INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3644

CHICAGO UNION STATION COMPANY

IN RE ACCIDENT

AT CHICAGO, ILL., ON

JULY 12, 1955

SUMMARY

Date:	July 12, 1955	
Railroad:	Chicago Union Station	
Location:	Chicago, Ill.	
Kind of accident:	Side collision	
Trains involved:	C.M.St.P.& P. Passenger-equipment	C.M.St.P.& P. Passenger
Train numbers:	Extra 16 North	48
Engine numbers:	Diesel-electric unit 168	Diesel-electric unit 2434
Consists:	8 cars	6 cars
Speeds:	Standing	15 m. p. h.
Operation:	Interlocking	
Tracks:	Station tracks; tangent; 0.85 percent ascending grade northward	
Weather:	Clear	
Time:	7:20 a. m.	
Casualties:	19 injured	
Cause:	Failure to operate Extra 16 North in accordance with signal indication	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3644

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

CHICAGO UNION STATION COMPANY

September 9, 1955

Accident at Chicago, Ill., on July 12, 1955, caused by failure to operate Extra 16 North in accordance with a signal indication.

REPORT OF THE COMMISSION[1]

CLARKE, Commissioner:

On July 12, 1955, there was a side 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 16 passengers and 3 train-service employees.

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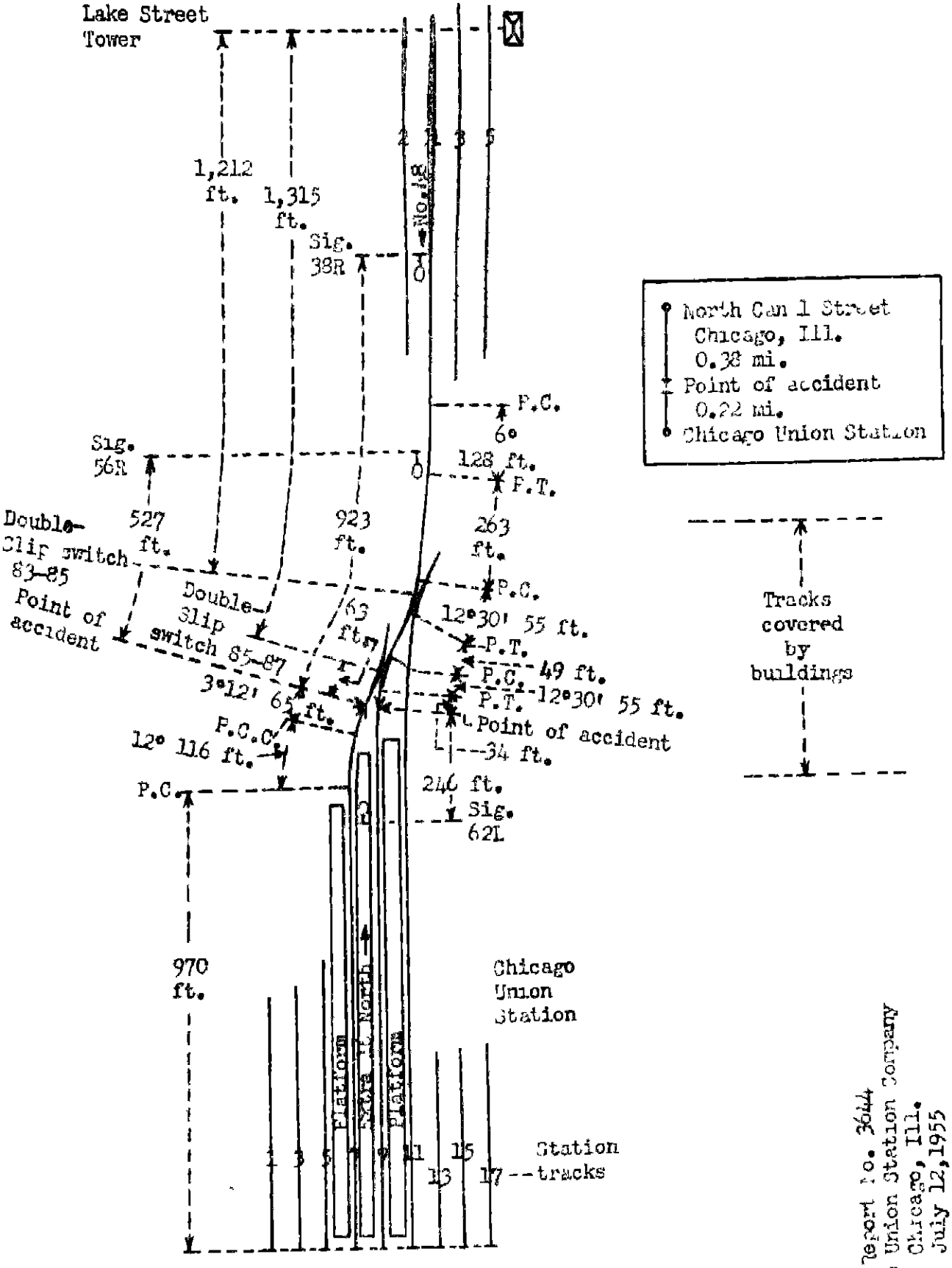
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



