INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

NORTHERN PACIFIC RAILWAY

BORAX, MONT.

FEBRUARY 26, 1936

INVESTIGATION NO. 2049

SUMMARY

Railroad:	Northern Pacific
Date:	February 26, 1936
Location:	Borax, Mont.
Kind of accident:	Derailment
Train involved:	Passenger
Train Number:	263
Engine Number:	1382
Consist:	2 cars
Speed:	Nearly stopped
Track:	6° curve; ascending grade
Weather:	Snowing hard, strong wind
Time:	5:20 p.m.
Casualties:	3 killed and 2 injured
Cause:	Snowslide

To the Commission:

On February 26, 1936, there was a derailment of a passenger train on the Northern Pacific Railway near Borax, Mont., which resulted in the death of 1 passenger and 2 employees and the injury of 2 passengers. The investigation of this accident was made in conjunction with a representative of the Board of Railroad Commissioners of the State of Montana.

Location and method of operation

This accident occurred on the Fifteenth Sub-division of the Rocky Mountain Division which extends between St. Regis, Mont., and Wallace, Idaho, a distance of 56.9 miles, and is a single-track line over which trains are operated by time table and train orders, no block-signal system being in use. The accident occurred at a point 1.7 miles west of Borax. Approaching the point of accident from the east there is a series of short curves and tangents, the accident occurring on a 6° curve to the right 438 feet in length, at a point 19 feet from its eastern end. The grade for west-bound trains varies from 1.008 to 2.225 percent ascending, it being 1.967 percent at the point of accident.

Between St. Regis and the point of accident the track is laid through the Bitter Root Mountains and in the vicinity of the point of accident is in a cut 450 feet in length and about 7 feet deep. The mountainside above the track is fairly well covered with pine, fir and tamarack growth except in certain areas which had been burned over by a forest fire in 1910; the terrain above the point of accident was within the burned area. While the slope just above the point of accident is a moderate, 4½ to 1 slope, near the crest of the mountain it is fairly precipitous.

Earlier in the winter there was a comparatively light fall of snow in this territory followed by extremely cold weather, which caused the snow to become frozen and crusted. Within the month preceding the date of the accident there had been heavy snows and mild temperatures and the snow was wet and heavy. On the day of the accident the snow at Lookout, 3.2 miles west of the point of accident, was 8 feet deep and at Saltese, 10.7 miles east of the point of accident, it was 4 feet 10 inches deep. It was snowing and the wind was blowing at the time of the accident, which occurred about 5:20 p.m.

