

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 3110  
LOUISVILLE AND NASHVILLE RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
AT CLARKSVILLE, TENN., ON  
JUNE 13, 1947

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SUMMARY

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Railroad: Louisville and Nashville  
Date: June 13, 1947  
Location: Clarksville, Tenn.  
Kind of accident: Derailment  
Equipment involved: Engine with cars  
Engine number: 1208  
Consist: 5 cars  
Estimated speed: 4 m. p. h.  
Operation: Timetable and train orders;  
yard and interlocking  
limits  
Track: Single; tangent; 0.43 percent  
descending grade southward  
Weather: Cloudy  
Time: 10:50 a. m.  
Casualties: 2 killed  
Cause: Failure properly to control movement  
of an engine with cars approaching  
a drawbridge

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 3110

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

LOUISVILLE AND NASHVILLE RAILROAD COMPANY

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August 6, 1947

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Accident at Clarksville, Tenn., on June 13, 1947, caused  
by failure properly to control the movement of an  
engine with cars approaching a drawbridge.

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REPORT OF THE COMMISSION<sup>1</sup>

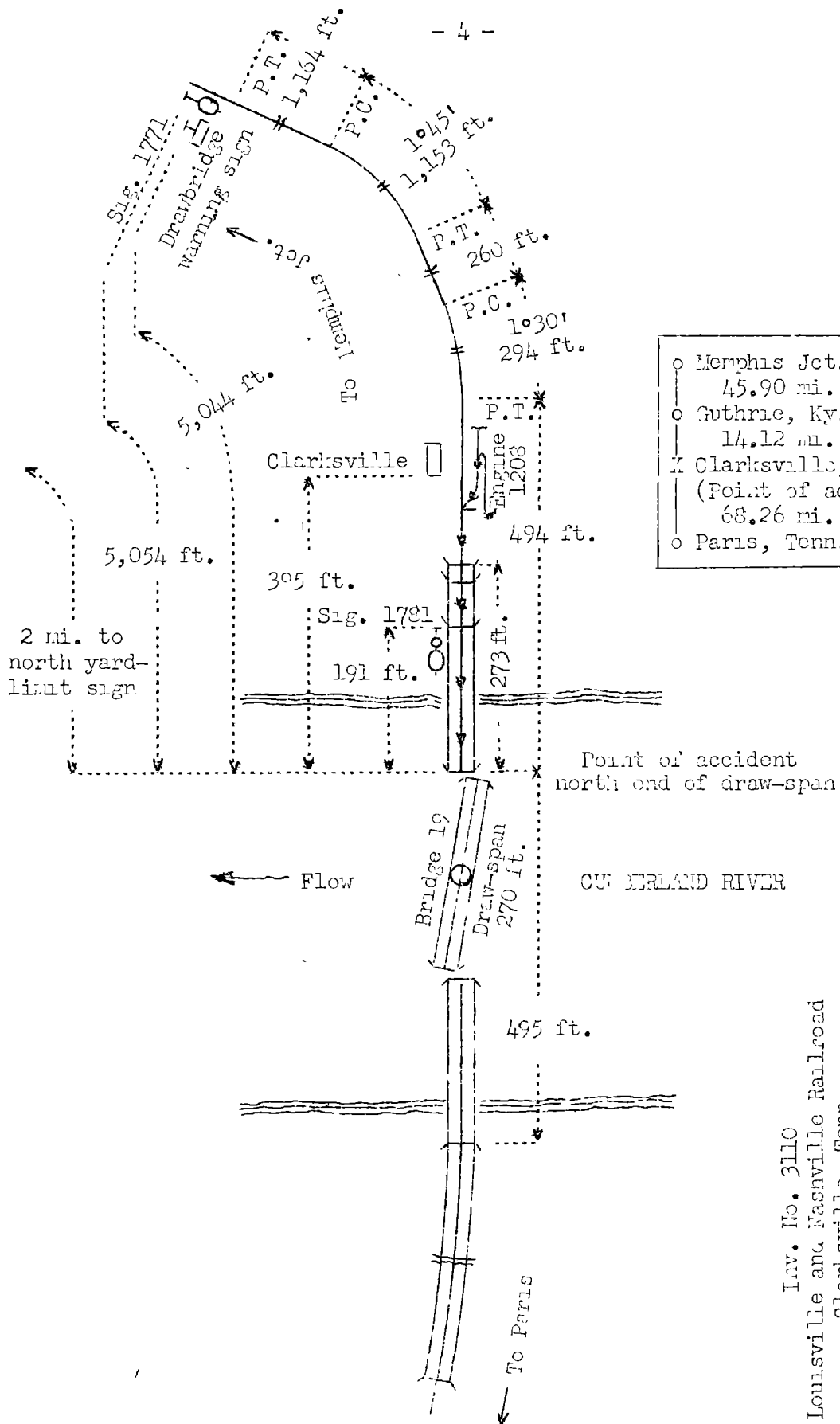
PATTERSON, Commissioner:

On June 13, 1947, there was a derailment of an engine  
with cars on the Louisville and Nashville Railroad at  
Clarksville, Tenn., which resulted in the death of two  
employees.

