Inv-2383

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

ALTON RAILROAD

VERA, MO.

SEPTEMBER 24, 1939

INVESTIGATION NO. 2383

SUMMARY

Inv-2383

Railroad:	Alton	
Date:	September 24, 1939	
Location:	Vera, Mo.	
Kind of accident:	Head-end collision	
Trains involved:	Freight	: Freight
Train numbers:	First 98	: 93
Engine numbers:	4343 and 4363	: 4395
Consist:	50 cars and caboose	: 64 cars and caboose
Speed:	10-15 m.p.h.	: 10-15 m.p.h. backing up
Operation:	Timetable, train orders, and manual block system	
Track:	Single; 2° curve; descending grade for east-bound trains, varying from 1.24 to 0.44 percent	
Time:	About 2:24 p.m.	
Weather:	Clear	
Casualties:	1 injured	
Cause:	Failure of a train to clear the time of an opposing superior train and failure to furnish proper flag protection after having failed to clear the time of the opposing superior train	

November 24, 1939.

To the Commission:

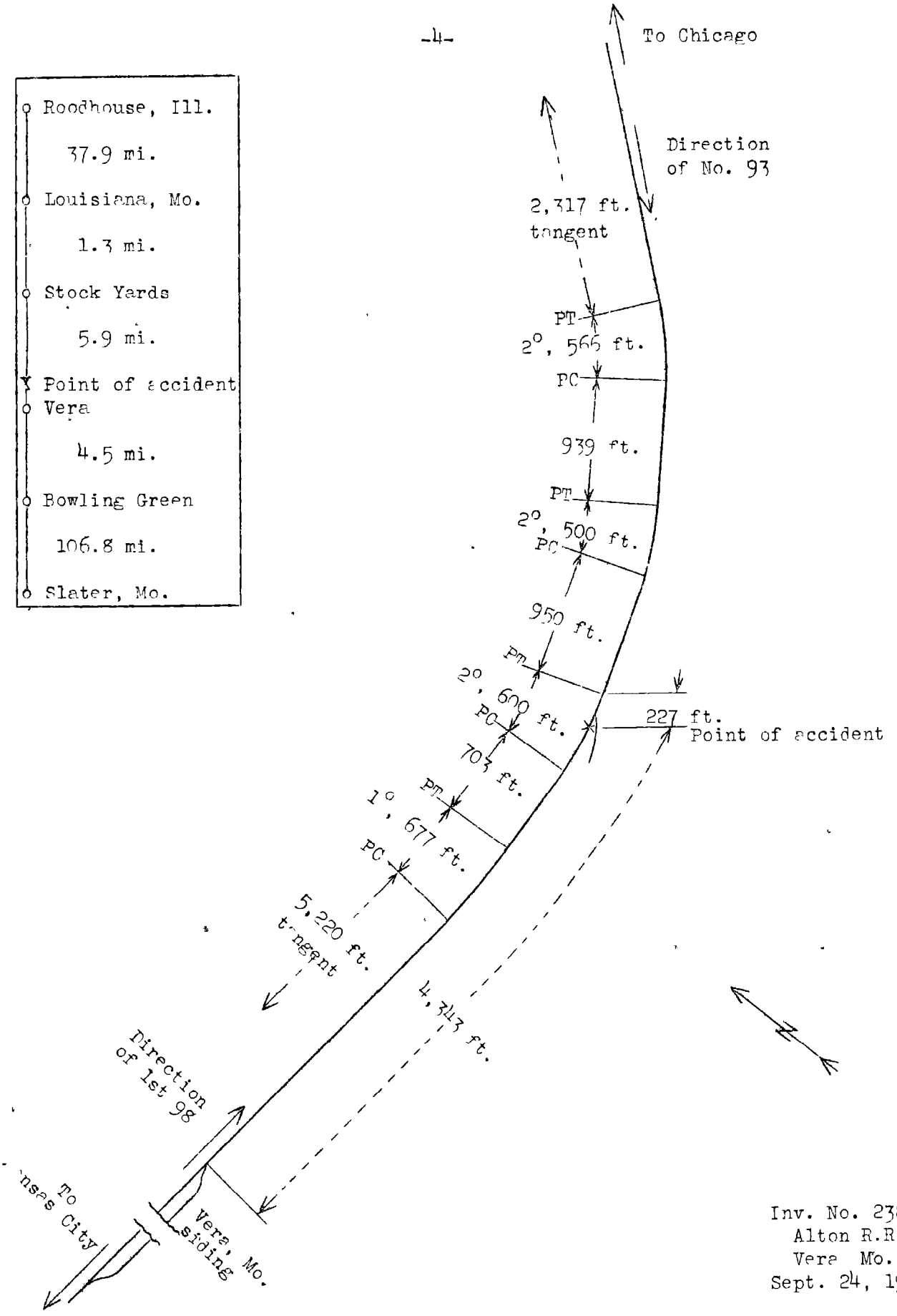
On September 24, 1939, there was a head-end collision between two freight trains on the Alton Railroad near Vera, Mo., which resulted in the injury of one employee.

