

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3614
MAINE CENTRAL RAILROAD COMPANY
IN RE ACCIDENT
NEAR AUGUSTA, MAINE, ON
FEBRUARY 11, 1955

SUMMARY

Date: February 11, 1955

Railroad: Maine Central

Location: Augusta, Maine

Kind of accident: Derailment

Train involved: Passenger

Train number: 19

Engine number: Diesel-electric unit 710

Consist: 6 cars

Speed: 54 m. p. h.

Operation: Timetable, train orders, and
automatic block-signal system

Track: Single; 1°15' curve; 0.48 percent
descending grade eastward

Weather: Raining

Time: 9:22 p. m.

Casualties: 3 injured

Cause: Washout

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3614

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

MAINE CENTRAL RAILROAD COMPANY

March 28, 1955

29-B
41-B

Accident near Augusta, Maine, on February 11, 1955, caused
by a washout.

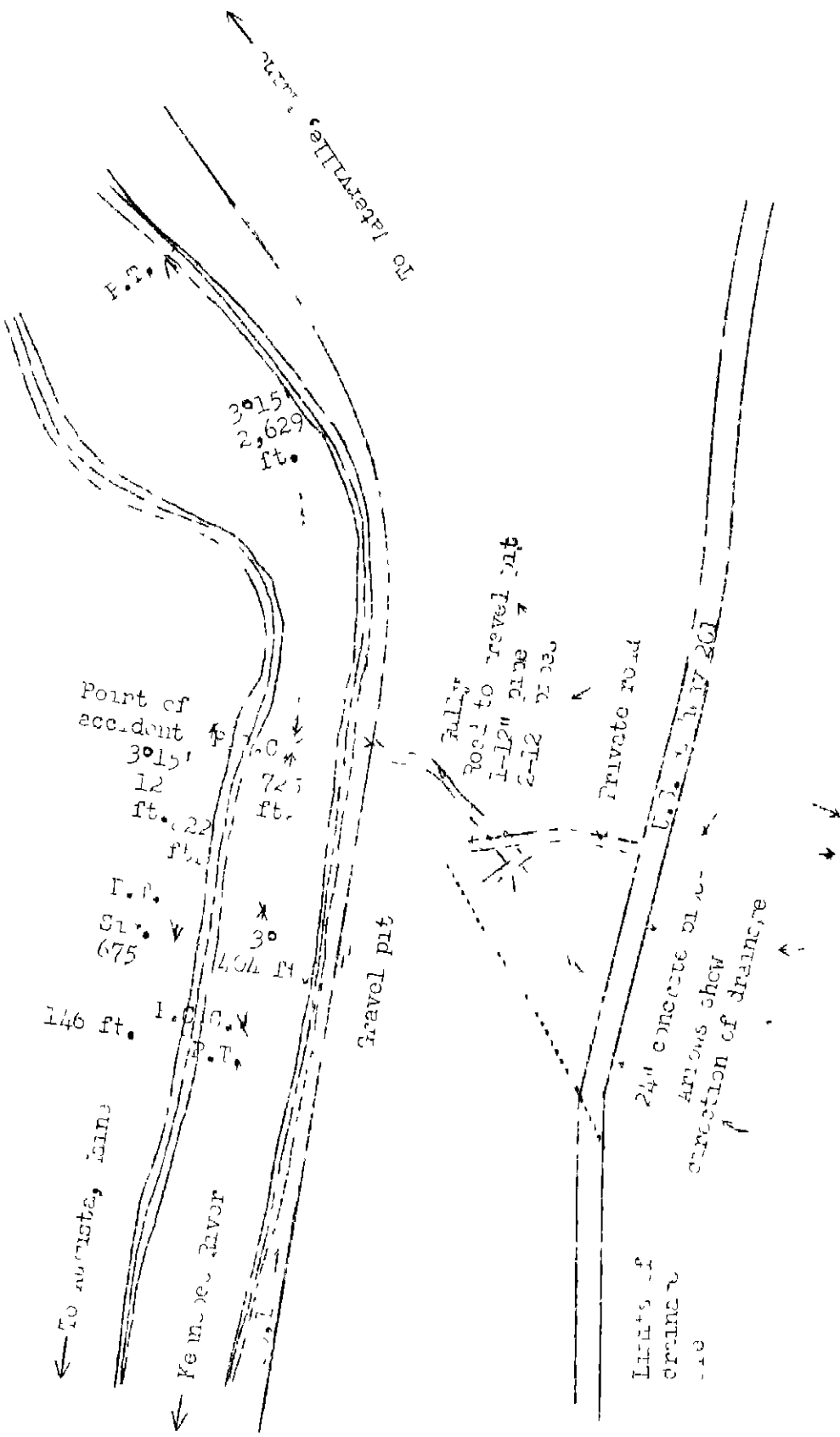
REPORT OF THE COMMISSION¹

CLARKE, Commissioner:

