

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3318
LEHIGH VALLEY RAILROAD COMPANY
IN RE ACCIDENT
NEAR MAUCH CHUNK, PA., ON
APRIL 2, 1950

SUMMARY

Date: April 2, 1950

Railroad: Lehigh Valley

Location: Mauch Chunk, Pa.

Kind of accident: Rear-end collision

Trains involved: Passenger : Passenger

Train numbers: 9 : 209

Engine numbers: Diesel-electric units 608 and 604 : Gas-electric rail motor-car 11

Consists: 13 cars : 2 cars

Estimated speeds: Standing : 9 m. p. h.

Operation: Timetable, train orders, automatic block-signal and train-stop systems

Track: Double; 13° curve; 0.5 percent ascending grade westward

Weather: Clear

Time: 2:38 p. m.

Casualties: 33 injured

Cause: Failure to operate following train in accordance with signal indication

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3318

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

LEHIGH VALLEY RAILROAD COMPANY

May 31, 1950

Accident near Mauch Chunk, Pa., on April 2, 1950, caused
by failure to operate the following train in
accordance with a signal indication.

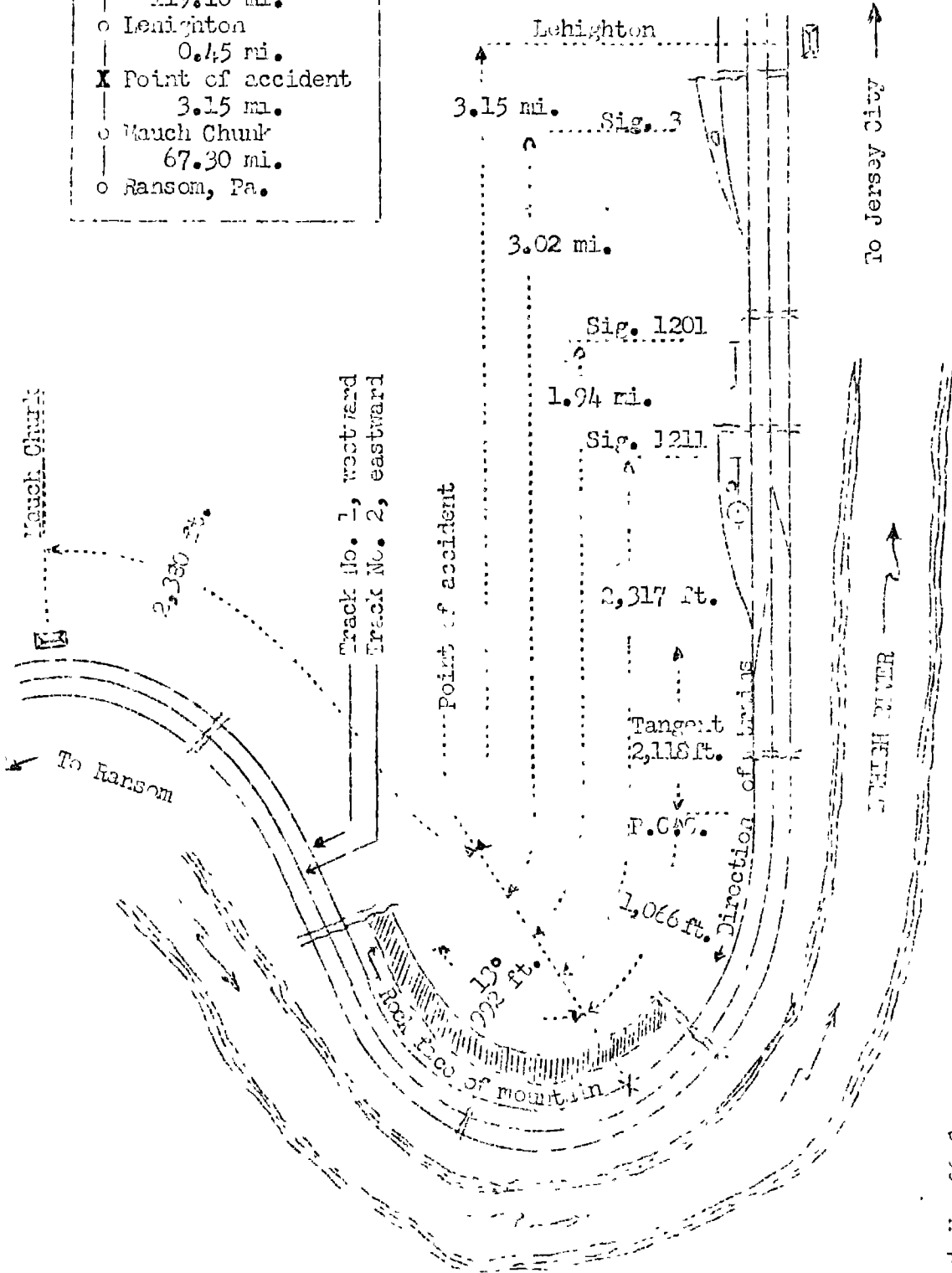
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On April 2, 1950, there was a rear-end collision between two passenger trains on the Lehigh Valley Railroad near Mauch Chunk, Pa., which resulted in the injury of 23 passengers, 1 railway-mail clerk, 4 dining-car employees, 1 parlor-car attendant, and 4 train-service employees. This accident was investigated in conjunction with a representative of the Pennsylvania Public Utility Commission.

