INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3227

CHICAGO, MILWAUKEE, ST. PAUL AND
PACIFIC RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT STURTEVANT, WIS., ON

JANUARY 14, 1949

SUMMARY

Railroad:	Chicago, Milwaukee, St. Paul and Pacific	
Date:	January 14, 1949	
Location:	Sturtevant, Wis.	
Kind of accident:	Rear-end collision	
Trains involved:	Passenger	: Passenger
Train numbers:	Second 14	: 58
Engine numbers:	Diesel-electric 11-B	: 103
Consists:	11 cars	: 13 cars
Estimated speeds:	10 m. p. h.	: 38 m. p. h.
Operation:	Signal indications	
Tracks:	Double; tangent; 0.19 percent ascending grade eastward	
Weather:	Clear	
Time:	9:35 p. m.	
Casualties:	15 injured	
Cause:	Failure to operate following train in accordance with signal indication	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3227

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD COMPANY

March 21, 1949

Accident at Sturtevant, Wis., on January 14, 1949, caused by failure to operate the following train in accordance with a signal indication.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On January 14, 1949, there was a rear-end collision between two passenger trains on the Chicago, Milwaukee, St. Paul and Pacific Railroad at Sturtevant, Wis., which resulted in the injury of 12 passengers, 1 railway-mail clerk, 1 train porter, and 1 train-service employee.

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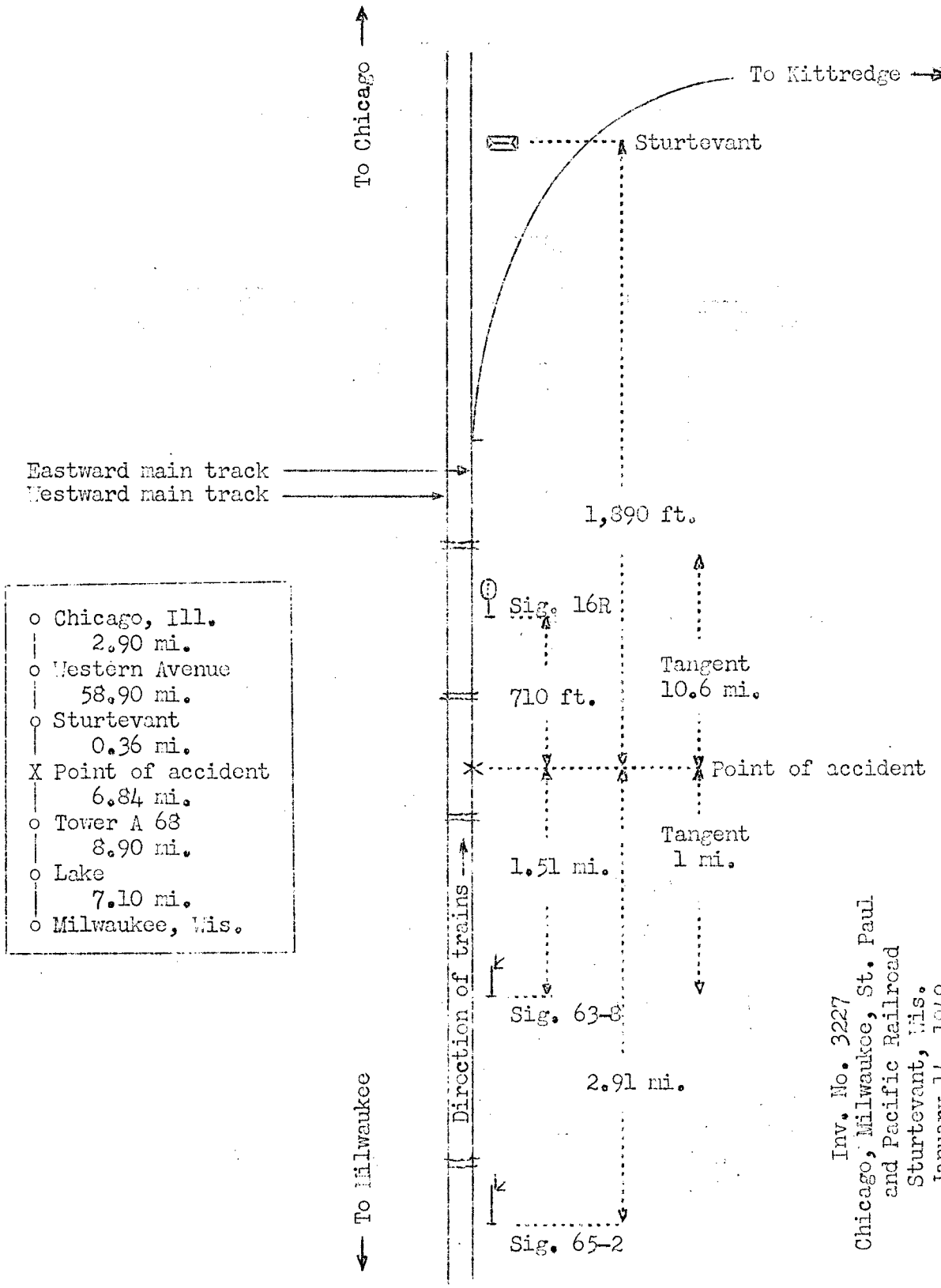
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 3227
Chicago, Milwaukee, St. Paul and Pacific Railroad
Sturtevant, Wis.
January 14, 1949

