

INTERSTATE COMMERCE COMMISSION.

In re Investigation of accident which occurred
on the Atchison, Topeka & Santa Fe Rail-
way, at Monrovia, Calif., April 4,
1915.

June 4, 1915.

On April 4, 1915, there was a head-end collision between two passenger trains on the Atchison, Topeka and Santa Fe Railway at Monrovia, Calif., which resulted in the injury of 85 passengers; 10 dining car, 8 Pullman, and 3 railroad employees. After an investigation of this accident the Chief of the Division of Safety submits the following report:

The second district of the Los Angeles Division of the Atchison, Topeka & Santa Fe Railway, on which this accident occurred, extends from San Bernardino, Calif., to Los Angeles, Calif., a distance of 80 miles. It is a single track line; no block signal system is in use, the movement of trains being controlled by time-table and train orders. Eastbound trains are superior by direction.

Eastbound train No. 4, en route from Los Angeles, Calif., to Chicago, Ill., consisted of engine 1326, one combination car, one dining car, and four Pullman sleeping cars, all of steel construction, and was in charge of Conductor Hopkins and Engineman Long. At Los Angeles this train received train order No. 208 reading:

"No. 4, engine 1326, take siding and meet
No. 3, engine 1368, at Arcadia."

The train departed from Los Angeles at 1.10 p.m. on time.

At Santa Anita, 1.7 miles west of Arcadia, it received train

order No. 210, reading:

"No. 4, engine 1226, take siding, meet No. 3, engine 1368, at Monrovia, instead of Arcadia."

This order advanced No. 4 one station farther east against No. 3. Train No. 4 departed from Santa Anita at 1.56 p.m., passed Arcadia and had stopped at the west switch of the passing siding at Monrovia preparatory to taking the siding, when Engineman Long noticed train No. 3 approaching at a high rate of speed. He immediately reversed his engine and had succeeded in starting his train backward when the collision occurred.

Westbound train No. 3, en route from Chicago, Ill., to Los Angeles, Calif., consisted of engine 1368, one combination car, one dining car, 7 Pullman sleeping cars, all of steel construction, except the seventh and eighth cars in the train which were of wooden construction, and was in charge of Conductor Frazier and Engineman Edmundson. At San Bernardino, Calif., this train received order No. 208; it departed from that station at 1.09 p.m., 54 minutes late, and collided with train No. 4 at the west end of the passing siding at Monrovia at about 2.03 p.m.

Deducting a delay of three minutes at Lordsburg, the average speed of train No. 3 from San Bernardino to the point of the accident was 48.5 miles per hour.

At the time No. 3 left San Bernardino and No. 4 left Los Angeles, they both held order No. 208 to meet at Arcadia. Later No. 3 met with some delay and the dispatcher decided to

change the meeting point from Arcadia to Monrovia, 1.7 miles eastward. To do this, he issued an order changing the meeting point, placing the order for No. 4 at Santa Anita, and for No. 3 at Duarte, 1.4 miles east of Monrovia. Later, in order to avoid stopping No. 3 at Duarte, he re-issued the same order to No. 3 at Monrovia and annulled it to the operator at Duarte. This resulted in No. 3 having no notice that the meeting point had been changed from Arcadia to Monrovia until its arrival at Monrovia.

After the collision train No. 3 ran 139 feet before coming to a stop, and the rear of the last car was opposite the station. Both engines were derailed and badly damaged. The cars of train No. 3 were slightly damaged. The weather at the time of the accident was clear.

Monrovia station is located on the north side of the main track and on the inside of a 2-degree curve. The train order signal is located on the opposite side of the track from the station, and can be clearly seen from an approaching west-bound train for about 950 feet. Beyond this, the signal can be seen at intervals up to 1,400 feet, but the view is more or less obscured by telegraph poles and cross arms. The passing track at Monrovia is on the south side of the main track and begins about 1,400 feet east of the station and extends to a point about 500 feet west of the station. It was but a few feet west of the west point of this passing track switch that the collision occurred.