Report No. 3644
Chicago Union Station Company
Chicago, Ill.
July 12, 1955

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between Chicago Union Station and North Canal Street, Chicago, Ill., 0.60 mile. Trains of the Chicago, Milwaukee, St. Paul and Pacific Railroad are regularly operated over this portion of the line of the Chicago Union Station Company. At Chicago Union Station nine stub-end station tracks extend northward from a point a short distance north of the station concourse. These tracks are designated from west to east by odd numbers consecutively as tracks Nos. 1 to 17, inclusive. Tracks Nos. 7 and 9 are each 1,214 feet in length. North of the north ends of the station platforms the station tracks converge with four tracks designated, from west to east, as tracks Nos. 2, 1, 3, and 5. These four tracks converge with a double-track line a short distance south of North Canal Street. Station track No. 11 is in line with track No. 1. A lead track connects with the north ends of station tracks Nos. 7 and 9 at double-slip switch 85-87 and crosses track No. 1 at double-slip switch 83-85. These switches are within the interlocking limits of Lake Street Tower and are located, respectively, 1,315 feet and 1,212 feet south of the interlocking station. The tracks in this vicinity are below street level, and between points approximately 240 feet south and 325 feet north of double-slip switch 85-87 a building and other structures have been erected over the tracks. The accident occurred at a point 26 feet north of the fouling point of station tracks Nos. 7 and 9, and 63 feet south of the center of double-slip switch 85-87. From the south on station track No. 7 there are, in succession, a tangent 970 feet in length, a 12° curve to the right 116 feet, and a 3°12' curve to the right 65 feet to the point of accident. From the north via track No. 1, double-slip switches 85-83 and 87-85, and station track No. 9 there are, in succession, a 6° curve to the right 128 feet in length, a tangent 263 feet, a 12°30' curve to the right 55 feet, a tangent 49 feet, a 12°30' curve to the left 55 feet, and a tangent 34 feet to the point of accident. The grade is 0.85 percent ascending northward at the point of accident.

Semi-automatic signal 62L, governing north-bound movements on station track No. 7, is located 246 feet south of the point of accident. Semi-automatic signals 38R and 56R, governing south-bound movements on track No. 1 and from track No. 1 to station track No. 9, are located, respectively, 923 feet and 527 feet north of the point of accident. These are dwarf signals of the position-light type and are continuously lighted. Signal 62L is located on the west edge of a baggage platform between station tracks Nos. 7 and 9 and is 2 feet 6 inches above the level of the tops of the rails. The aspects of these signals applicable to this investigation and the corresponding indications and names are as follows:

Signal	Aspect	Indication	Name
62L	Two white lights in horizontal position	Stop.	Stop-signal.
38R	Two white lights in diagonal position to the right	Proceed prepared to stop at next signal. Slow speed within interlocking limits.	Slow Approach.
62L) 38R) 56R)	Two white lights in vertical position	Proceed; slow speed within interlocking limits.	Slow-clear.

The controlling circuits are so arranged that when the route is lined for movement from track No. 1 to station track No. 9 and the route is unoccupied, signals 38R and 56R each indicate Proceed-slow-speed-within-interlocking-limits and signal 62L indicates Stop.

