

## INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE  
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE  
GREAT NORTHERN RAILWAY NEAR DEER RIVER, MINN., ON  
AUGUST 20, 1926.

September 27, 1926.

To the Commission:

On August 20, 1926, there was a derailment of a freight train on the Great Northern Railway near Deer River, Minn., resulting in the death of one employee.

Location and method of operation.

This accident occurred on the Fourth Subdivision of the Mesabi Division, extending between Boylston, Wis., and Cass Lake, Minn., a distance of 149.40 miles; in the vicinity of the point of accident this 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 about 2 miles west of Deer River, at a switch which leads off the main track toward the north to a stub-end siding known as Erickson spur, which is 1,518 feet in length. Approaching the point of accident from either direction the track is tangent for more than 1 mile, while the grade is practically level. The view is unobstructed.

The switch is a facing-point switch for west-bound trains, with the switch stand on the engineman's side of a westbound engine. The switch stand is equipped with a single vertical target, the top of the target being fish-tail shaped and the bottom pointed; the target is painted red, with a white disk in the center about 6 inches in diameter, and is only displayed when the switch is lined for the spur. The switch stand is also equipped with a switch lamp, located above the target, this lamp, however, was not burning at the time of the accident. The night indications when the switch lamp is burning are red when the switch is lined for the spur and green when lined for the main track. The spur track is equipped with a hand-throw derail, located 240 feet from the switch points.

The main track is laid with 90- pound rails, with about 20 ties to the rail-length, tie-plated, single-spiked except at rail creeper locations and rail joints, at which points it is double-spiked, and it is ballasted with gravel, the track is well-maintained. The spur track is laid with 77 $\frac{1}{2}$  pound rails.

The weather was clear at the time of the accident, which occurred at about 11.55 p.m.

### Description

Westbound freight train extra 3207 consisted of 75 empty box cars and a caboose, hauled by engine 3207, and was in charge of Conductor Clark and Engineman A. Anderson. It left Deer River at 11.48 p.m., and was derailed while traveling at a speed estimated to have been about 25 miles an hour at the switch leading to Erickson spur.

Engine 3207, together with its tender and the first car in the train, entered the spur and were derailed on striking the derail located 240 feet from the switch points, none of this equipment was overturned. The next eight cars in the train followed the main track and were derailed in zig-zag fashion, while the balance of the train remained intact. The employee killed was the fireman, who jumped from the left side of the engine just after entering the switch.

### Summary of evidence

Engineman Anderson estimated the speed of his train to have been about 25 miles an hour approaching the switch and he said that the switch lamp was extinguished. When about three car-lengths from the switch he noticed from the reflection of the headlight that the switch target showed partly clear and partly against his train, and immediately shut off steam and applied the air brakes in emergency, the derailment occurring very shortly afterwards, at which time he estimated the speed to have been reduced to between 8 and 10 miles an hour. Engineman Anderson said the engine was in good condition and that there was nothing about it that in any way would have caused or contributed to the derailment. He further stated that ordinarily, with the switch lamp burning, the indication displayed could be seen for about 1 mile; that there was nothing to distract his attention from keeping a lookout ahead on this occasion, and that he was doing so, and that had the switch been fully lined for the spur, instead of being only partly open, he

could have seen the switch target from a distance of about 8 or 10 car-lengths.

The statements of Head Brakeman R. C. Anderson who was riding on the left side of the engine, practically corroborated those of Engineer Anderson. Conductor Clark and Flagman Nordean were riding in the caboose and were unaware of anything wrong prior to the accident. Immediately after the accident the conductor went forward while the flagman went back to afford rear-end protection. Shortly afterwards members of the crew examined the switch and found it to be partly open, with the lever resting on the quadrant, about midway between each socket, the lock out of the hasp and suspended from the chain, locked, and the switch lamp extinguished. The switch points were undamaged, indicating that they had not been split by a sharp wheel-flange, the only damage to the switch was that the second bridle rod was slightly bent, probably as a result of the accident; however, this condition did not affect the switch points in the least.

