

INTERSTATE COMMERCE COMMISSION
WASHINGTON

INVESTIGATION NO. 2881
THE CHICAGO, ROCK ISLAND AND PACIFIC
RAILWAY COMPANY
REPORT IN RE ACCIDENT
AT SAGINAW, TEXAS, ON
APRIL 3, 1945

SUMMARY

Railroad: Chicago, Rock Island and Pacific
Date: April 3, 1945
Location: Saginaw, Texas
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 2688 South
Engine number: 2688
Consist: 53 cars, caboose
Estimated speed: 10 m. p. h.
Operation: Timetable and train orders
Track: Single; 7° curve; 0.75 percent
descending grade southward
Weather: Cloudy
Time: 2:01 p. m.
Casualties: 1 killed
Cause: Improperly maintained turnout

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2881

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

THE CHICAGO, ROCK ISLAND AND PACIFIC RAILWAY COMPANY

May 9, 1945.

Accident at Saginaw, Texas, on April 3, 1945, caused by
an improperly maintained turnout.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

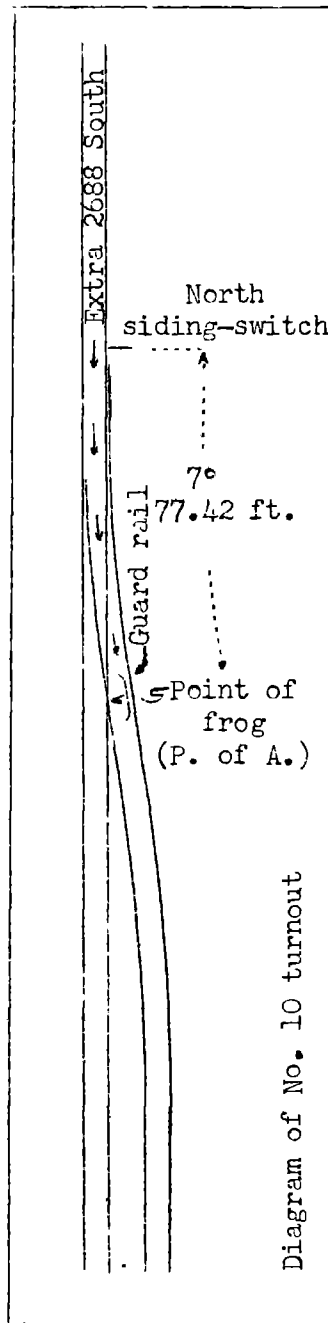
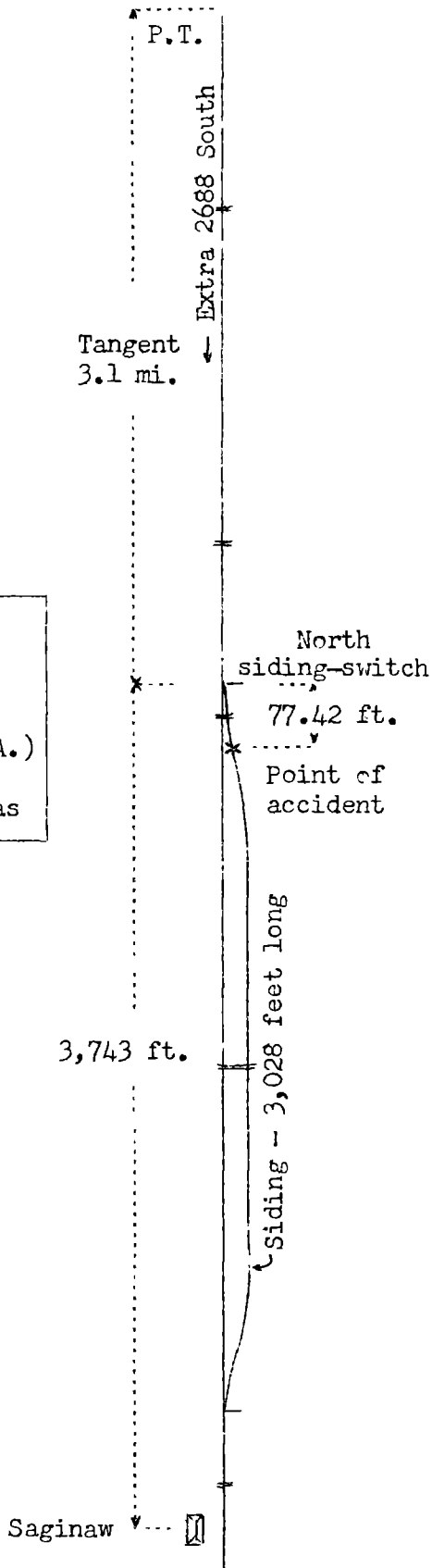
On April 3, 1945, there was a derailment of a freight train on the Chicago, Rock Island and Pacific Railway at Saginaw, Texas, which resulted in the death of one employee.