Location of Accident and Method of Operation

This accident occurred on that part of the Milwaukee Division extending between Milwaukee, Wis., and Western Avenue, Chicago, Ill., 82.1 miles. In the vicinity of the point of accident this is a double-track line, over which trains are operated in either direction on both main tracks by signal indications. The main tracks are designated from south to north as eastward and westward. The accident occurred on the eastward main track at a point 22.84 miles east of Milwaukee and 1,890 feet west of the station at Sturtevant. From the west there is a tangent 1 mile to the point of accident and 10.6 miles eastward. The grade is 0.19 percent ascending eastward at the point of accident.

Automatic signals 65-2, 63-8 and interlocking signal 16R, governing east-bound movements on the eastward main track, are, respectively, 2.91 miles west, 1.51 miles west and 710 feet east of the point of accident. Signals 65-2 and 63-8 are of the upper-quadrant semaphore type. They display three aspects. Signal 16R is a three-unit color-light type, and it displays five aspects. These three signals are continuously lighted. The involved night aspects, and corresponding indications and names of these signals, are as follows:

Signal	Aspect	Indication	Name
65-2	Yellow	Proceed prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach.
63-8	Red over number plate	Stop, then proceed at restricted speed.	Stop and Proceed
16R	Red-over-red-over-red	Stop.	Stop.
16R	Green-over-red-over-red	Proceed.	Clear.

These signals form a part of a centralized-traffic-control system, which is controlled from a machine in the station at Sturtevant. The machine is equipped with two-position and three-position panel-type levers for controlling the home signals and power-operated switches throughout sections on which interlocking rules are in effect, and for establishing

the direction of traffic. Indication lights also are provided to indicate track occupancy and the position of power-operated switches and controlled signals.

The controlling circuits of signals 65-2 and 63-8 are so arranged that, when the block of signal 63-8 is occupied, signal 63-8 will indicate Stop and Proceed and signal 65-2 will indicate Approach. The circuits of signal 16R are so arranged that this signal indicates Proceed only when the controlling lever is in the position to the right, the block into which it governs is unoccupied, the switches within the block are in position for eastward main-track movement, and the next signal indicates either Proceed or Approach.

This carrier's operating rules read in part as follows:

DEFINITIONS.

Restricted Speed.--Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

Medium Speed.--A speed not exceeding (30) miles per hour.

11. A train finding a fusee burning red on or near its track must stop and extinguish the fusee, and may then proceed prepared to stop short of train or obstruction within the first mile.

15. The explosion of two torpedoes is a signal to proceed at restricted speed for one mile. * * *

19. Unless otherwise provided, the following signals will be displayed to the rear of every train, as markers, to indicate the rear of the train.

