

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
CHICAGO, BURLINGTON & QUINCY RAILROAD

DURDOCK, S. DAK.

SEPTEMBER 22, 1940

INVESTIGATION NO. 2447

SUMMARY

Inv-2447

Railroad: Chicago, Burlington & Quincy
Date: September 22, 1940
Location: Burdock, S. Dak.
Kind of accident: Head-end collision
Trains involved: Passenger : Passenger
Train numbers: 44 : 41
Engine numbers: 7009 : 7005
Consist: 7 cars : 9 cars
Speed: 10-15 m. p. h. : 5-10 m. p. h.
Operation: Timetable, train orders and manual
block system for following move-
ments only
Track: Single; tangent; 0.8 percent
descending grade westward
Weather: Clear
Time: 9:58 a. m.
Casualties: 9 injured
Cause: Failure to obey meet order

Inv-2447

November 6, 1940.

To the Commission:

On September 22, 1940, there was a head-end collision between two passenger trains on the Chicago, Burlington & Quincy Railroad near Burdock, S. Dak., which resulted in the injury of one passenger, two mail clerks, two dining-car employees, and four train-service employees.

Location and Method of Operation

This accident occurred on that part of the Sheridan Division designated as the Edgemont and Gillette Sub-division which extends between Edgemont, S. Dak., and Gillette, Wyo., a distance of 121.06 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders, and a manual block system for following movements only. At Burdock a siding 4,271 feet in length parallels the main track on the south; the west switch of the siding is 2,560 feet west of the station. The accident occurred on the main track at a point 4,271 feet west of the west switch of the siding, and 7,041 feet west of the station. As the point of accident is approached from the east, there are, in succession, a 1° curve to the right 1,534 feet in length, a tangent 4,210 feet in length, a 1° curve to the right 1,522 feet in length, and a tangent 276 feet to the point of accident and 6,059 feet beyond. As the point of accident is approached from the west there is a 1° curve to the right 1,008 feet in length, which is followed by the tangent on which the accident occurred. At the point of accident the grade for west-bound trains is 0.8 percent descending.

