

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE
LOUISVILLE & NASHVILLE RAILROAD

ALTRO, KY.

NOVEMBER 7, 1936

INVESTIGATION NO. 2109

SUMMARY

Railroad: Louisville & Nashville
Date: November 7, 1936
Location: Altro, Ky.
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 1422
Engine number: 1422
Consist: 28 cars and caboose
Speed: 18-30 m.p.h.
Track: Level tangent
Weather: Dark and foggy
Time: 1:17 a.m.
Casualties: 2 killed and 3 injured
Cause: Land and rock slide

December 12, 1936

To the Commission:

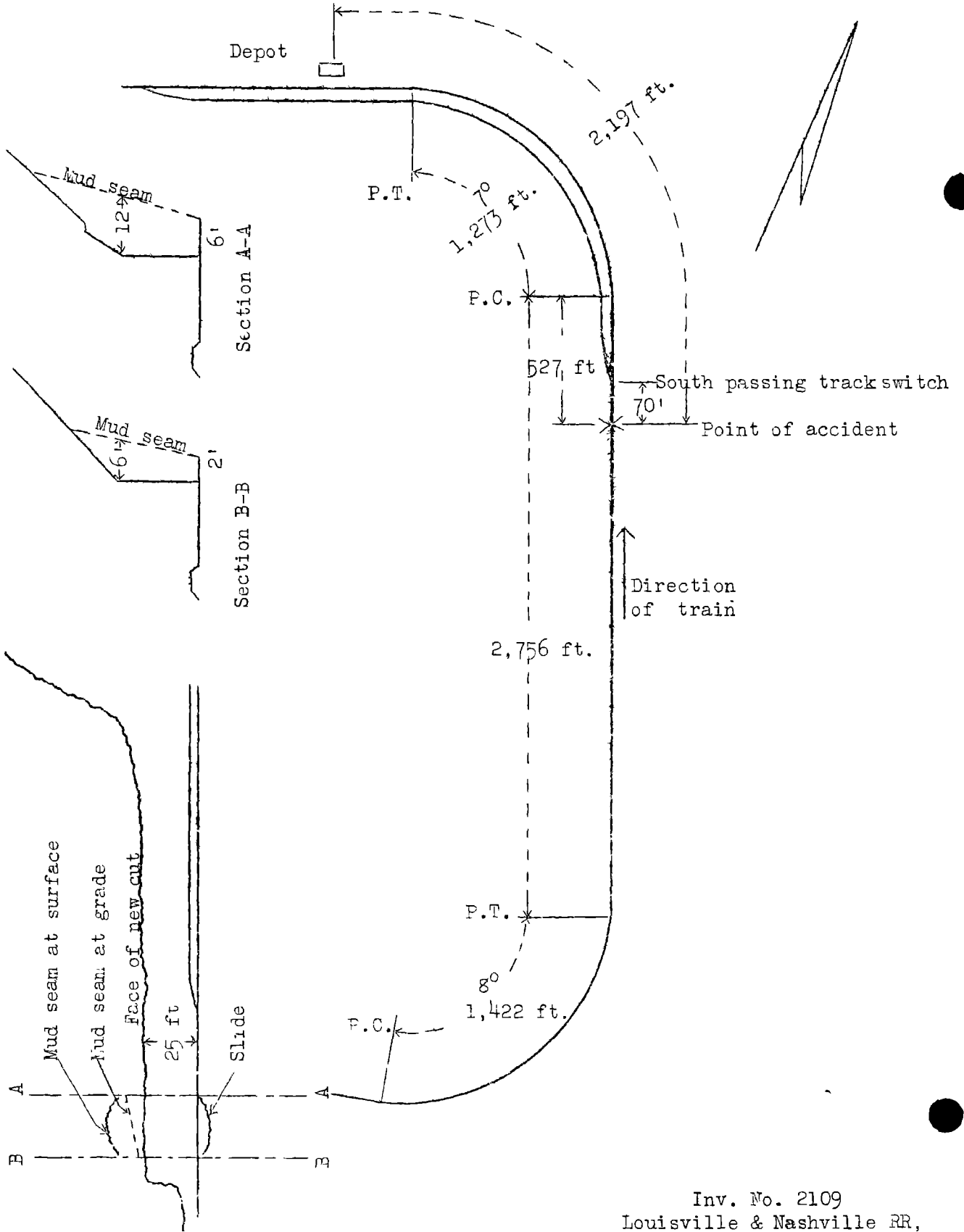
On November 7, 1936, there was a derailment of a freight train on the Louisville & Nashville Railroad at Altro, Ky., which resulted in the death of 2 employees and the injury of 3 employees.

