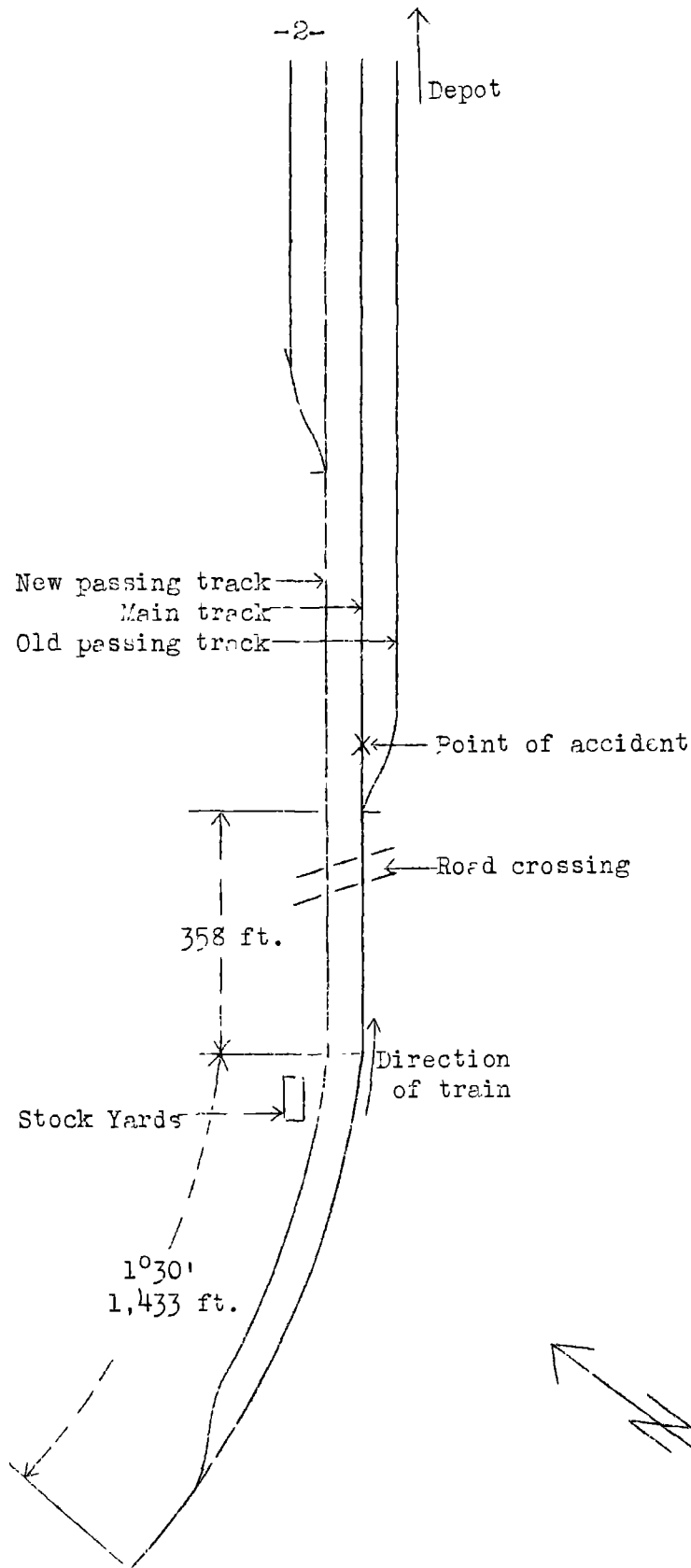
Location and method of operation

This accident occurred on that part of Subdivision 1 extending between Tabernash and Denver, Colo., a distance of 65.98 miles; in the vicinity of the point of accident this 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 on the main track just east of the west switch of the old passing track at Tolland; approaching this point from the west, there is a 1°30' curve to the left 1,433 feet in length, followed by 358 feet of tangent to the switch, this tangent extending for a considerable distance beyond that point. The grade for east-bound trains is descending, the maximum being 2 percent, and the accident occurred on that portion of track where the gradient changes from 2 percent to 1.2 percent. A track known as the new passing track parallels the main track on the north, and the old passing track parallels it on the south; the west switch of the new passing track is located 1,271 feet west of the west switch of the old passing track.

