

Dept. of Transportation

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INTERSTATE COMMERCE COMMISSION
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REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
MINNEAPOLIS & ST. LOUIS RAILROAD

MORNING SUN, IOWA

OCTOBER 3, 1940

INVESTIGATION NO. 2451

SUMMARY

Inv-2451

Railroad: Minneapolis & St. Louis
Date: October 3, 1940
Location: Morning Sun, Iowa
Kind of accident: Head-end collision
Trains involved: Freight : Freight
Train numbers: 96 : Extra 601 West
Engine numbers: 606 : 601
Consist: 32 cars, cabooses : 33 cars, cabooses
Speed: 10-20 m.p.h. : 20 m.p.h.
Operation: Timetable and train orders
Track: Single; junction of tangent and
3° curve; 1 percent ascending
grade westward
Weather: Clear
Time: About 3:50 a.m.
Casualties: 6 injured
Cause: Failure of train to clear time of
opposing superior train, and
failure to provide proper flag
protection after having failed
to clear time of opposing superior
train.

November 15, 1940.

To the Commission:

On October 3, 1940, there was a head-end collision between two freight trains on the Minneapolis & St. Louis Railroad near Morning Sun, Iowa, which resulted in the injury of six employees. This accident was investigated in conjunction with the Iowa State Commerce Commission.

Location and Method of Operation

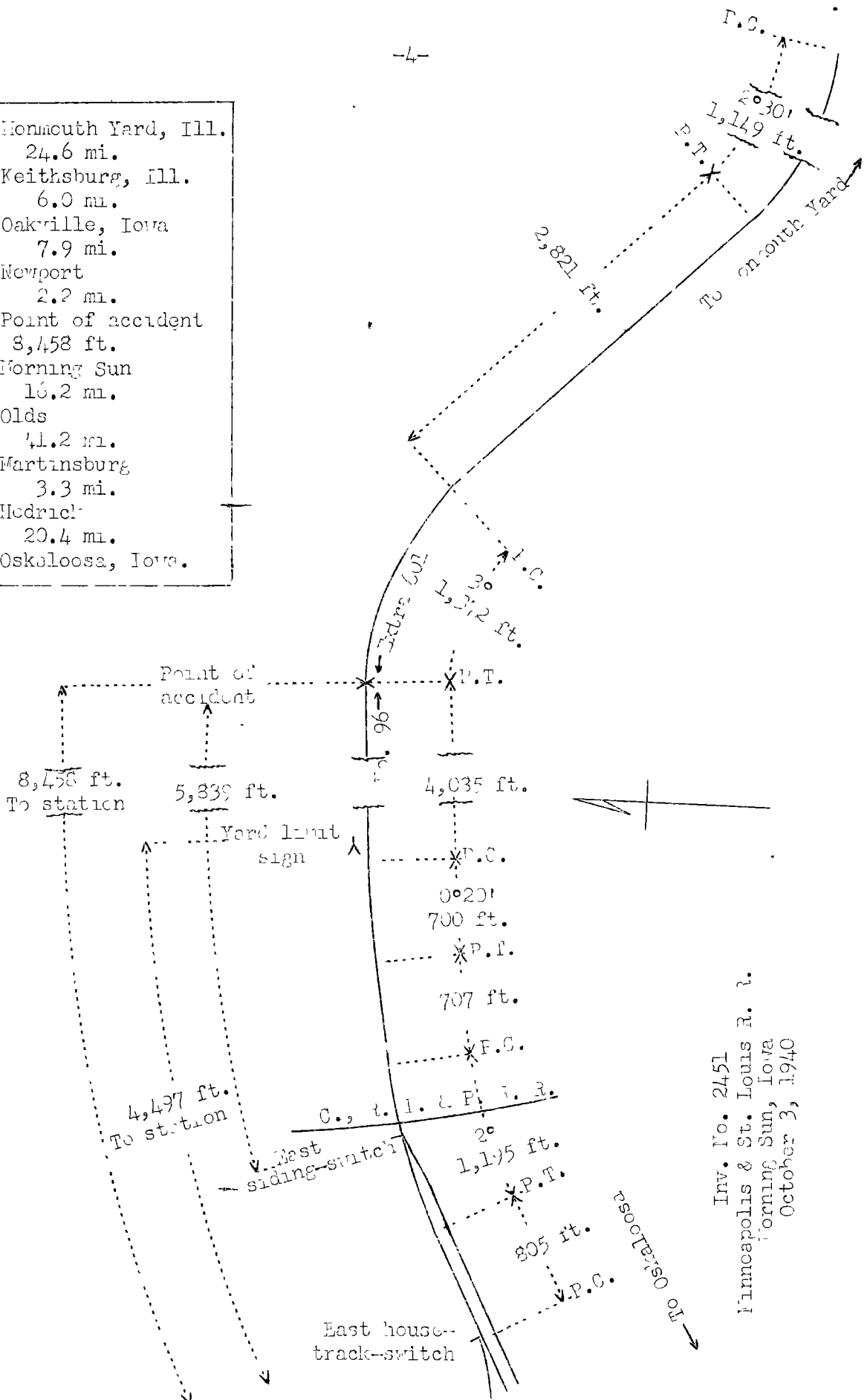
This accident occurred on that part of the railroad designated as the Eleventh District which extends between Oskaloosa, Iowa, and Monmouth Yard, Ill., a distance of 123.4 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders; there is no block system in use. At Morning Sun a siding 3,357 feet in length parallels the main track on the south. The accident occurred at a point 5,339 feet east of the east switch of the siding, and 3,458 feet east of the station. As the point of accident is approached from the east, there are, in succession, a 2°30' curve to the right 1,149 feet in length, a tangent 2,821 feet in length, and a 3° curve to the left 1,372 feet in length; the accident occurred at the west end of the latter curve. As the point of accident is approached from the west, there are, in succession, a tangent 805 feet in length, a 2° curve to the right 1,195 feet in length, a tangent 707 feet in length, a 0°20' curve to the right 700 feet in length, and a tangent 4,085 feet in length; the accident occurred at the east end of the last-mentioned tangent. At the point of accident the grade for west-bound trains is 1 percent ascending.

