INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3560

CHICAGO UNION STATION COMPANY

IN RE ACCIDENT

AT CHICAGO, ILL., ON

MARCH 10, 1954

SUMMARY

Date	March 10, 1954	
Railroad:	Chicago Union Station	
Location:	Chicago, Ill.	
Kind of accident:	Collision	
Equipment involved:	Passenger-equipment train	: Passenger train
Train number:		: 58
Engine numbers:	C.B.& Q. Diesel-electric units 9911A and 9911B	: P.R.R. Diesel-electric units 9805A and 9895A
Consists:	7 cars	: 11 cars
Speeds:	Undetermined	: Undetermined
Operation	Interlocking	
Tracks	Station tracks, tangent, level	
Weather	Clear	
Time:	3:42 p. m.	
Casualties:	72 injured	
Cause:	Failure to operate Chicago, Burlington & Quincy passenger-equipment train in accordance with a signal indication	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3560

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

CHICAGO UNION STATION COMPANY

April 20, 1954

Accident at Chicago, Ill., on March 10, 1954, caused by failure to operate the Chicago, Burlington & Quincy passenger-equipment train in accordance with a signal indication.

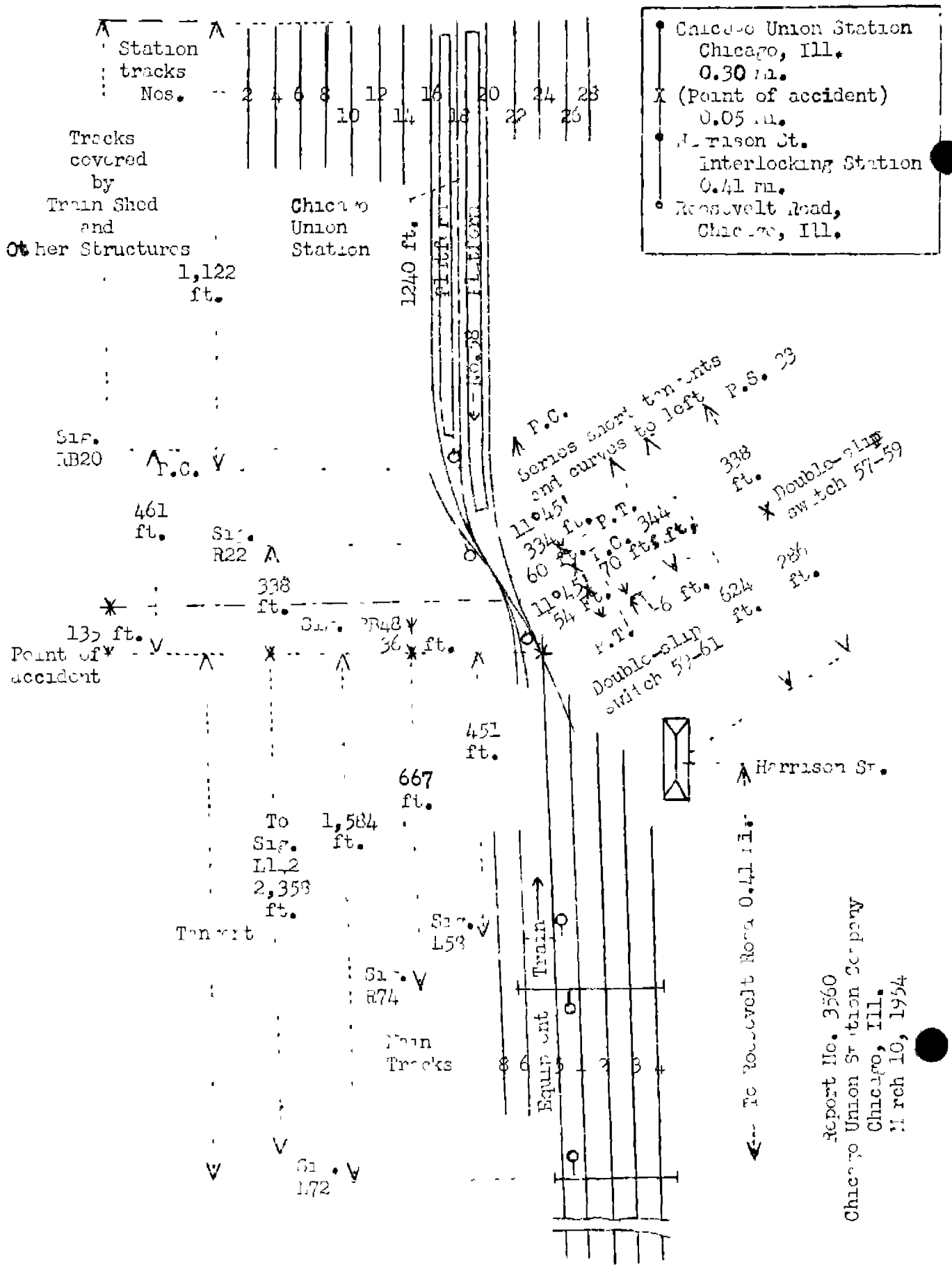
REPORT OF THE COMMISSION[1]