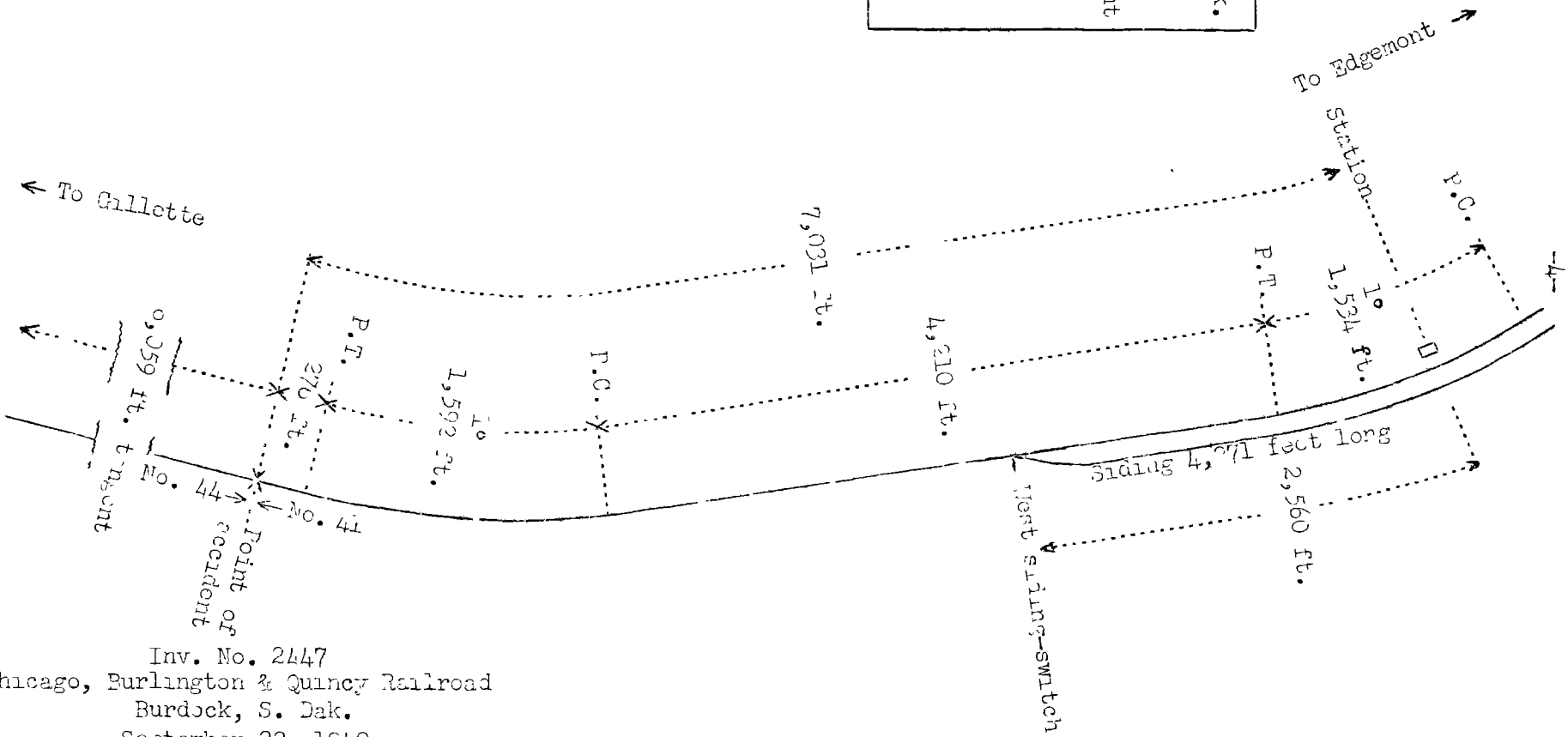
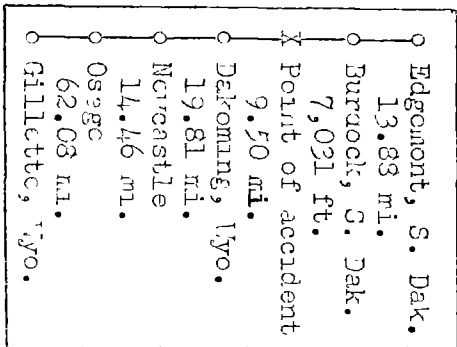
At the point of accident the range of vision of the engine crew of either an east-bound or a west-bound train is restricted to about 1,000 feet because of track curvature and a cut about 14 feet in depth.

Rules of the operating department read in whole or in part as follows:

14. Engine Whistle Signals.

Note.-The signals prescribed are illustrated by "o" for short sounds; "—" for longer sounds. * * *

14(n) — — o Approaching meeting or waiting point. * * *



Inv. No. 2447
 Chicago, Burlington & Quincy Railroad
 Burdock, S. Dak.
 September 22, 1940

S-90 * * *

Train must stop clear of the switch used by the train to be met in going on the siding.

* * *

The engineman of each train will give signal 14(n) at least one mile before reaching a meeting or waiting point. Should the engineman fail to give signal 14(n) as herein prescribed the conductor must take immediate action to stop the train.

318-B. * * *

A train must not be admitted to a block which is occupied by a passenger train, except as provided * * * or by train order.

* * *

Notes to Rule 318-B.--

Rule 318-B is for permissive block for following movements only.

* * *

994. (Rules for Firemen) * * * Keep in mind all orders and notices regarding the movement of trains, so as to be prepared to correct any oversight or mistake if there should be any occasion for so doing.

1055. (Rules for Passenger Brakemen) * * * keep in mind all orders and notices regarding the movement of trains, so as to be prepared to correct any oversight or mistake if there should be any occasion for so doing.

Time-table instructions for the Edgemont and Gillette Sub-division read as follows:

Trains eastward are superior to trains of the same class westward.