Location and Method of Operation

This accident occurred on that part of the Western Division designated as Sub-Division No. 2 which extends between Slater, Mo., and Roodhouse, Ill., a distance of 156.4 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 supplemented by automatic block signals between Vera and Bowling Green. The accident occurred at a point 4,343 feet east of the east siding-switch at Vera. The block in which the accident occurred extends between Bowling Green and Louisiana Tower, which are, respectively, 4.5 miles west and 7.6 miles east of Vera. Approaching the point of accident from the east, there is a tangent 2,317 feet in length, followed in succession by a 2° curve to the right 566 feet in length, a tangent 939 feet in length, a 2° curve to the right 500 feet in length, a tangent 950 feet in length, and a 2° curve to the right 600 feet in length; the accident occurred on this last curve at a point 227 feet from its eastern end. Approaching from the west there is a tangent 5,220 feet in length, followed in succession by a 1° curve to the left 677 feet in length, a tangent 703 feet in length, and the 2° curve to the left on which the accident occurred. The grade for west-bound trains is 0.63 percent ascending a distance of 1 mile, then 0.61 percent ascending 1 mile to the point of the accident. The grade for eastbound trains is 1.22 percent descending approximately 2 miles, then descending from 0.44 to 0.61 percent approximately 2 miles to the point of accident, it being 0.61 percent at the point of accident. Approaching the point of accident from either direction, the view of the track is restricted on account of trees being located on the inside of the curve on which the accident occurred.

Rule 88 of the Operating Department reads in part:

> At meeting points between trains of the same class, the inferior train must clear the main track before the leaving time of the superior train.
>
> * * *



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Rule 90 reads in part:

> Trains must stop at schedule meeting stations, if the train to be met is of the same class, unless the switch is right and the track clear.
>
> When the expected train of the same class is not found at the schedule meeting station, the superior train must approach all sidings prepared to stop, until the expected train is met.
>
> * * *

Rule 99 of the Operating Department, as changed by Special Timetable Rule No. 6, reads in part:

> 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.
>
> Should a train be seen or heard approaching before the Flagman has reached the required distance, he will, at once, place two torpedoes on the rail, continuing in the direction of the approaching train, and at night or during foggy or stormy weather, carry a lighted fusee.
>
> * * *
>
> The front of the train will be protected in the same way, when necessary, by the front trainman, and when he is not available, by the fireman.
>
> * * *

Rules governing the operation of the Telegraph Block Signal System provide:

> Rule 18. Trains must not go to a closed Block Signal or non-telegraph Station to be met or passed by other trains without special orders from the Train Dispatcher, copies of which will be given to the Operators at the nearest Block Signal Station on each side of the station

where trains are to be met or passed. Operators receiving such orders will keep their signal at Stop and issue a Clearance Card (Form 139) (which in the case of trains to pass will be equivalent to a Permissive Card) reading:

"Block Signal is at Stop for Train _____ and Train _____ to meet (or pass) as per special order No. _____."

