

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4126

NORTHERN PACIFIC RAILWAY COMPANY

PLATEAU, MONT.

AUGUST 15, 1967

DEPARTMENT OF TRANSPORTATION

FEDERAL RAILROAD ADMINISTRATION

Washington

Summary

DATE: August 15, 1967

RAILROAD: Northern Pacific

LOCATION: Plateau, Mont.

KIND OF ACCIDENT: Head-end collision

EQUIPMENT INVOLVED: Track motorcar Freight train

TRAIN NUMBER: Extra 2806 West

LOCOMOTIVE NUMBERS: Diesel-electric
units 2806, 2515,
3606

CONSIST: 69 cars, caboose

ESTIMATED SPEEDS: 20 m p.h. 40 m.p.h.

OPERATION: Timetable, train
orders, automatic
block-signal
system

TRACK: Single; 4⁰2' curve;
slightly ascending
grade westward

WEATHER: Clear

TIME: 3:40 p m.

CASUALTIES: 2 killed

CAUSE: Operation of a track
motorcar on the main
track without protection.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
RAILROAD SAFETY BOARD

RAILROAD ACCIDENT INVESTIGATION
REPORT NO. 4126

NORTHERN PACIFIC RAILWAY COMPANY
AUGUST 15, 1967

Synopsis

On August 15, 1967, a Northern Pacific Railway Company freight train struck a track motorcar near Plateau, Mont., killing two maintenance-of-way employees.

The accident was caused by operation of a track motorcar on the main track without protection

Location and Method of Operation

The accident occurred on that part of the Rocky Mountain Division extending between Missoula and Paradise, Mont , a distance of 98.9 miles. In the accident area this is a single-track line over which trains operate by timetable, train orders and an automatic block-signal system

The collision occurred on the main track, 38 1 miles west of Missoula and 2.2 miles west of Plateau.

Automatic signals 160.8 and 159.6, governing eastbound movements on the main track, are 2 5 and 1.3 miles west of

the collision point, respectively. These signals are of the upper-quadrant semaphore type

A track car indicator is adjacent to the main track 1,766 feet west of the collision point. It is provided with a pushbutton. When the button is pushed, the track car indicator indicates whether a westbound train is approaching within a distance of 7.6 miles.

A track car setoff is adjacent to the track car indicator. Similar setoffs are located eastward and westward, at intervals of a few thousand feet.

A highway bridge spans the main track 1,959 feet west of the collision point. Because of this bridge, track curvature, and trees on the north side of the railroad, the view between an eastbound track motorcar and a westbound train approaching the collision point is materially restricted. However, when the track motorcar passes the highway bridge, its occupants may look across the curve and between trees, and see portions of any westbound train approaching within a distance of about $1\frac{1}{2}$ miles. The maximum unobstructed range of vision between an eastbound track motorcar and the locomotive of a westbound train nearing the collision point is 975 feet.

Details concerning the main track, carrier's rules and instructions governing the operation of track cars, track motorcar involved, damages and other factors are set forth in the appendix.

Description and Discussion

At 7:30 a.m. the day of the accident, a track force comprised of a foreman and two trackmen reported on duty at Lothrop, 5.4 miles east of Plateau. Soon afterward, the foreman telephoned the operator at Superior, 27.4 miles west of Plateau, and obtained a line-up of train movements. He and the trackmen then boarded a track motorcar and proceeded westward on the main track to a point a short distance east of Plateau, where they began to work on the main track structure with two on-track tie-tamping machines and the operators of those machines. This work, which was performed in conjunction with a track force consisting of a foreman and two trackmen from Frenchtown, 19.6 miles east of Plateau, was halted at noontime for a lunch period. About 12:40 p.m., the foreman of the Frenchtown track force telephoned the Superior operator and obtained the latest line-up of train movements issued by the train dispatcher. This line-up read in part as follows:

EXTRA 2806 WEST *** LEAVE MISSOULA ABOUT 2 PM

The Frenchtown track foreman made copies of the line-up on the prescribed form and gave one copy to the Lothrop track foreman. Soon afterward, both track forces and the tie-tamping machines resumed work on the main track structure east of Plateau.

About 2:20 p m., the tie-tamping machines entered the siding at Plateau to clear the main track for an eastbound freight train. When that train passed, a crew member dropped off a note reporting a fire observed on the railroad right-of-way near Cyr 5 0 miles westward. The Lothrop track foreman and three trackmen then placed a track motorcar on the main track and proceeded to the scene of the fire. A short time later, the Frenchtown track foreman and the other trackman also left Plateau and proceeded to the fire by means of a pick-up truck. Before leaving, the Frenchtown track foreman communicated by telephone with the train dispatcher and was informed that Extra 2806 West, a westbound freight train, would leave Missoula between 2:20 and 2:30 p m.