Inv. No. 2049
Northern Pacific Ry.
Borax, Mont.
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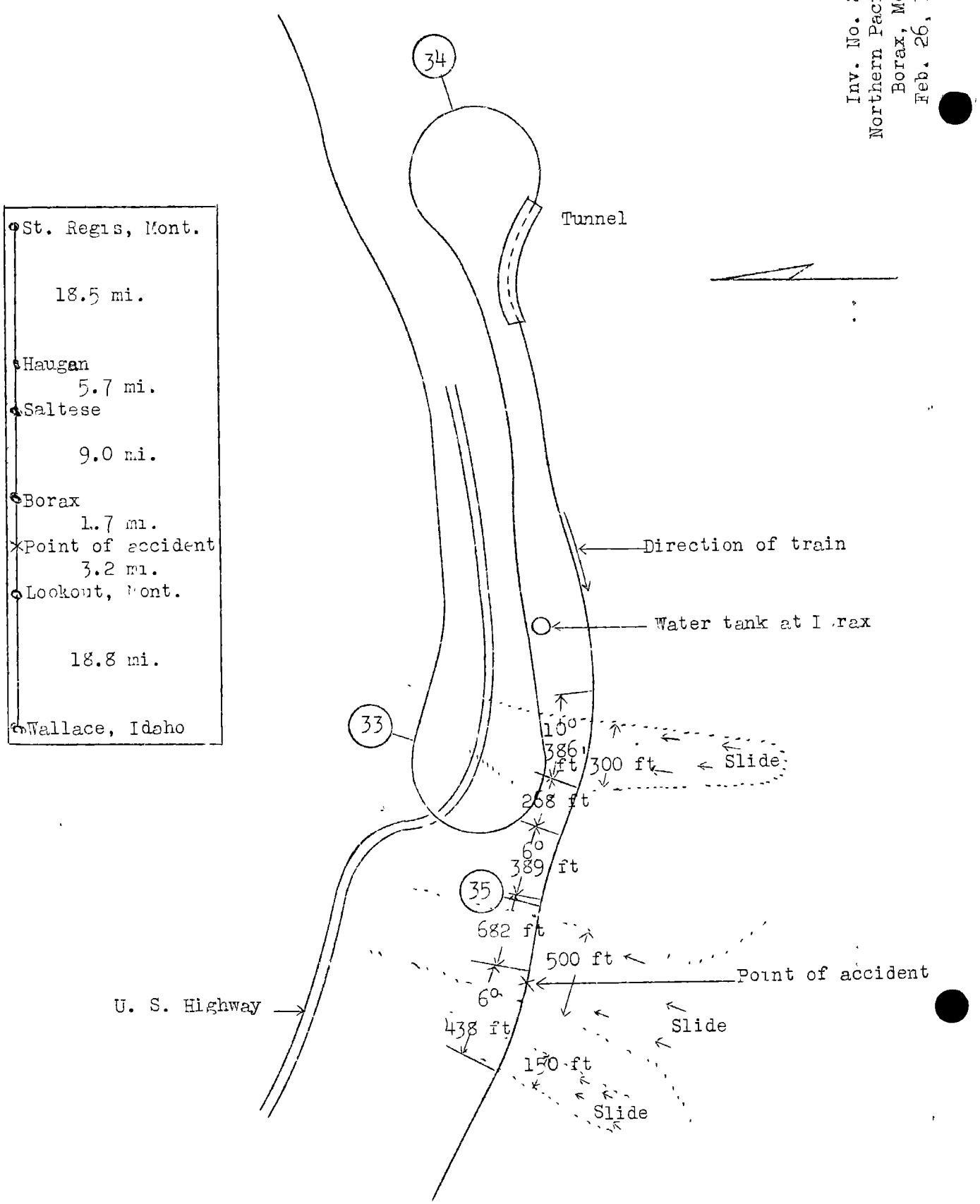

Description

Train No. 263, a west-bound passenger train, consisted of 1 combination mail and baggage car and 1 coach, both of wooden construction with steel reinforcements, hauled by engine 1382, and was in charge of Conductor Byall and Engineman Dickman. At Haugan, 14.7 miles from Borax, the crew received a train order directing them to look out for slides and falling rocks at all points where likely to occur. The train departed from that point at 3:45 p.m., according to the train sheet, 55 minutes late, left Saltese, 9 miles from Borax, at 4:20 p.m., 1 hour 16 minutes late, and after passing Borax and while stopping for a snowslide which came down ahead of the engine, the rear car was struck by another snowslide.

The engine and first car were not derailed or damaged. The coach was crushed by the weight of the snow and pushed to the northward and partly overturned; the roof was entirely removed and the body of the car was packed with wet snow; both trucks were derailed to the left, close to the rails. The employees killed were the conductor and brakeman.

Summary of evidence

Engineman Dickman stated that his train followed the rotary plow out of Saltese and he kept the plow in sight up to the point of accident. A heavy snow was falling, and the wind was blowing at about 30 miles per hour. When the rotary was about 1 mile west of the tunnel he noticed that the air suddenly became filled with snow and he knew there was a disturbance of some kind. He could not see 20 feet ahead of the engine and, anticipating a slide, he applied the air brakes in emergency. Three or five minutes later, after the snow had settled, he saw that a large slide 10 or 20 feet deep and about 20 car lengths across, had covered the track ahead and upon looking toward the rear of his train he saw that another slide, which appeared to be about $\frac{1}{4}$ mile across, had crushed the rear car of his train. Engineman Dickman stated that he had worked on this branch for the past 3 years and previously had encountered but one slide in this vicinity and that occurred about 3 years ago.

