Railroad Accident Investigation Reports

REPORT NO. 79-4

UNION PACIFIC RAILROAD
IDAHO FALLS, IDAHO
JUNE 21, 1978

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
Office of Safety

RAILROAD ACCIDENT INVESTIGATION

REPORT NO: 79-4, 79-5.

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OFFICE OF SAFETY

WASHINGTON, D. C. 20590

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Synopsis

On June 21, 1978, at approximately 10:05 a.m., a head-end collision occurred between a Union Pacific freight train and the locomotive unit of a yard switch assignment on the Union Pacific Railroad at Idaho Falls, Idaho. At the time of the accident, the weather was clear.

Cause

The collision was caused by the failure of the front end crew members of the eastbound train to comply with the yard limit rule and maintain a lookout ahead; and failure of the switch crew to attend a main track switch as prescribed by carrier rules.

Casualties

The engineer and the front brakeman of the yard assignment were seriously injured. The engineer suffered a fractured skull, bruises and contusions. The front brakeman sustained a fractured skull, a fractured pelvis, bruises and contusions.

Location and Method of Operation

The accident occurred on that part of the railroad known as the 4th Subdivision of the Idaho Division extending from Butte, Montana to Pocatello, Idaho, a distance of 262 miles. This is a single track line over which trains are operated by timetable and train orders. There is a block signal system in use on portions of this subdivision, but not in the accident area. At Idaho Falls, 213 miles east of Butte, Montana, yard limits extend from 13,951 feet west to the point of accident, and for a considerable distance beyond the point of accident.

A spur track, 1,100 feet in length and designated as the Del Monte spur, parallels the main track on the north side of Idaho Falls with a facing point switch for eastward movement from the main track. The point of collision was on this spur track, 345 feet east of the main track switch.

A wye track is located approximately 900 feet east of the switch of the Del Monte spur track.

Tracks

From the west yard limit sign on the main track at Idaho Falls, there are successively a 3,248 foot tangent, a 4°30' curve 1,150 feet to the left, and a tangent, 7,047 feet in length, to the Del Monte spur switch and for 1,994 feet beyond. The grade of the main track is level from the west yard limit sign to the spur. The turnout of the Del Monte spur is a No. 10 turnout. From this turnout, the track grade on the spur track descends 1% eastward to the point of collision.

Entrance to the Del Monte spur is controlled by a hand-thrown switch with a high switch stand located on the north side of the main track. The position of the switch is indicated by a painted red disc 14 inches in diameter which is neither reflectorized nor lighted when the track is lined for the Del Monte spur.

Sight Distance

Eastbound, the main track is tangent for 7,047 feet approaching the point of accident, and the view to the switch of the Del Monte spur is unobstructed. The view of equipment on the spur is restricted by the curvature and descending grade of the spur, and by buildings and fences nearby.

From the spur track, the view westward of the main track is restricted because of buildings and fences along the right-of-way. The view of the engineer and the switchman riding on the locomotive unit as it backed out of the spur was further restricted, since the long end of the locomotive unit was to the west and the trainmen were located on the south side. From this position, a view of the main track to the west was completely blocked until that locomotive unit reached the switch.

Applicable Rules

7(A) All employees must keep a constant lookout for signals.

While the engine is moving, members of the crew in the cab of engine must be in position to keep careful lookout in the direction of movement and must give the engineer prompt notice of any hand, lantern, fusee or fixed signal or obstruction which may affect the movement of the train or engine. All members of the crew must be alert to receive signals from members of the crews of other trains. (Union Pacific Company Operating Rules)

34 All members of the crew in cab of engine must communicate to each other, by its name, the indication of each signal affecting the movement of their train or engine as soon as it becomes visible or audible. It is the responsibility of the engineer to require compliance with this rule.