The scene of the fire was about 3.0 miles west of Plateau and 2.0 miles east of Cyr, at a point a short distance west of eastward signal 159.6. The Lothrop track foreman and three trackmen met a signal maintainer on their arrival at this point and immediately began to fight the fire, while the signal maintainer proceeded a short distance westward with their track motorcar and removed it from the main track at a track car setoff. The pick-up truck with the Frenchtown track foreman and the other trackman arrived at the fire sometime later, apparently about 2:30 p m.

The track forces had extinguished the fire by about 3:00 p m. Approximately 20 minutes later, the track motorcars of the signal maintainer and the Lothrop track force were placed on the main track and moved eastward to the location of the extinguished fire. The Lothrop track foreman and one trackman then prepared to board their track motorcar and proceed eastward to Nine Mile, 10 5 miles east of Plateau, where they intended to start patrolling the railroad in a fire-danger zone. At that time, according to his statements, the signal maintainer called the Lothrop track foreman's attention to the provisions of the line-up and cautioned him to watch out for Extra 2806 West. The Frenchtown track foreman said he overheard this. He also said he told the Lothrop track foreman that the train dispatcher had informed him Extra 2806 West would leave Missoula between 2:20 and 2:30 P.m. Soon afterward, apparently a few minutes before 3:40 P m., the track motorcar with the Lothrop track foreman

and the trackman left the scene of the fire and proceeded eastward on the main track en route to Nine Mile. About the same time, the signal maintainer boarded his track motorcar and departed westward on the main track. He said the semaphore arm of eastward signal 160 8 was in vertical position at this time, which indicated to him that Extra 2806 West had not yet passed Plateau. He further said that he was unable to see signal 159 6, due to his view being obstructed by track curvature and trees.

Since the track foreman and trackman aboard the eastbound track motorcar were killed in the accident, details concerning the movement of their track car in approach to the collision point could not be determined. A few moments after leaving the scene of the fire, the track motorcar passed eastward signal 159 6. The aspect being displayed by the signal at that time could not be definitely determined. However, in view of the signal maintainer's statement concerning the aspect displayed by signal 160.8, the time element involved, and the circuit arrangement of the automatic block-signal system in the Plateau - Cyr area, it appears signal 159 6 was displaying a Clear aspect when the track motorcar passed it. This would have indicated to the track foreman and trackman that Extra 2806 West had not yet passed Plateau.

Apparently within a minute or two after passing signal 159 6, the eastbound track motorcar moved under the highway bridge 1,959 feet west of the collision point, and neared the track car indicator located 193 feet east of the bridge. It is not known whether the track motorcar stopped at the track car indicator for the track foreman to ascertain whether a westbound train was approaching on the main track. It is evident, however, that had it stopped at this location and had either of its occupants pushed the button of the track car indicator, the indicator would have displayed a STOP aspect, indicating that a westbound train was approaching within a distance of 7 6 miles. Thus, the track foreman and trackman would have been alerted to the close approach of Extra 2806 West and the necessity of removing their track car from the main track. From all indications, however, the track motorcar passed the track car indicator without stopping. Immediately afterward, it entered the west end of the curve on which the collision occurred. By this time, Extra 2806 West evidently was nearing or entering the east end of the curve. Apparently neither the track foreman nor the trackman saw the approaching train, and the track motorcar continued eastward on the curve. A few moments later, at 3:40 p m, while the track motorcar was moving on the curve at an estimated speed of 20 miles per hour, it collided with Extra 2806 West, 2 2 miles west of Plateau.

Both the track foreman and the trackman aboard the track motorcar were killed. Crew members on the locomotive did not see either of the occupants of the track car before the impact.

Extra 2806 West consisted of road-switcher type diesel-electric units 2806, 2515 and 3606, coupled in multiple-unit control, 69 cars and a caboose. It departed westward from Missoula at 2:30 p m, after its brakes had been tested and had been found to be functioning properly. Before leaving, the crew members received, among others, copies of train order No 418, which informed them that maintenance-of-way work was being performed on the main track structure in the Lothrop-Plateau area and required their train to move at reduced speed in this area unless a different speed was verbally authorized. They had received no information concerning the movement of the track motorcar involved west of Plateau. The train stopped at Frenchtown to meet two east-bound trains. At 3:05 p m, after those trains passed, it again proceeded westward on the main track. The engineer and front brakeman, the only crew members on the locomotive, were in the control compartment at the west end of the first diesel electric unit. The conductor and flagman were in the caboose. The headlight was lighted.