¹Under 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.

To Waurika ←

← To Fort Worth

- o Waurika, Okla. 91.60 mi.
- o Newark, Texas 13.00 mi.
- X Saginaw (P. of A.) 8.50 mi.
- o Fort Worth, Texas



Inv. No. 2881
 Chicago, Rock Island and Pacific Railway
 Saginaw, Texas
 April 3, 1945

Location of Accident and Method of Operation

This accident occurred on that part of the Southern Division designated as Subdivision 1 and extending southward from Waurika, Okla., to Fort Worth, Texas, 113.1 miles, a single-track line in the vicinity of the point of accident over which trains are operated by timetable and train orders. There is no block system in use. At Saginaw, 104.6 miles south of Waurika, a siding 3,028 feet in length parallels the main track on the east. The north switch of this siding is 3,743 feet north of the station. Entry to the siding at the north switch is made through a No. 10 turnout having a curvature of 7°. The accident occurred at the frog of the turnout 77.42 feet south of the north switch. The main track is tangent throughout a distance of 3.1 miles north of the north siding-switch and a considerable distance southward. The grade is 0.75 percent descending southward.

On the turnout involved the track structure consists of 112-pound rail, laid new in February, 1945, on 45 switch ties. It is fully tieplated with canted double-shoulder tie plates, single-spiked, provided with rail anchors, and ballasted with crushed stone. The frog of the north siding-switch is of the 112-pound spring-rail type, and is 17 feet 10-1/2 inches long with a 2-inch flangeway for either of its positions. The angle of the frog is 5°43'29". A guard rail 9 feet long is located inside the east rail of the turnout, and its center is opposite the point of frog. End blocks bolted to the web of the guard rail are provided. The ends of the guard rail are flared. The side of the base of the guard rail is so designed that it fits under the edge of the base of the running rail. The guard rail extends across six ties, and three tie plates are so arranged that each one lies on two ties. These tie plates are so designed that they support both the running rail and the guard rail. The inner base of the guard rail is bolted to each plate by two 1-inch bolts having rounded ends 5/8-inch in height under the plate. The flangeway between the guard rail and the running rail is 1-3/4 inches wide.

The maximum authorized speed for freight trains on the turnout involved is 10 miles per hour.

Description of Accident

Extra 2688 South, a south-bound freight train, consisting of engine 2688, a 2-8-2 type, 53 cars and a caboose, passed Newark, 13 miles north of Saginaw and the last open office, at 12:54 p. m., and while moving at an estimated speed of 10 miles per hour it entered the north switch of the siding at Saginaw, and the engine and the first 5 cars were derailed.

The engine stopped practically upright and in line with the siding, with the front end about 290 feet south of the

north siding-switch. The engine and the derailed cars were considerably damaged.

The weather was cloudy at the time of the accident, which occurred about 2:01 p. m.

The front brakeman was killed.

The total weight of engine 2688 in working order is 354,500 pounds, distributed as follows: Engine truck, 32,700 pounds; driving wheels, 262,000 pounds; and trailer truck, 59,800 pounds. The specified diameters of the engine-truck wheels, the driving wheels, and the trailer-truck wheels are, respectively, 33, 63 and 43 inches. The tender is rectangular in shape and is equipped with two 4-wheel trucks. The rigid wheel base of the engine is 17 feet long, and the total wheel base is 36 feet 2 inches. The last heavy class repairs were completed in November, 1941, and the last Class 5 repairs, in May, 1944. The last running repairs were completed April 1, 1945. The accumulated mileage following the Class 5 repairs was 41,346 miles.