The east yard-limit board at Morning Sun is located 4,497 feet east of the depot. Oakville is located 11.7 miles east of Morning Sun. There is no siding between these points.

The accident occurred near the center of a cut 1,200 feet long and 8 feet deep. From the fireman's side of the cab of a west-bound engine the view of the track at the point of accident is restricted to a distance of 400 feet because of track curvature, the cut, and a growth of brush and small trees.

The following rules of the operating department read in whole or in part as follows:

○	Monmouth Yard, Ill.	24.6 mi.
○	Keithsburg, Ill.	6.0 mi.
○	Oakville, Iowa	7.9 mi.
○	Newport	2.2 mi.
X	Point of accident	3,458 ft.
○	Morning Sun	16.2 mi.
○	Olds	41.2 mi.
○	Martinsburg	3.3 mi.
○	Hedrick	20.4 mi.
○	Oskaloosa, Iowa.	



Inv. No. 2451
 Minneapolis & St. Louis R. R.
 Morning Sun, Iowa
 October 3, 1940

TO Oskaloosa

3-a. Conductors and switch foremen must compare their watches with those of their enginemen before starting on each trip or commencing a day's work.

E. * * *

The time applies to the switch where an inferior train enters the siding; where there is no siding it applies to the place from which fixed signals are operated; where there is neither siding nor fixed signal, it applies to the place where traffic is received or discharged.

* * *

87. An inferior train must keep out of the way of opposing superior trains and failing to clear the main track by the time required by rule must be protected as prescribed by Rule 99.

Extra trains must clear the time of opposing regular trains not less than five minutes unless otherwise provided, and will be governed by train orders with respect to opposing extra trains.

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection.

* * *

99-k. The front of a train must be protected in the same manner as hereinbefore designated, when necessary, by the front brakeman, or in his absence by the fireman.

105. Both the conductor and the engineman are responsible for the safety of the train and the observance of the rules, and, under conditions not provided for by the rules, must take every precaution for protection.

Forms of Train Orders. * * *

E. Time Orders. * * *

Example (3.) No 14 Eng 23 wait at Dana until 9 59 nine fifty nine a m for No 1 Eng 21.

The train first named must not pass the designated point before the time given, unless the other train has arrived. The train last named is required to run with respect to the time specified, at the designated point or any intermediate station where schedule time is earlier than the time specified in the order, as before required to run with respect to the schedule time of the train first named.

713. When a test application of the air brakes is made, car inspector or trainman must see that they are all set properly; must give the proper signal for releasing the brakes and see that they are all released.

