

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3329

TEXAS AND NEW ORLEANS RAILROAD COMPANY

IN RE ACCIDENT

AT BEASLEY, TEX., ON

MAY 10, 1950

SUMMARY

Date: May 10, 1950
Railroad: Texas and New Orleans
Location: Beasley, Tex.
Kind of accident: Derailment
Train involved: Passenger
Train number: 304
Engine number: 615
Consist: 10 cars
Estimated speed: 54 m. p. h.
Operation: Timetable and train orders
Track: Single; tangent, 0.08 percent
ascending grade eastward
Weather: Clear
Time: 6:10 a. m.
Casualties: 1 killed; 1 injured
Cause: Inadequately maintained track

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3329

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

TEXAS AND NEW ORLEANS RAILROAD COMPANY

June 30, 1950

Accident at Beasley, Tex., on May 10, 1950, caused by
inadequately maintained track.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

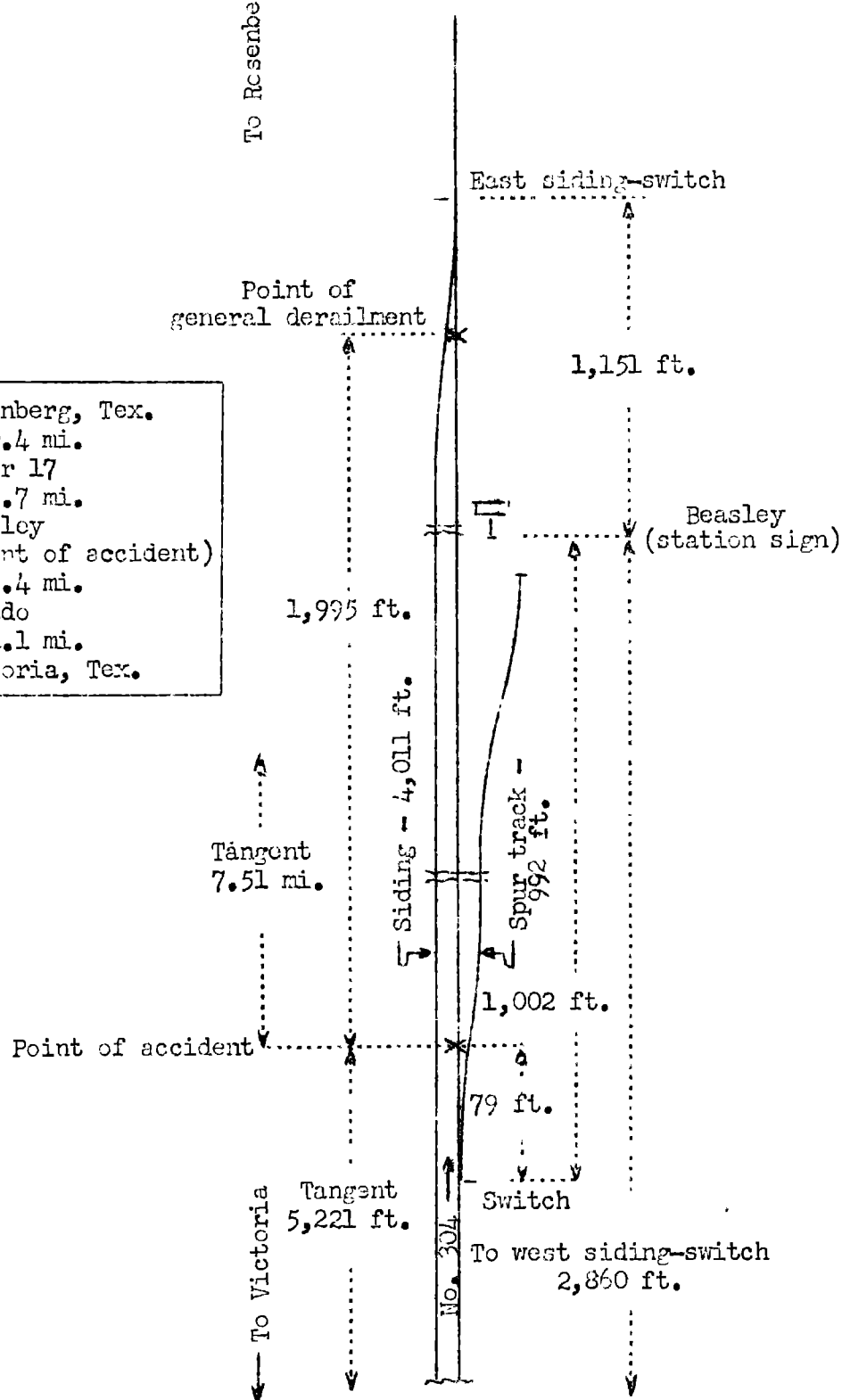
On May 10, 1950, there was a derailment of a passenger train on the Texas and New Orleans Railroad at Beasley, Tex., which resulted in the death of one employee, and the injury of one employee.

