

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3462
UTAH RAILWAY COMPANY
IN RE ACCIDENT
AT JACOBS, UTAH, ON
APRIL 23, 1952

SUMMARY

Date: April 23, 1952

Railroad: Utah

Location: Jacobs, Utah

Kind of accident: Derailment

Equipment involved: Locomotive with cars

Engine number: Diesel-electric unit 301

• Consist: 7 cars

Estimated speed: 50 m. p. h.

Operation: Timetable and train orders

Track: Single; 12° curve; 2.75 percent descending grade westward

Weather: Clear

Time: 9:10 p. m.

Casualties: 1 killed; 1 injured

Cause: Excessive speed of locomotive with cars moving out of control on curve on heavy descending grade, as a result of the brakes on the cars being inoperative because of a closed angle cock between the locomotive and the first car

Recommendation: That the Utah Railway Company promptly take necessary steps to obtain compliance with existing rules governing the operation of trains on grades

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3462

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

UTAH RAILWAY COMPANY

June 17, 1952

Accident at Jacobs, Utah, on April 23, 1952, caused by excessive speed of a locomotive with cars moving out of control on a curve on a heavy descending grade, as a result of the brakes on the cars being inoperative because of a closed angle cock between the locomotive and the first car.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On April 23, 1952, there was a derailment of a locomotive with cars on the Utah Railway at Jacobs, Utah, which resulted in the death of one employee, and the injury of one employee.

¹ Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

Peerless

o	Standardville, Utah
	1.5 mi.
o	Peerless
	2.1 mi.
X	(Point of accident)
	Jacobs
	1.6 mi.
o	Martin
	0.8 mi.
o	Utah Ry. Junction, Utah

301 with cars
500 ft.
Locomotive

Point where 7 cars of coal stood

Auxiliary track

West switch

cars

with

Locomotive 301

Series of short curves and tangents -
1.4 mi.
Maximum curvature 12°

PROFILE

1.65 mi.
2.75% to 3.70% gradient (Average gradient 3.33%)

1.65 mi.

P.T.

456 ft.

P.C.

8°
790 ft.

ALIGNMENT

P.T.

560 ft.

P.C.

12°
151 ft.

Point of accident

Point of accident

12°
398 ft.

339 ft.

To Utah Ry. Junction →

Jacobs (Station sign)

To Mohrland

242 ft.

Junction switch

Report No. 3462
Utah Railway
Jacobs, Utah
April 23, 1952

Location of Accident and Method of Operation

This accident occurred on the Spring Canyon Branch, which extends between Standardville and Jacobs, Utah, 3.6 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. At Jacobs this line forms a junction with that part of the railroad extending between Mohrland and Utah Ry. Junction. The station sign at Jacobs is located 242 feet east of the junction switch. At Peerless, 1.5 miles west of Standardville, an auxiliary track, where loaded coal cars are assembled after being weighed, parallels the main track on the north. The accident occurred on the main track at a point 339 feet east of the station sign at Jacobs. From the east there are, in succession, a series of short curves and tangents throughout a distance of 1.4 miles, a tangent 456 feet in length, an 8° curve to the right 790 feet, a tangent 560 feet and a 12° curve to the left 151 feet to the point of accident and 398 feet westward. Throughout a distance of 1.65 miles immediately east of the point of accident the grade varies between 2.75 percent and 3.70 percent descending westward, and it averages 3.33 percent. At the point of accident the grade is 2.75 percent descending westward.

In the vicinity of the point of accident the track structure consists of 90-pound rail, 33 feet in length, laid in 1921 on an average of 18 treated ties to the rail length. It is fully tieplated, double-spiked and is provided with 4-hole 24-inch joint bars and four rail anchors per rail. It is ballasted with earth. At the point of accident the specified curvature is 12°, the superelevation is 3-1/2 inches and the gage is 4 feet 9 inches.

This carrier's operating rules read in part as follows:

113. Enginemen, firemen, conductors and trainmen must thoroughly familiarize themselves with instructions relating to operation of air brakes and be prepared at all times to comply with same, particularly on descending grades.

The carrier's air brake rules read in part as follows:

8. Before charging the train, trainmen * * * will see that all hose are coupled, and angle cocks are open, except at rear end; that retaining valve handles are down, hand brakes released, * * * that all brakes are cut in, and inspection made for all visible defects * * *

8-C. Each train must have the air brakes on all cars in effective operating condition, except in case of emergency * * *

9-B. * * * tests of the train brake system must be made as follows:

After the brake system on a freight train is charged to not less than 5 pounds below the standard pressure for that train, * * * a fifteen pound service reduction must be made upon proper request or signal, brake pipe leakage noted as indicated by the brake pipe gauge (which must not exceed 5 pounds per minute) after which the reduction must be increased to 20 pounds. Then an examination of the train brakes must be made to determine if brakes are applied in service application on each car. When this examination has been completed, proper release signal must be given and each brake examined to see that it releases properly.