The maximum authorized speed for freight trains on this district is 35 miles per hour.

The weather was clear at the time of the accident, which occurred about 3:50 a.m.

Description

No. 96, an east-bound freight train, with Conductor Sapp and Engineman Gable in charge, consisted of engine 606, of the 2-8-2 type, 32 loaded cars, and a caboose. At Olds, 16.2 miles west of Morning Sun, the crew received a Clearance Card and copies of train order No. 6, Form 19, which read in part as follows:

* * * No 96 eng 606 wait at Morning Sun
until 345 three forty five AM Oakville until
410 four ten AM Keithsburg until 420 four
twenty AM for extra 601 west

This train departed from Olds at 3:14 a.m., according to the train sheet, 3 hours +4 minutes late, passed Morning Sun about 3:45 a.m., according to members of this crew, and, while moving at a speed estimated at 10 to 20 miles per hour, collided with Extra 601 West.

Extra 601, a west-bound freight train, with Conductor Sarvis and Engineman Sells in charge, consisted of engine 601, of the 2-8-2 type, 20 loaded and 13 empty cars, and a caboose. At Monmouth Yard, 42.3 miles east of Morning Sun, the crew received a Clearance Card and five train orders, among which was train order No. 6, Form 19, previously quoted. This train

departed from Monmouth Yard at 3:20 a.m., according to the train sheet, made one stop en route, and, when approaching Morning Sun and moving at a speed estimated at 20 miles per hour, it collided with No. 96.

Both engines were derailed but remained upright on the roadbed and in line with the track; their front ends were crushed and locked together. The engines were badly damaged and their respective tenders telescoped the cabs. Both tenders were derailed to the south and each stopped at an angle of 45 degrees behind its engine. The tender of No. 96 was badly damaged, and that of Extra 601 was demolished. The first car of No. 96 was destroyed. The first five cars of Extra 601 were derailed and they stopped in various positions; the sixth car was not derailed, but the rear wheels of the seventh car were derailed.

The employees injured were the engineman and the fireman of No. 96, and the engineman, the fireman, the front brakeman and the flagman of Extra 601.

Summary of Evidence

Engineman Gable, of No. 96, stated that at Oskaloosa, 31.1 miles west of Morning Sun, he and the fireman compared their watches with the standard clock at 10:30 p.m., October 2. The time indicated by his watch corresponded with that of the standard clock. Before the train departed from Oskaloosa a terminal air-brake test was made and the car inspector reported that the brakes were all right; they functioned properly when stops were made at points 60.7, 57.4, and 16.2 miles west of Morning Sun. Train order No. 3 was received at Olds, and he understood that No. 96 was required to wait at Morning Sun until 3:45 a.m. for Extra 601. At exactly 3:45 a.m., his engine was about 500 feet east of the station at Morning Sun. Thereafter, he did not look at his watch until a considerable time after the accident occurred. When his engine was near the Chicago, Rock Island & Pacific Railway crossing, which is 102 feet east of the east siding-switch, the fireman remarked that the time specified in the wait order had expired, and suggested that their train should proceed; then the engineman received a proceed signal given with a flash light from the rear of his train. When his engine was about 3,100 feet east of the east siding-switch, he observed across the inside of the curve involved what appeared to be a headlight beam in the vicinity of a highway crossing located about 1/2 mile east of the point where the accident occurred. He remarked about this headlight beam, then made a slight brake-pipe reduction, and soon afterward released the brakes. In the meantime the fireman crossed over to the right side of the engine cab, returned to his own

side, and said it was an automobile headlight beam; then the headlight beam disappeared. The headlight of his own engine was burning brightly. The engineman said that the speed of his train was about 18 to 20 miles per hour, and that he was working a drifting throttle. He continued to look ahead out his view across the curve involved was obstructed by the walls of the cut. His first intimation of anything being wrong was when the headlight beam of his own engine shone into the extinguished headlight of Extra 601. There was a lighted fusee displayed from the left side of the cab of engine 601. He immediately called a warning, applied the air brakes in emergency, and jumped; then the impact occurred. He said that under train order No. 6 Extra 601 should have been in the clear at Morning Sun not later than 3:40 a.m.