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.

To Rosenberg

To Victoria

- o Rosenberg, Tex. | 0.4 mi.
- o Tower 17 | 7.7 mi.
- X Beasley (Point of accident) | 49.4 mi.
- o Ganado | 34.1 mi.
- o Victoria, Tex.



Report No. 2329
 Texas and New Orleans Railroad
 Beasley, Tex.
 May 10, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the Victoria Division extending between Victoria and Tower 17, Rosenberg, Tex., 91.2 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. At Beasley, 33.5 miles east of Victoria, a siding 4,011 feet in length parallels the main track on the north. The switches of this siding are, respectively, 2,860 feet west and 1,151 feet east of the station sign. A spur track 992 feet in length diverges from the main track on the south. The switch of this track, which is facing-point for east-bound movements, is located 1,002 feet west of the station sign. The accident occurred on the main track at the point-of-frog of the spur track and 79 feet east of the point-of-switch. The main track is tangent 5,221 feet immediately west of the point of accident and 7.51 miles eastward. The grade for east-bound trains is 0.08 percent ascending.

The structure of the main track consisted of cropped 90-pound rail 30 feet 8 inches in length, rolled in the years 1910 to 1916, and relaid in its present location in 1928 on an average of 17 treated ties to the rail length. It was fully tieplated with single-shoulder tieplates, single-spiked, and was provided with 27-inch, 4-hole, head-free joint bars and 10 rail anchors per rail length. It was ballasted with pit run gravel to a depth of 8 inches below the ties. At the point of derailment the gage was 4 feet 8-5/8 inches, the alinement was tangent and the south rail was 1/2 inch lower than the north rail.

The spur-track turnout consisted of a No. 12 spring-rail type frog, the angle of which was 4°46'19", 90-pound rails and switch rails, and two 8-foot 3-inch clamp-type guard rails laid on 54 treated switch ties. The spring-rail type frog was 16 feet 6 inches in length. It was bolted together with 10 heat-treated bolts 1-1/2 inches in diameter, and was provided with 10 base plates 5/8 inch thick, 9 inches wide and of various lengths. The base plates were riveted to the base of the frog rail and were spiked to the switch ties with four spikes each. For movements on the main track, the carrier's specifications require that a 1-7/8 inch flangeway be provided between the rigid-wing rail and the frog point. For movements through the turnout, they require that the spring-wing rail be adjusted for a 1-7/8 inch flangeway when fully open. The spring-wing rail was 13 feet 2 inches long, and was held in normal position by four coil springs mounted on a 1-1/8-inch by 28-inch spring bolt. The spring bolt

extended through the rigid-wing rail, the frog point and the spring-wing rail at a point 16 inches east of the point-of-frog. The springs were enclosed in malleable iron housings and were held in position and compression by an adjustable nut on each threaded end of the spring bolt. Three hold-downs were provided to prevent excessive vertical movement of the spring-wing rail. The hold-downs consisted of horns projecting at right angles from the spring-wing rail into U-shape housings bolted to the base plates. The specifications require that the horns be adjusted for only 1/8-inch clearance within the housings. The spring-wing rail was 6 inches longer than the rigid-wing rail and the free end was flared throughout a distance of 23 inches to permit wheels to open the spring-wing rail during movement on the turnout. A triangular section was planed from the head of the spring-wing rail to provide channeling for the treads of wheels moving on the main track. To prevent undesired opening of the spring-wing rail, this channeling was 1/2 inch deep at the apex and 1/4 inch at the point where a wheel tread fully covered both rails. Metal footguards were provided at the throat of the frog and between the short-point rail and the long-point rail. The guard rails were of the clamp type 8 feet 3 inches long, bent away from the running rail at each end and bolted to the running rail near each end with 1-1/8-inch by 9-inch heat treated bolts. Each guard rail was held to proper clearance by a heavy U-shaped clamp, 1-3/4 inches thick and 4 inches wide, adjustable fillers between the guard rail and the running rail, and a wedge with 3/8-inch cotter-key holes, driven in the neck of the clamp and keyed. Each guard rail was supported on 5 tie-plates, which extended under the guard rail and the running rail. Each tieplate was spiked with 4 spikes. The center of the main-track guard rail was located 13-5/8 inches west of the frog point. The specifications required a clearance of 1-7/8 inches for the guard rail.