9-C. When one or more cars are added to a train at any point subsequent to a terminal test, the cars added, when in the position where they are to be hauled in the train, must be tested as prescribed in Rule 9-B. * * *

56-A. Great care must be exercised by conductors in assembling of trains at mines and loading points on grades to know that full protection is given by hand brakes, or by blocking the cars, until air brakes are tested, adjusted, charged and made safe to handle the trains.

The maximum authorized speed for west-bound trains was 12 miles per hour.

Description of Accident

Extra 301 East, an east-bound freight train, was engaged in mine-run service. This train arrived at Peerless about 8:20 p. m., with Diesel-electric unit 301 pushing a caboose and 11 empty cars. The caboose was detached on the main track, and the empty cars were placed on auxiliary tracks in the vicinity of a coal-mine tipple. Diesel-electric unit 301, headed east, entered an auxiliary track where it was coupled to the west end of a cut of seven loaded coal cars, which were to be added to the train for westward movement. About

20 minutes after the locomotive entered the auxiliary track, the cars were moved westward to assemble the train on the main track. Before the rear end of the cut of cars had cleared the auxiliary track the flagman discovered that there was no air pressure in the reservoirs of the sixth car, and he gave signals to stop the movement. Efforts to stop the movement of the locomotive and the cut of cars on the descending grade were not effective. The movement continued out of control, and while moving at an estimated speed of 50 miles per hour the Diesel-electric unit and the cut of cars were derailed to the north in the vicinity of the station sign at Jacobs.

The Diesel-electric unit stopped upright, with the rear end of the unit across the track of the Mohrland-Utah Ry. Junction line and about 140 feet west of the point where it was derailed. The seven cars stopped in various positions north of the track. The first car was about 112 feet north of the track and the rear end of the seventh car was about 5 feet north of the track. The Diesel-electric unit was somewhat damaged, and all of the derailed cars were badly damaged.

The front brakeman was killed, and the engineer was injured.

The weather was clear at the time of the accident, which occurred about 9:10 p. m.

Diesel-electric unit 301 is of the 0-6-6-0 road-switcher type. It is 55 feet 11-3/4 inches long between the pulling faces of the couplers, and weighs 325,000 pounds. This unit is provided with 24-RL and dynamic brake equipment. Main reservoir pressure of 130 pounds and brake-pipe pressure of 90 pounds are maintained. Two air compressors are provided, one of which is connected to the main engine shaft. The other is powered by a separate Diesel engine and is housed in the rear compartment of the unit. It is used to supplement the air supply to the main reservoir when trains are being handled on grades. A dynamic brake interlock is provided, which prevents an automatic application of the locomotive brakes while the dynamic brake is applied. The dynamic braking action is automatically nullified by an emergency application of the air brakes. Operation of the independent brake valve to apply or release the brakes of the locomotive is not affected by the dynamic brake interlock.

Discussion

Under the rules of this carrier employees are required to familiarize themselves with instructions relating to the operation of air brakes. Air-brake tests must be made in the prescribed manner, and air brakes on all cars of a train must be in effective operating condition. Conductors must exercise care in assembling trains at mines and loading points on grades to know that full protection is given until air brakes are tested and charged and made safe to handle the train.

Extra 301 East arrived at Peerless about 8:20 p. m. The caboose was detached and left on the main track and the cars in the train were placed on two auxiliary tracks in the vicinity of a coal-mine tipple. After switching operations at the mine tipple were completed, Diesel-electric unit 301 entered the auxiliary track, where loaded cars which were to be added to the train for west-bound movement had been assembled. The locomotive was coupled to the west end of a cut of seven cars loaded with coal. All of these cars were equipped with AB brakes. The fireman, a qualified engineer, was operating the locomotive, and the engineer was occupying the fireman's usual position in the control compartment. Because of track curvature, signals given by the members of the train crew were visible only from the left side of the control compartment of the locomotive. The fireman said that after the locomotive was coupled to the cut of cars the front brakeman coupled the air hose between the locomotive and the first car and apparently opened the angle cock at the front end of the locomotive, as the brakes of the locomotive were applied in emergency. The fireman said that he then moved the brake valve to lap position and held it in that position for a period of about 30 seconds, and then moved it to running position after being informed by the engineer that a signal had been received to charge the brake system. The conductor said that he checked the numbers of the four westerly cars on the auxiliary track and observed that the front brakeman and the flagman were releasing hand brakes and moving the retaining valves of the cars to holding position. He said that when he was in the vicinity of the fourth car of the cut he heard the sound of air moving through the air-brake system. He obtained the numbers of the other three cars from the flagman and returned to the caboose. The flagman said that he closed the angle cock at the rear end of the cut of cars, proceeded toward the locomotive, coupled the air hose between the sixth and seventh cars and the fifth and sixth cars, and moved the handles of the retaining valves of the cars to heavy-holding position. Although the fireman said

