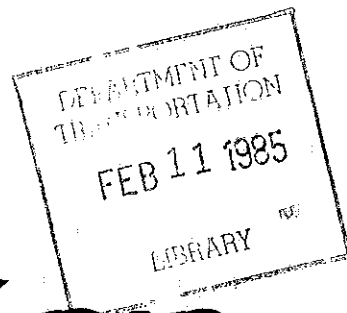


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Railroad Accident Investigation Reports



REPORT NO. 79-12

**UNION PACIFIC RAILROAD COMPANY
POINT OF ROCKS, WYOMING
AUGUST 28, 1978**



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

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 79-12

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FEDERAL RAILROAD ADMINISTRATION

OFFICE OF SAFETY

WASHINGTON, D. C. 20590

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Synopsis

On August 28, 1978, at approximately 4:55 p.m., an eastbound Union Pacific freight train collided with a Union Pacific work equipment crane operating on an adjacent track near Point of Rocks, Wyoming. The weather at the time of the accident was clear.

Cause

The collision was caused by the crane operator fouling an adjacent track with the counterbalance of the crane. A freight train operating on this adjacent track then struck the work equipment crane.

Factors contributing to the accident were the failure of the crane's conductor-pilot to assume a position on the crane where he could see approaching trains, and his negligence in not providing for flag protection as required by the carrier rules.

Casualties

Five Union Pacific trainmen on the eastbound freight train were injured in the collision. The front brakeman sustained fatal abdominal injuries and died at the scene of the accident. The engineer suffered a concussion and a rib separation. A deadheading brakeman also riding in the lead locomotive unit sustained a broken arm, a fractured vertebra, abrasions, contusions and lacerations.

Two deadheading engineers riding in the second locomotive unit were also injured. One of the engineers suffered multiple bruises, lacerations and a back injury. The other deadheading engineer sustained a brain concussion, lacerations and contusions.

No members of the work equipment crew were injured.

Location and Method of Operation

The accident occurred on that part of the Union Pacific Railroad extending from Green River to Rawlins, Wyoming, a distance of 134.2 miles. In the accident area, this is a double track line over which trains operate by timetable and train orders, and by signal indications of an automatic block signal system supplemented with automatic cab signals. The north and south main tracks are signaled for westward and eastward movements, respectively. Consistent with the normal current of traffic, signals on the north track govern westbound movements, and signals on the south track control eastbound movements.

The collision occurred at a point 2.15 miles east of Point of Rocks, Wyoming, and 746 feet east of signal No. 7754 located at milepost 775.4.

Eastbound trains approaching the accident site cross a rail-highway grade crossing located 1.71 miles west of the accident point.

Track

In the accident area, the two main tracks are parallel, with 13 feet distance between track centers.

Approaching the point of collision from the west, there are, in succession, a tangent of 7,150 feet, a 2° 07' curve to the right 4,100 feet, and a tangent 2,375 feet to the point of the collision and for 625 feet beyond.

Sight Distance

Because of track curvature and a hill located on the south side of the south main track, the maximum range of vision is restricted to 2,650 feet between a crane operating on the north main track at the point of collision and an approaching eastbound train on the south main track.

Authorized Speed

The maximum authorized speed for freight trains in the accident area is 60 m.p.h.

Union Pacific Railroad Operating Rules

Rule 81 A main track must not be fouled or occupied without authority, except under flag protection as prescribed by Rule 99.

Rule 99(E) When track is obstructed or unsafe, or before making it impassable or unsafe, full flag protection as prescribed by Rule 99 must be provided in both directions on all tracks affected.

Rule 730 Pile drivers, wrecking cranes, wrecking derricks, roadway machines and work equipment with or without booms or derricks, working on or off track, must not be operated when trains or other movements are passing, and before blocking or fouling any track, protection in both directions must be provided as prescribed by Rule 99, unless relieved from protecting by train order.