On February 11, 1955, there was a derailment of a passenger train on the Maine Central Railroad near Augusta, Maine, which resulted in the injury of three passengers. This accident was investigated in conjunction with representatives of the Maine Public Utilities 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.

•	Waterville, Maine	14.10 mi.
X	Point of accident	5.18 mi.
•	Augusta	33.27 mi.
•	Brunswick, Maine	



Report No. 3614
 Maine Central Railroad
 Augusta, Maine
 February 11, 1955

Location of Accident and Method of Operation

This accident occurred on that part of the Portland Division extending between Brunswick and Waterville, Maine, 52.55 miles, a single-track line, over which trains are operated by timetable, train orders, and an automatic block-signal system. The accident occurred on the main track at a point 38.45 miles east of Brunswick and 5.18 miles east of Augusta. From the west there are, in succession, a tangent 146 feet in length, a compound curve to the right, having a maximum curvature of $3^{\circ}00'$, 404 feet, a tangent 725 feet, and a compound curve to the left having a maximum curvature of $3^{\circ}15'$, 12 feet to the point of accident and 2,629 feet eastward. At the point of accident the curvature is $1^{\circ}15'$. The grade is 0.48 percent descending eastward at the point of accident.

The track structure consists of 115-pound rail, 39 feet in length, laid new in 1948 on an average of 22 treated ties to the rail length. It is fully tieplated with double-shoulder tieplates, single spiked, and is provided with 4-hole 24-inch joint bars and an average of eight rail anchors per rail. It is ballasted with crushed rock to a depth of 12 inches below the bottoms of the ties.

In the vicinity of the point of accident the railroad parallels the Kennebec River on the south and the track is laid on the adjacent hillside. At the point of accident the track is laid on a gravel fill approximately 20 feet in width and 50 feet in length at the top and 50 feet in width at the base. Near the center of the fill the track is 25 feet above the level of the shore-line of the river and 47 feet horizontally distant from it, and about 15 feet above the ground level at the south foot of the fill. A box culvert 3 feet wide and 4 feet high is located at the point of accident. This culvert is constructed of granite blocks and concrete. The top is reinforced with steel rails. The flow line slopes northward on an approximately gradient of 1 to 10, and at the center of the culvert it is 18 feet below the level of the base of the rails. At the south end of the culvert a headwall extends about 6 feet above the top of the culvert. The drainage area served by this culvert is approximately 68 acres.

In this vicinity U. S. Highway No. 201 parallels the railroad on the south at a distance of about 1,300 feet. The surface of the highway is approximately 100 feet above the level of the culvert under the track. Water from the area south of the highway drains under the highway through two

24-inch concrete pipe culverts. A gully extends between a point north of the highway and the culvert under the track. A private road and an access road to a gravel pit cross the gully at points, respectively, 900 feet and 700 feet south of the track. Water from the south side of the private road drains through two 12-inch culverts under the road. These culverts are about 72 feet above the level of the culvert under the track. The road to the gravel pit crosses the gully on a gravel fill about 75 feet wide at the base, 10 feet wide at the top, and 15 feet high. Water from the south side of the road drains through a single 12-inch pipe culvert through the base of the fill. The flow line of the culvert is 14 feet below the surface of the road and 66 feet above the level of the culvert under the track. The normal flow of water through the culvert under the track is about 4 inches in depth.

Automatic signal 675, governing east-bound movements, is located 822 feet west of the point of accident.

The maximum authorized speed for passenger trains is 55 miles per hour.

Description of Accident

No. 19, an east-bound first-class passenger train, consisted of Diesel-electric unit 710, one storage-mail car, one milk car, one combination baggage-smoking car, and three coaches, in the order named. The first and third cars were of conventional all-steel construction, the second car was of steel underframe construction, and the other cars were of lightweight steel construction. The fourth to the sixth cars, inclusive, were equipped with tightlock couplers. This train departed from Brunswick at 8 27 p. m., 40 minutes late, and departed from Augusta at 9 11 p. m., 39 minutes late. It passed signal 675, which indicated Proceed, and while moving at a speed of 54 miles per hour, as indicated by the tape of the speed-recording device, the rear wheels of the rear truck of the locomotive, the first to the fifth cars, inclusive, and the front truck of the sixth car were derailed at a point 5.18 miles east of Augusta.