Engineman Long of train No. 4 stated that his train

stopped at the west end of the passing track at Monrovia for the brakeman to go ahead to open the switch, and had been standing there only a few seconds when he saw No. 3 approaching at a high rate of speed. Fearing that No. 3 would be unable to stop, he reversed his engine and succeeded in starting his train backward before the collision occurred. He stated that from his experience he believes that if the train order signal was found to be in the stop position, the engineman of a westbound train running at the usual rate of speed and not expecting to stop at Monrovia, would probably be unable to stop before passing the west switch and that he recalled quite a few instances where it has been done. He stated that on several occasions he had found train order signals in the stop position under similar circumstances and had run by the signal and passing track switch before stopping. He also stated that when he finds a train order signal in a stop position he does not expect to stop before passing the signal but tries to stop before fouling the switch.

Engineman Edmundson of train No. 3 stated that at Barstow his conductor received a message to make connection with No. 76 at Los Angeles, if possible. At San Bernardino the conductor told him they had passengers for some point, but as he was busy on his engine, he did not take particular notice where they were bound for, depending upon the air whistle signal to notify him. Before leaving San Bernardino the car inspector informed him that the air brakes on two cars were cut out. He stated that after leaving San Bernardino he

made a running test of his brakes at a speed of 15 or 18 miles per hour and that the brakes worked in a satisfactory manner. At Lordsburg, he stopped his train and was delayed a few minutes on account of a hot engine truck. Between Butler and Duarte, he heard the air whistle signal blow, but as it sounded as if something had accidentally engaged the cord, he did not answer it. As his train was approaching Duarte, the train order signal was in the stop position, and it remained in that position until his train was about 25 car lengths distant, when it was cleared. After passing Duarte he did not at any time hear the air whistle signal sounded. He stated that approaching Monrovia, he sounded the station whistle and made a train line reduction of 6 or 8 pounds. At that time his train was running at a speed of about 50 miles per hour. When the train had nearly reached the east switch of the passing siding, he saw the train order signal in the stop position, and sounded 4 short blasts of the engine whistle, the call for the signal. The signal was not cleared, however, and he then made a full service application of the air brakes, thinking that possibly the operator had a "19" order for him. When he rounded the curve and was nearly opposite the station, he saw No. 4 standing at the west switch. He made an emergency application of the brakes and realizing that he could not stop in time to prevent an accident, sounded three blasts of the whistle as a signal for No. 4 to back up. He estimates the speed of his train to have been between 15 and 30 miles per hour when the trains collided.

Engineman Edmundson also stated that it is not the custom to stop No. 3 between San Bernardino and Los Angeles for a "31" train order but, when it is necessary to give them orders, a "19" order is ordinarily used. The message he received relative to making connection at Los Angeles led him to believe his train would be given a clear track. He said that the rules permit trains to pass a train order signal in a stop position, but not to foul the switch, and that on a previous occasion he had received orders at a meeting point where a collision would be inevitable had not the agent been out with a flag; in this instance, had the operator been out with a flag, he would have seen the flag before he saw No. 4, and would have made an emergency application of the brakes immediately.

Fireman Pettrie of train No. 3 stated that between Butler and Duarte he heard two or three blasts of the air whistle signal, but as the blasts were indistinct, he and the engineman were unable to interpret them and therefore did not acknowledge them. After passing Duarte the Engineman sounded four blasts of the engine whistle, the call for signals, and as no signal came from the train he concluded that the train was not to stop at Monrovia.

Conductor Frazier of train No. 3 stated that at Barstow his train was about 1 hour 40 minutes late and he received a message to make as good time as possible in order to make a connection at Los Angeles. At San Bernardino he told his engineer that he had passengers for Monrovia and he also

informed the train dispatcher. Just before reaching Duarte, in order to give the engineman plenty of time to stop at Monrovia, he sounded 3 blasts of the air whistle signal, but this signal was not acknowledged by the engineman. Just west of Duarte he repeated the air whistle signal and it was answered from the engine. At this time he estimates the speed of his train to have been 50 or 55 miles per hour. When the train was about at the east switch of the passing siding he felt the application of the brakes, and expected the train to stop.