that the brake valve was in lap position, the flagman said that when he coupled the hose between the fifth and sixth cars he heard the sound of air moving through the connections. The flagman said that he met the front brakeman at the fifth car, and the front brakeman informed him that the front end of the cut of cars was all right. Then the front brakeman gave a signal to the engineer to start charging the brake system of the cars. The fireman said that about 20 minutes after the locomotive had been coupled to the cut of cars, he observed that the air-brake gauge indicated 90 pounds brake-pipe pressure, and he considered sufficient time had elapsed for the reservoirs of the cars to become fully charged. He made a service brake-pipe reduction of about 10 pounds and sounded a short blast on the locomotive horn to indicate to the members of the train crew that the air brakes were applied. The enginemen said they thought the exhaust from the brake valve was normal. About 30 seconds later the engineer informed the fireman that the signal to release brakes had been given, the brakes were released, and the westward movement to assemble the train on the main track was started. When the movement had proceeded westward about 400 feet and the locomotive was in the vicinity of the main-track switch, the engineer observed a member of the train crew giving stop signals from the vicinity of the clearance point of the auxiliary track, and warned the fireman. The front brakeman had alighted from the locomotive at the main-track switch and when he observed that stop signals were being given he boarded the cars to apply hand brakes. The flagman said that he did not make an inspection of the air brakes after the signal was sounded on the horn of the locomotive to indicate that the brakes had been applied. After the movement had started, he pulled the release rod on the sixth car and discovered that there was no air in its reservoirs. He said that he moved away from the side of the cars to give stop signals and then attempted to board the rear car to apply hand brakes but he was unable to overtake the movement. The fireman said that when the movement was approaching the west end of the auxiliary track he made a service application of the air brakes and intended to apply the dynamic brake. However, when the speed of the movement was not reduced he moved the brake valve to emergency position and sounded the signal on the locomotive horn to apply hand brakes. The grade on the main track in the vicinity of the switch of the auxiliary track is 3.63 percent descending westward. When the speed of the movement continued to increase after the emergency application of the brakes had been made, the enginemen realized that it was out of control. The engineer left the control compartment and attempted to apply the hand

brake of the first car. Because of the speed, he was unable to apply the hand brake and returned to the front end of the locomotive before the derailment occurred. The fireman said that after the brakes were applied in emergency he reduced the brake-cylinder pressure to about 50 pounds to prevent sliding of the locomotive wheels. When he last observed the speed indicator, a few seconds before the accident occurred, it indicated a speed of slightly less than 50 miles per hour. The fireman remained in the control compartment until the locomotive stopped.

Examination of the locomotive after the accident occurred disclosed that the throttle was closed and the reverse lever was in position for backward movement. The automatic brake valve was in emergency position and the independent brake valve was in application position. The rotair valve was in position for passenger service. The angle cock at each end of the locomotive was closed.

The derailed cars were damaged to the extent that an air-brake test could not be made. The angle cocks at the rear end of the seventh car and at the rear end of the sixth car were found in closed position. Several retaining valves were found in heavy-holding position, but the retaining valve of the first car was found in release position. The wheels and the brake shoes of the sixth car bore indications of excessive heating as a result of heavy braking. Apparently the hand brake of this car was applied by the front brakeman.

It is apparent that, after the locomotive was coupled to the cars which were to be added to the train, the angle cock at the east end of the engine was opened by the front brakeman, and this action caused an automatic application of the brakes on the locomotive. The air hose on the cut of seven cars had not been coupled at that time, and it is possible that the front brakeman closed the angle cock on the east end of the locomotive as a result of his hearing air escape at the rear end of the first car, and that it was not re-opened before the movement started. The four surviving members of the crew said that they did not operate the angle cock on the engine adjacent to the first car. Although the fireman initiated a service application of the brakes and sounded a signal on the horn of the locomotive to indicate that brakes were applied, no inspection was made to determine that the brakes were functioning properly. It could not be determined who gave the signal to release the brakes. As a result of the failure

to make the air-brake test in the proper manner, none of the members of the crew was aware that the reservoirs of the cars had not been charged and that the air brakes were inoperative until the locomotive and cut of cars were on the descending grade and the movement was out of control.

The investigation disclosed that a number of the rules of the carrier which are essential to the safe operation of trains on grades were not complied with in preparing the train for movement from Peerless. In addition, the prescribed test was not made of the brakes of Extra 301 East before it left its initial station. This non-compliance with the requirements of the carrier's rules indicates a laxness in proper enforcement.

Cause

It is found that this accident was caused by excessive speed of a locomotive with cars moving out of control on a curve on a heavy descending grade, as a result of the brakes on the cars being inoperative because of a closed angle cock between the locomotive and the first car.

Recommendation

It is recommended that the Utah Railway Company promptly take necessary steps to obtain compliance with existing rules governing the operation of trains on grades.

Dated at Washington, D. C., this seventeenth day of June, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.