

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4128

THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY

SHOSHONE, COLO.

SEPTEMBER 16, 1967

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
Washington

Summary

DATE:	September 16, 1967	
RAILROAD:	Denver & Rio Grande Western	
LOCATION:	Shoshone, Colo	
KIND OF ACCIDENT:	Head-end collision	
EQUIPMENT INVOLVED:	Track motorcar	Freight train
TRAIN NUMBER:		Extra 3044 East
LOCOMOTIVE NUMBERS:		Diesel- electric unit; 3044, 3033
CONSIST:		17 cars, caboose
SPEEDS:	15-18 m p.h.	32 m p h.
OPERATION:	Signal indications	
TRACK:	Single; 9°08' curve; 0.57 percent ascend- ing grade eastward	
WEATHER:	Clear	
TIME:	1:28 p.m.	
CASUALTIES:	1 killed	
CAUSE:	Error of a train dis- patcher in authorizing a track motorcar to proceed westward on a track occupied by an opposing train	

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
RAILROAD SAFETY BOARD

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Synopsis

On September 16, 1967, a head-end collision occurred between a freight train and a track motorcar on the Denver and Rio Grande Western Railroad near Shoshone, Colo., resulting in death to one maintenance-of-way employee

The accident was caused by error of a train dispatcher in authorizing a track motorcar to proceed westward on a track occupied by an opposing train.

Location and Method of Operation

The accident occurred on that part of the Colorado Division extending between Grand Jct and Minturn, Colo., a distance of 147.6 miles. In the accident area this is a single-track line over which trains operate by signal indications of a traffic control system, and over which track motorcars operate between specific points and within designated time limits as authorized by the train dispatcher. At Shoshone, 99.1 miles east of Grand Jct., a siding parallels the main track on the south

The collision occurred on the main track, 1,514 feet west of the west switch of the Shoshone siding.

A track motorcar setoff is 25 feet west of the west siding-switch at Shoshone and a wayside telephone is nearby. The east end of a 141-foot tunnel is 290 feet west of the track car setoff.

In the Shoshone area, the main track is laid along the base of a mountainside on the south and along the Colorado River on the north. U. S. Highway 6-24 is across the river, about 250 feet from the track. Because of track curvature, the tunnel and the mountainside, the view between opposing movements approaching the collision point is materially restricted.

Automatic signal 3522 and controlled signal 3510, governing eastbound movements on the main track, are 1.2 miles and 577 feet west of the west siding-switch at Shoshone, respectively.

The traffic control system is controlled from the traffic control machine in the train dispatcher's office at Grand Jct.

Details concerning the main track, carrier's operating rules, train and track motorcar involved, damages and other factors are set forth in the appendix.

Description and Discussion

According to the carrier's timetable, No. 17, a west-bound first-class passenger train, is due to pass Dotsero, 8.6 miles east of Shoshone, at 1:07 p.m. At the time of the accident, the train dispatcher had established the route for Extra 3044 East, an eastbound freight train, to proceed to Dotsero and to meet No. 17 at that point.

Sometime before 1:20 p.m., the day of the accident, a track patrolman removed his track motorcar from the main track at the track car setoff near the west switch of the Shoshone siding, apparently for the purpose of clearing the main track for Extra 3044 East and No. 17. An off-duty track foreman was at the setoff, and he began a conversation with the patrolman. While they were conversing, an occupant of an automobile moving eastward on U. S. Highway 6-24 shouted to them from across the Colorado River and pointed westward. The foreman and patrolman were unable to understand the shouts, but assumed their attention was being called to a slide or fallen rocks on the track structure in the canyon extending westward from Shoshone to Grizzly, a distance of 4.5 miles. As a result, the track patrolman proceeded to the nearby wayside telephone to report what he had just seen and heard to the train dispatcher.

The track foreman accompanied the patrolman to the telephone. According to his statements, he heard the patrolman advise the dispatcher that "someone in an automobile had hollered" and pointed westward, and that there was probably some kind of trouble between Shoshone and Grizzly. He said the patrolman then requested a track car block that would authorize him to proceed westward from Shoshone on

his track motorcar to determine the nature of the trouble. The foreman said this request was made at approximately 1:25 p m., and the dispatcher responded by issuing a track car block which authorized the patrolman's track motorcar to occupy the main track for 20 minutes between Shoshone and Grizzly. The foreman's statements indicate he heard the patrolman repeat to the dispatcher the time and limits specified for the track car block. Under these circumstances, and in the light of information developed in the investigation, it is evident that the train dispatcher issued a track car block which authorized the patrolman's track motorcar to occupy the main track between Shoshone and Grizzly from 1:25 p m. to 1:45 p.m. Thus, the patrolman was assured that no train was then occupying the main track between Shoshone and Grizzly, and that his track motorcar could safely operate on the main track within those limits between 1:25 p.m. and 1:45 p m.