Soon after Extra 2806 West left Frenchtown, one of the operators of the tie-tamping machines clear of the main track at Plateau radio-telephoned the train, as instructed by the Frenchtown track foreman, and informed the engineer that his train was authorized to proceed at its maximum authorized speed through the area specified in train order No 418. About 3:37 p m, the train passed Plateau. It then passed a westward block signal, which displayed a Clear aspect, and entered the curve on which the collision occurred at approximately 40 miles per hour, as estimated by the crew members. At that time, the front brakeman looked back along the train for an inspection of the cars. Because of this he did not see the track motorcar approaching before the collision. The engineer said he first saw the track motorcar immediately before the accident occurred at a distance of about 100 feet and estimated that it was moving about 20 miles per hour. He promptly applied the train brakes in emergency and started to sound the locomotive horn but the collision occurred before the speed of the train was reduced. The engineer said he did not see either occupant of the track car before the collision.

Tests after the accident disclosed that the track car indicator and wayside signals involved functioned properly.

Officials of the carrier stated that they do not check track motorcar operations, except for spot checks made to determine whether track motorcar operators have received proper line-ups of train movements and have acknowledged receipt of such line-ups, as required by rule.

Under the carrier's rules, track motorcars are required to clear the time of trains by no less than ten minutes. When figuring the time of a train between stations shown in a line-up, track motorcar operators must use the maximum authorized speed for that train. Since the maximum authorized speed for freight trains in the territory involved is 60 miles per hour and the distance between Missoula and Plateau is 35.9 miles, the running time for Extra 2806 West from Missoula to Plateau was required by rule to be computed as about 36 minutes.

The investigation disclosed that at approximately 12:40 p. m., the Lothrop track foreman received a copy of a line-up that informed him Extra 2806 West would leave Missoula about 2:00 p. m. Later, apparently between 3:20 and 3:35 p. m., while his track motorcar was occupying the main track a short distance east of Cyr and he was preparing to proceed eastward to Nine Mile, a signal maintainer called his attention to the provisions of the line-up and cautioned him to watch out for Extra 2806 West. He was then informed by the Frenchtown track foreman that the train dispatcher had said Extra 2806 West would leave Missoula between 2:20 and 2:30 p. m. Hence, under the existing circumstances and the rules, the Lothrop track foreman was required to assume that Extra 2806 West had left Missoula no later than 2:20 p. m. In addition, he was required to compute that the running time of Extra 2806 West between Missoula and Plateau was 36 minutes and that, therefore, the train would pass Plateau at 2:56 p. m. It is evident that when the Lothrop foreman's track motorcar was replaced on the main track east of Cyr at about 3:20 p. m., it was occupying the track on the time of Extra 2806 West, which was then overdue on the line-up at both Plateau and Cyr. It is further evident that the track motorcar then proceeded eastward without protection on the computed line-up time of Extra 2806 West at Plateau, resulting in the collision.

Findings

Extra 2806 West approached the collision point in accordance with applicable rules of the carrier, and without the crew members having any knowledge concerning the operation of the motorcar involved. The engineer promptly applied the train brakes in emergency when he saw the track motorcar on the curve a short distance ahead and the collision

occurred immediately thereafter, before the speed of the train was reduced

The Lothrop track foreman had received relatively accurate line-up information relative to the departure of Extra 2806 West from Missoula, and was required by rule to consider that the time of this train at Plateau was 2:56 p m. Although track motorcars are required by rule to clear the time of trains by no less than ten minutes, the Lothrop foreman's track motorcar was replaced on the main track east of Cyr at about 3:20 p m, on the time of Extra 2806 West at both Plateau and Cyr. Soon afterward, the track motorcar with the Lothrop foreman and one trackman proceeded eastward toward Plateau without protection against Extra 2806 West. The track motorcar then passed a track car indicator, apparently without stopping for either of its occupants to determine whether Extra 2806 West was approaching, and entered the curve on which the collision occurred and on which the view is obscured. Under these circumstances, the track foreman and trackman did not have any knowledge as to the exact whereabouts of Extra 2806 West and apparently were relying on their ability to see this train approaching in sufficient time to remove their track car from the main track and avoid a collision. However, they apparently did not maintain a sharp look out on the curve and thereby failed to see the train approaching, resulting in the collision.