Rule 35. On single track Operators must not permit a train to enter a Block when a train from the opposite direction has been reported into the Block by the next Block Signal Station, except as provided in Rule No. 58, unless authorized by Special Order from the Train Dispatcher to do so.

Rule 58. Trains must not go to a closed Block Signal or non-telegraph Station to be met or passed by other trains without Special Orders from the Train Dispatcher, copies of which will be given to the Block Signal Operator at the nearest station each side of such station. When such orders are given Operators will keep their signal at Stop and issue a Clearnace Card (Form 139) (which in the case of trains to pass will be equivalent to a Permissive Card) reading:

"Block Signal is at Stop for Train _____ and Train _____ to meet (or pass) as per Special Order No._____."

Special Timetable Rule No. 10 reads in part:

* * *

Trains may proceed to a closed block station or non-telegraph station on their time table rights without holding special orders, but where this is done operators must not permit an opposing superior train to enter the block without special order as provided for in Rule No. 35 (Telegraph Block Signal System). Where it can be done without delay Rules Nos. 18 and 58 (Telegraph Block Signal System) must be complied with.

* * *

On single track east-bound trains are superior to west-bound trains of the same class.

The maximum authorized speed for the trains involved was 40 miles per hour.

The weather was clear at the time of the accident, which occurred about 2:24 p.m.

Description

No. 93, a west-bound second-class freight train, consisted of 4 loaded cars, 60 empty cars, and a caboose, hauled by engine 4395, and was in charge of Conductor Tracy and Engineman Brooks. This train departed from Roodhouse, 45.1 miles east of Vera, at 12:30 p.m., according to the train sheet, 3 hours late, at which point the crew received a copy of train order No. 16, Form 19, reading:

> "First 1st No. 98 eng. 4385 run forty 40 mins late Clark to Vandalia and thirty 30 mins. late Vandalia to Roodhouse. Second 2nd No. 98 eng. 4343 run two 2 hours and twenty 20 mins late Steinmetz to Roodhouse."

This train departed from Louisiana Tower, the last open office, at 1:56 p.m., 2 hours and 49 minutes late, proceeded to a point about one-half mile east of Vera where it stopped about 2:20 or 2:21 p.m., began a reverse movement and, while moving at a speed estimated to have been about 10 miles per hour, was struck by First 98.

First 98, an east-bound second-class freight train, consisted of 50 loaded cars and a caboose, hauled by engines 4343 and 4383, and was in charge of Conductor Friel and Enginemen Yates and Kettler. At Slater, 111.3 miles west of Vera, the crew received several train orders, among which was a copy of train order No. 16, Form 19, previously quoted. In addition, the crew received a message reading:

> All orders should read engines 4343 and 4383 coupled on 1st No. 98 and eng. 4349 on 2nd 98.

This train departed from Slater at 11:07 a.m., according to the train sheet, 54 minutes late, and passed Bowling Green the last open office, at 2:15 p.m., 35 minutes late, and at this point the crew received a clearance card, Form 205, reading:

> "Block Signal is at Stop for train 1st 98 and train No. 93 to meet (or pass) as per Special Order No. 16."

Shortly after passing Vera and while moving at a speed estimated to have been between 10 and 15 miles per hour it collided with No. 93.

No. 93 moved back a distance of 1,285 feet from the point of the accident and probably was stopped by an automatic application of the air brakes as a result of a broken brake pipe; engine 4395 was slightly damaged. After the collision First 98 moved eastward 160 feet. All drivers and the trailer of the first engine and the leading truck of the tender were derailed. The employee injured was the fireman of the second engine of First 98.

