

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
FORT DODGE, DES MOINES & SOUTHERN R.R.

BOONE, IOWA

MAY 20, 1936

INVESTIGATION NO. 2066

SUMMARY

Railroad: Fort Dodge, Des Moines & Southern
Date: May 20, 1936
Location: Boone, Iowa
Kind of accident: Collision
Trains involved: Freight : Freight
Trains numbers: Extra 203 south : Train No. 81
Motor numbers: 203 : 205
Consist: box car shoved : motor 205 with
ahead of motor : deadhead motor 201
and two cars : coupled behind
behind
Speed: 5 m.p.h. : 1-2 m.p.h.
Track: Yard limits; 5° curve; accident occurred
at fouling point of elevator track with
main track
Weather: Clear
Time: 2:50 a.m.
Casualties: 1 killed
Cause: Motorman moved on hand signal being
given for another train.

June 25, 1936

To the Commission:

On May 20, 1936, there was a collision between two electric locomotives, coupled, and an empty box car being shoved ahead of another electric locomotive, on the Fort Dodge, Des Moines & Southern Railroad at Boone, Iowa, which resulted in the death of one employee. This accident was investigated in conjunction with the Iowa Board of Railroad Commissioners.

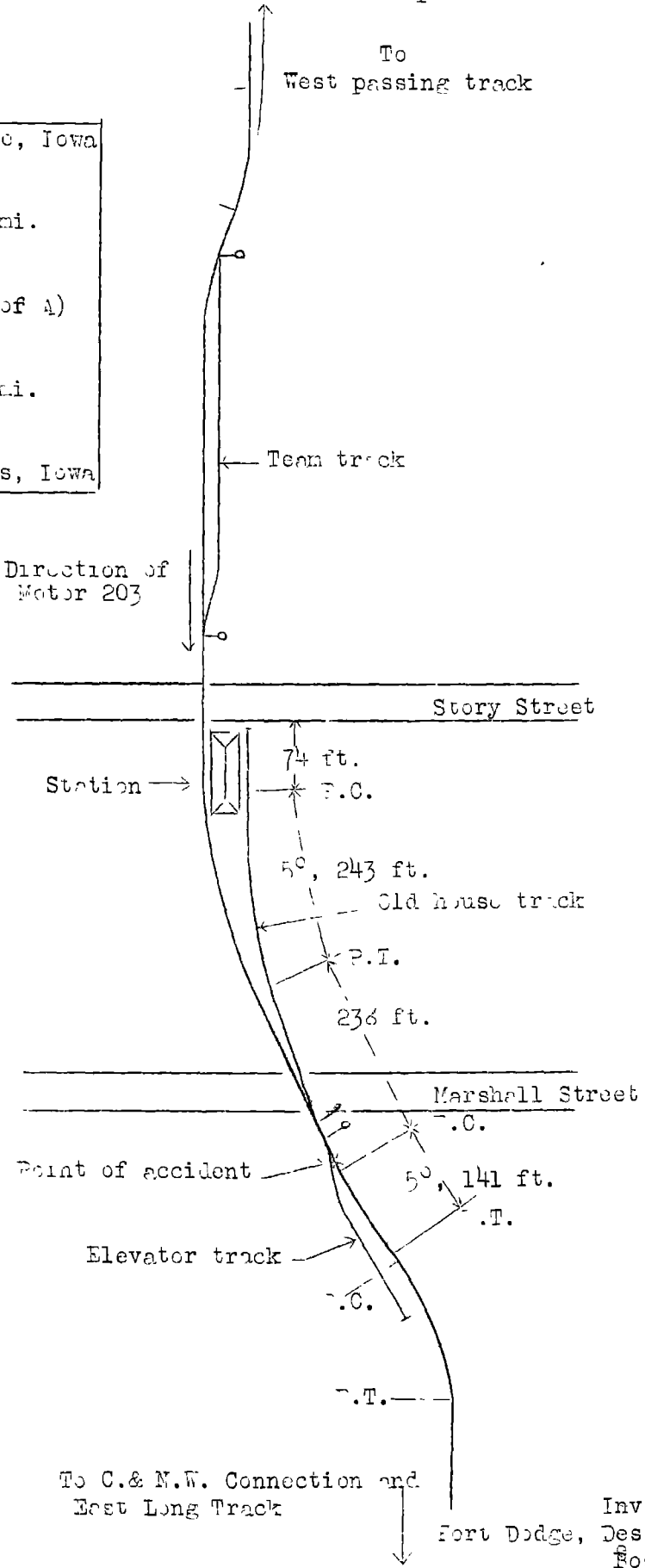
Location and method of operation

This accident occurred on that part of the railroad extending between Fort Dodge and Des Moines, Iowa, a distance of 85.77 miles; in the vicinity of the point of accident this is a single-track electric line over which trains are operated by time table and train orders, no block-signal system being in use. Time table directions are used in this report. The accident occurred within yard limits at a point 570 feet south of Story Street, at the fouling point of the elevator track switch; approaching this point from the north, beginning at Story Street, the main track is tangent for a distance of 74 feet, then there is a 5° curve to the left 243 feet in length, followed by 238 feet of tangent, then another 5° curve to the left 141 feet in length, the accident occurring on this latter curve at a point 15 feet from its northern end. The grade at the point of accident is 0.2 percent descending for south-bound trains.

The station at Boone is located east of the main track and on the south side of Story Street. The old house track parallels the main track on the east, the switch being a trailing-point switch for south-bound movements; the switch stand is located on the east side of the main track, 459 feet south of Story Street. The elevator track parallels the main track on the west and has a facing-point switch for south-bound movements; the switch stand is located on the east side of the main track 14 feet south of the old house track switch; both of these switch stands are on the south side of Marshall Street. The lens of the elevator track switch lamp is 8 feet 10 inches above the top of the rail, and that of the old house track is 8 feet 3 inches above the top of the rail; night indications of both switch lamps are green when the switches are set for the main track, and red when open.