* * * by night * * * Lights * * * showing green to the front and side and red to the rear.

34. All members of train and engine crews must, when practicable, communicate to each other by its name, the indication of each signal affecting the movement of their train or engine.

35. The following signals will be used by flagmen:

* * *

Night signals--A red light,
Torpedoes and Fusees.

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, placing two torpedoes, and when necessary, in addition, displaying lighted fusees. * * *

When the conditions require, he will leave the torpedoes and a lighted fusee.

* * *

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, * * * lighted fusees must be thrown off at proper intervals.

* * *

509 (B). When a train is stopped by a Stop and proceed indication, it may proceed:

On any track signaled for traffic in both directions, at restricted speed through the entire block. * * *

* * *

Timetable special instructions read in part as follows:

CENTRALIZED TRAFFIC CONTROL

G-23 (a) On portions of the railroad so specified in the time-table, trains will be governed by block signals whose indications will supersede the superiority of trains for both opposing and following movement on the same track.

* * *

X-14 Five minute fusees should be used in Automatic Block System territory.

X-35 CTC operation between Sturtevant and Lake is controlled by the operator at Sturtevant under the supervision of the train dispatcher at Milwaukee.

Special Instructions G-23 * * * will govern the movement of trains in this territory, * * *

The maximum authorized speed for the trains involved was 90 miles per hour.

Description of Accident

Second 14, an east-bound first-class passenger train, consisted of Diesel-electric engine 11-B, one baggage car, one milk car, one express-refrigerator car, two baggage cars, and six coaches, in the order named. All cars were of all-steel construction, except the first and third cars, which were of steel-underframe construction. This train passed Tower A 68, located 7.2 miles west of Sturtevant, at 9:15 p. m., 52 minutes late, passed signal 65-2, which indicated Approach and stopped west of signal 63-8, which indicated Stop and Proceed. After this train passed signal 63-8 stops were made at each of two lighted red fusees. Immediately after the engine passed signal 16R, which indicated Clear, and while moving at an estimated speed of 10 miles per hour, the rear end of Second 14 was struck by No. 58.

No. 58, an east-bound first-class passenger train, consisted of steam engine 103, one baggage car, three express cars, two baggage cars, one mail car, three baggage cars, two coaches, and one parlor car, in the order named. All cars were of all-steel construction except the first, third and fourth cars, which were of steel-underframe construction. This train passed Tower A 68 at 9:25 p. m., 7 minutes late, passed signal 65-2, which indicated Approach, and stopped west of signal 63-8, which indicated Stop and Proceed. About 700 feet east of signal 63-8 this train was stopped at a lighted red fusee and then proceeded eastward. About 4 minutes later and while moving at a speed of 38 miles per hour it struck the rear end of Second 14.

There were no separations between the units of either train. No. 58 stopped with the front of the engine 397 feet east of the point of accident. The front truck of the first car was derailed. The front of the engine and the first car were considerably damaged, and the second, fifth, sixth and seventh cars were slightly damaged. The rear car of Second 14 was telescoped a distance of 15 feet, and it was considerably damaged. The rear truck of this car was derailed, and it fouled the westward main track. The front truck of the third car was derailed, and the third, fourth and eighth cars were badly damaged. The fifth, sixth, seventh, ninth and tenth cars were slightly damaged.

The flagman of Second 14 was injured.

The weather was clear at the time of the accident, which occurred at 9:35 p. m.

Engine 103 was provided with No. 8-ET air-brake equipment. The regulating devices were adjusted to supply brake-pipe pressure of 90 pounds and main-reservoir pressure of 130 pounds. Tests made after the accident indicated that the brakes of the engine and the cars of No. 58 were functioning properly prior to the accident. Engine 103 was equipped with a speed-recorder, which was calibrated and found to be accurate over its entire range.

Discussion

The rules governing operation on this line provide that, when a train is moving under circumstances in which it may be overtaken by another train, lighted fusees must be thrown off at proper intervals. When a train encounters a fusee burning red on or near its track, the train must be stopped and the fusee extinguished, then the train may proceed but must be prepared to stop short of a train or an obstruction within the first mile. When a train is stopped by a Stop and Proceed signal, it may proceed but must be prepared to stop short of a train or an obstruction within the block.