There is a rock cut, with brush and trees on the inside of the curve involved, at its western end, and a clear view cannot be had from the fireman's side of an east-bound engine until it nears the end of the cut, about 375 feet west of the west switch of the new passing track, or more than 1,600 feet west of the point of accident. Prior to entering the cut the view is partially obstructed and it would be difficult to determine on which track a train was standing.

The weather was cloudy and there was a light snow falling at the time of the accident, which occurred about 3:51 p.m.

• Denver, Colo.	
	37.04 mi.
• Pine Cliff	
	9.85 mi.
• Tolland (P of A)	
	2.94 mi.
• East Portal	
	6.8 mi.
• West Portal	
	9.35 mi.
• Tabernash, Colo.	



Inv. No. 1982
 Denver & Salt Lake R.R.
 Tolland, Colo.
 May 2, 1935.

Description

Extra 209, an east-bound freight train, consisted of 35 cars and a caboose, hauled by engine 209, and was in charge of Conductor Van Vranken and Engineman Christensen. This train left West Portal (Moffatt Tunnel) at 2:43 p.m., holding an order to run ahead of Train No. 2 until overtaken. Train No. 2 is due to leave West Portal at 3:06 p.m. and Tolland at 3:29 p.m. Extra 209 arrived at Tolland at 3:38 p.m., according to the train sheet, and was stopped on the main track; the engine was uncoupled, picked up a car of ice, returned and recoupled to the train, and the train was about ready to depart when the rear end was struck by Train No. 2.

Train No. 2, an east-bound passenger train, consisted of 1 combination mail and baggage car, 1 baggage car, 1 coach, and 1 parlor-cafe car, in the order named, hauled by engine 302, and was in charge of Conductor Pierson and Engineman Way. At Fraser, 15.27 miles west of Tolland, the crew received copy of the order for Extra 209 to run ahead of them from West Portal until overtaken. This train waited at West Portal until Extra 209 cleared the east end of the tunnel, passed East Portal, 2.94 miles west of Tolland, at 3:44 p.m., according to the train sheet, 23 minutes late, and collided with the rear end of Extra 209 at Tolland while traveling at a speed variously estimated to have been between 15 and 25 miles per hour.

The caboose of Extra 209 was destroyed, and three freight cars were derailed and damaged. Engine 302 was derailed, but remained upright; its front end was considerably damaged, while slight damage was sustained by the equipment in the passenger train. The employees on duty who were injured were the engineman, fireman and conductor of Train No. 2.

Summary of evidence

Engineman Christensen, of Extra 209, stated that at the time of leaving East Portal he had no definite information as to whether Train No. 2 would be late and his understanding with Conductor Van Vranken was that their train would run ahead of Train No. 2 as far as Tolland, where a car of ice was to be picked up, and that on reaching that point the conductor would go into the station and obtain information from the dispatcher as to the location of the following train. Just before his train stopped at Tolland he whistled out a flag, and after picking up the car of ice the engine was recoupled to the train and started to recharge the train line, at which time the conductor boarded the engine and said that Train No. 2 was out of East Portal and that they would go to Pine Cliff, 9.85 miles east of Tolland, and let Train No. 2 pass them at that point.