CLARKE, Commissioner:

On March 10, 1954, there was a collision between a passenger-equipment train and a passenger train on the line of the Chicago Union Station Company at Chicago, Ill., which resulted in the injury of 37 passengers, 3 Pullman Company employees, 23 dining-car employees, 4 train porters, and 5 train-service employees. This accident was investigated in conjunction with representatives of the Illinois Commerce Commission.

---

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



Report No. 3560
Chicago Union Station Company
Chicago, Ill.
March 10, 1954

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between Roosevelt Road and Chicago Union Station, Chicago, Ill., 0.76 mile. Trains of the Chicago, Burlington & Quincy Railroad and the Pennsylvania Railroad are regularly operated over this portion of the line of the Chicago Union Station Company. Between Roosevelt Road and Harrison Street Interlocking Station, 0.41 mile north of Roosevelt Road, this is a seven-track line, over which trains are operated by signal indications. The main tracks are designated from west to east as tracks Nos. 8, 6, 5, 1, 2, 3, and 4. Within interlocking limits, and immediately north of Harrison Street Interlocking Station the main tracks diverge to 14 station tracks. The station tracks are designated from west to east by even numbers consecutively as tracks Nos. 2 to 28. A lead track connects with the south ends of station tracks No. 16 and No. 18 at switch 33, crosses main track No. 5 at double-slip switch 57-59, and crosses main track No. 1 at double-slip switch 59-61. Slip switches 57-59 and 59-61 are provided with movable center points. Switch 33 and the center of slip switch 57-59 are located, respectively, 624 feet and 286 feet north of Harrison Street Interlocking Station. Station track No. 18 is 1,240 feet long. A passenger loading platform and a baggage loading platform are provided on the east and west sides, respectively, of this track. The station tracks in this vicinity are located below street level. The north ends of the tracks are covered by a train shed, and between the south end of the train shed and a point 415 feet north of Harrison Street Interlocking Station the tracks are covered by buildings and other structures. The accident occurred at a point 6 feet south of the center of slip switch 57-59, where the lead track crosses track No. 5. Track No. 5 is tangent throughout a distance of more than 2,100 feet immediately south of the point of accident. From the north on track No. 18 and the lead track there are, in succession, a tangent 1,122 feet in length, a 9° curve to the left 46 feet, a tangent 7 feet, a No. 8 turnout to the left 61 feet, a tangent 15 feet, a 6° curve to the left 22 feet, a tangent 55 feet, a No. 10 double-slip switch to the left 68 feet, a tangent 60 feet, a No. 8 turnout to the right 70 feet, and a tangent 54 feet to the point of accident. The grade is level at the point of accident.

A yard of the Chicago, Burlington & Quincy Railroad designated as 14th Street Passenger Yard is located a short distance south of Roosevelt Road. Trains moving from this yard to Chicago Union Station via track No. 5 enter track No. 5 immediately north of Roosevelt Road.

Semi-automatic signal L142, governing north-bound movements from 14th Street Passenger Yard to the main tracks of the Chicago Union Station Company, and semi-automatic signals L72 and L58, governing north-bound movements on track No. 5, are located, respectively, 2,358 feet, 1,584 feet, and 451 feet south of the point of accident. Signals L142 and L58 are of the dwarf type, and signal L72 is mounted on a signal bridge above and to the right of track No. 5 in the direction in which it governs. Semi-automatic dwarf signals RB20, R22, and RB48, governing south-bound movements from station track No. 18 to main track No. 1 via slip switches 57-59 and 59-61 are located, respectively, 461 feet, 338 feet, and 36 feet north of the point of accident. Semi-automatic signal R74, governing south-bound movements on main track No. 1, is located on a signal bridge 667 feet south of the point of accident. These signals are of the position-light type and are continuously lighted. Aspects applicable to this investigation and the corresponding indications and names are as follows.