Section Foreman Backstrom stated that the last time he passed over the switch on his motor car prior to the derailment was at 4.50 p.m. on the day of the accident, accompanied by three section laborers, and at that time the switch was closed and locked. On account of the fact that it was daylight he did not notice whether or not the switch lamp was burning, but he said that the lamp would burn from four to five days with one filling of oil and that it was last filled between 4.30 and 4.50 p.m. on August 18, two days prior to the accident, and at that time the switch was operated and tested, as customary. He arrived at the scene of the accident about three hours after its occurrence and on examining the switch found it to be in the condition as described by members of the crew of extra 3207. He also examined the switch lamp and found that the fount was nearly half full of oil. Section Foreman Backstrom further stated that no trouble had been experienced in keeping switch lamps burning and that in his opinion some one extinguished the lamp.

The statements of Section Laborers Mathison, Seaman and Reigel corroborated in substance those of Section Foreman Backstrom; they also said that at the time the switch lamp was inspected, cleaned and filled on August 18, the switch was tested and that it operated properly, after which it was left properly lined for the main track and locked, with the lock in the hasp, and that Section Foreman Backstrom pulled on the chain a couple of times to make certain that the switch lock was properly fastened, also that at this time the switch

lamp was left burning properly. None of the section laborers possessed switch keys, the only switch key assigned to this section force being issued to Section Foreman Backstrom.

Roadmaster Kniffen stated that on examining the switch lamp subsequent to the accident he observed that there was considerable oil in the fount and that the wick had not been turned down, but, on the contrary, appeared to have been either blown out or shaken out. The wick was a round one, about the size of an ordinary lead pencil, and was amply long, reaching to the bottom of the fount.

The last train to pass over the switch prior to the accident was westbound freight train 621, consisting of 27 cars and a caboose, which passed at about 5.10 p.m., at a speed estimated to have been between 20 and 25 miles an hour; at that time none of the members of that crew noticed anything unusual and the engineman was unable to say whether or not the lamp was burning.

Inspection of the switch and its appurtenances made by the Commission's inspectors subsequent to the derailment disclosed that no repairs or changes had been made since the accident with the exception of applying a new switch lock, the old one having been removed by special agents of the railroad company. The switch was tightly adjusted and considerable pressure had to be exerted in order to spring the switch lever into either of the sockets, which caused the switch points to be held snugly against their respective rails, and also held the lever tightly in the socket after it was seated. The switch points were in good condition and showed very little wear, there being no indication that either point had been split by a sharp wheel flange. The second bridle rod was slightly bent, but this condition did not affect the switch points, the rod apparently having been bent as a result of the derailment. The track was gauged at the switch points and east thereof and found to be standard. The switch lock which had been on the switch at the time of the accident was in good condition and showed no signs of having been forced or otherwise tampered with.

A careful inspection was also made of engine 3207, all wheels and flanges were in good condition and nothing was found that in any way could have caused or contributed to the accident.

### Conclusions

This accident was caused by a cocked or partly open switch, apparently due to malicious tampering.

The investigation indicated that the switch light was extinguished and the switch partly opened within less than six hours of the accident, seemingly by some one in possession of a switch key. At the time of the investigation, however, it was not definitely determined who opened the switch.

Under the rules, a signal imperfectly displayed, or the absence of a signal at a place where one is usually shown, must be regarded as a stop signal. Engineman Anderson was thoroughly familiar with the territory in the vicinity of the switch, and said that ordinarily the indication could be seen for about 1 mile, while there was nothing about the condition of the engine to distract his attention from maintaining a lookout ahead. Under these conditions, and in view of his statement that he could have stopped his train within a distance of 25 car-lengths, it is apparent that had he been maintaining a proper lookout ahead he could have seen that the switch lamp was not burning and could have brought his train to a stop, as required by the rules, in ample time to have averted the accident.

Had an adequate block-signal system been in use on this line, this accident probably would not have occurred; an adequate automatic train stop or train control device would have prevented it.

None of the employees involved had been on duty in violation of any of the provisions of the hours of service laws.

Respectfully submitted,

W. P. BORLAND

Director.