Circumstances Prior to the Accident

Extra 8046 East

Extra 8046 East, consisting of three road type diesel-electric locomotive units, 36 cars and a caboose, left Salt Lake City, Utah, at 10:30 a.m. on the day of the accident. The crew was called on duty at 6:30 a.m. after having completed the required off duty period.

At Green River, Wyoming, 212.6 miles from Salt Lake City, Utah, the engineer was changed. Other members of the crew remained to operate through to Rawlins, Wyoming. At Green River, the following deadheading employees boarded the train: two engineers, two brakemen and one conductor.

The train left Green River, Wyoming, at 4:05 p.m. with no train orders or information regarding the equipment working on the north main track near Point of Rocks, Wyoming. At approximately 4:55 p.m., the train was in the vicinity of the work equipment crane.

The engineer, the front brakeman and one deadheading brakeman were in the cab at the front of the first locomotive unit. Two deadheading engineers were in the cab of the second locomotive unit, and the conductor, the flagman, a deadheading conductor and a brakeman were located in the caboose.

Work Equipment Crane No. 903060

The self-propelled work equipment crane, not classified as a train or a work train by the carrier, consisted of Ohio Crane No. 903060 coupled to two cars at each end. The two gondola cars on the west side were loaded with tie plates. The first gondola car on the east side was almost empty. The second car was used as an idler.

The crew members, a conductor-pilot, a crane operator and a crane operator helper commenced operations at Hallville, Wyoming, at 7:30 a.m. on the day of the accident. After obtaining the train dispatcher's authority to occupy the track, the crew moved the work equipment westward on the north main track from Hallville, Wyoming to the area east of Point of Rocks. When necessary to clear for westbound trains, the work equipment was moved into the east leg of the wye track at Point of Rocks.

At approximately 3:55 p.m., the conductor-pilot communicated with the train dispatcher at Cheyenne, Wyoming, via telephone from Point of Rocks, and obtained a line up of westbound trains to be expected on the north main track. The work crew was granted permission by the train dispatcher to occupy the north main track between Hallville and Point of Rocks. The conductor-pilot did not request any information with regard to eastbound trains operating on the south main track. The work equipment was then moved out of the east leg of the wye eastbound on the north main track approximately 1,700 feet to the point of the accident. The work crew was unloading track material from the first gondola car east of the crane to the north side of the north main track when the train approached the accident point.

At the time of the accident, the crane operator was in the cab of the crane operating the controls. The crane operator helper was assisting in the unloading of the tie plates from his standing position in the first gondola car east of the crane. He was looking over the side of the car to the north while giving hand signals to the crane operator. The conductor-pilot was sitting on the southeast corner of the stationary crane platform with his feet over the edge. The conductor-pilot was looking toward the south. With the crane boom raised to 75° and turned to unload material on the south side of the north main track, the conductor-pilot's view of the south main track and approaching eastbound trains was completely obstructed.

It has been the practice on this railroad for the conductor-pilot to act as a lookout for approaching trains and to warn the crane operator in sufficient time for him to square the crane to clear for passing trains. It had not been the practice to actually flag the adjacent main track.

The conductor-pilot's means of providing protection for his work crew was dependent upon his hearing an approaching train whistle for the road crossing at Point of Rocks, 1.71 miles west of the accident point.

The Accident

Extra 8046 East

The speed tape from the first locomotive unit indicated that Extra 8046 East approached the point of collision at 68 MPH. With the exception that the train was being operated at 8 MPH above the maximum authorized speed, the eastbound freight train approached Point of Rocks in compliance with carrier rules. Both the engineer and the deadheading brakeman riding in the controlling lead locomotive unit stated that the whistle was sounded properly as the train passed the road crossing 1.71 miles west of the accident point. When the train proceeded around a 2°07' curve, the work equipment crane came into view approximately 2,650 feet west of the accident location. The engineer of the approaching train stated that it appeared to him that the crane was squared up with the cars coupled to it and in the clear; however, he could see the crane boom in the air. The engineer sounded the train whistle freely as the train approached the work equipment crane on the adjacent track. The train was proceeding on clear wayside and cab signal indications.