93 (R-2) ... All trains and engines except first class must move within yard limits prepared to stop within one-half the range of vision, but not exceeding 20 m.p.h., unless main line is known to be clear by block signal protection... (Union Pacific System Timetable No. 1)

Rule 104 ... Unless otherwise provided, the normal position of a main track switch is for main track movement and it must be lined and locked in that position except when changed for immediate movement. During switching operations, an unattended main track switch must not be left open unless it is known that no other train or engine will pass over the switch. (Union Pacific Company Operating Rules)

Circumstances Prior to the Accident

Extra 3185 East

On the day of the accident, the crew consisting of a conductor, flagman, front brakeman, engineer, and an engineer-trainee, went on duty at Dillon, Montana, at 5:00 a.m. The crew had the required off duty period. Dillon is a crew change point, located 142 miles west of the accident site. The train consisting of five locomotive units (all EMD-SD-40's), 70 empty ore cars, and a caboose, arrived at Dillon and stopped on the main track. The crews were changed, a test of the air brakes was made, and the train departed at 5:35 a.m.

Approaching the scene of the accident the engineer-trainee was operating the controls at the right side of the control compartment of the lead locomotive unit. The front brakeman was riding on the forward seat on the left side of the same control compartment. The engineer was sitting on the seat behind the brakeman. The conductor and the flagman were riding in the caboose.

Yard Switch Assignment

A regularly assigned crew consisting of an engineer, a footboard yardmaster (at small terminals on the Union Pacific where no yardmaster is employed, the employee in charge of a switch crew is given the added responsibility of recording movements and expediting the handling of loaded and empty cars within the yard. This employee is classified as the footboard yardmaster) and two switchmen went on duty at 7:00 a.m. at Idaho Falls on the day of the accident. The crew was assigned locomotive unit No. 270, an EMD-GP-9, to perform normal duties in the Idaho Falls yard. A short time before the accident, the locomotive was used to pull two cars toward the west end of the yard where the wye and Del Monte spur are located. The crew intended to spot one of the cars on the Del Monte spur, and then turn the other car on the wye.

The Accident

Extra 3185 East

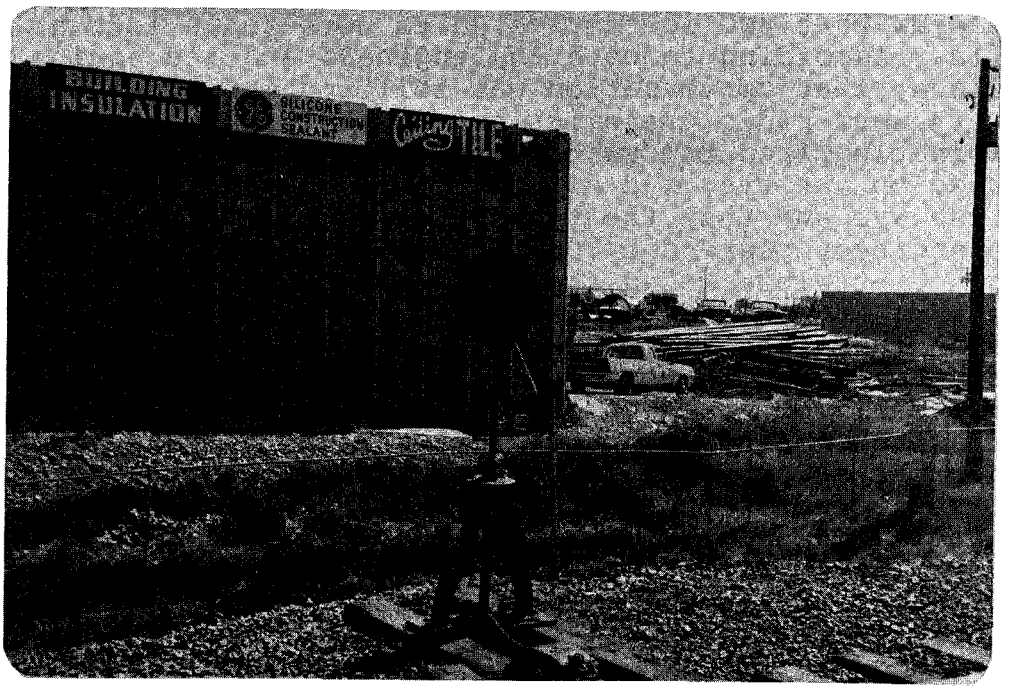
As the train approached the Idaho Falls yard limits, the engineer used the radio to ask for any instructions for his train. Someone in the yard office replied that