Fireman Ryan, of No. 96, corroborated the statement of Engineman Gable in regard to comparison of watches at Oskaloosa, the air-brake tests, and the manner in which the brakes functioned en route. He read train order No. 6 and understood its requirements. When his engine passed a point about 1,000 feet east of the station at Morning Sun he and the front brakeman compared time and, according to his own watch, it was 3:45:30. The fireman remarked to the engineman that the time specified in the wait order had expired and suggested that their train should proceed. As the train approached the curve involved, the speed was about 20 miles per hour and the headlight was burning brightly. The engineman made a remark about a light in the distance. The fireman went over to the right side of the cab, looked toward the highway crossing, told the engineman that it was an automobile headlight, and then returned to his seat-box. When their engine was about 30 car lengths west of the point where the accident occurred, the engineman called a warning and applied the air brakes, then the fireman jumped. He estimated the speed of his train at 20 miles per hour when the impact occurred. Because of track curvature and the walls of the cut, he did not see Extra 601 prior to the accident. He said that subsequent to the accident all members of his crew compared their watches about 6 a.m. in the station at Morning Sun; there was not more than 5 seconds variation among them.

Front Brakeman Hoover, of No. 96, practically corroborated the statement of Fireman Ryan. He did not know the time the accident occurred.

Conductor Sapp, of No. 96, stated that he compared his watch with the standard clock at Oskaloosa and there was no variation. He received a copy of train order No. 6 and understood its provisions. The caboose gauge indicated a brake-pipe pressure of 70 pounds. When his train was passing Morning

Sun the speed was 10 or 12 miles per hour. It was exactly 3:45 a.m. when the caboos passed a point 289 feet west of the station. Just after the caboos passed over the C.R.I. & P. R.R. crossing the flagman remarked that the time was 3:45:05 or 3:45:10. About 3:45:20, by his watch, the conductor gave a proceed signal to the engineman. When the train was leaving Morning Sun the speed was increased to about 20 miles per hour. His first knowledge of anything being wrong was when the air brakes were applied. He estimated that the speed of his train was about 17 miles per hour when the impact occurred. He said that he looked at his watch within 5 or 10 seconds after the accident and that it was then exactly 3:50 a.m. Later, at the scene of the accident, he said that he compared time with Conductor Sarvis, of Extra 601, by glancing at that conductor's watch from a distance of about 6 feet. As near as he could determine, Conductor Sarvis' watch was several or as many as 5 minutes slower than his own. Between 5:30 and 6 a.m., when all members of the crew of No. 96 were in the station at Morning Sun, a check of the time was made with the train dispatcher, and there was not more than 5 or 10 seconds variation in their watches.

Flagman Dell, of No. 96, practically corroborated the statement of his conductor.

No statement was obtained from Engineman Sells, of Extra 601, as he died a few days subsequent to the accident.

Fireman Gorman, of Extra 601, stated that train order No. 6 was received at Monmouth Yard. He read the order and understood its provisions. He and the engineman compared their watches with the standard clock at Monmouth Yard before departure. The time indicated by the fireman's watch corresponded with that of the clock; however, the fireman did not see the engineman's watch and did not know what time it indicated. The fireman did not know whether a terminal test of the brakes was made before departure. When his train was about 9 miles east of Morning Sun, and about 2 miles west of Oakville, the last place east of Morning Sun that his train could have taken siding, the time was about 3:20 or 3:25 a.m. He and the front brakeman compared time with each other and there was 30 seconds variation between their watches. The fireman understood that his train was required to be clear at Morning Sun not later than 3:40 a.m. The usual running time between Oakville and Morning Sun for a freight train consisting of full tonnage was 33 minutes. Extra 601 consisted of nearly full tonnage and, when it passed Oakville, had only 15 or 20 minutes to reach Morning Sun. When his train passed Newport, 3.8 miles east of Morning Sun, it was 3:41:30 a.m., and he informed the engineman that only 3-1/2 minutes remained to clear for No. 96; the engineman did not reply. The fireman

said that the engine was functioning properly, a full head of steam was being maintained, and the water was in good condition. When his train was approaching the point where the accident occurred the headlight was burning brightly and the speed was about 30 or 35 miles per hour. He could see the headlight beam of No. 96 at Morning Sun and, realizing that flag protection was necessary, he held a lighted fusee out the left side-window of the cab. As the engineman neither reduced speed nor stopped the train, proper flag protection could not be provided. When Extra 601 rounded the curve just east of the point where the accident occurred, the fireman could see that a collision was imminent and warned the engineman who immediately closed the throttle and applied the brakes in emergency but too late to avert the accident. The speed had been reduced somewhat at the time of impact. The fireman said that he did not know the time the accident occurred. He did not call the engineman's attention to the necessity of taking siding at Oakville but thought that he should have done so. The fireman was last examined on operating rules about one year prior to the accident. He said that it was not unusual to receive train orders similar to train order No. 6; however, this was the first instance of which he knew wherein a train failed to clear the main track before the expiration of the waiting time of a superior train.