Summary of Evidence

Engineman Brooks, of No. 93, stated that the air brakes were tested before leaving the initial terminal, and the brakes functioned properly en route. He compared time with the standard clock at Roodhouse and found his watch satisfactory. His train arrived at Louisiana about 1:50 p.m., and, after taking water and picking up 3 cars, departed at 2:02 or 2:03 p.m. Since No. 98 was due to leave Vera at 1:51 p.m. and order No. 16 was to the effect that First 98 was running 30 minutes late in that vicinity, he had 18 or 19 minutes to use in going to Vera for First 98, which he considered sufficient time as the distance to Vera from the point where he started his train after picking up the 3 cars at the west end of Louisiana yard was approximately 6 miles. The engine was well lubricated, the water was in good condition, and there were no mechanical defects of which he was aware; however, after leaving Louisiana the train began to drag. He stated that his engine did not slip at any time but the speed of the train was retarded by wind from the southwest. About 2:20 or 2:21 p.m., he stopped his train on a curve about 1 mile east of Vera and instructed the brakeman to go ahead and flag and then he immediately started to back his train. From this point his view of the track ahead was obscured by trees and bushes. The train had moved back about 65 feet when it was struck by First 98. The accident occurred about 2:24 p.m.

Fireman Gnagi, of No. 93, stated that when the train was about 3 miles west of Louisiana the stoker became clogged by slugs caught in its crusher, and the steam pressure decreased about 25 pounds, which caused the speed to be reduced. At a point about 4-1/2 miles west of Louisiana he freed the stoker and the steam pressure was brought up to normal. Immediately after the train was stopped about 1 mile east of Vera, the engineman started to back the train and, while moving backward at a speed of about 10 miles per hour, it was struck by First 98.

Front Brakeman Wheeler, of No. 93, stated that his train departed from Louisiana at 2:05 p.m. and immediately after the train stopped on the curve about 1 mile east of Vera he got off with a red flag to protect his train. He had reached a point

five or six car lengths distant when First 98 passed him. He stated that he did not have time to use torpedoes.

Conductor Tracy, of No. 93, stated that his train arrived at Louisiana at 1:50 p.m., took water and proceeded to the west end of the yard where three cars were picked up; the train departed at 2:02 p.m. He considered that they had ample time to go to Vera for First 98 and to clear at 2:21 p.m. on the authority conferred by train order No. 16. When leaving Louisiana, he boarded the train about half way between the engine and the caboose and walked on top toward the engine. When about half way between Louisiana and Vera he observed that the train started to drag, but he did not hear any brakes sticking at that time. The train stopped about 1/2 mile east of Vera at 2:20 or 2:21 p.m.

Flagman Davenport, of No. 93, stated that his train left Louisiana at 2:05 p.m. He was on top of the train from Louisiana to the point where the accident occurred. He had boarded the train about midway between the engine and caboose and was walking toward the caboose when the train stopped about 1 mile east of Vera about 2:22 p.m. Between Louisiana and the point where the train stopped he did not hear any brakes sticking. He stated that the accident occurred between 2:23 and 2:24 p.m.

Enginemen Yates, of First 98, who was operating the first engine of that train, stated that the air brakes were tested before his train left the initial terminal and they functioned properly en route. He received a clearance card at Bowling Green stating: "Block Signal is at Stop for Train First 98 and Train No. 93 to meet (or pass) as per special order No. 16." He proceeded to Vera expecting to find No. 93 there. The speed of his train when passing the west switch at Vera was about 30 miles per hour. When he observed that No. 93 was not at Vera he released the brakes and the speed of his train had increased to about 35 or 40 miles per hour at the time he passed the east switch, which was about 2:22 p.m. He first became aware that No. 93 was ahead when the fireman called to him to stop. He applied the brakes in emergency and opened the sanders and the speed of his train had been reduced to about 10 miles per hour when the collision occurred. He did not see a flagman protecting No. 93.

