

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
CHESAPEAKE & OHIO RAILWAY

RICHMOND, VA.

APRIL 26, 1936

INVESTIGATION NO. 2060

SUMMARY

Railroad. Chesapeake & Ohio
Date: April 26, 1938
Location. Richmond, Va.
Kind of accident: Derailment
Train involved: Freight
Train number: No. 72
Engine number: 1259 (Class K-3, 2-8-2 type)
Consist: 160 cars and caboose
Speed: 12-20 m.p.h.
Track: Practically level; yard ladder track; No. 7 turnout; maximum curvature 14' 12"
Weather: Clear
Casualties: 1 injured
Cause: Rigid engine truck, due to steel block having become wedged in truck frame

June 6, 1936

To the Commission

On April 26, 1936, there was a derailment of a freight train on the Chesapeake & Ohio Railway at Richmond, Va., which resulted in the injury of 1 employee.

Location and method of operation

This accident occurred on the Rivanna Subdivision of the Richmond Division, which extends between Gladstone and R. Cabin, Richmond, Va., a distance of 120.7 miles, in the vicinity of the point of accident this is a double-track line over which trains are operated by time table and an automatic block-signal system, signal indications superseding time table authority for movements with the current of traffic, an interlocking plant is located at R. Cabin at the entrance to Fulton yard. Time table directions are used in this report. The accident occurred at the turnout of yard track 15 in the east-bound yard, at a point 738 feet east of R. Cabin; this is a No. 7 turnout which extends to the left and measures 65 feet 5 inches from the point of switch to the point of frog and is equipped with a 130-pound rail balanced No. 7 frog, 16 feet 8 inches in length, with a manganese insert, manufactured in 1935, both the turnout and the frog were in good condition prior to the derailment. Standards of this railroad specify a maximum curvature of 14' 12" and a total length of 152 feet for each No. 7 turnout. The first marks of derailment were found on the north guard rail at a point 2 feet 7 inches west of and nearly opposite the point of frog.

The grade at the point of accident is 0.04 percent ascending for east-bound trains and the maximum authorized speed through turnouts is 15 miles per hour.

The weather was clear at the time of accident, which occurred about 10.50 a.m.

Description

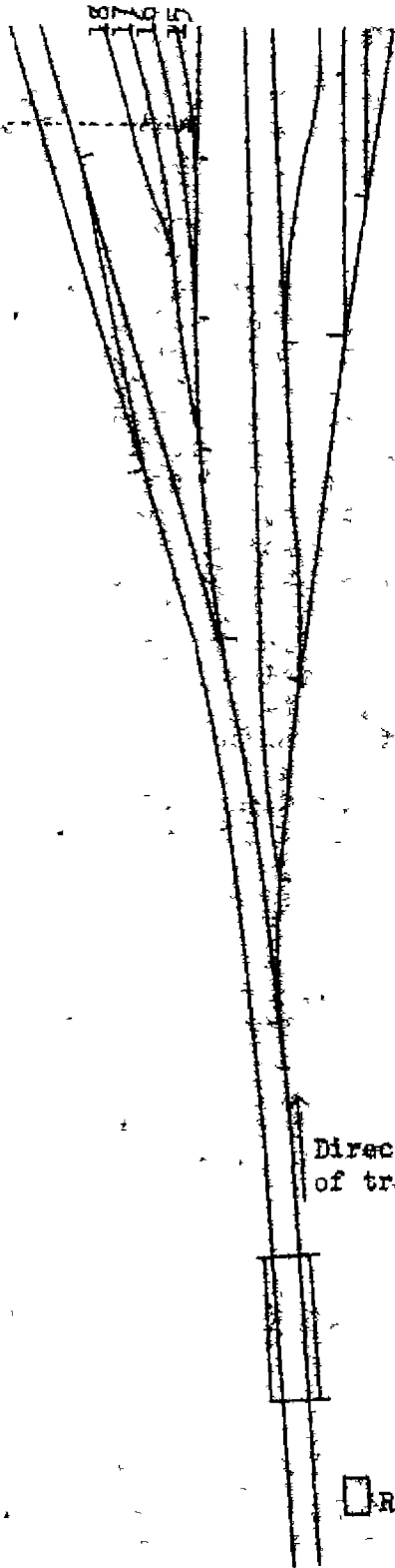
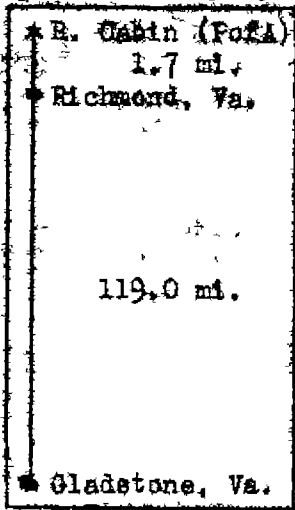
Train No. 72, an east-bound freight train, consisted of 160 cars and a caboose, hauled by Class K-3, 2-8-2 type engine 1259, and was in charge of Conductor Chappell and Engineman Britt.