The north switch of the east long track is located 3,499 feet south of Story Street, while the south switch of the west passing track is located 4,348 feet north of Story Street; the north switch of the team track is located 1,053 feet north of Story Street. There is a C. & N.W. transfer connection located several hundred feet south of the elevator track.

• Fort Dodge, Iowa
43.22 mi.
* Boone (P of A)
42.55 mi.
• Des Moines, Iowa



To C. & N.W. Connection and
East Long Track

Inv. No. 2066
Fort Dodge, Des Moines & Southern RR.
Boone, Iowa
May 20, 1936

Motor 205 is a 60-ton electric locomotive designed for freight service with a headlight and a motorman's compartment at each end.

The weather was clear at the time of the accident, which occurred about 2:50 a.m.

Description

Train No. 81, a north-bound freight train, arrived at Boone at 1:35 a.m., with 17 cars, hauled by motor 205, and was in charge of Conductor Sellers and Motorman Thornton. The train was set out on the east long track, following which motor 205 with motor 201 in tow moved northward to the vicinity of the station, where work was performed. The two motors were then placed on the elevator track, to clear for south-bound Train No. 82, and the crew went to lunch. Immediately after Train No. 82 had passed, the two motors were moved northward on the elevator track at a low rate of speed, the motorman operating them from the controls on the west side of the south compartment. They had moved about a car length when the right front corner of motor 205 struck the right front corner of box car S.P. 30187, which was being shoved southward ahead of motor 203, closely following Train No. 82.

Extra 203, a south-bound freight train, arrived at Boone at 2:27 a.m., with 11 cars, hauled by motor 203, and was in charge of Conductor Dillow and Motorman Diamond. The train was set out on the west passing track, following which motor 203, with two cars behind it, headed in at the north switch of the team track and coupled to car S.P. 30187. Motor 203 then moved southward on the main track and stopped behind Train No. 82. When that train proceeded, motor 203 followed closely with the box car ahead, and while passing the elevator track moving at a low rate of speed, the box car was cornered by motor 205.