Location and method of operation

This accident occurred on that part of the Eastern Kentucky Division which extends between North Hazard and Ravena, Ky., a distance of 97.8 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders, no block system being in use. The accident occurred at a point 70 feet south of the south passing-track switch, or 2,197 feet south of the station at Altro. Approaching this point from the south there is an 8° curve to the left 1,422 feet in length, followed by tangent track for a distance of 2,756 feet, the accident occurring on this tangent at a point 527 feet from its northern end. The track is level at the point of accident. The maximum speed limit for freight trains is 30 miles per hour.

The track is laid with 100-pound rails, 39 feet in length, with 23 treated oak ties to the rail length, single-spiked, fully tieplated, and 4 rail anchors to the rail length are used. The track is ballasted with limestone to a depth of about 12 inches and is well maintained. In the vicinity of the point of accident the main track, including the turnout at the south end of the passing track, is laid through a side hill cut about 250 feet in length. The cut formation is composed of slate, soapstone and sandstone in horizontal layers, varying in thickness from 3½ feet at grade to about 1 inch at a height of 25 feet, and covered with soil about 2 feet deep. The wall of the cut at grade was 25 feet from the center of the main track and above this there was a two to one slope. For several days just prior to the accident a construction company had been engaged in excavating in the cut from a point 150 feet north of the switch and had progressed to about 105 feet south of the switch on the evening of November 6, for the purpose of extending the passing track.

It was dark and foggy at the time of the accident, which occurred about 1:17 a. m.



Inv. No. 2109
Louisville & Nashville RR,
Altro, Ky.
Nov. 7, 1936

Description

Extra 1422, a north-bound freight train, consisted of 28 cars and a caboose, hauled by engine 1422, and was in charge of Conductor Little and Engineman Tandy. This train departed from North Hazard, 22.8 miles from Altro, at 12:15 a. m., passed Krypton, 8 miles from Altro at 12:50 a.m., and on approaching the south switch of the passing track, struck a slide on the track while traveling at a speed estimated to have been between 18 and 30 miles per hour.

The engine and eleven cars were derailed. The engine stopped on its side, about 280 feet north of the slide, headed down a 5-foot embankment. The tender frame stopped at an angle across the passing track, with the cistern about 15 feet north thereof. Nine cars stopped side by side in practically upright positions and at right angles across the passing track and the main track, within a distance of 180 feet south of the engine, with one car paralleling the passing track to the left. The front truck of the eleventh car was also derailed. The employees killed were the engineman and head brakeman and those injured were the fireman, conductor and flagman.

Summary of evidence

Conductor Little stated that the train was traveling at regular speed of about 30 miles per hour on approaching Altro when he felt the air brakes being applied in emergency, which was followed in a few seconds by a flash of light at the head end of the train and the train stopped suddenly. He immediately went to the head end and found that the train had struck a slide. The slide, consisting of dirt and rock, was about 40 feet in length and covered the track to a depth of about 18 inches. Conductor Little thought that the speed of the train had been reduced to about 20 miles per hour when the slide was struck. The fireman told him that he had warned the engineman and the engineman immediately placed the brake valve in emergency position.

Flagman Freeman estimated the speed of the train to have been about 20 miles per hour when the emergency application was made, the derailment occurring about 30 seconds later, at which time the speed was about 18 miles per hour.