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



- o Memphis Jct., Ky.  
45.90 mi.
- o Guthrie, Ky.  
14.12 mi.
- x Clarksville, Tenn.  
(Point of accident)  
68.26 mi.
- o Paris, Tenn.

Inv. No. 3110  
 Louisville and Nashville Railroad  
 Clarksville, Tenn.  
 June 13, 1947

Location of Accident and Method of Operation

This accident occurred on that part of the Louisville Division extending between Memphis Jct., Ky., and Paris, Tenn., 128.28 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. Within yard and interlocking limits at Clarksville, 60.02 miles south of Memphis Jct., the main track crosses the Cumberland River over Bridge 19. The accident occurred on the main track, within interlocking limits, 2 miles south of the north yard-limit sign and 395 feet south of the station, at the north end of the draw-span of Bridge 19. From the north there are, in succession, a tangent 1,164 feet in length, a 1°45' curve to the right 1,153 feet, a tangent 260 feet, a 1°30' curve to the right 294 feet and a tangent 494 feet to the north end of the draw-span and 495 feet southward. The grade for south-bound movements is 1.19 percent descending 2,300 feet, then there is a vertical curve 200 feet, and a 0.43 percent descending grade 900 feet to the north end of the bridge, then it is level over the bridge.

The railroad crosses the river at approximately right angles. The bridge structure from north to south consists of a trestle 21 feet in length, a steel deck girder-span 59 feet, a through steel truss span 193 feet, a through steel truss swing-type draw-span 270 feet, a through steel truss span 213 feet 4 inches, and a trestle 2,195 feet. The central pier of the draw-span is of stone construction, and is 17 feet 5 inches in diameter. The mean low level of the water under the draw-span is 66 feet 1 inch below the base of the rail, and the water varies between 7 feet and 25 feet in depth. The draw-span mechanism is operated by a gasoline engine. The draw-span is in the charge of a bridge tender, and is operated from a control room located on the draw-span near the central pier. The normal position of the draw-span is for movement on the railroad. At the time of the accident the draw-span was being opened for inspection.

A sign located 5,044 feet north of the north end of the draw-span and 15 feet west of the centerline of the main track, rectangular in shape, 17 inches wide and 28 inches long, mounted on a mast about 6 feet above the level of the tops of the rails, bears the words "DRAWBRIDGE ONE MILE" in black letters on a yellow background.

Interlocking signals 1771 and 1781, governing south-bound movements over the bridge, are, respectively, 5,054 feet and 191 feet north of the point of accident. These signals are of the two indication color-light type, and are continuously lighted. The involved aspects and corresponding indications and names of these signals are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
1771	Yellow	Prepare to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach.
1781	Red over red marker	Stop.	Stop.

The interlocking is of the electro-mechanical type. Time and indication locking are provided. The machine is located in the control room on the draw-span. An illuminated track diagram is provided and is so arranged that, when the draw-span is opened for river traffic and the home signal displays stop, red lights are displayed. An approach light and an audible annunciator are provided. The controlling circuits are so arranged that signal 1781 must display stop before the mechanism of Bridge 19 can be unlocked to open the draw-span. The draw-span must be in locked position for movement over the bridge before the levers in control of signal 1781 can be placed in position for this signal to display proceed. Signal 1781 normally displays a stop indication. If the draw-span is in closed position and the track extending over the bridge is unoccupied, signal 1771 will display prepare-to-stop-at-next-signal, and signal 1781 will display stop until the engine of an approaching train passes a point 520 feet north of signal 1781, then signal 1781 displays proceed. When signal 1781 displays a proceed indication, an interval of two minutes must elapse, after the lever in control of signal 1781 has been placed in position for this signal to display stop, before the draw-span can be unlocked, and an additional interval of approximately four minutes is required for placing the levers and other controls of the draw-span operating mechanism in position for the draw-span to open.

