Inv-2392

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

GREAT NORTHERN RAILWAY

KATKA, IDAHO

NOVEMBER 8, 1939

INVESTIGATION NO. 2392

SUMMARY

Inv-2392

Railroad:	Great Northern
Date:	November 8, 1939
Location:	Katka, Idaho
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	1
Engine number	2510
Consist:	11 cars
Speed:	25-30 m. p. h.
Operation:	Timetable, train orders and automatic block system
Track:	Single; 5°30' curve to left; grade 0.05 percent descending westward
Weather:	Partly cloudy; dark
Time:	6:27 p. m.
Casualties:	1 killed, 1 injured
Cause:	Rock slide

January 11, 1940.

To the Commission:

On November 8, 1939, there was a derailment of a passenger train on the Great Northern Railway near Katka, Idaho, which resulted in the death of one employee and the injury of one employee.

Location and Method of Operation

This accident occurred on that part of the Kalispell Division designated as the Fourth Subdivision which extends between Troy, Mont., and Hillyard, Wash., a distance of 134.67 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block system. The accident occurred at a point approximately 2 miles east of Katka. Approaching this point from the east there are, in succession, a 6° curve to the left 510.6 feet in length, a tangent 319.6 feet in length, and a 3°30' curve to the left which extends 359.7 feet to the point of accident and 646 feet beyond. The grade is undulating and at the point of accident is 0.05 percent descending for west-bound trains.

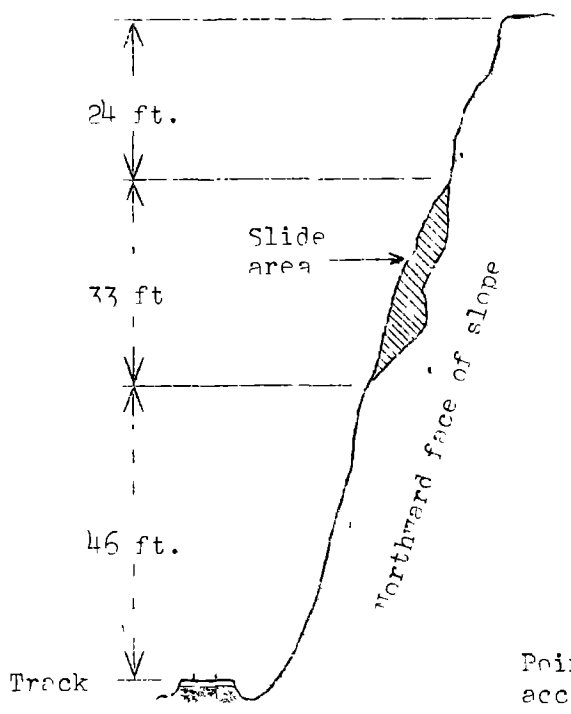
In the vicinity of the point of accident the track parallels the south bank of the Kootenai River and is laid on a bench between the river and the south wall of the river canyon, which at this point rises about 103 feet above the level of the track and slopes at an angle of almost 1/2 to 1. A recent change in track alinement in this vicinity necessitated the removal of considerable material from the south wall which was cut away from 7 feet to 26 feet in width throughout a distance of 300 feet. The toe of this wall is about 15 feet from the track and a ditch about 6 feet wide and 4 feet deep follows the contour of the toe. At the point of accident the fill at the north side of the track is about 33 feet wide.

The track structure consists of 112-pound rail, 39 feet in length, laid on an average of 24 ties to the rail length; it is fully tieplated and single-spiked; it is provided with 8 rail anchors to the rail length, ballasted with gravel to a depth of 12 inches, and is well maintained.