This train left Gladstone at 5.05 a.m., according to the train sheet, 5 hours and 4 minutes late, and arrived at R. Cabin at 10.50 a.m., 5 hours and 35 minutes late, and was derailed while entering the turnout of track 15 at a speed estimated to have been between 12 and 20 miles per hour.

The engine and first 16 cars in the train were derailed,

Inv. No. 2060
Chesapeake & Ohio Ry.
Richmond, Va.
April 26, 1936

Point of accident



damaging 2 cars on a parallel track, the engine stopped between tracks 14 and 15, 249 feet east of the point of derailment, leaning to the south and only slightly damaged. The employce injured was the fireman.

Summary of Evidence

Engineman Britt, of Train No. 72, stated that no trouble was experienced with the engine, and that only one stop was made between Gladstone and the point of accident. While entering Fulton yard the speed was about 15 miles per hour and he continued to work a light throttle, he had the sanders and the rail washer in operation and the engine did not slip between the entrance to the yard and the point of derailment. The switch was lined for track 15 and no lurch was experienced until the engine was derailed, apparently in the vicinity of the frog; immediately thereafter the engineman closed the throttle and made an emergency application of the air brakes, he did not apply the independent brake, or the automatic brake before the derailment occurred. Statements of Fireman Walls and Head Brakeman Pugh were similar to those of Engineman Britt, they estimated the speed to have been between 12 and 15 miles per hour when the engine derailed.

Conductor Chappell and Fireman Wood were in the caboose and were not aware of anything wrong until the accident occurred, they estimated the speed to have been between 14 and 20 miles per hour at that time. The air brakes were tested at Gladstone and worked properly.

Yardmaster Strang stated that he lined the switch for Train No. 72 to head in on track 15 and he noted that the lever was properly latched and that the switch points faced properly. As the engine approached R. Cabin he signalled the engineman to pull the train into the yard, and this signal was acknowledged. Yardmaster Strang stood at the south side of the track, about 6 feet from the switch as the train approached, moving about 12 to 15 miles per hour; as the engine passed over the frog he saw the engine truck wheels pass safely, but the front driving wheels were derailed toward the south, followed by the other driving wheels, which dropped off as the engine twisted away from the south side of the rail. He did not think that the engine slipped prior to the derailment and he could advance no reason for the engine being derailed.

General Car Foreman Marlen was standing between tracks 17 and 18, at a point about 15 or 20 feet west of the frog in track 15, watching the train pull in, he saw the front end of the engine rocking after it passed the switch points and it looked to him as though the engine was derailed at the frog.