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.

- o Jersey City, N. J.
119.10 mi.
- o Lehighton
0.45 mi.
- X Point of accident
3.15 mi.
- o Mauch Chunk
67.30 mi.
- o Ransom, Pa.



Report No. 2643
 Lehigh Valley Railroad
 Mauch Chunk, Pa.
 April 2, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the New York Division extending between mile post 1.0, Jersey City, N. J., and mile post 191.0, west of Ransom, Pa., 190 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by timetable, train orders and an automatic block-signal system, supplemented by an automatic train-stop system. The main tracks from north to south are designated as No. 1, westward, and No. 2, eastward. The accident occurred on track No. 1 at a point 2,380 feet east of the station at Mauch Chunk, and 3.15 miles west of the station at Lehigh. From the east on track No. 1 there is a tangent 2,118 feet in length and a compound curve to the right, having a maximum curvature of 13°, 1,066 feet to the point of accident and 992 feet westward. The grade for west-bound trains is 0.5 percent ascending at the point of accident. In the vicinity of the point of accident the tracks parallel the north bank of the Lehigh River and are laid on a hillside cut.

Interlocking signal 3, governing west-bound movements on track No. 3 at Lehigh, is located 3.02 miles east of the point of accident. Automatic signals 1201 and 1211, governing west-bound movements on track No. 1, are located, respectively, 1.94 miles east and 2,317 feet east of the point of accident. Interlocking signal 3 is a dwarf semaphore-type signal. Automatic signal 1201 is a one-arm upper-quadrant semaphore-type signal and displays three aspects. Automatic signal 1211 is a one-arm searchlight signal and displays three aspects. A black disc with the letter "G" cut out is mounted on the mast below the light unit of signal 1211. The aspects applicable to this investigation and their corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
3	45 degrees above horizontal.	Proceed at restricted speed.	Restricting.
1201	45 degrees above horizontal	Proceed preparing to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach.

1211	Red over black disc with letter "G"	Stop; then proceed at restricted speed.	Stop and proceed.
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NOTE: Trains may proceed at restricted speed without stopping at signals displaying a black disc on which the letter "G" is cut out. Signals so equipped designated on the timetable.

The controlling circuits are so arranged that when a west-bound train is occupying track No. 1 between signal 1211 and the next westward signal, signal 1201 indicates Approach and signal 1211 indicates Proceed at Restricted Speed without Stopping. The automatic train-stop system is of the intermittent-inductive type. Equipped engines are provided with a device by which the engineer can forestall an automatic brake application by manually operating an acknowledging lever. When a restrictive aspect is acknowledged, a warning whistle sounds in the engine cab.

The operating rules of this carrier read in part as follows:

DEFINITIONS

* * *

Speeds

* * *

Restricted Speed-- Not exceeding 15 miles per hour, prepared to stop short of train, obstruction or switch not properly lined and to look out for broken rail.

* * *

14. Engine Whistle Signals

Note--The signals prescribed are illustrated by "o" for short sounds; "—" for longer sounds. * * *

Sound	Indication
* * *	
(c) — o o o	Flagman protect rear of train.
* * *	
(e) — — — — —	(Single or two main tracks) Flagman may return from east.* *As prescribed by Rule 99.

* * *

35. The following signals will be used by flagmen:

Day signals--A red flag, torpedoes and fuses.

* * *

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 fuses.

* * *

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, or by day when the view is obscured, lighted fuses must be thrown off at proper intervals.

* * *

On the curve on which the accident occurred, the speed of the preceding train was restricted to 30 miles per hour and the speed of the following train was restricted to 25 miles per hour.

Description of Accident

No. 9, a west-bound first-class passenger train, consisted of Diesel-electric units 608 and 604, one baggage car, ten coaches, one dining car and one parlor car, in the order named. All cars were of steel construction. This train departed from Lehighton, the last open office, at 2:26 p. m., 41 minutes late, and stopped on track No. 1 at a point 3.15 miles west of the station at Lehighton about 2:33 p. m. About 5 minutes later the rear end was struck by No. 209.

No. 209, a west-bound first-class passenger train, consisted of gas-electric rail motor-car 11, one coach and one box car, in the order named. All cars were of steel construction. This train departed from Lehighton at 2:30 p. m., 40 minutes late, passed signal 1201, which indicated Approach, passed signal 1211, which indicated Proceed at Restricted Speed without Stopping, and while moving at an estimated speed of 9 miles per hour it struck the rear end of No. 9.

The rear car of No. 9 was somewhat damaged. Gas-electric rail motor-car 11 was considerably damaged and the coach of No. 209 was slightly damaged. No equipment in either train was derailed.