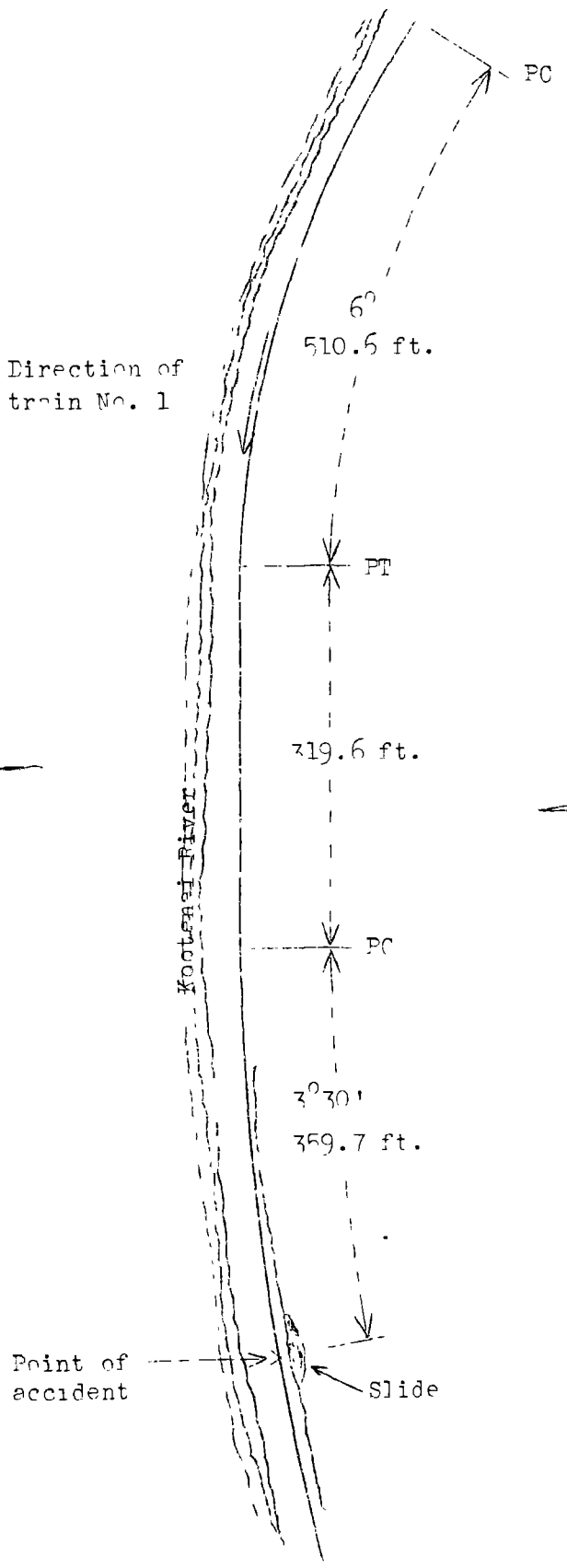
Automatic signal 13541, which governs westward movements over the track involved, is located approximately 6,000 feet east of the point of accident.

The maximum authorized speed for passenger trains is 35 miles per hour.

- Troy, Mont.
- 6.68 mi.
- Yakt, Mont.
- 7.03 mi.
- Leonia, Idaho
- 4.93 mi.
- Point of accident
- 2.0 mi.
- Katka, Idaho
- 114.03 mi.
- Hillyard, Wash.



Profile



Inv. No. 2392
Great Northern Ry.
Katka, Idaho
Nov. 8, 1939

It was dark and partly cloudy at the time of accident, which occurred about 6:27 p. m.

Description

No. 1, a west-bound passenger train, consisted of one mail car, one dormitory smoker, two coaches, two tourist sleepers, one dining car, three Pullman sleepers, and one club car, in the order named, each car of all-steel construction, hauled by engine 2510, of the 4-8-2 type, and was in charge of Conductor Manwaring and Engineman Koyl. This train left Troy, 20.64 miles east of Katka, at 5:50 p. m., according to the train sheet, on time, and, after entering the curve involved a distance of 359.7 feet, struck a slide and was derailed while moving at a speed estimated to have been 25 or 30 miles per hour.

The engine and tender stopped at the west end of the slide on their right sides and parallel to the track. The front truck of the first car was derailed but remained in alinement with the track. The employee killed was the engineman, and the employee injured was the fireman.

Summary of Evidence

Fireman Davies stated that at Troy a terminal air-brake test was made and the brakes functioned properly en route. Approaching the point of accident at a speed of about 30 miles per hour he observed from his position on the left seat-box that automatic signal 13541 displayed a proceed indication; a little later he saw by the reflection of the headlight, at a distance of about 250 feet, a slide obstructing the track. He shouted a warning to the engineman, who immediately applied the brakes in emergency.

Conductor Manwaring stated that before leaving Troy a terminal air-brake test was made and the brakes functioned properly en route. Before leaving Troy the engineman remarked that he was going to take it easy through the canyon and watch for rocks. Approaching the point of accident Conductor Manwaring was in the seventh car and the train was moving at a speed of about 25 miles per hour. The train stopped as if an emergency brake application had been made. He went forward and found the engine and tender derailed by a rock slide 4 or 5 feet deep. He said that it was dark at the time of accident, which occurred at 6:27 p. m.

Brakeman Bonner and Flagman Mills corroborated the testimony of Conductor Manwaring relative to the air-brake test at Troy and the speed of the train at the time of accident.

Civil Engineer Sherman, of the assistant chief engineer's office, who was the inspector representing the railroad during the period excavating operations were in progress in the vicinity of the point of accident, stated that in order to reduce the track curvature and to improve the slope in the vicinity of the point of accident the south canyon wall was cut away from 7 feet to a maximum of 26 feet in width and 300 feet in length. The contractor began the excavation on September 4, 1939, and it was accepted by the railroad as completed on October 12. More than 22,000 cubic yards of conglomerate rock were removed. Small charges of explosives were used to loosen the rock and after the work was completed the face of the wall was combed thoroughly for loose material. He said that the wall now slopes at an angle of almost 1/2 to 1; previously, at the steepest places, it had been almost vertical. After the accident he examined the slide and the wall. He found that the slide came from a pocket, the lower edge of which was 46 feet and the upper edge 79 feet above the track level. He said that the material in the slide came from a fault in the slope that had been hidden until exposed by the slide, which he thought was caused by water seeping into a seam.

