INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3328

CHICAGO, ROCK ISLAND AND PACIFIC RAILROAD COMPANY

IN RE ACCIDENT

NEAR KREMLIN, OKLA., ON

MAY 9, 1950

SUMMARY

Date:	May 9, 1950
Railroad:	Chicago, Rock Island and Pacific
Location:	Kremlin, Okla.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 5034 North
Engine number:	5034
Consist:	52 cars, caboose
Estimated speed:	50 m. p. h.
Operation:	Signal indications
Track:	Single; tangent; level
Weather:	Cloudy
Time:	9:07 p. m.
Casualties:	2 killed; 3 injured
Cause:	Sinking of a fill

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3328

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

CHICAGO, ROCK ISLAND AND PACIFIC RAILROAD COMPANY

June 30, 1950

Accident near Kremlin, Okla., on May 9, 1950, caused by the sinking of a fill.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On May 9, 1950, there was a derailment of a freight train on the Chicago, Rock Island and Pacific Railroad near Kremlin, Okla., which resulted in the death of two employees, and the injury of three employees.

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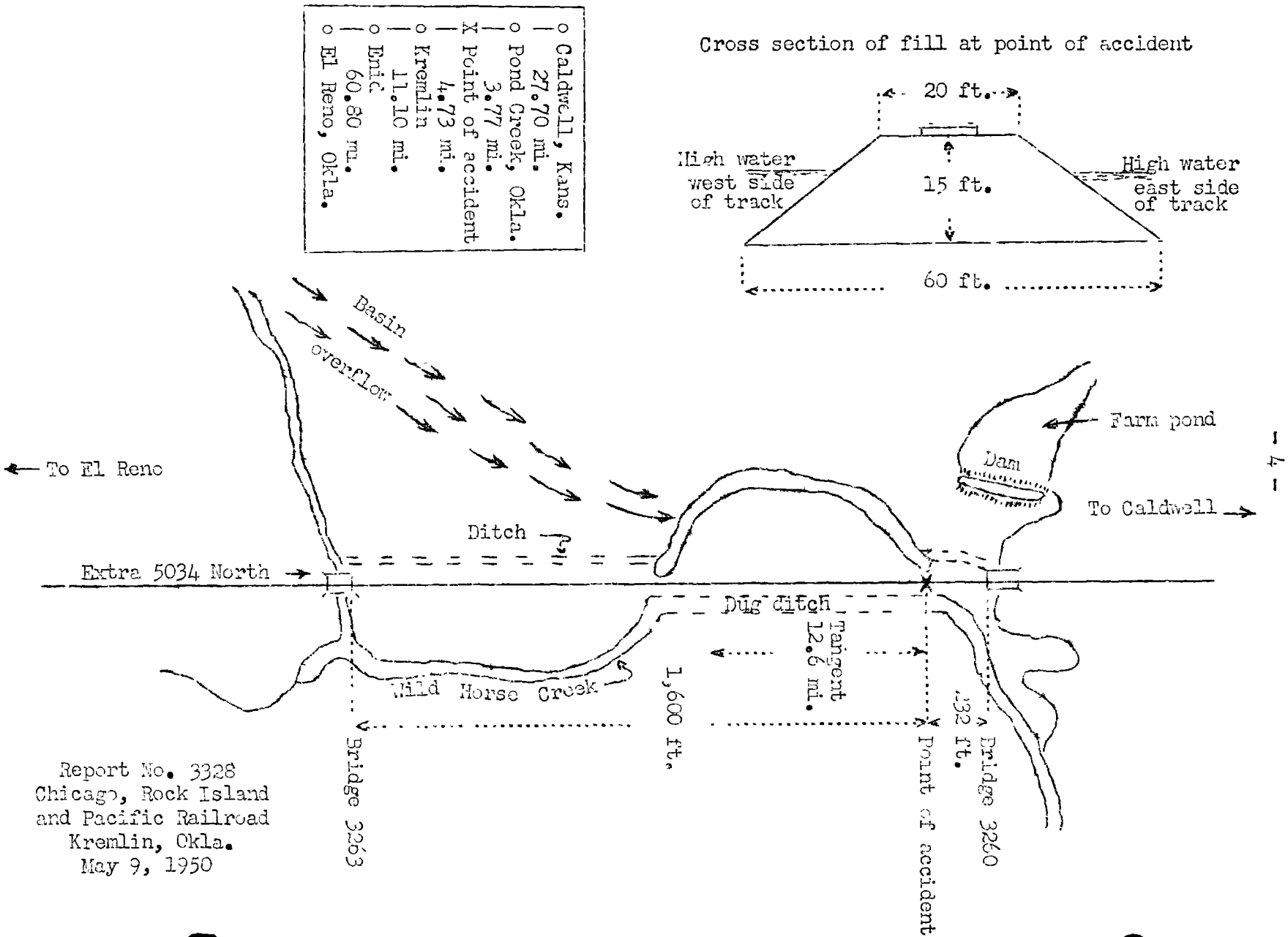
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3328
Chicago, Rock Island
and Pacific Railroad
Kremlin, Okla.
May 9, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the Oklahoma Division extending between El Reno, Okla., and Caldwell, Kans., 108.1 miles, a single-track line, over which trains are operated by signal indications. The accident occurred on the main track at a point 76.63 miles north of El Reno and 4.73 miles north of the station at Kremlin. From the south the track is tangent throughout a distance of 12.6 miles to the point of accident and a considerable distance northward. The grade is level between points 3,943 feet south and 107 feet north of the point of accident.