The right front corner of S.P. 30187, and the right front corner of motor 205 were slightly damaged. The employee killed was the rear brakeman of Extra 203, who was on the front end of the box car.

Summary of evidence

Conductor Sellers, of Train No. 81, stated that his train arrived at the east long passing track, at 1:25 a.m.; he then telephoned the dispatcher and received instructions regarding work to be performed, and was told to place the motor on the elevator track and take lunch and to remain in clear there for south-bound Train No. 82; the conductor informed each member of his crew of these instructions. After lunch, the conductor went to the dispatcher's office, located in the station, where he re-

ceived train order 2, form 31, giving Extra 203 south right over Trains Nos. 91 and 81 from Niles to the west passing track at Boone; this was the first information he had received regarding Extra 203. About 25 or 30 minutes later, Conductor Dillow, of Extra 203, entered the office and said that his train would back in at the south end of the team track and wait for Train No. 81; Conductor Sellers was still in the office, and had not yet shown the order to any member of his crew. At about this time motor 203, which was closely following Train No. 82, passed the office shoving the empty box car ahead, and Conductor Dillow remarked to the dispatcher that his instructions were for motor 203 to back in at the south switch of the team track. Conductor Dillow then started down the stairs in an attempt to stop motor 203, but the accident occurred shortly thereafter.

Motorman Thornton, of Train No. 81, stated that after his train arrived at the east long track he moved from the north end to the south end of motor 205 in order to facilitate switching movements; he then placed the motors in to clear on the elevator track and went to lunch. After eating he returned to motor 205 and sat in the east side of the north compartment until Train No. 82 had nearly passed; he then turned the headlight on bright, but due to the load on the power line caused by the movement of Train No. 82, the intensity of his headlight was diminished. He then went back to the south or rear compartment of the motor and stood on the side next to the main track, watching for a signal from one of his brakemen. While in that position he saw a signal which he thought was given by one of his brakemen. After seeing the signal, which he assumed was meant for him, he crossed over to the west side of the rear compartment and started out of the elevator track without looking for the indication displayed by the switch lamp; his motor had moved about an engine length at a speed of approximately 2 miles per hour when he saw his headlight shining on the box car, and the collision occurred immediately. Motorman Thornton said that he did not hear motor 203 approaching with the cars and that after the accident he observed that both of the switch lamps at Marshall Street were displaying green indications. After eating, his brakemen usually rode the caboose of Train No. 82 and dropped off at the switch, although he did not see them get off on this occasion. It was his understanding that his motor would remain on the elevator track for Train No. 82 and then, as usual, would proceed to the east long track; he was not aware of the presence of Extra 203. He said that there was no reason why he could not have operated motor 205 from the north end, except that it was customary to work from the south end at this point; when he received a signal from his brakemen he always assumed that the way was clear and started out of the elevator track without looking at the switch lamp indications, depending upon the brakemen for protection.

Brakemen Hartman and Wiley, of Train No. 81, rode the caboose of Train No. 82 as far as the elevator track switch and Brakeman Hartman was about to open the switch when he noticed a box car approaching on the main track, a short distance behind Train No. 82; he and Brakeman Wiley stood on the east side of the track opposite the switch observing the movement and as the box car neared them, they recognized Brakeman Bechtel, who was riding on the front end of the car some distance up the ladder, and when in the immediate vicinity of the switch, saw him give a signal to Motorman Diamond with his hand lamp, which was followed almost immediately by the collision. Brakemen Hartman and Wiley said that due to the height from which the signal was given they would not consider it as a ground signal. Both switch lamps were displaying green indications, and the switches were lined for the main track. Brakeman Hartman said that the procedure usually followed when moving from the elevator track was to open the switch and give the signal himself, while Brakeman Wiley would station himself on the west side of the track and pass the signal to the motorman. Brakeman Wiley said that the headlight on motor 203 was burning and he could plainly see the outline of the box car being shoved ahead of the motor. After Train No. 82 had cleared his view he saw the north headlight of motor 205 burning; however, the power was considerably lowered by the movement of Train No. 82 at that time and after the accident he observed the headlight which appeared to be burning with the dimmer on.