Second 14 passed Tower A 68 at 9:15 a. m. Signal 65-2 indicated Approach, and a brake application was made at that signal to comply with its indication. The train was stopped at signal 63-8, which indicated Stop and Proceed, because the block was occupied by a preceding train. Two stops were made within the block to extinguish lighted red fusees, then the train proceeded at restricted speed. The flagman of the preceding train boarded the engine a short distance east of the second fusee. The preceding train was diverted from the eastward main track within the interlocking limits at Sturtevant, and it cleared the main track at 9:32 p. m. The route then was lined for movement of Second 14 on the eastward main track, and signal 16R indicated Clear. The engineer of Second 14 observed signal 16R indicating Clear, but continued at restricted speed to comply with the indication of signal 63-8 and to permit the flagman of the preceding train to alight at Sturtevant. Immediately after the engine passed signal 16R, the rear end of Second 14 was struck by No. 58. The flagman of Second 14 said that he dropped lighted 5-minute red fusees at several points after his train passed signal 65-2. He said that he observed the reflection of an approaching headlight on the curve about 1 mile west of the point where the accident occurred. He dropped a lighted red fusee near the east end of the curve, but it became extinguished when it struck the roadbed. He immediately lighted another red fusee, which he displayed from the platform of the rear

car instead of dropping it on the roadbed. When he observed that the following train was approaching at a high rate of speed, he dropped this fusee to the roadbed and immediately lighted another fusee and gave stop signals until just before the collision occurred. He said that the markers on his train were lighted and in their proper positions on the rear of the last car. The operator at Lake, 16.1 miles west of Sturtevant, said that the markers on Second 14 were lighted when it passed his station.

No. 58 passed Tower A 68 at 9:25 p. m., 10 minutes after Second 14 passed that station. The interlocking signal at Tower A 68 indicated Approach, and the engineer made a brake application to comply with the indication. This action resulted in a reduction of speed from 70 miles per hour to 34 miles per hour. Signal 65-2 indicated Approach, and No. 58 passed that signal at a speed of about 30 miles per hour. The speed had been reduced to about 25 miles per hour when the engineer observed a lighted red fusee, which burned out just before the engine reached it. Soon afterward, a second lighted red fusee was observed, and it also burned out before the engine reached it. The train was stopped at signal 63-8, which indicated Stop and Proceed. This train again was stopped about 700 feet east of signal 63-8 for the fireman to extinguish a lighted red fusee, which also burned out when the fireman reached the front of the engine. When the fireman returned to the engine, the engineer sounded a proceed signal on the engine whistle and the train proceeded eastward at restricted speed.

As No. 58 approached the point where the accident occurred, the enginemen were maintaining a lookout ahead from their respective positions in the cab of the engine. The headlight was lighted brightly. The brakes of this train had been tested at Milwaukee, and they had functioned properly where used en route. The members of the train crew were in various locations throughout the cars of the train. When the engine reached the tangent track on which the accident occurred, the engineer observed that signal 16R indicated Clear. Neither the engineer nor the fireman observed any obstruction west of signal 16R, and they assumed that the preceding train had been diverted from the main track at Sturtevant. Then the speed of No. 58 gradually was increased to 42 miles per hour, as indicated by the tape of the speed recorder with which the engine was equipped, when the enginemen saw the rear end of Second 14 about 1,000 feet ahead. The engineer immediately

placed the brake valve in the emergency position, and the speed was reduced to 38 miles per hour when the collision occurred. Both the engineer and the fireman said that they did not see a lighted red fusee after their train entered the tangent track on which the accident occurred, and that they did not see lighted markers on the rear of Second 14.

Under the rules, the indication displayed by the signal at the entrance to the block in which the accident occurred required that the speed of No. 58 be so controlled that it could be stopped short of a preceding train.

Cause

It is found that this accident was caused by failure to operate the following train in accordance with a signal indication.

Dated at Washington, D. C., this twenty-first day of March, 1949.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.