Signal	Aspect	Indication	Name
L142) RB20) R22) RB4( )	Two white lights in vertical position	Proceed, slow speed within interlocking limits.	Slow-Clear.
L72	Three amber lights in diagonal position to the right	Proceed prepared to stop at next signal. Train or engine exceeding medium speed must at once reduce to that speed.	Approach.
L58	Two white lights in diagonal position to the left	Proceed at restricted speed.	Restricting.
L58) RB48)	Two white lights in horizontal position	Stop.	Stop-signal.
R74	Three amber lights in vertical position	Proceed.	Clear.

The controlling circuits are so arranged that when the route is lined for movement from station track No. 18 to main track No. 1 via slip switches 57-59 and 59-61, the route is unoccupied, and signal R74 indicates Proceed, signals RB20, R22, and RB48 each indicate Slow-Clear and signal L58 indicates Stop. If a conflicting north-bound movement passes signal L58 under these conditions, the indication of signal RB48 changes from Slow-Clear to Stop when the north-bound movement reaches a point 164 feet south of the signal. When the route is lined for movement on track No. 5 from signal L72 to signal L58, and signal L58 indicates Stop, signal L72 indicates Approach.

Harrison Street interlocking is of the electro-pneumatic type. It is equipped with 133 working levers. It is provided with mechanical, indication, time, and route locking. Mechanical locking prevents the manipulation of a signal lever unless a route governed by that signal is established, and prevents the establishment of a conflicting route and the manipulation of a lever controlling any switch or movable point frog within that route while the signal lever is in position for the signal to display an aspect to proceed. Route locking prevents the manipulation of the lever of any switch in a route which has been established and for which a proceed aspect has been displayed after a train or movement occupies the first track section of the route. Time locking prevents a route for which a proceed aspect has been displayed from being changed until the train or movement for which the aspect was displayed has passed the signal or until a predetermined time interval has elapsed after the signal has been caused to indicate Stop. A model board showing the track layout of the interlocking is provided. Track occupancy is indicated on the model board by illuminated indicators which become extinguished when a track section is occupied. Visual indicators are provided which show whether a signal displays an aspect to stop or to proceed. A train-ready indicator light is provided on the model board. This is actuated by a member of the crew of a train which is ready to depart from the station. An acknowledging indication is provided which authorizes the train to depart on receipt of the proper interlocking signal indication. Emergency signal whistles are located adjacent to the tracks at points, respectively, 684 feet south and 210 feet north of the point of accident. These whistles are actuated by push button controls located in the interlocking station.

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

DEFINITIONS

Medium Speed--Not exceeding one-half maximum authorized speed but not exceeding 30 miles per hour.

Slow Speed--Not exceeding one-half maximum authorized speed but not exceeding 15 miles per hour.

Restricted Speed--Proceed, not exceeding 15 miles per hour, prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

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.

606. EMERGENCY SIGNALS
(Whistle)

(Note.--The signals prescribed are illustrated by "o" for short sounds, "__" for longer sounds.)

	Sound	Indication
(a)	_____	All trains and engines within interlocking limits stop immediately.

* * *

663. A train or engine must stop clear of an interlocking signal indicating stop. * * *

The maximum authorized speed in the vicinity of the point of accident is 15 miles per hour. It is restricted to 10 miles per hour on station platform tracks.

Description of Accident

The trains involved in this accident were a north-bound Chicago, Burlington & Quincy passenger-equipment train, hereafter referred to in this report as the equipment train, and No. 58, a south-bound first-class Pennsylvania passenger train.

The equipment train, which was to be operated from Chicago Union Station as No. 25, consisted, from north to south, of one observation car, one parlor car, one dining car, three coaches, one club-baggage car, and Diesel-electric units 9911B and 9911A. The Diesel-electric units were coupled in multiple-unit control. The cars were of stainless steel construction and were equipped with disc type brakes. All units of the train were equipped with tightlock couplers. This train departed north-bound from 14th Street Passenger Yard en route to Union Station about 3:38 p. m. It passed signal L142, which indicated Slow-Clear, was routed to main track No. 5, passed signal L72, which indicated Approach, passed signal L58, which indicated Stop, and while moving on track No. 5 at an undetermined rate of speed it collided with No. 58 at a point 6 feet south of the center of slip switch 57-59.