It is evident that the accident was caused by the track motorcar operating on the main track without protection on the line-up time of Extra 2806 West. It appears that failure of the carrier to enforce its rules governing the operation of track motorcars also was causal factor in the instant case. Carrier officials have not supervised track motorcar operations, except for making occasional checks to see whether operators of such cars received proper line-ups and properly acknowledged receipt of same. Checks have not been made to determine whether track motorcar operators clear the time of trains by no less than ten minutes, as required. Consequently, such operators apparently have paid little attention to the prescribed requirements for clearing times of trains. This is further evidenced by the fact that when the Lothrop foreman's track motorcar was replaced on the main track near Cyr on the time of Extra 2806 West, the signal maintainer's track motorcar was also placed on the main track at the same time and place to proceed westward.

Cause

This accident was caused by operation of a track motorcar on the main track without protection

Recommendation

It is recommended that the Northern Pacific Railway Company enforce its rules governing the operations of track motorcars.

Dated at Washington, D. C , this 19th
day of January 1968
By the Federal Railroad Administration
Railroad Safety Board

Bette E. Holt
Acting Executive Secretary

(SEAL)

Appendix

Track

From the east on the main track there are, in succession, a tangent 1,388 feet in length and a compound curve to the right, having a curvature of $5^{\circ}30'$, 280 feet, a curvature of $2^{\circ}02'$, 1,047 feet, and a curvature of $4^{\circ}02'$, 1,148 feet to the collision point and 1,127 feet westward, and a curvature of $1^{\circ}54'$, 524 feet. From the west on the main track there are, successively a tangent 761 feet long, and the compound curve on which the collision occurred. The grade for westbound trains is, successively, 0.13 percent descending 3,000 feet, 0.45 percent descending 500 feet, and a vertical curve 840 feet to the collision point and 1,160 feet westward. The grade is slightly ascending westward at the collision point.

Carrier's Rules and Instructions Governing Operations of Track Cars

- 40 Prescribed line-up Form 9024 must be used for train location information ***
- 41 The time of trains must be cleared no less than 10 minutes. *** In figuring the time of a train between stations, the maximum authorized speed for that train will be used.
- 62 Track cars *** must approach *** curves and points where the view is obscured, prepared to stop in time to avoid an accident.
- 77 Track car indicators, where provided, supplement, but do not modify existing rules and instructions governing the movement of track cars ***.

When a STOP indication is displayed, track cars *** must be removed from the track immediately unless the way is known to be clear and movement can be made in safety. ***

- 80 When operating track cars a sharp lookout must be maintained to the front, side and rear. ***

Track Motorcar Involved

The track motorcar was of the belt-drive light-inspection type, and weighed 610 pounds. It had a one-cylinder, five-horsepower gasoline engine, and a seating capacity for four persons. It also had a top, a windshield, four-wheel brakes, a headlight and a tail-light.

Damages

Extra 2806 West stopped with the front end 1,946 feet west of the collision point. None of its equipment was derailed. The front of the first diesel-electric unit was slightly damaged.

The track motorcar was wedged against the front of the train locomotive. It was destroyed.

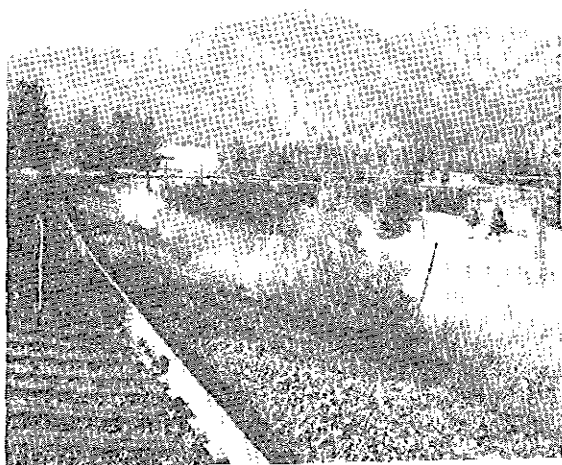
Other Factors

The accident occurred at 3:40 p.m., in clear weather.