Discussion

About 1:59 p. m. the front brakeman of No. 96, a north-bound freight train, lined the north switch of the siding at Saginaw for Extra 2688 South to enter the siding. About 2 minutes later, Extra 2688 entered the turnout and was moving at an estimated speed of 10 miles per hour when the engine and the first five cars were derailed. The maximum authorized speed on the turnout was 10 miles per hour. After the accident no defective condition of the engine or cars was found, and there was no indication of dragging equipment or of any obstruction having been on the track.

As Extra 2688 was approaching the north siding-switch, the enginemen were maintaining a lookout ahead. The air brakes had functioned properly en route, and the engine had been riding smoothly. When the engine reached a point about 75 feet south of the north siding-switch the engineer observed an unusual movement of the engine, and he immediately moved the brake valve to emergency position. The engine stopped practically upright and in line with the siding, with the right wheels outside the west rail and the left wheels inside the east rail.

Examination of the track disclosed that the frog point was battered to the right about 1/8 inch. A flange mark appeared on the tops of the frog and the lead rail southward a distance of 20.33 feet. From this point southward to the point where the track was torn up flange marks appeared on the ties outside the west rail and inside the east rail of the turnout. Throughout a distance of 77 feet immediately north of the point of

frog, the gage varied between 4 feet 3-3/16 inches and 4 feet 8-11/16 inches, and was 4 feet 8-3/16 inches at the point of frog. Throughout the first 40 feet of the turnout the left rail varied between 1/4-inch and 3/4-inch low, then throughout the next 37 feet the left rail was higher than the right rail, and at the point of frog it was 1-1/2 inches higher than the frog. The tie plates under the guard rail were single-spiked on each tie, with a guard-rail holding spike inside the guard rail and a rail-holding spike outside the running rail. The spikes outside the running rail were not fully driven and the heads were about 3/4-inch above the base of the rail. The second and third plates were so spaced that the 5/8-inch rounded heads of the guard-rail plate-bolts rested upon the tops of ties.

Examination of the engine disclosed that the back-to-back measurement of the engine-truck wheels was 53-8/32 inches. The distance between the back face of the flange of the left engine-truck wheel and the throat of the flange of the right wheel was 54-13/32 inches.

The normal action of an engine moving on a curve to the left having no superelevation is for it to incline to the right. In the present case, the right running rail in the vicinity of the point of frog was 1-1/2 inches lower than the left rail, and this condition caused the flange of the right engine-truck wheel to bear heavily against the right rail and the point of frog. However, throughout the first 40 feet of the turnout the left rail was from 1/4 to 3/4 inch lower than the right rail. These irregularities in cross levels would cause the engine to roll laterally. Since the gage of the track at the point of frog was 5/16 inch less than standard, the flanges of the engine-truck wheels were compressed against the gage sides of the rails. This condition combined with irregularities in cross levels required a properly secured guard rail opposite the frog to prevent the right engine-truck wheel from either mounting the frog point or passing to the right of it. However, the investigation disclosed that the guard rail was not sufficiently secured, and it canted inward enough from pressure exerted against it by the back of the left engine-truck wheel to permit the other engine-truck wheel to mount the frog point.

The roadmaster said that when the new rail and switches were laid at Saginaw in February the guard-rail tie plates were not fully spiked because the switch ties had not yet been properly spaced. At each tie there was one spike outside and one inside the tie plates. The type of guard rail used in this turnout was not bolted or otherwise fastened to the running rail. The section foreman said he had an allotment of six laborers, but during the past year he has been unable to employ more than three, which are not enough to maintain his section

in a reasonably safe condition. The section is comprised of 7 miles of main track, 8 miles of yard track, and the siding at Saginaw.

Cause

It is found that this accident was caused by an improperly maintained turnout.

Dated at Washington, D. C., this ninth day of May, 1945.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.