Engineman Christensen then looked back and saw the flagman, who was standing about two car lengths back of the caboose, giving a proceed signal; the engineman whistled off but was unable to start the train, and on looking back he saw the derailed cars protruding out across the old passing track. Engineman Christensen further stated that when he saw his flagman so close to the caboose he thought that he might have stopped the following train and returned to the caboose, as he had not been recalled. Statements of Fireman Crane and Head Brakeman Morrison substantiated those of Engineman Christensen; the head brakeman stated that he accompanied the engine to pick up the car of ice, and that while coming back with the car he looked across and saw Flagman Hoage back of the caboose at a point east of the stock yard chute, which is located about 365 feet west of the west switch of the old passing track.

Conductor Van Vranken, of Extra 209, stated that he rode on the engine from East Portal to Tolland, and before leaving East Portal he instructed the flagman to look out for Train No. 2. On arriving at Tolland the engineman whistled out a flag and while the car of ice was being picked up, the conductor went into the station to get information concerning the following train; the crew of Extra 209, however, were on short time to reach their destination and still complete the trip within the limits of the hours of service law, and, in addition, the dispatcher wanted the extra to meet Train No. 5 at Crescent, located 5.48 miles east of Pine Cliff; in view of these circumstances it was arranged to keep Train No. 2 behind Extra 209 until it reached Pine Cliff. After the car of ice had been picked up and the engine recoupled to the train, the conductor received a proceed signal from the flagman, who was only a short distance behind the caboose with a red flag in his hand, and the conductor thought that probably the flagman had stopped the following train; the conductor told the engineman they were ready to go, and immediately afterwards the accident occurred, before the train got started. Conductor Van Vranken said Extra 209 had stood on the main track long enough to give the flagman ample time to protect the train, adding that the flagman had not been recalled and that he was fully expecting the flagman to stay out and protect against Train No. 2 and then ride that train to Pine Cliff. After the accident the flagman told him that he neither saw nor heard Train No. 2 until it was close to him. Conductor Van Vranken also stated that the passing track at Tolland was unoccupied and that his train could have cleared there for Train No. 2.

Flagman Hoage, of Extra 209, knew about the order for his train to run ahead of Train No. 2 from West Portal until overtaken and said that just as his own train was emerging from the tunnel the conductor told him that probably they would go to

Pine Cliff; the conductor also said he was going to ride the engine from East Portal to Tolland and go into the station at the latter point and get a line-up on Train No. 2, and in the event it was very close the flagman understood that the conductor would let him know, either by having the engineman whistle out a flag or by giving a stop signal from the head end of the train, upon receipt of which signal the flagman would head the following train through the passing track. Flagman Hoage knew his train was on the time of Train No. 2 when leaving East Portal, and he said that en route he dropped off a yellow fusee and also a red fusee. Approaching Tolland he said that he dropped off the caboose and placed two torpedoes on the rail, on the engineman's side, at a point east of the cut and west of the west switch of the new passing track, and then remained just east of the switch. His engineman did not whistle out a flag, and when the engine was returning to the train with the car of ice and he had not received a signal to indicate that Train No. 2 was close, he started working his way toward the caboose, saying that a flagman is very seldom recalled, and when the conductor came out of the station the flagman gave him a proceed signal, at which time the flagman was about five car lengths from the caboose. After walking about 10 feet nearer the caboose the flagman turned around and saw Train No. 2 coming across South Boulder Creek bridge, about 1 mile west of Tolland, and he said he started to run back to flag, with two red fusees, one of which he lighted, and that he had reached a point just east of the west switch of the new passing track when the following train passed him, traveling at a speed of 35 or 40 miles per hour; he heard the torpedoes explode and from his position on the engineman's side of the track, he threw the lighted fusee at the engine as it passed him, the fusee striking the cab and remaining somewhere on the engine. He did not see the engineman or hear the whistle or bell, nor did he notice an application of the brakes. Flagman Hoage said his failure to provide adequate protection was due to his understanding with the conductor, who was to let him know whether to head in the following train at Tolland; he realized, however, that the understanding he had with the conductor in no way relieved him from the duty of affording proper flag protection. Conductor Van Vranken denied having had any such understanding with the flagman and at the conclusion of the investigation the conductor appeared with Conductor Keist, who had been acting as his representative, and both of them said that during the morning they had heard Flagman Hoage say he did not have the torpedoes down when Train No. 2 passed. Flagman Hoage was recalled, and he then said that he had put down torpedoes when he first dropped off the train, but later on decided that they were not back far enough and took them up, and there were no torpedoes on the track when Train No. 2 approached and passed; he insisted, however, that he threw the