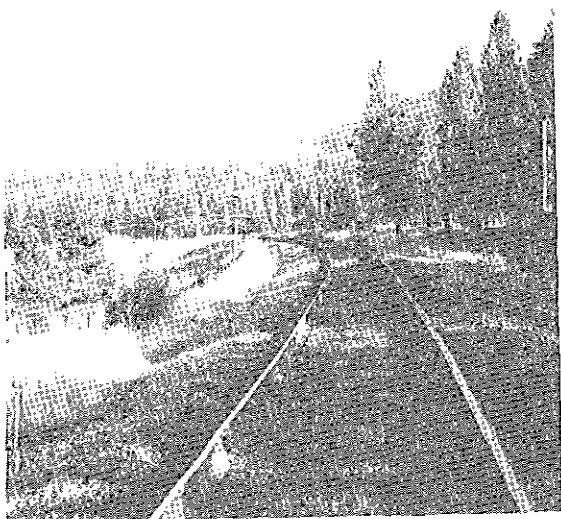
The maximum authorized speeds for track motorcars and freight trains in the territory involved are 30 and 60 miles per hour, respectively. However, the maximum authorized speed for freight trains on the curve where the accident occurred is restricted to 40 miles per hour.

According to their daily time returns, the crew members of Extra 2806 West had been on duty 2 hours 40 minutes at the time of the accident, after having been off duty more than 24 hours.

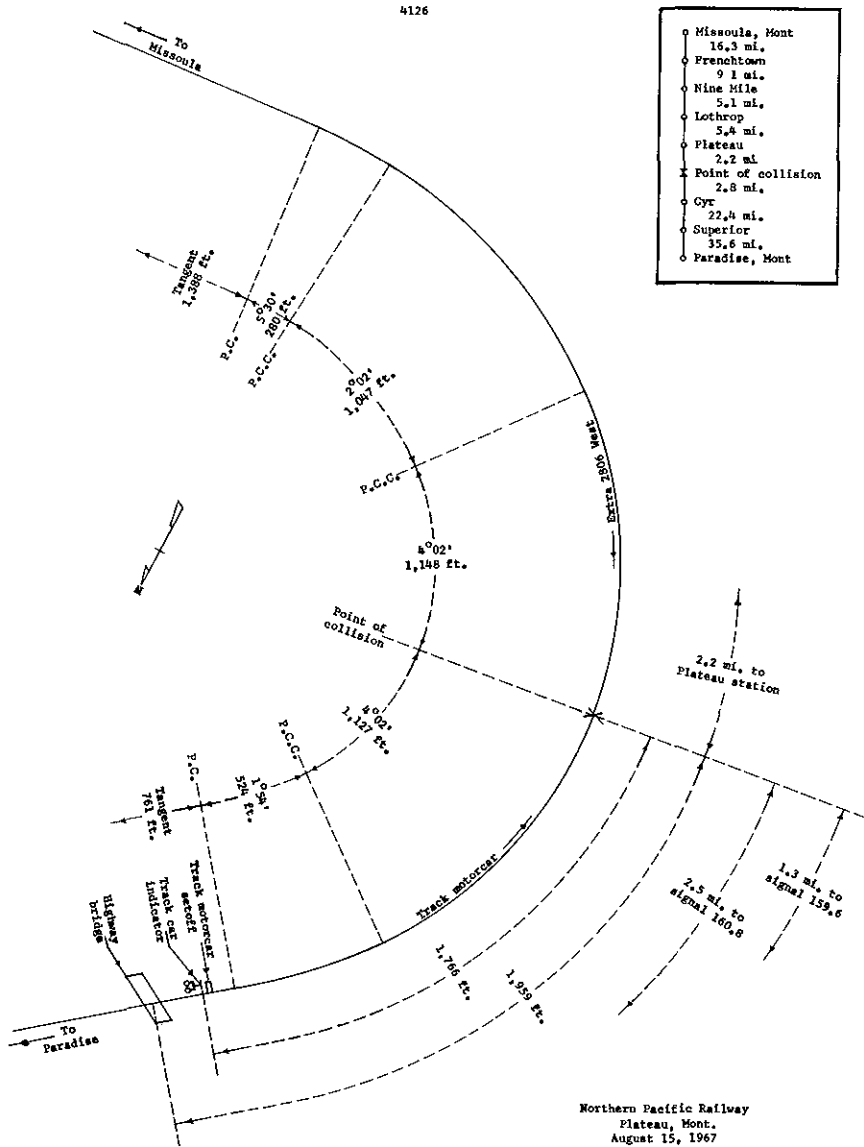
During the last ten years, 33 accidents involving track motorcars have been investigated. These accidents resulted in death to 46, and injury to 47 persons.



View westward from collision point.



View eastward from collision point.



○	Missoula, Mont	16.3 mi.
○	Frenchtown	9 1 mi.
○	Nine Mile	5.1 mi.
○	Lothrop	5.4 mi.
○	Plateau	2.2 mi.
×	Point of collision	2.8 mi.
○	Cyc	22.4 mi.
○	Superior	35.6 mi.
○	Paradise, Mont	

8R 2491 (14) (15 above)