Engineman McClain, in charge of the rotary plow in Extra 3005 which preceded the passenger train, stated that the snow was very wet and heavy and after leaving the tunnel he used extreme caution in order not to lift the snow with such force as to cause it to slide down upon the track below. The condition of the snow was such that if disturbed a slide might

result, although he saw nothing at the point of accident to indicate that a slide was imminent.

Engineman Clark, of engine 3005 which was handling the rotary, stated that as they proceeded up the grade at Borax the snow and wind increased, but he saw nothing to indicate an impending slide, and that there had been more snow during previous winters than there was this winter. He stated that the slide which struck the passenger train was the largest one he had ever seen and he had never before seen one at that point; the slides that had previously occurred were on the west side of the mountain between Lookout and Wallace.

Trainmaster-Roadmaster Burgess was on the snow-plow train on the day of the accident; on arriving at the scene of the accident he estimated the snow to have been from 18 to 20 feet deep at its deepest point, with approximately 5 feet of snow on top of the car. He stated that he receives weather reports twice per day from Lookout, covering conditions in that vicinity and also obtains similar information from the section men at Saltese and other points, besides making frequent personal trips over the territory. The only way he can determine the condition of the snow on the mountains is from observation made from the track, and from such observation, together with prevailing weather conditions, an opinion is formed as to whether or not there is existing danger of an immediate slide. There is always potential danger of slides on steep slopes and particularly in an area free of timber or other growth, but the mountainside just above the point of accident was not steep and it was not a point at which he would expect a slide to occur. He thought the slope above the track was about a 3 to 1 slope for a distance of 500 or 600 feet; above this area the slope was steeper and his opinion of the cause for the continued progress of the slide over the slight slope, was the fact that early snows had formed a crust and the later snows had settled upon it.

Section Foreman Marsillo, located at Lookout, stated that due to the snowstorm on the day of the accident, he could see ahead but a distance of 8 or 10 feet and he was able to cover but a small portion of his section; he was waiting at Lookout for the rotary when informed of the accident about 6:30 p.m. He stated that with the exception of a slide which occurred about 3 years ago, there had been no previous snow slides in the vicinity of the point of accident; the previous slide was not of such size as to greatly retard the rotary, had it not been for debris in the snow and although it had hit the track about 200 feet west of the point of accident, he thought that

slide originated from the same area as that of the slide which caused this accident.

Assistant Engineer Erickson stated that the slide extended along the track a distance of about 500 feet and was about 20 feet deep at the point where it struck the coach, decreasing to a depth of 8 or 10 feet at the eastern end of the slide. Two smaller slides had occurred about the same time, one of which covered the track to a depth of about 10 feet for a distance of 150 feet at a point about 200 feet west of the point of accident; the other slide occurred about 900 feet east of the point of accident and extended along the track for a distance of about 500 feet; while they were three distinct slides, they may have originated at the same source. The slope above the track at the point of accident is about 4½ horizontal to 1 vertical and beyond that point and to the top of the ridge the slope increases gradually. It was his opinion that the slides originated at a point about 750 or 1,000 feet above the track. He had never before encountered slides east of Lookout and it was his opinion that a snowshed at this point would have been of no value.

Discussion

A heavy wet snow, accompanied by a high wind, had been falling for some time prior to the occurrence of the accident, necessitating the use of a rotary plow over the district. The passenger train was closely following the snow plow and three slides occurred soon after the rotary had passed the point of accident, the largest of which struck the rear car in the passenger train just as the engineman was bringing the train to a stop. The third slide was to the rear of his train.

For a distance of approximately 500 feet south of the track the terrain is on a slope of about 4½ to 1, but beyond this it is quite precipitous and has very little timber or other growth. The snow could formed at or near the crest of the mountain, and when loosened slid down the steep portion of the slope to the more moderate grade below, gathering bulk as it moved.

Earlier in the winter there was a comparatively light blanket of snow followed by extremely cold weather which caused it to become frozen and crusted. It is believed that this made the situation more susceptible to slides as it furnished a

gliding surface for the top layer of wet snow and allowed it to keep in motion, even after reaching the more gradual slope immediately above the track.

Conclusion

This accident was caused by a snowslide.

Respectfully submitted,

W. J. PATTERSON,

Director.