Division Engineer Brown stated that after completion of recent line changes all loose material was removed from the face of the wall. He did not believe that the small charges of explosives, as used in this work, had any damaging effect on the wall. He thought the slide was caused either by vibration from passing trains or by the recent heavy rainfall. It was his opinion that if a detector fence had been installed at this point the accident might have been averted provided the slide had occurred before No. 1 passed signal 13541.

Assistant Chief Engineer Seyton stated that after the completion of the recent line change he and other officials examined the face of the slope and found it apparently in safe condition; a detector fence had not been deemed necessary at that time.

Division Roadmaster Christenson stated that on the day of the accident he passed the point involved four times and saw no indication of either a slide or a fault in the wall. The track involved is patrolled by watchmen who pass the point of slide 12 times during a 24-hour period. An east-bound train passed the point of accident about 6 p. m. and no condition indicating expected danger from slides was reported. He arrived at the scene of accident about 8 p. m. and found that the debris of the slide was about 5 feet deep over the south rail, and was about 110 feet long and about 500 cubic yards in volume. Subsequent to the accident he made a visual test to establish the distance at which a fireman of a west-bound train could see the slide involved and found it to be 263 feet.

Track Inspector Krona stated that he passed the point of accident between 12:30 p. m. and 1 p. m., at which time a light rain was falling but he saw no indication of falling rocks.

Conductor Tyler, in charge of a crane working in the vicinity of the point of accident, who passed the point involved about 3:45 p. m. on the day of the accident, stated that it rained considerably during the forenoon and until 1 p. m. but he saw no indication of either slides or falling material.

Section Foreman Stemmene stated that it rained heavily until about noon on the day of the accident; about 3:45 p. m. he passed the point where the slide later occurred but saw no evidence of falling material.

Extra-gang Foreman Lopez stated that on the afternoon of the day of the accident he and his gang of 35 men worked on the track adjacent to the point of accident; it rained considerably during the forenoon. During the afternoon he looked at the wall several times when small pieces of rock fell down the slope but there appeared to be no danger of a slide.

Track Watchman Kiourkas stated that he passed the point of accident after 5:30 p. m., at which time it was already dark. There was no evidence of danger although occasionally small particles came down the new slope. He had never observed rocks falling down the old slope.

Master Mechanic Lowney stated that subsequent to the accident an examination of engine 2510 was made and no defect which might have caused or contributed to the derailment was found.

Observations of the Commission's Inspectors

The Commission's inspectors observed the face of the cliff and found that it is composed of granite and a conglomerate mixture; in places this material was cracked in various directions. The slide, which contained from 500 to 600 cubic yards of material, was approximately 120 feet long, 5 feet deep on the south rail and extended over the north rail. One rail joint was broken at the angle-bar connection but this appeared to have been caused during the process of derailment. The gage of the track east of the slide a distance of about 1,300 feet was found to be proper; the superelevation on the curve involved varied from 2-1/8 to 3-1/8 inches. Examination of the engine disclosed no defect which might have caused or contributed to the derailment. It appeared that the engine after turning over had not moved far, as the jacket and lagging were practically undisturbed.

Discussion

According to the testimony, as No. 1 was moving at a speed of 25 or 30 miles per hour, the fireman observed that automatic signal 13541 displayed a proceed indication, and about 6,000 feet beyond he observed a rock slide on the track approximately 250 feet distant; he called a warning to the engineman, who immediately made an emergency application of the brakes; however, there was not a sufficient distance in which to stop the train short of the slide. One rail joint broken at the angle-bar connection was found under the slide but this appeared to have been caused during the derailment and not by the slide, and this is substantiated further by the fact that a proceed indication was displayed by automatic signal 13541.

The evidence indicates that there had been no trouble on the slope at the point of accident before the excavating operations were begun. A change in the track alinement had been completed recently, in which process considerable material was moved from the south canyon wall and the wall was cleaned of loose material. At the completion of this work an examination of the cliff was made by railroad officials who found no indication of damage to the face of the cliff by the use of explosives, however it is possible that the blasting operations caused seams which combined with the recent heavy rains and the vibrations created by passing trains may have caused the slide.

Watchmen patrolled the track in the vicinity of the point of accident 12 times in each 24-hour period; the last inspection was less than an hour before the accident, and there was then no indication of danger.

Conclusion

This accident was caused by a rock slide.

Respectfully submitted,

S. N. MILLS,

Director.