Section Foreman Nunley arrived at the scene of the accident about 1 hour 15 minutes after its occurrence. The slide appeared to him to consist of about 160 cubic yards of a mixture of soapstone and small sandstone rock, which extended about 45 feet along the track and was about 4 feet deep on the west side of the track and about 2 feet deep on the east rail. This slide occurred

about 55 feet south of the passing-track switch but there was evidence of the slide up to within 15 feet of the switch points. The track south of the point of derailment was in good condition and was undisturbed by the slide up to a point 35 feet south of the switch where a rail had been torn out on the east side, but the cross ties had not been disturbed up to the switch, although there were flange marks on the ties a few feet south of the switch points. Section Foreman Nunley stated that he last inspected the track at this point on the afternoon of November 5, at which time he observed the work that was being done on the cut.

Track Supervisor Stephens stated that he saw what appeared to be flange marks on the ties for a distance of 5 or 6 feet south of the switch. Trainmaster Winkler, however, did not observe any marks on the track south of the switch to indicate that the engine had become derailed before reaching the switch.

Division Engineer Frenberg stated that the slide consisted of about 250 cubic yards of material; it was 45 feet in length, the north end being about 45 feet south of the switch and the debris was approximately 18 inches above the rail on the west side and a lesser depth on the east rail. The slide was approximately 10 feet deep at its back edge, and extended with a surface slope of about 15 feet and then sloped steeply to a point east of the main track. The heaviest rock was at the bottom of the slide and west of the track. Examination of the material between the rails showed no evidence of rock of any size, the material consisting of pieces of sand or slate and pieces of thin bedded sandstone weighing less than 10 pounds and mixed with much small sandy loam and material from the soil covering. At the time of the accident the work of grading had progressed from a point 150 feet north of the south switch to a point about 105 feet south of the switch. This grading extended back to a vertical wall 25 feet from the center of the main track. The cut was approximately 25 feet deep between the north end of the slide and the south switch and about 20 feet deep at the south end of the slide. Examination developed that behind the face of the excavation made by the contractor there was a seam several inches in width and discolored with mud. This seam practically paralleled the track, being approximately 31 feet from the center of the main track at grade and sloped away from the track as it extended upward so that at the top of the cut made by the contractor, it was 12 feet from the wall of the cut and 37 feet from the center of the main track. As the surface of the ground above the cut is on a steep two to one slope, the seam reached the surface at the north end of the slide, at a point approximately 35 feet above the grade line of

the track. At the south end of the slide where the depth of the original cut was about 20 feet, the mud seam was about 4 feet from the face of the excavation, or 29 feet from the track and about 25 feet deep where it met the surface. It was Division Engineer Frenberg's opinion that when the engine struck the slide it ploughed through it for about 20 feet, the pilot was sent backward under the engine and the engine truck rode upon the slide, which, being deeper on the left rail, created a tendency for the wheels to travel toward the right, so that when the engine had passed the slide the engine-truck wheels were to the right of the rails; he did not think that the driving wheels were derailed until the switch was encountered. He further stated that had he viewed a small slide that had occurred earlier in the day, as described by the construction foreman, he would not have anticipated a further disturbance of more than 50 or 100 yards of earth at the very most and that the cut amply provided for this amount of material without fouling the main track. He thought that the construction foreman was sincere in believing that there was sufficient space between the main track and the wall of the cut to take care of any quantity of material that might fall.

Construction Foreman Cluggish, employed by G. L. Brantley, Contractor, stated that he was engaged in excavating in the cut. The work, started during the latter part of October, had progressed a distance of about 200 feet and extended back 25 feet from the center of the main track. At a point about 50 feet south of the switch they struck a stratum composed of five layers of slate and soapstone, or what he termed brown sandstone; it appeared within $2\frac{1}{2}$ feet from the ditch line and 10 feet above the grade line and extended almost vertically back into the mountain for a distance of at least 15 feet at the switch, but sloping slightly away from the track. On the day of the accident about 25 feet of excavating had been accomplished and during the day a breakage about $2\frac{1}{2}$ feet in width had occurred beyond the vertical line and extended upward about 10 feet and about 15 feet into the hillside. After this small piece broke away he had reason to think that more material might fall, but inasmuch as all material had been removed to within a distance of 25 feet from the track he thought that if any more material fell, it would stay within the clear area and would not reach the main track. He placed a watchman at this point and cautioned him to watch it closely, but stated that he did not have an opportunity to notify any of the maintenance of way forces of the railroad. While the work was in progress trains were protected by flag, and only light charges of explosives were used to prevent material from falling upon the main track. Construction Foreman Cluggish further stated that in all probability the rains during the previous week were responsible for the slide.