Rules of the maintenance-of-way department read in part as follows:

TURNOUTS AND RAILROAD CROSSINGS

1681. Section foremen must inspect all * * * frogs * * * and make necessary adjustments and repairs, at sufficiently frequent intervals to insure that these facilities are in good condition and proper working order.

Broken or defective parts must be replaced promptly.

1682. When inspecting * * * frogs * * * particular attention should be given to the following, insofar as they apply to the item being inspected:

- (a) Check alinement, gage and surface through the turnout * * *
- (b) Examine condition as to wear of * * * frog points and guard rails.
- (c) Test gage of guard rails and see that they are in proper position and securely fastened * * *
- (d) See that frog springs are in place and at proper tension, * * *
- (e) See that all bolts, nuts, cotter pins and other fastenings are in place, in good condition and properly tightened.

* * *

1684. Guard rails must conform to and be placed in accordance with standard plans, and must be securely held in place.

1685. For 90# and heavier rail sections, guard rails must be so placed that the gage distance from the frog point to the wheel flange face of the guard rail will be 4 feet 6-5/8 inches, regardless of gage of track. * * *

The maximum authorized speed for the train in this accident was 55 miles per hour.

Description of Accident

No. 304, an east-bound first-class passenger train, consisted of engine 615, a 4-6-2 type, one express-refrigerator car, three baggage cars, one mail car, one sleeping car, two coaches, one sleeping car and one business car, in the order named. The first car was of steel-underframe construction and the other cars were of all-steel construction. This train departed from Victoria at 4:19 a. m., 1 hour 4 minutes late, departed from Canado, the last open office, 42.4 miles west of Beasley, at 5:06 a. m., 59 minutes late, and while it was moving at an estimated speed of 54 miles per hour the No. 1 pair of engine-truck wheels became derailed at the frog of the turnout of the spur track at Beasley. These wheels continued in line with the track a distance of 1,995 feet to the frog of the east turnout of the siding, where the general derailment occurred.

The engine and the tender stopped on their right sides, with the front end of the engine 2,193 feet east of the point of accident. The driving wheels were approximately 8.5 feet south of the center-line of the track. There were no separations between the units of the train. The tender stopped with its rear end about 17 feet south of the center-line of the track. The first car leaned to the right at an angle of approximately 45 degrees. The second car stopped on the roadbed and in line with the track, with its front truck derailed. The engine and the tender were considerably damaged and the first car was slightly damaged.

The fireman was killed and the engineer was injured.

The weather was clear at the time of the accident, which occurred about 6:10 a. m.

Engine 615 is of the 4-6-2 type and is equipped with a booster mounted on the trailer truck. The total weight in working order is 291,200 pounds, distributed as follows: Engine truck, 54,400 pounds; driving wheels, 177,600 pounds; and trailer truck, 59,200 pounds. The specified diameters of the engine-truck wheels, the driving wheels and the trailer-truck wheels are, respectively, 33, 77-1/2, and 45-1/2 inches. The rigid wheelbase is 12 feet 4 inches, the total wheelbase is 35 feet 8 inches and the total length of the engine and tender is 94 feet 10-5/16 inches. The engine truck and the trailer truck are provided with rocker-type constant-resistance devices. A radial-buffer assembly with floating block is arranged between the tender and the engine.