The track structure consists of 110-pound rail, 39 feet in length, laid new during 1928 on an average of 24 treated ties to the rail length. It is fully tieplated, single-spiked, and is provided with 4-hole 100-percent joint bars 24 inches in length and 6 rail anchors to the rail length. It is ballasted with chats to a depth of 3 inches under the ties and over a sub-ballast of shale 10 inches in depth. In the vicinity of the point of accident the track is laid on a fill constructed in 1889. The fill is approximately 15 feet high, and varies between 20 feet and 24 feet in width at the top and is 60 feet in width at the base. It is composed of sandy loam. The railroad crosses Wild Horse Creek about 1,600 feet south of the point where the accident occurred. Bridge 3263, which spans the creek, is a 50-foot steel through-plate-girder open span set on two concrete abutments. Drainage from an area of approximately 61 square miles flows eastward under the bridge and then flows northward and parallel to the fill on which the accident occurred. During the construction of the fill in order to avoid two crossings over Wild Horse Creek a ditch was provided to divert the stream to the east side of the fill. The water course now parallels the fill on the east throughout a distance of about 1,800 feet immediately north of Bridge 3263.

On the west side of the track there is a basin, roughly semi-circular in shape, which extends along the side of the fill throughout a distance of about 800 feet immediately south of the point of accident and westward about 300 feet from the track. This basin is a portion of the old bed of Wild Horse Creek that was cut off from the stream by the construction of the fill and the ditch. When water in Wild Horse Creek rises above a depth of 14 feet at Bridge 3263, a diversion ditch empties the overflow into the basin. This ditch parallels the fill on the west about 50 feet from the center-line of the track. When water in the basin exceeds

a depth of 8 feet, a ditch about 200 feet in length and 50 feet west of the center-line of the track permits the water to flow northward into a small stream. The railroad crosses this stream at Bridge 3260, 232 feet north of the point of accident. Bridge 3260 is a 4-panel, timber ballast-deck pile trestle 62 feet in length. Drainage from an area of approximately 560 acres north and west of this bridge flows eastward under the structure and empties into Wild Horse Creek at a point approximately 475 feet east of the track. An area of approximately 0.2 square mile drains into that portion of Wild Horse Creek which parllels the east side of the fill between the two bridges. There is no provision for cross drainage, and water trapped in the basin stands until absorbed by the ground or is evaporated. Normally the basin is dry and no water flows under either bridge. At Bridge 3268 the bottom of the rail is 18.3 feet above the bottom of the creek bed, and the cross-sectional area of the waterway under the bridge is 597 square feet. At Bridge 3260 the bottom of the rail is 12.7 feet above the bottom of the bed of the stream, and the cross-sectional area of the waterway is 475 square feet.

The maximum authorized speed for freight trains on tangent track is 50 miles per hour.