Fireman Clark, who was on the first engine of First 98, stated that his train received a clearance card at Bowling Green bearing the information that No. 93 was in the block between Bowling Green and Louisiana. His train passed Bowling Green about 2 or 3 minutes late on their run-late order and the speed was about 30 miles per hour when passing Vera, and after they passed the east switch it was increased to 35 miles per hour.

After putting in a fire east of Vera, he got up on the seat box, looked ahead and saw a flagman, then saw No. 93. He estimated that his train was moving at a speed of 10 or 15 miles per hour when the collision occurred.

Engineman Kettler, of First 98, who was operating the second engine of that train, stated that his train received a clearance card at Bowling Green which indicated that No. 93 had passed Louisiana Tower. His train passed Bowling Green 31 or 32 minutes late and passed Vera 31 minutes late, and, while moving at a speed of about 35 miles per hour, his fireman called to him that No. 93 was ahead. He applied the independent brake and opened the sanders. Prior to the time of the collision he looked ahead from the left side of the engine and saw No. 93 about 25 or 30 car lengths distant. He estimated the speed of his train to have been about 10 miles per hour at the time of the accident.

Fireman Conrad, of the second engine of First 98, corroborated in all essential details the statement of his engineman.

Front Brakeman Smith, of First 98, stated that his train was moving at a speed which he estimated to have been 30 miles per hour. He was on the right side of the tank of the second engine when he felt the brakes being applied in emergency. He crossed over to the left side of the tank and saw No. 93 about 10 or 15 car lengths distant.

The statements of Conductor Friel and Flagman Sandbach, of First 98, added nothing of importance.

Operator Yost, at Louisiana Tower, stated that he held no orders for No. 93, and as that train approached he reported the train to the dispatcher and was instructed to clear it. No. 93 arrived at 1:50 p.m., stopped for water, and departed at 1:56 p.m. At 1:51 p.m., the operator at Bowling Green requested the block for First 98 and he gave him "clear block except for No. 93."

Operator Craig, at Bowling Green, stated that at 1:23 p.m. he gave the operator at Louisiana Tower a clear block for No. 93. After First 98 passed Vandalia, 15.5 miles west of Bowling Green, he communicated with the dispatcher who instructed him to give First 98 a clearance card to meet No. 93 as per Order No. 16. He did not know the contents of order No. 16. He said that First 98 was admitted to the block according to customary practice.

Dispatcher Peters, at Kansas City, stated that No. 93 departed from Louisiana Tower at 1:56 p.m. with instructions to pick up 3 cars at Louisiana station, which is located west of the block

signal at Louisiana Tower. The crew held order No. 16 and he expected No. 93 to go to Vera to meet First 98. He authorized the operator at Bowling Green to fill out a clearance card for First 98 as follows: "Block Signal is at Stop for Train First 98 and Train No. 93 to meet (or pass) as per special order No. 16." He was of the opinion that the issuance of this clearance card complied with the requirements of Rules 33 and 58 of the Telegraph Block Signal Rules and stated that it was the usual method of handling trains under similar circumstances. He stated that before a superior train is permitted to enter a manual block which is occupied by an opposing inferior train it has been customary, in cases where the superior train does not hold train orders affecting its movement, to issue an order reading as follows:

> "Train No. 93 left Louisiana Tower at 1:56 p.m. and has not reported clear. Proceed with caution."

However, when a superior train is holding orders restricting its own schedule, such as a wait order or a run-late order, it has been the practice to permit it to enter a block occupied by an opposing inferior train after giving it a clearance card whereon it was stated that the trains would meet as per order No. _____, which in this particular instance was order No. 16.