The interlocking at Lake Street Tower is of the electro-pneumatic type and is equipped with 63 working levers. It is provided with mechanical, indication, route, detector, and time locking. Mechanical locking prevents the manipulation of a signal lever unless a route governed by that signal is established, and prevents the manipulation of a lever controlling any switch or movable-point frog within that route or the establishment of a conflicting route while the signal lever is in position for the signal to display an aspect to proceed. Switch indication locking prevents a lever controlling a switch or movable-point frog from being placed in full

normal or reverse position until the switch points have been mechanically locked in the position corresponding to the position of the lever. Signal indication locking prevents a signal lever from being restored to normal position until such time as the signal controlled by that lever displays an aspect to stop. Route locking prevents the manipulation of the lever controlling any switch in a route which has been established and for which a proceed signal aspect has been displayed after a train occupies the first track section of the route. Detector locking prevents the movement of the lever controlling any switch or movable-point frog when the track section in which it is located is occupied. Time locking prevents a route for which a proceed signal aspect has been displayed from being changed until the train 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.

Trains are authorized to depart from the station tracks by a train-starting signal system. This system functions independently of the interlocking and is used to notify the train director that a train is ready to proceed and to notify the crew whether the train is to be held in the station for any reason. When a passenger-equipment train is ready to depart, a member of the crew pushes a push button adjacent to the track on which the train is standing. This action causes red lights to be displayed in a color-light signal adjacent to the track and in an indicator in the interlocking station. If it is proper for the train to proceed, the train director acknowledges the signal. Lunar white lights are then displayed in the color-light signal and in the indicator. This signal authorizes the train to proceed after the proper interlocking signal aspect is displayed.

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

DEFINITIONS

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

The maximum authorized speeds are 10 miles per hour on station platform tracks and 15 miles per hour on other tracks in the vicinity of the point of accident.

Description of Accident

Extra 16 North, a north-bound C.M.St.P.& P. passenger-equipment train, consisted, from north to south, of eight coaches and Diesel-electric unit 16B. The first, second, seventh, and eighth cars from the north end were of steel underframe construction, and the other cars were of all-steel construction. About 7:18 a. m. this train departed from a point on station track No. 7 a short distance south of signal 62L. It passed 62L, which indicated Stop, and stopped with the north end of the north car 26 feet north of the fouling point of tracks Nos. 7 and 9, and 63 feet south of the center of double-slip switch 85-87. Soon afterward the north end of the train was struck by No. 48.

No. 48, a south-bound C.M.St.P.& P. passenger train, consisted of Diesel-electric unit 2434 and six coaches. The locomotive, a road-switcher type, was headed northward. The first and fourth cars were of steel underframe construction, and the other cars were of all-steel construction. This train entered the line of the Chicago Union Station Company at North Canal Street and stopped at signal 38R, which indicated Stop. The indication of the signal immediately changed to Proceed-slow-speed-within-interlocking-limits. The train then proceeded and passed signals 38R and 56R, each of which indicated Proceed-slow-speed-within-interlocking-limits. While it was moving at a speed of about 15 miles per hour it struck Extra 16 North.

No. 48 stopped with the south end of the locomotive on station track No. 9 at a point 141 feet south of the point of accident. No equipment of either train was derailed. The north end of the north car of Extra 16 North was badly damaged. The west sides of the locomotive and the first car of No. 48 were considerably damaged, and the west side of the second car was somewhat damaged.

The pilot of Extra 16 North and the fireman and the front brakeman of No. 48 were injured.

The weather was clear at the time of the accident, which occurred about 7:20 a. m.

Discussion

The locomotive and equipment of Extra 16 North arrived at Chicago Union Station as No. 136, a south-bound C.M.St.P. & P. passenger train. This train stopped on station track No. 7 at 7:12 a. m. with the north end of the north car 129 feet south of signal 62L. The conductor and the front brakeman went off duty on arrival of the train at the station. The flagman was assigned to back the equipment from the station to a coach yard. While performing this service he was designated as a pilot. He said that after the passengers had alighted from the train he pushed the push button of the train-starting system. The color-light signal then displayed a red aspect, and several seconds later the aspect changed from red to lunar white. The pilot applied the brakes of the train by use of the valve of the back-up hose, and after observing that the brakes functioned properly he entered the vestibule at the north end of the north car. During this time signal 62L indicated Stop. The pilot said that the indication of the signal changed from Stop to Proceed-slow-speed-within-interlocking-limits about 5 minutes after he entered the vestibule. He then sounded a back-up signal on the communicating signal whistle, and a northward movement was started. The pilot said that signal 62L continued to indicate Proceed-slow-speed-within-interlocking-limits during the time that it remained within his range of vision. As the north end of the train was approaching double-slip switch 85-87 the pilot observed that the north switch points were not properly lined for the movement of his train. He applied the brakes, and the train stopped with the north end of the north car 63 feet south of the center of the switch. Soon afterward the train was struck by No. 48. The enginemen were in the control compartment at the front of the locomotive, and neither of these employees observed the aspect of signal 62L before the accident occurred.