No. 58 consisted of Diesel-electric units 9805A and 9895B, coupled in multiple-unit control, one passenger-lounge-baggage car, two coaches, two sleeping cars, two dining cars, three sleeping cars, and one sleeping-lounge-observation car, in the order named. The fifth car and the eighth to the eleventh cars, inclusive, were of lightweight steel construction, and the other cars were of conventional all-steel construction. The first three cars, the fifth car, and the eighth to eleventh cars, inclusive, were equipped with tightlock couplers and D22 type air brake equipment. The other cars were equipped with type E couplers and UC type air brake equipment. This train departed from Chicago Union Station track No. 18 at 3:40 p. m., on time, passed signal RB20, which indicated Slow-Clear, and entered the lead track. It passed signal R22, which indicated Slow-Clear, passed signal RB48, which indicated Stop, and while moving over slip switch 57-59 at an undetermined rate of speed it collided with the north car of the equipment train.

The equipment of both trains stopped upright and in line with the respective tracks on which the trains were moving. The equipment train was moved southward a distance of about 6 feet by the force of the impact. The north truck of the north car of this train was derailed. This car was badly damaged. The other cars of the train were somewhat damaged, and the Diesel-electric units were slightly damaged. The first Diesel-electric unit of No. 58 stopped with the right side of the front end against the north end of the north car of the opposing movement. The front truck of this unit was displaced and moved northward a distance of about 3 feet by the force of the impact, and the body structure of the unit buckled over the front truck location. The rear wheels of the front truck of the first Diesel-electric unit and the front wheels of the front truck and all wheels of the rear truck of the second Diesel-electric unit were derailed. The front truck of the first car, the rear trucks of the second and fifth cars, both trucks of the sixth car, and the front truck of the seventh car were derailed The rear end of the second car was off center. The first Diesel-electric unit was considerably damaged, and the second unit was slightly damaged. The first four cars were slightly damaged. The fifth to the eighth cars, inclusive, and the rear two cars were somewhat damaged.

The pilot of the equipment train and the engineer, the fireman, the brakeman, and the flagman of No. 58 were injured.

The weather was clear at the time of the accident, which occurred about 3:42 p. m.

The locomotive units and all cars of the equipment train were provided with equipment for electro-pneumatic operation of the brakes. C.B.& Q. 360, the north car of this movement, is of the observation type. The observation end is tapered and rounded at the rear. It is equipped with a DE-1 type back-up valve. This is a composite type brake valve which functions in electro-pneumatic or automatic operation of the brakes without necessity of shifting. This valve is located in the rear of the observation compartment to the right of the center-line of the car.

Discussion

On the day of the accident the equipment of Chicago, Burlington & Quincy No. 23, scheduled to depart from Chicago Union Station at 4 p. m., was assembled in 14th Street Passenger Yard. A train-service employee, designated as a pilot, was assigned for the back-up movement of the equipment to the station. This employee proceeded to the locomotive, which was coupled to the car equipment, and identified himself to the engineer as the pilot in charge of the movement. A terminal test of the brakes was then made in both electro-pneumatic and automatic operation, after which the brakes were applied in emergency by use of the pilot's brake valve in the observation car. The brakes functioned properly in all of these tests. This equipment train departed from 14th Street Passenger Yard en route to Chicago Union Station about 3:38 p. m. Immediately after the departure the pilot made a running test of the brakes by manipulating the brake valve of the rear car. The brakes functioned properly. As this movement was approaching the point where the accident occurred the pilot was maintaining a lookout northward from a position adjacent to the brake valve in the north end of the observation car. The enginemen were in their respective positions in the control compartment of the first Diesel-electric unit. The engineer estimated that the speed was about 12 or 14 miles per hour when the movement entered track No. 5. It was then reduced to approximately 7 or 8 miles per hour by a service application of the brakes initiated by the pilot. The engineer then reduced the throttle to No. 1 position. Signal L72 indicated Approach. The pilot said that when signal L58 became visible to him he observed that it indicated Restricting and that the switches north of the signal were properly lined for his movement. He estimated that the speed was about 6 or 7 miles per hour, and he made a light service application of the brakes which reduced the speed to about 5 miles per hour when the observation car was approximately 150 to 200 feet south of the signal. He said that when he observed No. 58 moving toward the track over which his movement was routed he immediately moved his brake valve to emergency position. He left the rear of the observation car before the collision occurred. He said that he heard the emergency signal whistles sounded after he had made the emergency application of the brakes. He thought his train was stopped before the collision occurred.