About 1:25 p m., after concluding his conversation with the dispatcher, the track patrolman replaced his track motorcar on the main track with assistance from the off-duty track foreman. Both the patrolman and foreman then boarded the track motorcar and proceeded westward to patrol the track between Shoshone and Grizzly, as authorized. Soon after moving through the tunnel west of the Shoshone siding, the track motorcar entered a 9008' curve where the view ahead was restricted to about 250 feet. A few moments later, as it moved on the curve at 15 to 18 miles per hour, the track foreman saw Extra 3044 East come into view a short distance ahead. He called a warning to the track patrolman and jumped from the track motorcar. Immediately afterward, at 1:28 p m., the locomotive of Extra 3044 East struck the track motorcar, 1,514 feet west of the west siding-switch at Shoshone.

The track patrolman was killed. Neither the off-duty track foreman nor any member of the train crew was injured.

Extra 3044 East, consisting of 2 diesel-electric units, 17 cars and a caboose, left East Yard, Grand Jct., at 11:26 a.m. without the crew members having any knowledge concerning the operation of the track motorcar. It passed Funston, 10.8 miles west of Shoshone, at 1:10 p m., and passed Grizzly about 12 minutes later. Soon thereafter, while moving at approximately 35 miles per hour, it passed signal 3522, which displayed a Clear aspect, and entered a zone where its maximum authorized speed was restricted to 30 miles per hour. The train decreased speed slowly as it moved eastward in this zone and entered the curve on which the collision occurred. While it was moving on the curve at 32 miles per hour, as indicated by the speed-recording tape, the engineer suddenly saw the track motorcar approaching at a distance of about 100 feet. He promptly initiated an emergency brake application and called a warning to the front brakeman. The collision occurred immediately thereafter, before the speed of the train was reduced. Because of track curvature to the right and his position on the left side of the control compartment, the front brakeman

was unaware of anything being wrong before he heard the engineer's warning

The train dispatcher said track occupancy indicator lights of the traffic control machine indicated that Extra 3044 East was nearing the west switch of the Shoshone siding when he answered the track patrolman's telephone call from Shoshone. However, in view of the time and distance factors involved and the terrain in the Shoshone area, it is apparent that at this time Extra 3044 East had not yet passed signal 3522 or come within the patrolman's range of vision. The dispatcher said the patrolman informed him of the possibility of trouble between Shoshone and Grizzly by stating "This guy is pointing back down the canyon. There must be rocks down. Maybe I should take a run ahead of 17 (train No. 17) toward Grizzly." Upon hearing this, according to his statements, the dispatcher assumed that Extra 3044 East was closely approaching the west switch of the Shoshone siding and that it was within the patrolman's view. He stated that he further assumed the "guy" referred to by the patrolman was a crew member observed giving a hand signal from the train locomotive as it neared the west switch of the Shoshone siding. The dispatcher said he had no doubt that Extra 3044 East was then passing or in close proximity to the west switch of the Shoshone siding. He further said that while conversing with the patrolman he remarked, in effect, that Extra 3044 East was meeting 17 at Dotsero and that should give us 20 minutes ahead of No. 17.

Assuming that the track patrolman would replace his track motorcar on the main track immediately after Extra 3044 East passed the west switch of the Shoshone siding and then patrol the main track westward between Shoshone and Grizzly for about 20 minutes without delay to No. 17, the dispatcher granted the patrolman track car block authority at 1:25 p. m. for his track motorcar to occupy the main track between the west switch of the Shoshone siding and the east switch of the Grizzly siding until 1:45 p. m. Some statements of the dispatcher, and an entry in the dispatcher's train order book, indicate this authority was granted at 1:30 p. m. However, in view of the expiration time of the track car block authority and references to "20 minutes" in statements of both the dispatcher and the off-duty track foreman, it is evident the authority was granted by the dispatcher at 1:25 p. m. In this connection, examination of the dispatcher's train order book disclosed that the entry therein showing the track car block authority was granted at 1:30 p. m. was superimposed over another entry. From all indications, the original entry showed 1:25 p. m. and the superimposed entry was made sometime after the accident.