Manual Block System. Rule 318-B in effect.

The maximum authorized speed for passenger trains is 50 miles per hour.

The weather was clear at the time of the accident, which occurred at 9:58 a. m.

Description

No. 41, a west-bound passenger train, with Conductor Walley and Engineman Peterson in charge, consisted of engine 7005, of the 4-8-2 type, three baggage cars, one baggage-mail car, one chair car, one diner-lounge car, two box cars, and a caboose, in the order named; the first, second and third cars and the caboose had steel underframes and wooden superstructures; the fourth, fifth and eighth cars were of all-steel construction; the sixth car had a steel underframe and a wooden superstructure which was steel-plated; the seventh car was of steel-underframe construction. At Edgemont, 13.88 miles east of Burdock, the crew received a Clearance Form A, and copies of train order No. 20, Form 19, which read as follows:

No 44 Meet No 41 at Burdock No 44 take
siding at Burdock

This train departed from Edgemont at 9:55 a. m., according to the train sheet, 2 hours 20 minutes late, stopped at Burdock station to land a passenger and some mail, passed the west siding-switch at Burdock where it was required to stop on the main track east of the fouling point to meet No. 44, and, while moving at a speed estimated at 5 to 10 miles per hour, collided with No. 44.

No. 44, an east-bound passenger train, with Conductor Lowe and Engineman Knudson in charge, consisted of engine 7009, of the 4-8-2 type, one baggage car, one refrigerator car, one baggage car, one baggage-mail car, one chair car, one Pullman car and one diner-lounge car, in the order named. The first and second cars had steel-underframes and wooden superstructures; the third, fourth, fifth and sixth cars were of all-steel construction; the seventh car had a steel-underframe and a wooden superstructure which was steel-plated. At Newcastle, 30.34 miles west of Burdock, the crew received a Clearance Form A, and a copy of train order No. 20, Form 31, previously quoted. This train departed from Newcastle at 9:20 a. m., according to the train sheet, 12 minutes late, and, while moving at a speed estimated at 10 to 15 miles per hour, collided with No. 41.

Engine 7005 telescoped the smoke-box of engine 7009 about 2 feet. The frame of engine 7005 was broken on both sides immediately in front of the cylinders. The engine truck becoming disengaged and lodging under the No. 1 pair of driving wheels resulted in the front end of the engine being raised about 1-1/2 feet and the Nos. 1, 2, and 3 pairs of driving wheels being raised above the rails distances of 8, 2 and 1 inch, respectively. The No. 4 pair of driving wheels, the trailing-truck wheels and all the tender wheels remained on the rails. The first car shoved the tender cistern forward 2-1/2 feet. None of the remaining cars

in No. 41 sustained material damage. The smoke-box of engine 7009 was badly damaged. The front deck and the pilot-beam frames were broken off and the engine truck ran upon them; as a result the Nos. 1, 2 and 3 pairs of driving wheels were raised above the rails distances of 20, 14 and 8 inches, respectively. The No. 4 pair of driving-wheels, the trailing-truck wheels and all the tender wheels remained on the rails. The rear end of the first car telescoped the second car a distance of 33 feet; the remaining cars in No. 44 were slightly damaged.

The train-service employ es injured were the enginemen and the firemen of both trains.

Summary of Evidence

Engineman Peterson, of No. 41, stated that a terminal air-brake test was made at Edgemont, a running test was made soon after departure from that point, and the brakes functioned properly en route. Before he departed from Edgemont he received a copy of train order No. 20 and understood that his train was required to stop clear of the west siding-switch at Burdock if No. 44 was not in the clear. The fireman read the order and remarked that their train would meet No. 44 at Burdock. The engineman said that when his train was approaching Burdock he sounded the station whistle-signal; however, he did not sound signal 14(n) as required by the rules. Burdock is a flag stop, and on the day of the accident No. 41 stopped to land a passenger. The conductor then gave a proceed signal and the train departed, passed the west siding-switch end, while rounding the curve to the right located west of the siding, the engineman saw No. 44 approaching about 1,200 or 1,400 feet distant. He immediately took action to stop his train and when its speed had been reduced to about 15 miles per hour he jumped; he estimated the speed was 5 miles per hour when the accident occurred. Train order No. 20 was legible and in the prescribed form. When he read it at Edgemont he knew that his train was required to meet No. 44 at Burdock, and No. 44 was to take siding, but later he became confused and thought that his train was to meet No. 44 at Dakoming, 10.83 miles west of Burdock. He said that neither the condition of the engine nor the action of the train distracted his attention. The weather was clear at the time of the accident.