Separations occurred at each end of each of the first three cars. The locomotive stopped with the front end 1,682 feet east of the point of accident. The first and second cars

overturned and stopped in the river at the foot of the embankment and about 250 feet east of the point of accident. None of the other cars overturned. The third car stopped about 6 feet south of the center-line of the track and parallel to it, with the rear end about 150 feet east of the point of accident. The fourth, fifth, and sixth cars stopped approximately in line with the track, with the front end of the fourth car about 180 feet east of the point of accident. The front truck of the sixth car was suspended over a washout through the embankment. The locomotive was slightly damaged. The first two cars were destroyed, the third and fourth cars were considerably damaged, and the fifth and sixth cars were somewhat damaged.

It was raining at the time of the accident, which occurred at 9:22 p. m.

Discussion

As No. 19 was approaching the point where the accident occurred the enginemen were maintaining a lookout ahead from the control compartment at the front of the locomotive. The members of the train crew were in various locations in the cars of the train. The headlight was lighted brightly. The enginemen said that it was raining but they saw no unusual accumulation of water along the track nor any indications of a washout. They first became aware that something was wrong when they felt the locomotive drop slightly, and it then became derailed.

Examination after the accident occurred disclosed that the material of the fill above the elevation of the south headwall of the culvert had been washed away throughout the width of the fill. The dislodged section of the fill was about 44 feet in length at the top. The culvert was not damaged. Further examination disclosed that about 100 cubic yards of gravel had been washed out of the fill on which the access road to the gravel pit crosses the gully. The washed-out section was directly over the culvert. The top surface of the fill, which was frozen, was not disturbed. Before the washout occurred the water in the area between this fill and the private road had accumulated to a depth of about 8 feet above the level of the culvert. Apparently after the water rose above the level of the culvert seepage occurred to the extent that the material of the fill became saturated, resulting in failure of the fill. Sand deposited on the snow north of the fill indicated that after the fill failed the water flowing down the gully had reached a depth of several feet and had backed up against the embankment above the top of the south headwall of the culvert under the track. After the failure of the fill under the road, the amount of gravel and

debris washed down the gully apparently impeded the flow of water through the culvert under the track, and the action of the water which was backed up above the top of the headwall weakened the fill to the extent that the failure occurred. From the fact that the front truck of the locomotive of No. 19 was not derailed, it appears that the track structure and the top surface of the fill remained in place until the locomotive was passing over it. About 3 hours after the accident occurred the water was level with the top of the headwall and appeared to be flowing through the culvert very slowly.

There was snow on the ground and the weather had been very cold for some time prior to the day of the accident. On that day thawing temperatures prevailed after 8:30 a. m., and at 9:30 p. m. the temperature at the Civil Aeronautics Administration Weather Station at Augusta was 48 degrees above zero. This station reported a total accumulation of 1.42 inches of rainfall during the 24-hour period ending at 11:59 p. m. on the day of the accident. Of this rainfall, 0.97 inch fell between 7:20 p. m. and 11:59 p. m. Members of the crew of No. 19 said that it was raining very heavily immediately after the accident occurred. However, no other culverts under the railroad in the vicinity showed indications of an abnormal flow of water. Prior to the day of the accident the waterway area of the culvert involved had been ample for the amount of run-off from the drainage area. On September 11, 1954, a total of 5.78 inches of rain fell at Augusta during the 24-hour period, and no difficulty with high water was experienced in the vicinity of the point of accident.

The section foreman inspected the track in the vicinity of the culvert about 12:15 p. m. on the day of the accident. He observed no unusual condition. He was aware that it was raining during the evening, but he did not consider that there was a sufficient amount of rainfall to warrant patrolling the track. A west-bound freight train passed the point of accident about 3 hours before the accident occurred. The members of the crew said that there was no unusually heavy rain and that they observed no unusual accumulation of water along the track.

Cause

It is found that this accident was caused by a washout.

Dated at Washington, D. C., this twenty-eighth day of March, 1955.

By the Commission, Commissioner Clarke.

(SEAL)

HAROLD D. McCOY,
Secretary.