Front Brakeman Garrett, of Extra 601, stated that he compared his watch with the standard clock at Monmouth Yard, his watch was 30 seconds fast. He said that, since no car inspector was stationed at Monmouth Yard, no terminal test of the air brakes was made. It is customary for the train crew to conduct the air-brake test themselves. He read train order No. 6 and understood that his train was required to be clear at Morning Sun at 3:40 a.m. for No. 96. When a train fails to clear for an opposing superior train it is necessary to provide flag protection as prescribed by Rule 99. When his train was about 1/2 mile west of Oakville only 25 minutes running time remained. He told the fireman that the time was insufficient to clear at Morning Sun, but the fireman replied that the time was sufficient. The brakeman did not call the engineman's attention to insufficient running time. The brakeman said that his train passed Newport at 3:41 a.m. and again he told the fireman that the time was insufficient to clear at Morning Sun on train order No. 6; however, the fireman was of the opinion that the time was sufficient. When his train was approaching the point where the accident occurred the brakeman was on the left seat-box and saw the headlight beam of No. 96 at Morning Sun. He stationed himself in the left gangway to get off if a collision occurred. As the track curvature was to the left, members of the crew stationed on the left side of the engine had a better view ahead. He said that the headlight of his engine was not

projecting much light as the ground in front of the engine was dark. The fireman held a lighted fusee out the left side-window of the cab to flag No. 96 and told the engineman to apply the brakes. The brakeman could not estimate the speed at which his train was moving at the time of impact. He did not look at his watch immediately after the accident occurred. The weather was clear and it was dark at the time of the accident. He said that he could not remember when he was last examined on operating rules.

Conductor Sarvis, of Extra 601, stated that he compared his watch with the standard clock at Monmouth Yard and registered the comparison on the prescribed form. His watch indicated the same time as the clock. He received copies of train order No. 6 at Monmouth Yard and delivered the engineman's copy to him. The order was legible and on the prescribed form. The conductor said that before his train departed he inspected the air brakes; however, he did not inspect each brake to determine whether it applied and released. The caboose gauge indicated a brake-pipe pressure of 70 pounds en route. He understood that his train was required to be clear of the main track at Morning Sun by 3:40 a.m. When his train passed Oakville he did not give a proceed signal as required by the rules. His train passed Newport at 3:38:30 a.m., which was but 1-1/2 minutes before it was required to be clear at Morning Sun. He did not take action to stop his train as he depended upon the engineman to protect the front of the train in sufficient time to avert an accident. When his train was approaching the point where the accident occurred the speed was about 35 miles per hour. The brakes were applied in emergency and the speed was about 20 miles per hour at the time of the collision, which occurred at 3:44 a.m., according to his watch. He said that he did not compare his watch with the watch of any member of the crew of No. 96.

Flagman Porter, of Extra 601, stated that he compared time with the standard clock at Monmouth Yard and his watch was about 30 seconds fast. He read train order No. 6 and understood that his train was required to be clear at Morning Sun by 3:40 a.m. He said that the conductor made an air-brake test at Monmouth Yard. The flagman was in the caboose cupola when his train was approaching the point where the accident occurred and the speed was about 35 miles per hour. The caboose gauge indicated a brake-pipe pressure of 70 pounds. The brakes were applied in emergency and the speed had been reduced to about 20 miles per hour at the time of the accident, which occurred at 3:44 a.m., according to his watch. He said that the train passed Oakville at 3:20 a.m. He did not give a proceed signal at that point, although it was required. The train passed Newport at

3:40 or 3:41 a.m. He knew that his train should protect against No. 96 but thought the engineman was endeavoring to reach the tangent about one mile east of Morning Sun and from that point would provide flag protection against No. 96. The flagman said that when the train was about 3/4 mile east of the point where the accident occurred he could see the headlight beam of No. 96 at Morning Sun. He informed the conductor but the latter did not reply. The flagman said that the train seemed to drag between Oakville and Morning Sun; however, there was no indication of brakes sticking. His watch was broken as a result of the accident. He said that it was usual practice to issue wait orders, but that it was not customary to fail to comply with the rules as in this instance. It was his opinion that had No. 96 strictly complied with the yard-limit rule, and had it waited at Morning Sun until the waiting time expired, probably the accident would have been averted.