the train should proceed on the main track, and reminded the crew that two locomotive units were to be left at Idaho Falls. According to both the engineer and the engineer-trainee, that conversation was followed moments later by a very weak radio transmission, which they interpreted as originating from the switch crew saying that a car was being turned on the wye; the switch crew would clear the train on the wye and that the train crew should watch out for them. The engineer responded "OK, we will watch for you." The engineer-trainee asked the engineer for the location of the wye, and was told that it was one-half a mile ahead. The engineer had stood up and was behind the control stand near the center of the control compartment to answer the radio call. Moments later, the engineer-trainee noted that the switch to the Del Monte spur was open, and applied the train brakes in emergency. Speed recording devices of two of the locomotive units indicate that the speed was between 25 and 27 miles per hour. The speed of the train was not substantially reduced when the front of the locomotive collided with the rear of the switch locomotive backing out of the spur.

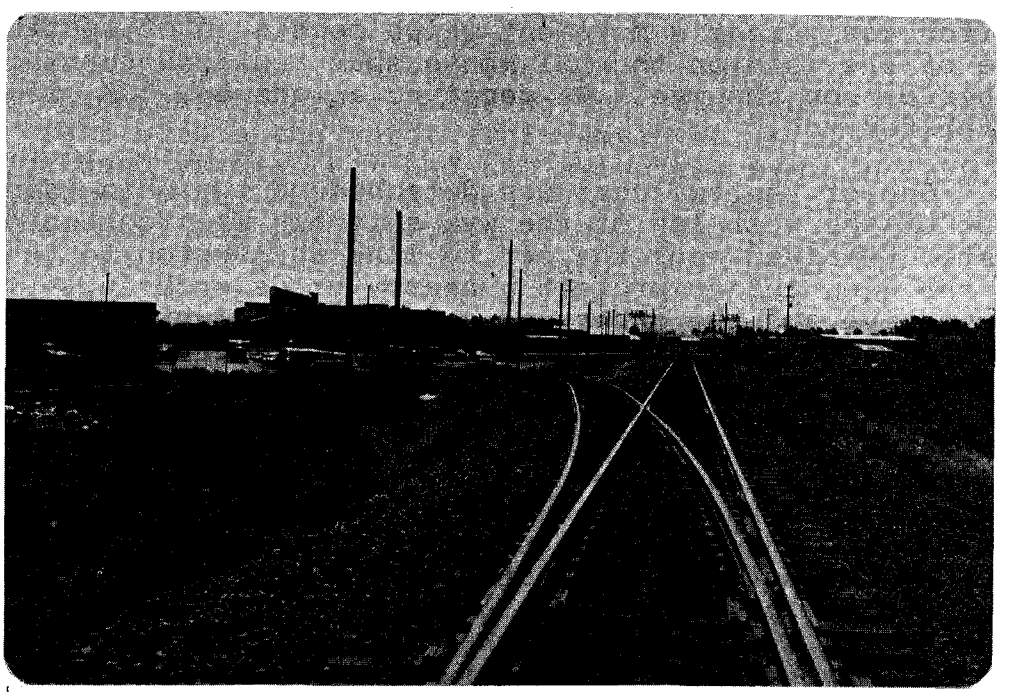
Yard Switch Assignment

The footboard yardmaster knew that Extra 3185 East was expected within a short time, and used his portable radio to call that train and advise its crew of the yard switch assignment's movement which consisted of spotting one of the cars on the Del Monte spur and then turning the other car on the wye. He received an answer, "OK, we will watch for you."