The investigation disclosed that at the time of the accident, Extra 3044 East was proceeding eastward on the main track as authorized by signal indications of the traffic control system

It further disclosed that at approximately 1:25 p. m. the track patrolman telephoned the train dispatcher from

the west end of the Shoshone siding and informed him of the possibility of a slide or fallen rock obstructing the main track between Shoshone and Grizzly. The dispatcher then granted him permission to go and determine the nature of the trouble by providing him with track car block authority for his track motorcar to occupy the main track between Shoshone and Grizzly from 1:25 p.m. to 1:45 p.m. This authority assured the patrolman that no opposing train was then occupying the main track between Shoshone and Grizzly, and that no train would be permitted to operate between those points during the 20-minute period, 1:25 p.m. to 1:45 p.m. The patrolman replaced his track motorcar on the main track at Shoshone at about 1:25 p.m. and proceeded westward with the off-duty track foreman toward Grizzly. About three minutes later, as it was moving on the main track as authorized by the track car block authority, the track motorcar was struck by Extra 3044 East.

It is evident that when the track patrolman was conversing with the train dispatcher, track occupancy indicator lights of the traffic control machine were indicating that Extra 3044 East had not yet passed signal 3510, which is 577 feet west of the west siding-switch at Shoshone. Although the patrolman apparently made no reference to Extra 3044 East during his conversation with the train dispatcher, and Extra 3044 East apparently was not referred to by its proper designation at any time, the dispatcher gained the erroneous impression that the patrolman had observed this train closely approaching the west switch of the Shoshone siding and that the train was about to pass the switch. Assuming that the patrolman would replace his track motorcar on the main track after Extra 3044 East passed the switch, the dispatcher issued the track car block authority which authorized the track motorcar to occupy the main track between Shoshone and Grizzly from 1:25 p.m. to 1:45 p.m. Since Extra 3044 East was operating between Shoshone and Grizzly at this time under authority of signal indications of the traffic control system, the track car block authority issued to the patrolman overlapped the authority under which Extra 3044 East was operating, resulting in the accident.

A rule of the carrier provides that before granting track car block authority, the train dispatcher must be assured that no conflicting train movements have been authorized in the designated limits. It is evident in this case that the dispatcher did not comply with the aforesaid rule and his failure to do so was a causal factor in the accident. Had the dispatcher not issued the track car block authority until track occupancy indicator lights of the traffic control machine indicated that Extra 3044 East had passed Shoshone, or until he had been assured by the track patrolman that the train had passed the west switch of the Shoshone siding, the accident would have been prevented.

Findings

Extra 3044 East was moving eastward as authorized by signal indications of the traffic control system, which was controlled by the train dispatcher.

The track motorcar was moving westward in accordance with track car block authority granted by the dispatcher.

The train dispatcher authorized the opposing movements of the train and the track motorcar on the main track, causing the accident

Cause

This accident was caused by error of a train dispatcher in authorizing a track motorcar to proceed westward on a track occupied by an opposing train

Dated at Washington, D C , this 3rd
day of March 1968
By the Federal Railroad Administration,
Railroad Safety Board

Bette E Holt
Acting Executive Secretary

(SEAL)

Appendix

Track

Westward on the main track from the track motorcar setoff at Shoshone there are, in succession, a compound curve to the left, having a maximum curvature of 4°00', 726 feet, a tangent 505 feet, and a 9°08' curve to the left 283 feet to the collision point and 354 feet beyond. From the east there are, successively, a 3°45' curve to the left 1,571 feet, a tangent 70 feet, and the curve on which the collision occurred. The grade is 0.57 percent ascending eastward at the collision point.

Carrier's Operating Rules

TRACK CARS, MAINTENANCE OF WAY WORK AND EQUIPMENT

1028 *** IN CTC TERRITORY, track cars operating, on the main track must be protected by Positive Stop ABS.

Employee before placing or operating track car on main track, must identify himself by name and location and secure authority from the train dispatcher ***, including time and limits ***

Before granting authority, the train dispatcher *** must be assured that no conflicting train or locomotive movements have been authorized in the designated limits.

Train and Track Motorcar Involved

Extra 3044 East consisted of road-switcher type diesel-electric units 3044 and 3033, coupled in multiple-unit control, 17 cars and a caboose. Its brakes have been tested and had functioned properly when used en route. As the train approached the collision point, the engineer and front brakeman, the only crew members on the locomotive, were in the control compartment of the first diesel-electric unit. The conductor and flagman were in the caboose.

The track motorcar was a one-to four-man inspection car, weighing about 650 pounds. It had four-wheel brakes, a 5- to 8-horsepower engine, a windshield, and a top.

Damages

The train stopped with the front end 664 feet east of the collision point. None of its equipment was derailed. Appurtenances at the front of the locomotive were slightly damaged.

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

Other Factors

The collision occurred at 1:28 p m., in clear weather.

The maximum authorized speed for all trains in the Shoshone area is 50 miles per hour, but is restricted to 30 miles per hour on the curve where the collision occurred.

According to their daily time returns, the engineer, front brakeman, conductor and flagman of Extra 3044 East had been on duty 2 hours 23 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 of 47, and injury to 47, persons

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