According to data furnished by the railroad, during the 30-day period preceding the day of the accident there were 108 east-bound trains, 111 west-bound trains, 14 helper engines, and 17 work trains operated on this district; the average daily movement was 8.3 trains.

Discussion

According to the evidence, under the provisions of the wait order held by the crews involved, No. 96 was required not to pass the fouling point of the east siding-switch at Morning Sun before 3:45 a.m. unless Extra 601 West was in the clear at that station, and Extra 601 was required to be clear of the main track at Morning Sun not later than 3:40 a.m. if it proceeded to that station to clear for No. 96. All members of both crews understood these provisions. The collision occurred at a point 1.1 miles east of the east siding-switch which Extra 601 was required to enter for No. 96. There was considerable discrepancy in the testimony concerning the time the accident occurred; however, the preponderance of evidence was to the effect that it occurred about 3:50 a.m. The conductor and the flagman of No. 96 said the accident occurred a few seconds before 3:50 a.m., but the conductor of Extra 601 said it occurred at 3:44 a.m., according to his watch, and that his train passed Newport, 2.2 miles east of the point where the accident occurred, at 3:38:30 a.m.; however, his flagman said that the train passed Newport at 3:40 or 3:41 a.m. and that the accident occurred at 3:44 a.m.; the fireman said the time of passing Newport was 3:41:30 a.m. This would indicate that the conductor's watch was about 2 minutes slower than those of the flagman and the fireman even though these employees compared time with the same standard clock located at the initial station for Extra 601 and their watches indicated the

some time as that of the standard clock. Furthermore, a period of 33 minutes was considered normal running time from Oakville to Morning Sun, 11.7 miles, for a train of the type and the weight of Extra 601; since no one placed the time of passing Oakville earlier than 3:20 a.m., and since the accident occurred at a point 1.6 miles east of Morning Sun, these facts tend to support the statements of the conductor and the flagman of No. 96 that the accident occurred about 3:50 a.m. Nevertheless, even if the accident occurred at 3:44 a.m., that would be 4 minutes after Extra 601 was required to be in the clear at Morning Sun; also this would indicate that No. 96 passed the east siding-switch prior to 3:45 a.m.; although all members of the crew of No. 96 stated that their engine did not pass this switch until about 30 seconds after 3:45 a.m.

The reason why the engineman of Extra 601 attempted to proceed to Morning Sun instead of staying at Oakville for No. 96, since the time available was 15 minutes less than normal running time, could not be determined as he died without having made a statement concerning the accident. The fireman said he warned the engineman at Newport that only 3-1/2 minutes remained in which to clear at Morning Sun but the engineman did not reply. As a precaution, the fireman then held a lighted fusee from the left cab-window. The front brakeman said that near Oakville and also at Newport he told the fireman that they did not have sufficient running time, but he did not mention this to the engineman; he stated that in both instances the fireman replied that the time was sufficient. The conductor took no action to stop his train because he depended upon the engineman to protect the front of the train in sufficient time to avert an accident. The flagman thought the engineman was endeavoring to reach the tangent track 1 mile east of the east siding-switch where protection against No. 96 would be furnished.

Since Extra 601 left Oakville, and since there was no siding between Oakville and Morning Sun, the rules required that this train be in the clear at Morning Sun by 3:40 a.m. or, failing to do so, be protected by flag after 3:40 a.m.

This investigation disclosed no reason for Extra 601 being operated on the time of No. 96. Had the conductor, the flagman, the fireman or the front brakeman complied with the rules and taken the proper initiative, this accident would have been averted.

The evidence disclosed that the brakes of Extra 601 were not tested at the initial terminal according to the rules of this railroad; however, it was stated that the brakes functioned properly en route.

Conclusion

This accident was caused by failure of a train to clear the time of an opposing superior train, and by failure to provide proper flag protection after having failed to clear the time of the opposing superior train.

Respectfully submitted,

S. W. MILLS,

Director.