burning fusee at the engine, and that the cab windows and curtains were closed, although other witnesses who were around the engine immediately after the accident, including Master Mechanic Peterson, observed both cab windows open and the curtains not pulled across.

Engineman Way, of Train No. 2, stated that approaching Tolland he made an 8-pound brake-pipe reduction in order to reduce speed for the curve; while the brake valve was in lap position he sounded the station whistle signal, following which he went to full release and just as he was about to sound a road crossing signal, when the engine was about one engine length west of the stock yard chute, traveling at a speed of about 25 miles per hour, the fireman called a warning of danger, and instead of sounding the whistle the engineman immediately applied the air brakes in emergency; he also opened the sanders. Engineman Way said he leaned out to see the train ahead, and he estimated that the flagman was four or five rail lengths from the pilot of the engine and a similar distance from the caboose. Engineman Way said that the cab windows were open, the side curtains were not drawn, and the engine bell was ringing; no lighted fusees or torpedoes were encountered en route, nor was a lighted fusee thrown at the engine cab by the flagman. It further appeared from the engineman's statements that on account of the descending grade it was customary to run with the driving wheel brakes out on the engine, and to cut them in before making a station stop; he could not recall whether he cut them back in on this occasion, but before he jumped he felt the brakes grinding on the wheels and said the speed was reduced considerably; the brakes had been tested and had worked properly en route. Engineman Way fully realized that the freight train was ahead of him and said he had been looking out for it, also that he had controlled the speed of his own train accordingly, endeavoring not to exceed an average speed of more than 25 miles per hour, the maximum speed limit for freight trains.

Fireman Breen, of Train No. 2, stated that when a considerable distance away, he saw a string of cars standing at Tolland, but there was no engine attached to them at that time and he did not know that it was a train, nor did he know upon which track it was standing, saying that he did not expect to find the freight train at Tolland, as it usually went to Pine Cliff. Between East Portal and Tolland the speed had been between 25 and 35 miles per hour but when approaching the cut at Tolland it was about 25 miles per hour. Before reaching the cut the fireman saw the flagman coming toward the passenger train and waving a red flag, the flagman then being close to the caboose and east of a road crossing located about 75 feet west of the west switch of the old passing track. Fireman Breen said he

called a warning to the engineman, who applied the air brakes and when the fireman said the train was on the main line the engineman applied the brakes in emergency, the engine then being in the cut and about $\frac{1}{4}$ mile from the rear of Extra 209. Fireman Breen estimated the speed at the time of the accident to have been about 18 to 20 miles per hour, saying that the brakes did not seem to reduce the speed properly. Fireman Breen confirmed the engineman's statements about not encountering any fuses or torpedoes.

Conductor Pierson and Brakeman Wilkerson were in the front vestibule of the third car just prior to the accident; the conductor felt a service application about the time the station whistle was sounded, and said that almost a full emergency application took place immediately prior to the accident, estimating the speed to have been about 20 miles per hour when the accident occurred, while Brakeman Wilkerson said it was between 15 and 25 miles per hour.

Master Mechanic Peterson, who was on Train No. 2, estimated the speed to have been nearly 40 miles per hour immediately after leaving East Portal and about 30 miles per hour when the accident occurred. He felt several applications of the brakes at the usual locations, the last application being made in the vicinity of the stock yard, just prior to the accident; the brakes then were released and shortly afterwards he felt the shock of the collision. Master Mechanic Peterson was in the forward portion of the rear car and on looking out he saw the flagman of Extra 209 east of this car; he said the flagman did not provide proper protection and that the engineman of Train No. 2 did not handle his train properly in view of the run-ahead order which he held.