When No. 48 stopped at signal 38R the enginemen were in their respective positions in the control compartment of the locomotive. The members of the train crew were in various locations in the cars of the train. The brakes of the train had been tested and had functioned properly when used en route. Several seconds after the train stopped, the indication of signal 38R changed from Stop to Proceed-prepared-to-stop-at-next-signal. It then changed to Proceed-slow-speed-within-interlocking-limits. No. 48 then moved southward and passed this signal and signal 56R, which indicated Proceed-slow-speed-within-interlocking-limits. Because of curvature of the track and pillars between the tracks in the immediate vicinity of the point of accident, the enginemen's view of the track ahead was somewhat obstructed. These employees were not aware that Extra 16 North had passed signal 62L until their locomotive entered the lead track between track No. 1 and station track No. 9. The fireman then observed that the north end of Extra 16 North was fouling track No. 9. He called a warning, and the engineer immediately made an emergency application of the brakes. The collision occurred several seconds later. According to the tape of the speed-recording device, the speed was about 15 miles per hour when the collision occurred.

The train director at Lake Street Tower said that a north-bound passenger train which departed from station track No. 5 at 7:15 a. m. used a route which conflicted with the route to be used by No. 48. After this train passed he instructed the leverman to line the route for No. 48 to move from track No. 1 to station track No. 9. At approximately the same time the indicator of the train-starting system for track No. 7 became illuminated, indicating that Extra 16 North was ready to depart. The train director planned to permit this train to proceed after No. 48 entered station track No. 9. He acknowledged the signal, and the indicator light then changed from red to lunar white. From his location in the interlocking station he could see signals 38R and 56R, and he said that each signal indicated Proceed-slow-speed-within-interlocking-limits for the movement of No. 48. The leverman said that the interlocking had functioned

properly during his tour of duty and that it functioned properly when he lined the route for No. 48. Until after the accident occurred neither the train director nor the leverman was aware that Extra 16 North had passed signal 62L. Both of these employees said that at no time after No. 136 entered track No. 7 was the lever controlling signal 62L moved from normal position.

The assistant supervisor of tracks and signals arrived at the scene of the accident several minutes after the accident occurred. He found that signal 62L indicated Stop and that the switches were lined for movement from track No. 1 to station track No. 9. He then proceeded to the interlocking station and found that the levers of the interlocking machine corresponded with the positions of the switches. There was no damage to the interlocking as a result of the accident, and inspection and tests of the interlocking apparatus were begun soon after the accident occurred. The relays involved in route selection were inspected before the equipment of Extra 16 North and No. 48 was removed. The positions of these relays indicated that Extra 16 North had passed signal 62L while signal lever 62 was in normal position and that No. 48 had passed signal 56R while signal lever 56 was in "R" position. The controlling circuits of the indicator lights of the train-starting system are so arranged that the lunar white indicator light for a track will become extinguished when a train passes the interlocking signal governing movements from that track while the signal is displaying an aspect to proceed. If a train passes an interlocking signal while the signal indicates Stop the indicator light is not affected. The lunar white indicator light for track No. 7 remained illuminated after the accident occurred. If signal 62L had been displaying an aspect to proceed when Extra 16 North passed it the indicator light should have been extinguished. The inspection and tests of the interlocking disclosed no condition which could have caused an improper operation of the signal system. When the aspect of signal 62L was changed from an aspect to proceed to an aspect to stop, it was found that 45 seconds elapsed before the signal lever could be restored to normal position and the switches lined for movement from track No. 1 to station track No. 9. From the results of these tests it appears that signal 62L indicated Stop during the time that the route was lined for the movement of No. 48 and also for a period of not

less than 45 seconds before that route was lined, and apparently Extra 16 North passed the signal while the signal indicated Stop.

Cause

This accident was caused by failure to operate Extra 16 North in accordance with a signal indication.

Dated at Washington, D. C., this ninth day of September, 1955.

By the Commission, Commissioner Clarke.

(SEAL)

HAROLD D. McCOY,

Secretary.