The last class 3 repairs were completed on August 23, 1948. The last quarterly inspection was completed on March 28, 1950, and the last monthly inspection was completed on April 28, 1950. The accumulated mileage since the last class 3 repairs was 108,555 miles.

Discussion

As No. 304 was approaching Beasley the speed was about 54 miles per hour. The enginemen were maintaining a lookout ahead from their respective positions in the cab of the engine, and the other members of the crew were in various locations throughout the train. The engineer said that before the accident occurred the engine and the cars were riding smoothly and there was no indication of either defective equipment or track. He said that when the engine was moving over the frog

of the spur track at Beasley he felt an unusual movement of the front of the engine. He then observed that ballast was being thrown into the air from the front of the engine. He immediately placed the brake valve in emergency position and opened the sanders, but the general derailment occurred before the train could be stopped. The brakes of this train had been tested and had functioned properly when used en route.

An examination of the engine after the accident occurred disclosed that the throttle was closed, the independent brake valve was in release position, and the automatic brake valve in emergency position. The driving-wheel and trailer-truck assemblies were in good condition and there was no indication of unequal distribution of weight. All wheels were tight on their axles and all tires were tight on their wheel-centers. The contours of the flanges and treads of all wheels and the lateral motion were within the limits prescribed by the carrier. However, the contours of the right No. 1 engine-truck wheel, the right front driving wheel and the right trailer-truck wheel showed considerably more wear than those of the other wheels. This condition indicates that the engine had a tendency to nose to the right. The driving-bolt shoes and wedges were well lubricated and moved freely. The radial buffer assembly was well lubricated. The engine truck was damaged, but all breaks were new and occurred as a result of the derailment. The male center casting engaged the female center casting a distance of 8 inches, and the constant-resistance rocker-type centering device was well lubricated and in good condition. The right No. 1 engine-truck wheel had an indentation on the top of the flange. This mark apparently was made when the flange came in contact with the frog point. There were abrasions on the back side of the flange of this wheel. They were made when the wheel came in contact with track fastenings.

Examination of the track throughout a distance of about 2,000 feet west of the point of accident disclosed no indication of dragging equipment. The first mark of derailment was a flange mark on the point of the spur-track frog. A flange mark appeared on top of the frog, and it extended on the long-point rail and the south main track rail a distance of 26 feet east of the frog point. The next mark was on a spike head south of the south rail and 31 feet east of the frog point. A flange mark then appeared on the next eastward tie about 6 inches south of the rail. It extended easterly on the ties, parallel to the rail and almost 2,000 feet to the turnout of the siding. Corresponding flange marks appeared on the ties south of the north rail throughout the same distance. Although the track was tangent, the investigation

disclosed that throughout a distance of 347 feet west of the frog point the cross-level varied 1-1/8 inches. Within this distance the south rail was higher than the north rail at four points and the north rail was higher at five points. At the frog point the north rail was 1/2 inch higher than the south rail.

Examination of the turnout of the spur track disclosed that the spring-rail type frog and the north guard rail were inadequately maintained. The body bolts and the spring bolt of the frog were loose, and proper pressure on the spring-wing rail was not provided by the spring-bolt adjusting nuts. The hold-down housings were not securely fastened. One horn was broken and the others were badly worn. The spikes holding the rigid-wing rail were loose and were throat-cut. The spikes holding the main-track guard rail were throat-cut. This condition permitted a lateral movement of the guard rail on the tieplates of at least 1/4 inch. Marks on the ties indicated that before the derailment occurred the tieplates under the guard rail had moved laterally a distance of about 3/8 inch.

The flange mark on the frog point and on top of the south rail and the corresponding mark on the flange of the right front engine-truck wheel indicate that the flange struck the frog point, moved on top of the south rail, and then dropped to the outside. The track gage at the frog point was 4 feet 8-5/8 inches. Apparently, the irregularities in the cross-level of the track immediately west of the frog caused the right No. 1 engine-truck wheel to thrust laterally against the spring-wing rail of the frog and the left No. 1 engine truck wheel to thrust laterally against the main-track guard rail. The guard rail was not adequately anchored to the ties, and this condition combined with the lateral movement of the engine permitted the flange of the right No.1 engine-truck wheel to mount the frog point.

Cause

It is found that this accident was caused by inadequately maintained track.

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

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.