Fireman Ray, of No. 41, stated that when his train was approaching the point of accident track curvature restricted his view ahead. The first intintion he had of anything being wrong was when the engineman applied the air brakes in emergency and shouted a warning. The fireman estimated that the speed of the train was about 10 miles per hour when the impact occurred. He read train order No. 20 at Edgemont; it was legible and in the prescribed form. He said that it was his duty to observe whether

train orders were fulfilled as required by the rules and to be prepared to correct errors if they occurred. When he read the order he understood that Nos. 41 and 44 were to meet at Burdock; however, he later became confused and thought his train was to meet No. 44 at Dakoming. He was last examined on rules on September 5, 1940.

Conductor Walley, of No. 41, stated that at Edgemont he delivered a copy of train order No. 20 to the engineman and discussed its provisions with him. Both understood that their train was required to stop on the main track clear of the fouling point of the west siding-switch at Burdock if No. 44 was not in the clear. The train order was legible and in the prescribed form. The conductor showed the orders to the brakeman. The conductor said that he did not hear the engine whistle sounded as his train was approaching Burdock. The train stopped at Burdock, then the conductor gave a proceed signal and the train departed. The first knowledge he had of anything being wrong was when the air brakes were applied in emergency; he estimated the speed at 8 or 10 miles per hour when the collision occurred. He said that he and the engineman were equally responsible for the safe operation of their train. He could not explain his failure either to see that his train was stopped clear of the west siding-switch at Burdock or to observe that No. 44 was not on the siding.

Brakeman Babb, of No. 41, stated that he read train order No. 20 and understood that his train was required to stop clear of the west siding-switch at Burdock if No. 44 was not in the clear. When his train was approaching Burdock he heard the station whistle-signal sounded; however, the meeting-point whistle signal was not sounded. He looked out but did not see No. 44 into clear on the siding. His train stopped at the station and then departed. He expected the train to stop clear of the west switch of the siding to meet No. 44. His attention was distracted from the requirements of the meet order because of questions asked by a passenger, and the first intimation he had of anything being wrong was when the air brakes were applied in emergency. He estimated the speed of the train at 8 or 10 miles per hour at the time of the impact. He understood that it was his duty to observe that the requirements of train orders were fulfilled and to take action when conditions should require. He was last examined on operating rules in April, 1938.

Flagman Milne, of No. 41, stated that he read and understood train order No. 20. When his train approached Burdock he did not hear either a station or a meeting-point whistle signal sounded. He said he forgot the requirement that his train meet No. 44 at Burdock until his train was west of the west siding-switch when it occurred to him that he had not seen No. 44 on the siding. He started to look back toward Burdock to see whether No. 44 was

there, when the brakes were applied in emergency. He estimated that the speed of his train was 5 miles per hour when the collision occurred. Nothing occurred en route to distract his attention, and he could offer no reason for his failure to remember the requirements of the meet order.

Engineman Knudson, of No. 44, stated that the air brakes were tested at Sheridan, a car was added to his train at Gillette, 107.18 miles west of Burdock, the brakes were again tested and they functioned properly en route. At Newcastle he received a copy of train order No. 20, which he read and then showed to the fireman; both understood that their train was required to take siding at Burdock for No. 41. When the train was about 1 mile west of Burdock the fireman called a warning that No. 41 was west of the west siding-switch and the engineman immediately made an emergency brake-pipe reduction. When the engines were about three coach lengths apart he jumped; at this time the speed of his train had been reduced to about 20 or 25 miles per hour. The accident occurred at 9:58 a. m., at which time the speed was about 10 miles per hour.