Track Foreman Staples considered the frog to be in good condition and not sufficiently worn as to render it unsafe. A standard guard rail, 11 feet long, used in connection with the frog, was secured by two Q and C clamps, and at each end by one $\frac{1}{4}$ inch bolt, additional security being afforded by the shoulders of five reversed tie plates, which held the guard rail in position. The lead track had been in service for 35 years, and the usual amount of deflection beneath an engine of the class involved is about $\frac{3}{16}$ inch. He had personally inspected this track and gauged the frogs and guard rails the day prior to the accident, and found them to be in good condition. He arrived at the scene of accident about 17 minutes after its occurrence, and found the track torn up for a distance of about 275 feet; the frog was in position, but knocked out of line about 8 inches, and the north rail of track 15, opposite the frog, was turned over northward at an angle of 90° . Both clamps were freshly broken and stripped from the guard rail; the track was slightly out of line from the frog to a point about 10 feet westward, and was torn up from the frog for a distance of 275 feet eastward. There was a mark on top of the guard rail which indicated that a flange had crossed it at a point about opposite the frog; one wing rail of the frog was bent in the accident and it was replaced, after which the frog and guard rail were restored to service in their former locations. Careful inspection of the track failed to disclose any condition that would have caused the accident.

Two days prior to the accident Track Walker Lynch checked the gauge of the turnout involved and found the switch, frog, and guard rail in good condition, while just a few hours prior to the accident he had inspected the ladder track, on which number 15 switch is located, and found everything to be in proper condition.

Division Engineer White made a thorough check of track conditions after the accident, but failed to find anything that would have caused the accident; the gauge and cross-level was all right and there was no soft track condition.

General Foreman Finks, Fulton roundhouse, stated that immediately after the accident he inspected the engine, but failed to determine what caused it to be derailed, saying that no previous trouble had been experienced with engines of this class being derailed at turnouts. All of the driving wheels were flanged, and all flanges and tires were in good condition, and there was no excessive lateral.

Master Mechanic Hobson inspected the engine and said that there was no defective condition about it that would have caused or contributed to the accident. Subsequently, the engine truck was removed and a steel block was found between the pedestal

jaw and the swinging bolster at the right rear corner of the engine truck, this block was discovered on May 2. The only way this block could have been discovered was by special inspection.

The Commission's inspectors made an inspection of the steel block found in the engine truck, it was a rectangular piece of steel, 6 inches in height, base 3 5/8 x 3 7/8 inches and top 3 5/8 x 4 1/8 and 4 5/16 inches, apparently a section from an engine frame. On May 4 this block was placed in the corresponding location in the engine truck of an engine of the same type involved in this accident, after which five tests were made as the engine was moved over the No. 7 turnout of track 15, at estimated speeds of 8, 15, 20, 20, and 15 miles per hour, respectively, however, conditions at the time of the accident were not duplicated as the engine used in these tests did not pull a heavy train. In each instance the engine was not derailed, but the swinging bolster of the engine truck hit the steel block a blow corresponding in intensity to the speed of the engine. A sixth test was made on a 20° curve, around which the engine passed safely at an estimated speed of 20 miles per hour, the swinging bolster again engaging the block, but the engine was not derailed. According to the specifications of this railroad, on engine trucks of class K-3, 2-8-2 type engines, the bolster is permitted a maximum swing of 5 1/2 inches on each side of the center of the engine truck, however, the presence of the block in the truck restricted the maximum swing of the bolster to approximately 1 1/2 inches.

Discussion

The investigation developed nothing wrong with track conditions or the manner in which the train or engine was handled that would in any way have caused or contributed to the accident. After the engine was rerailed a cursory inspection revealed nothing unusual, and all wheel flanges, tires, and lateral were in good condition. When the engine truck was subsequently removed, however, in order to make necessary repairs to certain parts broken in the derailment, a rectangular steel block was found between the pedestal jaw and the swinging bolster at the right rear corner of the engine truck. According to the specifications for engine trucks on the type of engine involved, this bolster is permitted a maximum swing of 5 1/2 inches on each side of the center of the engine truck, however, the presence of the steel block reduced the maximum swing approximately to 1 1/2 inches, thereby considerably impeding the normal functioning of the engine truck on curved track.

Conclusion

This accident is believed to have been caused by a rigid engine truck, due to a steel block having become wedged between

the pedestal jaw and the swinging bolster, preventing the normal curving of the trunk.

Respectfully submitted,

W. J. PATTERSON,

Director.