After the accident Engineman Smith handled the cars in Train No. 2 from Tolland to Utah Junction, a distance of 43.09 miles, with another engine, and the air brakes functioned properly, no trouble being experienced in making stops en route. On arrival of the train at Utah Junction the air brakes on the cars were inspected and tested and found to be in proper working order.

Discussion

There is considerable conflict between the statements of various employees involved in this accident. The flagman said he had an understanding with the conductor that the latter was to let him know if Train No. 2 was close behind them, in which event he would head the passenger train in on the passing track so it could run around them, and that when he did not receive any signal from the conductor he concluded that Train No. 2 was

not following them closely. The flagman also said that the engineman did not sound the whistle signal for him to protect his train; that he put down torpedoes and heard them exploded by the engine of Train No. 2; that when he saw Train No. 2 approaching he was near the caboose but ran back and had reached a point near the west switch of the new passing track, which is about 1,300 feet west of the point of accident, and that he had a lighted fusee and threw it at the cab from the engineman's side of the track.

None of these statements by the flagman could be corroborated; the conductor denied having any understanding with him about heading Train No. 2 around them at Tolland and all of the employees on the head end of the train said that the engineman whistled out a flag; the flagman himself finally admitted that his statement about Train No. 2 exploding torpedoes was not true, saying that he had put down torpedoes in the beginning and then took them up; the engineman of Train No. 2 said the flagman was only a few rail lengths from the caboose and did not have a burning fusee in his hands, while the master mechanic who was on Train No. 2 saw the flagman ahead of the rear car of that train immediately after the accident.

The statements of the engineman and fireman of Train No. 2 do not agree in important particulars; the engineman said that when the fireman called a warning to him the engine was about an engine length west of the stock yards, or practically at the leaving end of the curve and about 400 feet from the point of accident; he had just released the brakes but upon receipt of the fireman's warning he immediately applied them in emergency. The fireman, however, said he warned the engineman before reaching the cut at the western end of the curve, at which time the engineman made a service application of the brakes, and said that a few seconds afterwards he told the engineman the train was on the main line and that the engineman then applied the brakes in emergency; according to the fireman's statements this was before the engine reached the cut or more than 1,800 feet from the point of accident. The master mechanic did not notice another application of the brakes after they were released shortly before the accident occurred, while the conductor said there was a service application followed by what was practically an emergency application.

It is apparent that the flagman did not properly protect his train; he did not have any torpedoes on the rail and the weight of evidence indicated that he was close to the caboose when the accident occurred, although the rules required him to put down 1 torpedo one-fourth mile from his train and 2 torpedoes at least three-fourths of a mile from his train, after which he could return to the general location of the single

torpedo, taking a position where he could have an unobstructed view of an approaching train if possible for at least one-fourth mile. The evidence also indicates that Train No. 2 was not being operated under proper control in view of the order held by the crew of that train notifying them that Extra 209 would run ahead of them until overtaken. This order made it incumbent upon the engineman of Train No. 2 to approach each station under full control, while it was the duty of the fireman to maintain a careful lookout approaching each station and to give the engineman ample warning if he should see the preceding train. It is evident that Train No. 2 was not under full control when approaching Tolland, but in view of the conflicting statements it is impossible to say definitely whether failure to have the train under full control was due to the failure of the engineman to take proper action after being warned by the fireman or whether the fireman was not maintaining a proper lookout and consequently did not warn the engineman until it was too late to stop.

Conclusions

This accident was caused by the failure of Extra 209 to be properly protected by flag and by the failure of Train No. 2 to be operated under proper control in view of the fact that the crew held an order directing Extra 209 to run ahead of them until overtaken.

Respectfully submitted,

W. J. PATTERSON,

Director.