One of the two cars was detached on the main track west of the west leg of the wye switch. The footboard yardmaster remained near the car to line the switch to the leg of the wye, and to protect a nearby grade crossing. The locomotive and the other car continued westward on the main track, past the switch of the Del Monte spur. One switchman dismounted as this movement was being made and walked to the spur track entrance of the facility to open the gates of the property. The other switchman lined the spur track switch, and boarded the car as it was being pushed into the spur. He applied the hand brake on the car and then spotted it. He then uncoupled the car, gave the engineer a signal to move the locomotive back to the main track, and rode on the south side of the locomotive unit at the east end as it started backing out of the spur.



Switch stand for Del Monte spur track. Red indication for track lined for siding.



View eastward from switch to Del Monte spur track (on left).

As the switch locomotive backed out of the spur track, the engineer and the switchman's view to the west was blocked from their position on the south side of the locomotive with the long end ahead in the direction of the movement. There was no one at or near the switch, as the other switchman had remained behind to close the facility gates. Neither the engineer nor the switchman riding the locomotive were aware of the approaching freight train. After the accident, the position of the switch locomotive controls were found to be in reverse, with the throttle in No. 7 position and the brake valves in release position. The speed recording device indicated the speed to have been between 12 m.p.h. and 15 m.p.h. when the collision occurred.

On impact, the locomotive units did not override, but the switch locomotive unit was derailed and damaged beyond repair. The first three locomotive units of the train were derailed and heavily damaged. All of the units remained upright.

Damage

The estimated cost of damage was $64,000 for the locomotive units and an additional $3,516 for the track structure. The total damage cost was $67,516.

Crew of Extra 3185 East

On the day before the accident, the crew of Extra 3185 East had operated a loaded unit ore train from Pocatello, Idaho to Dillon, Montana. The crew had been off duty for eight hours before returning to duty on the day of the accident at 5:00 a.m. to handle a train of empty ore cars back to Pocatello.

The engineer, age 41, was first employed by the carrier as a switchman in 1969. He was promoted to an engineer in September 1974. He was last examined on the Air Brake Rules in January 1977.

The engineer-trainee, age 32, was first employed by the carrier as a telegrapher in 1965. He commenced formal training as an engineer in January of 1978.

The front brakeman, age 36, was first employed by the carrier in 1974. He was re-examined on the rules in August 1974.

Crew of Yard Locomotive 270

The engineer, age 29, was first employed by the carrier as a clerk in 1975, and was promoted to an engineer in March 1978. He had been disciplined once in 1978 for operating a locomotive without headlights.

The footboard yardmaster, age 58 with 37 years of service, was first employed by the carrier in 1941. His record was clear.

Findings

1. Full compliance with operating rules would have prevented this accident. These rules were not complied with because of the reliance each employee placed in their radio conversations, and the belief that all concerned knew what each crew planned to do.

2. The engineer of Extra 3185 East failed to exercise sufficient caution in his instructions to both the engineer-trainee and the front brakeman. He should have ordered the engineer-trainee to slow the train speed in compliance with yard limit rule and instructed the brakeman to maintain a close surveillance of the track ahead.

3. A major contributing cause of this accident concerns the use of railroad radios. Radio communication concerning planned movements and locations were relied on to provide for the safety of train operations in lieu of full compliance with carrier operating rules.

4. The failure of the crew members of Extra 3185 East riding in the cab of the lead locomotive unit to notice, or call out, the red switch target prevented timely action from being taken before the train approached the open switch.

5. In attempting to instruct and monitor the engineer-trainee's operation of the train, the engineer placed himself in a position within the locomotive cab where his view of the track ahead was restricted.

6. In leaving the switch to the spur track open and unattended, the yard switching crew violated Union Pacific operating rules, contributing to the accident.

Dated at Washington, D. C., this 24th day of May 1979
By the Federal Railroad Administration

J. W. Walsh
Chairman
Railroad Safety Board