Description of Accident

Extra 5034 North, a north-bound freight train, consisted of engine 5034, 52 cars and a caboose. This train departed from El Reno Yard at 4:50 p. m., passed Enid, the last open office, 15.83 miles south of the point of accident, at 7:35 p. m., and while it was moving at an estimated speed of 50 miles per hour the engine, the first 29 cars and the thirty-eighth to the forty-third cars, inclusive, were derailed at a point 4.73 miles north of the station at Kremlin.

The engine stopped on its left side and on the west side of the fill. The front of the engine was 210 feet north of the point of derailment and 14 feet west of the center-line of the track, and its rear end was 11.2 feet west of the center-line of the track. The tender was separated from the engine and stopped upright and off its trucks approximately 18 feet south of the engine. The engine and the tender were badly damaged. The first 29 cars stopped in various positions in the immediate vicinity of the point of accident. The thirty-eighth to the forty-third cars, inclusive, buckled and overturned in various positions along the fill. The inflammable contents of derailed tank cars at the front of the train became ignited, and 27 cars were destroyed by fire, and the other derailed cars were badly damaged.

The fireman and the front brakeman were killed, and the engineer, the conductor and the flagman were injured.

It was cloudy at the time of the accident, which occurred about 8:07 p. m.

Engine 5034 is of the 4-8-4 type. The combined weight of engine and tender, in working order, is 776,700 pounds.

Discussion

As Extra 5034 North was approaching the point where the accident occurred, the speed was about 50 miles per hour. The brakes of this train had been tested and had functioned properly when used en route. The headlight was lighted brightly. The enginemen and the front brakeman were maintaining a lookout ahead from their respective positions in the cab of the engine. The conductor and the flagman were in the cupola of the caboose. The engineer was the only employee on the engine who survived. He said that the automatic block signal governing the movement of north-bound trains into the block in which the accident occurred indicated Proceed, that the engine was riding smoothly and that the track ahead appeared to be in normal alinement. He said that when the accident occurred the speed of the engine suddenly was retarded as though it had struck an obstruction. A run-in of slack occurred and the front of the engine was momentarily elevated. Then the engine overturned to the left before he could take any action to stop the train.

Examination after the accident disclosed that a section of the fill about 50 feet in length had sunk. At the point of accident the fill had sunk about 10 feet throughout its full width. There was no displaced material at the base of the fill, and there was no indication that any portion of the fill had washed away. Except at the location where the thirty-eighth to the forty-third cars, inclusive, were derailed, the track south of the point of accident was in normal alinement and surface. There was no indication of dragging equipment.

The fill on which the accident occurred was constructed in 1889. Borings made after the accident occurred disclosed that a bed of quick sand, 5 to 7 feet thick, underlay the fill at a depth of about 17 feet. Apparently the quick sand underlying the fill was displaced by the material of the fill.

According to the records of the U. S. Weather Bureau Sub-Station at Enid, 15.85 miles south of the point of accident, 1.65 inches of rain had fallen during the 48-hour period ending 7 a. m., May 8, 1950. This rainfall followed a prolonged period of dry weather. There was no available record of the amount of rainfall in the immediate vicinity of the point of accident during this period, but high-water marks indicated that water had risen to the bottom of the steel girders on each side of Bridge 3263, or to the 16-foot level. High-water marks at Bridge 3260 indicated that water at that point had risen to within 2 feet of the bottom of the deck timber. The high-water mark on the west side of the fill was about 1.5 feet higher than on the east side.

A south-bound freight train passed over the fill about 2 hours 40 minutes before the accident occurred, and the members of the crew observed no defective condition of the track. The roadmaster who was in charge of track maintenance in this territory said that he followed this freight train on a track motor-car and passed over the fill about 5:45 p. m. He said that he reduced the speed of the motor-car to about 5 miles per hour and observed no indication of high water or damage to the fill or bridges. The section foreman last inspected the fill and the bridges about 6 hours before the accident occurred. He said that he found no unusual condition on the fill and no excessive amount of water flowing under either Bridge 3263 or Bridge 3260. The division engineer said that previous to the instant case there was no record of any trouble at this fill.

Cause

It is found that this accident was caused by the sinking of a fill.

Dated at Washington, D. C., this thirtieth day of June, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.