The enginemen were unaware of anything being wrong until the brakes became applied in emergency. These employees were not certain whether their train was stopped as a result of the collision or by the emergency application of the brakes before the collision occurred. They said that they did not hear the emergency signal whistles sounded before the accident occurred.

No. 58 departed from station track No. 18 immediately after a color-light indication was received by the crew which authorized the train to proceed on proper signal. The engineer and the fireman were in the control compartment at the front of the locomotive. The conductor was in the rear car, and the other members of the train crew were in various locations in the cars of the train. The headlight was lighted dimly. The brakes of this train had functioned properly when tested. Signals RB20, R22, and RB48 each indicated Slow-Clear, and the indications were called by the enginemen. These employees observed that the switches of the route were lined for movement to track No. 1, and the engineer observed that signal R74 on that track indicated Proceed. The speed of the train was increased to approximately 12 miles per hour. The engineer said that he first observed the north-bound movement on track No. 5 soon after his locomotive entered the lead track. He said that he continued to observe it as his locomotive was closely approaching signal RB48. When he became aware that the north-bound movement had passed the point at which conflicting movements on main track No. 5 usually were stopped he made an emergency application of the brakes. The fireman said that he called a warning when he observed the conflicting movement closely approaching. These employees said that the speed of their train had been considerably reduced and that the equipment train was still in motion when the collision occurred. They said that they did not hear the emergency signal whistles sounded before the accident occurred.

After the equipment train reached a point 128 feet south of the point of accident, signal RB48 was caused to indicate Stop. A signal maintainer who was in the vicinity of the signal said that he observed the signal immediately before No. 58 passed it and that the signal indicated Stop at that time.

The train director at Harrison Street Interlocking Station said that immediately after the train-ready indicator became illuminated, indicating that No. 58 was ready to leave the station, he instructed the leverman who operated that portion of the interlocking machine to line the route for the movement of No. 58 from station track No. 18 to main track No. 1. He then actuated the color-light indicator to inform members of the train crew that their train was authorized to depart from the station on receipt of proper signal. He observed that the route was properly lined for the movement. He said that No. 23 usually departed from station track No. 16 and he intended to hold the equipment train at signal L58 until No. 58 had passed and then route the equipment to that track. He said that when he observed that the equipment train had overrun signal L58 he immediately actuated the emergency signal whistles. He thought that each train was moving at a speed of 7 or 8 miles per hour when he sounded the whistles and that both were in motion when the collision occurred. The leverman said that the levers operated properly when he lined the route for the movement of No 58. He said that he was observing the progress of No. 58 on the model board and was not aware of anything being wrong until the emergency signal whistles sounded a few seconds before the collision occurred. There were no other movements in progress in the vicinity of the point of accident at the time the accident occurred.

The signals and the signal apparatus of Harrison Street interlocking which were involved were examined immediately after the accident occurred. The levers of the interlocking machine were found to be in position for the route as established for the movement of No. 58 from station track No. 18 to main track No. 1. The switches in the route and their related apparatus were in correspondence with the positions of the levers. In tests which were made after the accident occurred the interlocking apparatus and signal system functioned as intended and no defective condition was found. Signal L58 was continuously observed during a 48-hour period and functioned properly at all times during that period.

While the route was lined for the movement of No. 58, a conflicting route could not be established. The employees in Harrison Street Interlocking Station and the enginemen of No. 58 said that the route was established for the movement of that train before the train departed from the station,

and after the accident occurred the levers and switches were found to be in position for movement from track No. 18 to track No. 1. No defective condition of the interlocking was found, and under these conditions it appears that the equipment train passed signal L58 while that signal indicated Stop.

Cause

This accident was caused by failure to operate the Chicago, Burlington & Quincy passenger-equipment train in accordance with a signal indication.

Dated at Washington, D. C., this twentieth day of April, 1954.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,

Secretary.