Trainman Light of train No. 3 stated that at the time of the accident he was riding in the baggage compartment of the buffet car. Before the train left Barstow, the conductor remarked that he had two passengers for Monrovia. He stated that approaching Monrovia he was listening for the engineman to answer a "Stop at the next station" signal, and not hearing any he looked back and saw the porter making preparations to discharge passengers at Monrovia. Thinking that possibly the conductor might have forgotten to signal the engineman, he himself sounded the air whistle signal to stop at Monrovia; but the signal was not answered by the engineman. This occurred as the train was approaching the east switch of the Monrovia passing track.

Car Inspector Roberts stated that when No. 3 arrived at San Bernardino he found three brake shoes burned down to the edge on the first car and one burned brake shoe and head on the dining car. He and another inspector spent about 7 or 8 minutes inspecting the train; afterwards they

got their tools and spent about 10 minutes trying to remove one of the worn brake shoes on the first car, but being unable to do so, in order to prevent delay to the train, they cut out the brakes on the first two cars and notified the engineman and conductor. Car Inspector Roberts stated that it was not absolutely necessary to cut out the brakes, but if they had not been cut out, the brake heads might have been damaged. He stated that he has never been given any definite instructions relative to the number of cars with brakes cut out to be run in passenger trains, but that it has been the practice to cut out the brakes if replacing the shoes would result in considerable delay. He stated that the usual inspection time allowed is 10 minutes, and if a train is delayed more than 10 minutes an explanation is required. While the train was at San Bernardino, he heard some one remark that they were anxious to make the connection at Los Angeles, and he states that this may have had some influence on his action in trying to get the train out as soon as possible.

Train Dispatcher Stedwell stated that he took charge of the district at 1.48 p.m., and at that time order 208 was in effect. Shortly after assuming duty, he noticed that train No. 3 had not passed San Dimas at the proper time, and to avoid delaying No. 4, he decided to change the meeting point. He called Santa Anita and Duarte and issued order No. 210 changing the meeting point from Arcadia to Monrovia. Shortly after No. 4 had received the order and departed from Santa Anita, he noticed that

the train sheet bore a notation which indicated that No. 3 would stop at Monrovia to leave passengers. Knowing that Duarte was a bad place to stop, and to avoid an unnecessary stop at Duarte, he decided to issue the order to No. 3 at Monrovia. This he proceeded to do and annulled the order to the operator at Duarte. He stated that he did not instruct the operator at Monrovia to take any special action to stop No. 3. He knew the semaphore at Monrovia could not be seen as well as the one at Duarte, and he realized that he was taking a chance, but considered that it was for the best interests of the company.

Operator Jacobson stated that the dispatcher called him and told him to copy order No. 210 for No. 3. After he had copied it and repeated it, the dispatcher gave him "O.K." at 1.58 p.m. and annulled the order which had been placed at Duarte. Shortly after receiving the order, upon inquiry from the dispatcher, he went to see if No. 4 was at the west end of the siding and had reached the door when No. 3 passed the station. He stated that he did not know there was a rule which required him, under these circumstances to use a flag to stop No. 3.

General Rule 219 (A), of the Atchison, Topeka & Santa Fe Railway reads as follows:

"219 (A). There should be, if possible, at least one open telegraph or telephone office, between those at which opposing trains receive meeting orders.

"Meeting orders must not be sent for delivery to trains at the meeting point, if it can be avoided. When it cannot be avoided, if train is not scheduled to stop at that station, the operator shall, in addition to displaying the fixed signal, stand on main track and flag the train with stop signal. The Dispatcher will state in such order that the train which does not receive the order at the meeting point, shall take the siding, and shall also state in the order that the ruling train receives the order at the meeting point."