Operating rules read in part as follows:

DEFINITIONS.

\* \* \*

Fixed Signal.--A signal of fixed location indicating a condition affecting the movement of a train.

Note.--The definition of a "Fixed Signal" covers such signals as \* \* \* interlocking \* \* \* or other means for displaying indications that govern the movement of a train.

\* \* \*

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.--One-half maximum authorized speed at point involved, not exceeding thirty miles per hour.

34. All members of train and engine crews must keep a close lookout for signals and, when practicable, communicate to each other by its name the indication of all signals affecting the movement of their train.

93. \* \* \*

Second-class and inferior trains and engines must move within yard limits prepared to stop, unless the main track is seen or known to be clear. \* \* \*

98. Trains must approach \* \* \* draw-bridges, prepared to stop, unless \* \* \* signals indicate proceed, and track is clear. \* \* \*

663. Trains or engines must not pass an interlocking Stop-signal without receiving hand signals. Enginemen and trainmen must not proceed on hand signals until they are fully informed of the situation; the movement must then be made at restricted speed.

Time-table special instructions read in part as follows:

DRAWBRIDGES

Location	Protection
Cumberland River, Clarksville	Interlocking Signals. Trains will approach the Home Signal of the draw span at restricted speed until it is seen that the Proceed Signal is displayed. * * *

\* \* \*

The maximum authorized speed over Bridge 19 is 15 miles per hour.

Description of Accident

Engine 1208, headed southward and pulling a cut of five cars southward in a switching movement on the main track within yard limits at Clarksville, passed signal 1781, which displayed stop, and was moving at an estimated speed of 4 miles per hour when the engine and the first two cars dropped into the river.

The draw-span was partially open at the time of the accident. The south end of the through truss span and the north end of the draw-span were considerably damaged. At the time this investigation was completed no estimate of the damage to the engine and cars was available as this equipment had not been removed from the river.

The engineer and the fireman were killed.

It was cloudy at the time of the accident, which occurred about 10:50 a. m.

Discussion

The rules governing operation on this line provide that within yard limits all movements, except first-class trains, must proceed in such manner that they are prepared to stop unless the main track is seen or known to be clear, and all trains and engines must approach drawbridges prepared to stop unless the signals indicate proceed and the way is clear.

Second 123 a south-bound second-class freight train consisting of engine 1208, 10 cars and a caboose, stopped about 10:45 a. m. on the main track within yard limits at Clarksville, with the engine standing 226 feet north of home



signal 1781, located 191 feet north of the draw-span of Bridge 19. About 3 minutes later the engine and the first 5 cars were detached, and were proceeding southward on the main track to perform switching when the engine and the first 2 cars dropped into the river. The conductor and the front brakeman were on the third car and the swing brakeman and the flagman were on the fifth car. These employees were not aware that the draw-span of the bridge was being moved to open position until after the accident occurred. The conductor and the front brakeman said that they looked at home signal 1731 when their train stopped, and they thought this signal was displaying a proceed indication at that time. They did not again observe what indication was displayed by this signal prior to the time the accident occurred. The engineer and the fireman were killed.

The investigation disclosed that about 10:30 a. m. the bridge tender went to the station and obtained a line-up of train movements from the operator, which included information that Second 123 had departed from Guthrie, 14.12 miles north of Clarksville, at 10:15 a. m. Then the bridge tender returned to the control room on the draw-span and placed the lever in control of the home signal to display stop and placed the levers in control of the operating mechanism in position for the draw-span to open so that an inspection by a government inspector could be made. At that time the bridge tender and the inspector looked to the north and they did not see a train or an engine. The inspector said that after the draw-span had moved to the east a distance of about 15 feet from closed position he again looked northward and at that time he saw the engine moving southward at a point about 65 feet north of the north end of the draw-span. Immediately afterward, the engine struck the draw-span and the derailment occurred. Considering the time interval of approximately 5 minutes which elapsed between the time Second 123 stopped at Clarksville and the time the accident occurred, and the time interval of 6 minutes required for operating the control levers of the bridge mechanism before the draw-span would start moving from closed position after the lever in control of the home signal was placed in position for this signal to display stop, it is apparent that the home signal was displaying a stop indication not less than 1 minute prior to the arrival of Second 123 at Clarksville and until the time the accident occurred. In tests after the accident the interlocking functioned properly.

Cause

It is found that this accident was caused by failure properly to control the movement of an engine with cars approaching a drawbridge..

Dated at Washington, D. C., this sixth day of August, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.