Discussion

The evidence was to the effect that all members of the crew of No. 93 understood train order No. 16, which required First 98 to run 30 minutes late from Vandalia to Roodhouse. According to the timetable, No. 98 was due to leave Vera at 1:51 p.m.; therefore, under order No. 16, First 98 was required not to pass Vera before 2:21 p.m. No. 93 departed from the west end of Louisiana yard, approximately 6 miles from Vera, between 2:02 and 2:05 p.m., which allowed the crew from 16 to 19 minutes to reach Vera and clear for First 98, as both trains were of the same class. As No. 93 departed, the speed increased so rapidly that the flagman, who was on the ground waiting to board the caboose boarded a car near the middle of the train instead and walked over the top of the train toward the caboose. Between Louisiana and the point where the accident occurred the speed was reduced on account of the train dragging; the engineman attributed this to a strong wind from the southwest, but the fireman said that because of slugs getting into the crusher, there was a loss of 25 pounds of steam. After reaching a point slightly more than 1/2 mile east of the east switch at Vera, the engineman, realizing that he would not have time to clear for First 98 at Vera, stopped his train between 2:20 and 2:22 p.m., and instructed the front brakeman to go ahead to protect the train. The engineman reversed the engine and

started the train backward. After backing about 65 feet and while moving at a speed of about 10 miles per hour, the train was struck by First 98.

The block in which the accident occurred extends from Louisiana Tower to Bowling Green, a distance of 12.1 miles. No. 93 received a clear block indication about 1:50 p.m. and entered the east end of the block at Louisiana at 1:56 p.m. First 98 entered the west end of the block at Bowling Green at 2:15 p.m., at which time No. 93 had been occupying the block about 19 minutes. First 98 was given a clearance card, with the information contained thereon that the block signal was at stop for First 98 and No. 93 to meet (or pass) as per special order No. 16; this order was a run-late order and did not fix a definite meeting point between the two trains involved. The evidence was to the effect that order No. 16 met the requirements of a special order as referred to in the Telegraph Block Signal rules. This procedure resulted in two opposing trains being operated simultaneously within the same block. First 98 had no knowledge of the point where No. 93 would meet them under the provisions of order No. 16, and therefore could have expected No. 93 to be at either Louisiana, Stock Yards, or Vera. While this was in accordance with the Telegraph Block Signal rules and general practice of this railroad, this method of operation practically nullifies the protection to be derived from the block system. Had the rules provided for fixing the meeting point at a block station, or for giving each train block permission to the meeting point only, making it necessary for each train to obtain new block permission to proceed beyond the meeting point, it is probable that this accident would have been averted. During the 30-day period preceding the day of the accident, the average daily movement over the territory involved was 16.5 trains. The conditions disclosed by this investigation direct attention to the need of additional protection for this volume of traffic.

A number of collisions occurring under manual-block systems operated in a manner similar to the practice disclosed in this accident have been investigated by this Bureau and this method of operation has been conclusively proven to be unsafe. The following are some of the more recent accidents, occurring under similar methods of operation, that were investigated by this Bureau:

March 26, 1937 - Colorado & Southern Railway, Royce, N. Mex., head-end collision between a passenger train and a freight train, resulting in the death of 1 and the injury of 22 persons.

October 7, 1937 - Chicago, Burlington & Quincy Railroad, Kemp, Nebr., head-end collision between a passenger train and a light engine, resulting in the death of 5 and the injury of 7 persons.

February 16, 1938-Colorado & Southern Railway, Folsom, N. Mex., head-end collision between a passenger train and a freight train, resulting in the death of 4 and the injury of 19 persons.

June 25, 1938 - Chicago, Milwaukee, St. Paul & Pacific Railroad, Ingomar, Mont., head-end collision between two passenger trains, resulting in the death of 1 and the injury of 82 persons.

In the report covering the investigation of each of these accidents, comment was made on the inadequacy of the block system in use, and adequate block protection for all trains was suggested or recommended.

Conclusion

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

Recommendation

It is recommended that this carrier immediately make necessary changes to provide an adequate block system.

Respectfully submitted,

S. N. MILLS,

Director.