Under this rule the train order changing the meeting point should have been given to No. 3 before it reached Monrovia. Dispatcher Stedwell violated this rule when he annulled the order to No. 3 at Duarte and re-issued it to this train at the meeting point; he also violated the rule in issuing the order to No. 3 at Monrovia without first notifying No. 4 that the opposing train would receive the order at the meeting point. Furthermore, a proper regard for safety of train operation should have required Dispatcher Stedwell to instruct the operator at Monrovia to comply with rule 219a, and use a flag in addition to his train order signal to stop train No. 3.

Operator Jacobson at Monrovia violated rule 219a, by neglecting to use a flag in addition to the train order signal to stop train No. 3, when he held a train order establishing a meeting point for that train at his station.

This accident was caused by a train order being issued to a train at the meeting point in violation of the rules, for which Train Dispatcher Stedwell is responsible.

A contributing cause was the failure of Engineman Edmundson properly to control the speed of his train approaching Monrovia.

Rule 221 is as follows:

"221. A fixed signal must be used at each train order office, which will indicate 'stop' when there is an operator on duty, except when changed to 'Proceed' to allow a train to pass after getting train orders, or for which there are no orders. The signal must be returned to 'stop' as soon as train has passed. It must be fastened 'proceed' only when no operator is on duty. A train must not pass the signal while 'stop' is indicated, unless it receives a clearance card on specified form, stating over the operator's signature that he has no orders (or further orders) for it."

Engineman Edmundson was familiar with this rule, and he knew the location of the signal as well as conditions surrounding it. A strict observance of this rule would necessitate that he so control the speed of his train approaching Monrovia that in the event of the signal being in the stop position he could stop before passing the signal, and had he obeyed this rule the accident would not have occurred. However, the investigation disclosed that this rule was not strictly observed in daily practice, and that before coming to a stop trains not infrequently ran past train order signals in the stop position. This practice no doubt lessened the importance of the signal indications in the minds of the engineman on this road, as any practice at variance with established rules which is permitted cannot fail to weaken the respect of employees for those rules.

The engineman and fireman are positive in their statements that the air whistle signal in the cab was not sounded after passing Duarte, while the conductor and trainman are equally positive that they each sounded the signal. This, in conjunction with the imperfect signal on approaching

Duarte, would tend to indicate that the air whistle signal was not in proper working order. The acknowledgment which Conductor Frazier stated that he heard to his second signal, probably was the four blasts of the engine whistle sounded by the engineman approaching Monrovia.

The evidence indicates that neither of the car inspectors who inspected this train at San Bernardino had been instructed regarding the cutting out of air brakes on cars in passenger trains, and when the defective brake shoes were found, rather than to delay the train by replacing them, the train was allowed to proceed with the brakes on the first two cars cut out. It is possible that had the brakes on these cars been in proper working condition the engineman might have been able to stop his train, notwithstanding the high rate of speed, in time to avert the accident. In this connection it is noted that at the time of the accident the train was being operated in violation of the Safety Appliance Acts, having only approximately 82% of its cars controlled by power brakes, while the law requires that not less than 85% of the cars in a train shall have their brakes used and operated by the engineer of the locomotive drawing the train, and all power-braked cars associated with the specified percentage shall have their brakes so used and operated.

The investigation of this accident disclosed that in more than one respect, in connection with the operation of these trains, Safety was sacrificed for dispatch. Not only was the conductor of No. 3 instructed by message to make as

good time as possible in order to make connection at Los Angeles, but to avoid delaying No. 3, the train was allowed to proceed from San Bernardino before necessary brake repairs were made, resulting in the efficiency of the train brake system being impaired, as well as in a violation of federal law; and to save the time required for a stop, the dispatcher issued a meet order at the meeting point, thereby violating a rule and jeopardizing the safety of the trains.

As long as the conditions disclosed by this investigation exist, and the lax practices and methods which led to this collision are permitted, accidents of this character may be expected to occur.

All the employees involved in this accident were experienced men. The engine crew of train No. 3 had been on duty 9 hours 47 minutes in the aggregate, in the 24-hour period ending at the time of the accident, which was the greatest length of time any of the employees involved had been on duty.

Respectfully submitted,

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Chief, Division of Safety.