Night Watchman Gambill, employed by G. L. Brantley, stated that he had just left the tool house, located about 600 feet north of the slide, and had walked southward a distance of about 2 rail lengths when he heard an engine sounding the station whistle signal, and at about the time the sound stopped he heard the slide. Due to the fog he could not see the train although he saw the reflection of the headlight but he did not have time to flag the train. After the accident he heard the fireman say that he saw the slide when the engine was about 100 feet from it. Watchman Gambill further stated that when he went on duty on the night in question he had talked with Foreman Cluggish about the slide that had occurred during the day and the foreman stated that the railroad company would no doubt have the material removed from in front of the mud seam. The foreman did not give him any different instructions than usual and did not mention the fact that there was a possibility of another slide. He had patrolled the track once or twice each hour and had last passed the point where the slide occurred about 30 minutes prior to the accident.

Master Mechanic Mitchell made a thorough inspection of the engine but found nothing that could have contributed to the cause of the accident. The pilot had been bent back under the engine, but was still secured to the pilot beam. Apparently when the engine struck the slide the pilot was knocked down and forced back under the engine truck, derailing the truck but the engine continued to the switch 45 feet beyond, where it became entirely derailed, tearing up the track.

Inspection of the track by the Commission's inspectors disclosed the first mark of derailment to be on a spike head in the tenth tie south of the switch and on the outside of the east rail. The next spike head north thereof had a distinct flange mark and on the following 8 ties there were light flange marks, leading slightly away from the rail to the switch where the track was entirely torn out. There were no corresponding flange marks on the west side, although some of the ties bore light scars apparently made by rock being dragged by the pilot. The track was not disturbed by the slide and was found to be in good alignment and gauge for a distance of 2,000 feet south of the switch.

Discussion

A slide consisting of about 250 cubic yards of material fell from the side of a rock cut, filling the 25-foot space between the wall of the cut and the track, and extending beyond the main track to a depth of from 18 inches to 2 feet on the west rail and a lesser depth on the east rail. The heaviest rock was west of the track while the material on the track consisted of pieces of slate and thin bedded sandstone, mixed with sandy material and loam. The slide did not disturb the track in any way, but as

the engine ploughed through it the pilot was bent under the engine truck, which rode upon the slide and became derailed to the right, and upon encountering the switch a short distance beyond the entire engine became derailed.

During the process of excavation, which was being done for the purpose of extending the passing track, on the day of the accident a vertical mud seam was encountered and a small slide occurred. At the north end of the slide this mud seam was 6 feet behind the face of the cut and at the south end of the slide it was 2 feet from the face of the cut; this seam extended upward and in a slight backward slope toward the hillside. Construction Foreman Cluggish was aware of the possibility of another slide due to this mud seam, but he thought that the area between the wall of the cut and the track would take care of any material that might fall. Night Watchman Gambill, employed by the construction company, patrolled this track about twice every hour, he had last passed the point of accident about 30 minutes prior to the accident, and was just leaving the tool house about 600 feet north of the point of accident, he heard the engine whistle sounded, immediately followed by the noise of the slide; there was not sufficient time in which to flag the train. Foreman Cluggish, although aware of the conditions and the possibility of a further slide, did not notify the representatives of the railroad, so as to enable them to take any further precautions necessary to prevent an accident.

Conclusion

This accident was caused by a land and rock slide.

Respectfully submitted,

W. J. PATTERSON,

Director.