Conductor Dillow, of Extra 203, stated that his train arrived at the west passing track at 2:27 a.m., and he reported the arrival by telephone to the dispatcher who told him that Train No. 81 was meeting Train No. 82 at the east long track, and that the dispatcher would protect motor 203 against Train No. 81 as far as the team track, and that motor 203 could move southward to the team track under this protection and clear there for Train No. 81, after which the crew could eat. The dispatcher did not inform the conductor that Train No. 81 was then actually in the yard. Conductor Dillow then told Motorman Diamond and Brakemen Sullivan and Bechtel, what the dispatcher had said and advised them to follow these instructions and attend to their other work after they had eaten and Train No. 81 had passed. Train No. 82 was standing on the main track opposite the team track, which was occupied by cars, including an empty box car which they were to place on the elevator track, this car being first out on the north end of the team track. Motor 203, with two cars behind it for the C. & N.W. connection, then proceeded southward to the north switch of the team track, headed in and picked up the empty box car ahead of the motor, then moved down the main track and stopped behind Train No. 82. At the time the box car was picked up the conductor again told Brakeman Bechtel to follow Train No. 82 down and back in at the south switch of the team track and stop for lunch. Conductor Dillow left motor 203 standing on the main track behind Train No. 82 and pro-

ceeded to the station and while talking with Dispatcher Settle and Conductor Sellers, Train No. 82 started to pull by. After the caboose of Train No. 82 had passed he heard his own motor following that train, and upon looking out of the window he saw them going by the station at a speed of about 5 miles per hour. Conductor Dillow then remarked to the dispatcher and Conductor Settle that motor 203 was supposed to back in on the team track, and he ran downstairs and outside, giving stop signals with his lighted hand lantern in an attempt to stop his motor, but the accident occurred immediately afterwards. Conductor Dillow was under the impression that his crew fully understood what was intended. After the accident he asked other members of his crew why they had not carried out his instructions to clear at the south end of the team track, and he was informed by Brakeman Sullivan that after the conductor had left the north end of the team track, Brakeman Bechtel came to the motor and told them about the change in plans and that they probably would follow Train No. 82 and place the two cars behind motor 203, on the C. & N.W. connection; Motorman Diamond proceeded on the lantern signals being given by Brakeman Bechtel from the front end of the box car being shoved ahead of motor 203.

Motorman Diamond, of Extra 203, stated that after arriving at Boone the conductor called the dispatcher, but the only instructions the motorman received from the conductor were to put the train on the passing track, no instructions being given to back in on the team track. After the conductor left for the station, Brakeman Bechtel said that the arrangements were to follow Train No. 82 to the C. & N.W. connection, and then to place the car ahead of the motor on the elevator track. Motorman Diamond said that at this time he did not have any knowledge as to the location of Train No. 81, and the first he knew of that train being in Boone yard was when motor 205 cornered the empty box car. Motorman Diamond said that Brakeman Sullivan rode on the motor with him, and that Brakeman Bechtel rode on the right side of the car ahead, continuously giving proceed signals with his lantern and that motor 203 was being operated from the right side of the south end. Brakeman Bechtel flagged the movement over Story Street, then caught the front end of the box car again. The caboose of Train No. 82 was only a short distance ahead, and after crossing Story Street the speed of his own motor was about 5 miles per hour and the automatic bell ringer was in operation. The motorman was maintaining a constant lookout ahead, and Brakeman Bechtel kept giving proceed signals which the motorman followed. He did not see the headlight of motor 205 until just prior to the accident, at which time the headlight appeared to be burning very dim, and he was not aware of anything wrong until the impact occurred; he said that it was customary to pass a motor on a side track, with its headlight burning, provided a signal was given, saying that when a motorman is working on one end of a motor, it is necessary for