Fireman Bryan, of No. 44, stated that he read train order No. 20 and understood its requirements. When his train was approaching the station mile-board west of Burdock the speed was about 50 miles per hour and the engineman sounded signal 14(n). The fireman saw No. 41 emerge from the cut. He called a warning and the engineman applied the air brakes in emergency. The fireman said that the speed of the train was about 25 or 30 miles per hour when he jumped, and about 10 or 15 miles per hour when the collision occurred.

Conductor Love, of No. 44, stated that he read train order No. 20 and understood its requirements. As his train approached Burdock he heard the station and the meeting-point whistle signals sounded. The first intimation he had of anything wrong was when the air brakes were applied in emergency. The speed of his train was about 10 or 12 miles per hour when the collision occurred.

The statements of Brakeman Baker and Flagman Thompson, of No. 44, added nothing of importance.

According to the records furnished by the railroad, all members of the crew of No. 41 reported for duty at Edgemont at 8:30 a. m., September 20, after being off duty more than 21 hours.

During the 30-day period preceding the day of the accident there were 145 east-bound and 145 west-bound trains operated on the line involved; the daily average movement was 9.6 trains.

Observations of the Commission's Inspectors

The Commission's inspectors observed that the point of accident is visible a distance of about 1,000 feet from the right side of a west-bound engine; however, because of track curvature and a cut about 14 feet deep, the point of accident is obscured from the left side of a west-bound engine. The point of accident is visible a distance of 1,000 feet from the left side of an east-bound engine; the view from the right side of the engine is obscured.

Discussion

According to the evidence, the crew of No. 44 understood that their train was required to take siding at Burdock for No. 41. When No. 44 was about 4,500 feet west of the west siding-switch and while moving about 50 miles per hour, the fireman saw No. 41 approaching at a point west of the west siding-switch. He warned the engineer, who immediately took action to stop his train but too late to avert the accident.

The crew of No. 41 had received train order No. 20 and all members said that they understood the provisions of the order which required their train to stop clear of the fouling point of the west siding-switch if the train to be met was not in the clear. The order was issued to No. 41 at a point 13.88 miles east of Burdock and 23 minutes only had elapsed between the time the order was received and the time of the accident. The engineer and the fireman both said that they became confused and thought that the order directed their train to meet No. 44 at Dakoming, 9.5 miles west of Burdock. Had either the engineer or the fireman read the order again their confusion probably would have been clarified in time to avert the accident. The engineer said that he did not sound the meeting-point whistle signal as required by the rules; other members of the crew said that they did not hear it sounded. Even though the train stopped at the station, if the conductor, the flagman and the brakeman had been alert they would have realized that since they had not heard the meeting-point whistle signal sounded, it was possible that the members of the engine crew were confused concerning the meeting point with No. 44. The conductor could not explain his failure to observe that the train to be met was not in the clear, nor his failure to take action to stop his train before it passed the fouling point at the west siding-switch. The brakeman said that after his train departed from the station at Burdock, he intended to look for the train to be met; however, he permitted the questions of a passenger to distract his attention and failed to observe that the train to be met was not in the siding. The

flagman said that until his train had passed beyond the west siding-switch he forgot about his train being required to meet No. 44 at Burdock; at the time of the accident he was looking back to see whether No. 44 was at Burdock. All members of the crew of No. 41 had been on duty only 1 hour 28 minutes when the accident occurred, after being off duty more than 21 hours. Had any member of this crew been on the alert, he could have taken action to prevent this accident.

On this line following movements are blocked manually but the manual block system is not used for opposing movements, such movements being governed by timetable and train orders. If the manual block system had included adequate provision for the blocking of opposing movements also, it is probable that this accident would have been averted.

Conclusion

This accident was caused by failure to obey a meet order.

Respectfully submitted,

S. N. MILLS,

Director.