Work Equipment Crane No. 903069

The crane operator, with the boom positioned at approximately 75°, lifted a bundle of tie plates from the gondola car east of the crane, turned the boom to the north, and began moving the boom westward to deposit the material at the proper spot alongside the track. In the 25 seconds prior to the accident, no one of the work equipment crew looked in the direction of the approaching train.

The crane operator at the controls of the crane saw Extra 8040 East in his rear view mirror approximately one to one and one-half seconds before the impact. He shouted a warning and remained in the cab of the crane. The conductor-pilot quickly moved across the crane platform under the boom and jumped clear to the north side. The crane operator helper, who was assisting with the unloading operation from his position in the gondola car east of the crane, dropped to the floor of the car. With the crane turned to the north, the counterbalance fouled the south main track. Extra 8040 East struck the southeast corner of the crane's counterbalance at a speed of approximately 68 MPH.

The impact propelled the lead locomotive Unit 8046 of Extra 8046 East to the south and into the hillside. The following two locomotive units jackknifed closely behind and across the main tracks. The next 23 cars, which were flat cars loaded with highway trailers or containers, derailed and stacked up across both main tracks. Many of the trailers and containers were hurled forward with some landing on top of the locomotives. The last 12 cars and the caboose remained on the tracks.

Damages

All three locomotive units of Extra 8046 were heavily damaged. Of the 23 derailed cars, 11 were destroyed and 12 were heavily damaged. Of the 12 cars remaining on the track, all were considerably damaged.

Ohio Crane No. 903069 sustained minor damage and the two cars of its consist that derailed were not damaged.

The carrier estimated that total damage cost to track structure, signals, and equipment was \$1,526,879.

Post Accident Examination

Positions of the controls in the controlling cab of the leading locomotive unit of Extra 8046 East could not be positively determined because of the damaged and half-buried condition of the locomotive. Analysis of the speed tape from the locomotive indicated that the throttle was in one of the higher run positions. If an emergency brake application was made, it did not have sufficient time to materially reduce the speed of the train.

The controls of the Ohio Crane were working prior to and after the accident. A flagging kit containing all the necessary components was located in the crane. The crane, from the pivotal point (center) to the rear of the counterbalance, measures 12 feet.

Both the lead locomotive unit of Extra 8046 East and Crane No. 903069 were equipped with radios in good working condition and tuned to the same frequency.

After the accident, the carrier issued Bulletin No. A-31 pertaining to conductor-pilots working with maintenance of way equipment that may foul adjacent main tracks. The bulletin states that all such operations must now be protected by Form "Y" train orders.

Findings

1. With the exception that Extra 8046 East was being operated at 8 MPH above the maximum authorized speed, the train approached the point of collision operating in compliance with carrier rules. The crew of Extra 8046 East had no train orders or any knowledge that work equipment which could foul the south main track would be working on an adjacent track.

2. The work equipment, which utilized a self-propelled crane for motive power, was not classified as a train by the carrier and was operating without train orders. The conductor-pilot was assigned to obtain train dispatcher authority to occupy the track and to provide flag protection on adjacent tracks before obstructing them.

3. Flag protection, as required by carrier operating rules, was not provided by the work equipment crew under the supervision of the conductor-pilot.

4. From the conductor-pilot's position on the crane platform, and with the crane's diesel-engine operating, the whistle of an approaching train was inaudible. The conductor-pilot did not attempt to obtain a portable radio, or use the crane's radio, to locate the position of any such train operating on the adjacent main track.

5. The conductor-pilot was out of position to provide even minimal protection for the equipment and members of his crew.

Dated at Washington, D. C., this
12th Day of December 1979
by the Federal Railroad Administration

J. W. Walsh
Chairman
Railroad Safety Board