A ticket collector of No. 9, and the engineer, the conductor and the flagman of No. 209 were injured.

The weather was clear at the time of the accident, which occurred about 2:38 p. m.

Gas-electric motor-car 11 is a three-compartment type gasoline-electric unit. It is arranged with the operating controls in the engine-room compartment at the front, a baggage compartment in the center and a passenger compartment at the rear. It is provided with AML air-brake equipment and carries 130-pounds main reservoir pressure. The brake-pipe pressure is set at 80 pounds. A safety-control feature, actuated by a foot-pedal, is provided. If pressure on this foot-pedal is released an application of the air brakes occurs. It is not equipped with a speed indicator.

Discussion

No. 9 departed from Lehighton on track No. 1 at 2:26 p. m., 41 minutes late. When the train was about 4,500 feet east of the point where the accident occurred the engineer initiated a service application of the brakes to comply with a speed restriction on a curve. The speed was about 30 miles per hour when the train passed over the curve. The engineer then opened the throttle and the speed was slightly increased but then a power failure occurred on the first unit. An assistant road foreman of engines, who was in the cab of the first unit, then proceeded to the engine compartment of the first unit to make necessary repairs. While he was attempting to start the motor of the first unit an undesired train-stop brake application occurred and the train stopped about 2:33 p. m., with the rear end about 2,200 feet west of signal 1211.

When the train stopped, the conductor was in the second car and the flagman was in the tenth car. The flagman said that he proceeded toward the rear of the tenth car to be in position to assist passengers from the car at Mauch Chunk. When he realized that the train had not reached the station at Mauch Chunk, he proceeded toward the rear car to obtain flagging equipment to provide flag protection. When he was about the center of the eleventh car, the motors were started and the flagman heard the engine whistle signal sounded for the train to proceed. Immediately afterward the train was started and the flagman returned to the tenth car. However, the train had moved only about 80 feet when the second power failure occurred, and the train stopped. After a brief delay the motors again were started and the train moved westward a distance of about 40 feet, then another power failure occurred. When the train stopped, the conductor alighted from the second car and proceeded toward the engine. The engineer sounded the engine-whistle signal for the flagman to protect the rear of the train. The flagman then proceeded toward the rear of the train. He said that passengers standing in the aisles impeded his progress through the train. However, he obtained flagging equipment from the front end of the rear car and alighted from that car on the north side. When he was about the center of the car he observed No. 209 approaching on track No. 1. He gave stop signals with a red flag but they were not acknowledged. The collision occurred a few seconds later.

The flagman of No. 9, who was regularly assigned as a member of the crew, said he had proceeded from the rear of the train to the tenth car because he had been instructed that flagmen on passenger trains were to assist passengers from the train at station stops. He said he was familiar with the timetable schedules and he knew that his train was on the time of No. 209. However, he did not think it was necessary to throw off a lighted fusee when his train first reduced speed, and he did not have sufficient time to provide protection after the engine-whistle signal was sounded to protect the rear of the train.

No. 209 departed from Lehighton on track No. 3 at 2:30 p. m. A short distance west of Lehighton this train was diverted to track No. 1 behind No. 9, which had departed from Lehighton at 2:26 p. m. A fireman was not assigned to the crew and the engineer was alone in the operating compartment at the front end of gas-electric unit 11. The conductor was at the rear of the first car and the other members of the crew were in various locations in the two cars of the train. Signal 1201 indicated Approach and the engineman forestalled an automatic application of the air-brakes. At signal 1201 the speed was about 25 miles per

hour. The speed was reduced to about 20 miles per hour after the train passed this signal. Signal 1211 indicated Proceed at Restricted Speed without Stopping. The engineer forestalled an automatic application of the air brakes at signal 1211, and No. 209 passed that signal without stopping. The engineer closed the throttle, and the speed on the ascending grade was reduced to about 12 miles per hour. A grade-crossing whistle signal was sounded when the engine was about 1,200 feet east of the point where the accident occurred. The engineer then opened the throttle slightly and the speed was increased to about 15 miles per hour. He first observed the rear car of the preceding train about 300 feet distant. He immediately closed the throttle and initiated an emergency brake application. The brakes of this train were tested at Lehighton but had not been used en route. Because of track curvature and an embankment on the inside of the curve, the view of the point of accident from the operating cab of a west-bound gas-electric unit on track No. 1 is restricted to 307 feet.

The engineer of No. 209 said he saw No. 9 depart from Lehighton on track No. 1 about 4 minutes before No. 209 departed from that station. The warning whistle in the engine cab sounded when he forestalled an automatic application of the air brakes both at signal 1201 and at signal 1211. He said he thought that the block of signal 1211 was occupied when No. 209 passed that signal but he expected to overtake the preceding train at the station at Mauch Chunk. He expected that if the preceding train made a stop other than a scheduled station stop flag protection would be provided. However, the indication of signal 1211, which governs west-bound movements into the block in which the accident occurred, required the following train to be so operated that it could be stopped short of the preceding train at any point in the block.

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 thirty-first day of May, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.