him to go to the opposite end to find out whether or not the headlight is burning on that end of the motor. No stop signal was given by Brakeman Bechtel, and the motorman could not tell that motor 205 was moving off the elevator track; he assumed that everything was clear when Brakeman Bechtel continued to give signals, otherwise the motorman said he would have stopped when he saw the dimly burning headlight. The headlight on the south end of his own motor was shining against the box car ahead, and the markers were also burning. After the accident he saw both switch lamps at Marshall Street burning and displaying green indications. The air brake on his motor was in proper working order, but the air was not coupled into the cars being handled. He did not see anything of the two brakemen of Train No. 81. Motorman Diamond and Conductor Dillow each stated that due to the locomotives on this road being double ended, hand signals are not interpreted according to standard practice; the standard proceed hand signal is accepted on this road as a signal to move away from the person giving the signal, while the standard back-up signal is accepted as a signal to move toward the person giving the signal.

Head Brakeman Sullivan, of Extra 203, gave testimony similar to that of Motorman Diamond as to what transpired, including the instructions received from Brakeman Bechtel in regard to switching; it developed that there was some misunderstanding between the brakeman and conductor as to how the movements were to be made and that the instructions that the brakeman gave to the motorman and head brakeman after the box car was picked up, were not in accord with the instructions of the conductor. Head Brakeman Sullivan said that the two brakemen of Train No. 81 standing at the elevator track switch each had an electric lantern, but the lanterns were not lighted.

Dispatcher Settle stated that his instructions to Conductor Sellers, of Train No. 81, were to clear on the elevator track and take their lunch period after performing certain work, as he was moving Train No. 82 southward, and that his instructions to Conductor Dillow, of Extra 203, were to clear on the team track for Train No. 81 and for the crew to go and eat.

Vision tests made under conditions similar to those that obtained at the time of the accident disclosed that from the south compartment of a motor standing on the elevator track, with the headlight burning dimly, the outline of a box car on the main track could be seen for a distance of approximately 500 feet, and without the headlight burning both switch lamps at Marshall Street could be plainly seen from either compartment on the side next to the main track. A motorman approaching southward on the main track could see the lighted headlight of a motor standing on the elevator track for a distance of 335 feet and when the headlight of the motor on the elevator track

was extinguished that motor could be seen by the approaching motorman for a distance of about 100 feet.

Discussion

On arrival of Train No. 81 at Boone it was the practice of long standing for the motorman to operate the motor from the south compartment while performing switching, then to place the motor on the elevator track while the crew ate their lunch and waited for Train No. 82. In this instance, however, after Train No. 82 passed the elevator track, motor 203 was following closely, shoving an empty box car with the rear brakeman on the side of the box car, giving hand signals to his motorman with a lantern. The motorman of Train No. 81 saw one of these signals, and being unaware of the fact that Extra 203 was at Boone, he mistook the signal as one being given by his own brakemen at the elevator track switch, and started his motor moving out of the elevator track as usual, and had moved about a car length when the accident occurred.

The conductor of Extra 203 intended that his train should clear at the south switch of the team track, and the crew take lunch while waiting there for north-bound Train No. 81 to pass, following which the remainder of the work would be performed. For some unknown reason, Brakeman Bechtel, who was killed as a result of the accident, apparently misunderstood the conductor's instructions as he informed both the motorman and the head brakeman that they were to follow Train No. 82 to the C. & N.W. transfer connection, then return to the elevator track and set off the car ahead of the motor, which resulted in motor 203 following Train No. 82 beyond the team track. While the movement of motor 203 was unknown to the crew of Train No. 81, yet no reasonable excuse can be offered by the motorman of that train for not definitely ascertaining that the main track was clear and the switches properly lined before starting to move from the elevator track; had he been operating his motor from the front compartment, the accident would probably have been averted.

Conclusions

This accident was caused by Motorman Thornton, of Train No. 81, mistaking a hand signal given for another train as a signal from one of his own brakemen.

Respectfully submitted,

W. J. PATTERSON,

Director.