

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4099

**CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC
RAILROAD COMPANY**

WHITMAN, MINN.

JULY 20, 1966

INTERSTATE COMMERCE COMMISSION

WASHINGTON

SUMMARY

DATE:	July 20, 1966	
RAILROAD:	Chicago, Milwaukee, St. Paul and Pacific	
LOCATION:	Whitman, Minn.	
KIND OF ACCIDENT:	Derailment and collisions	
TRAINS INVOLVED:	Freight	Freight
TRAIN NUMBERS:	Extra 398 West	Extra 306 East
LOCOMOTIVE NUMBERS:	Diesel-electric units 398, 180, 380, 394, 190	Diesel - electric units 306, 311
CONSISTS:	84 cars, caboose	40 cars, caboose
SPEEDS:	61 m.p.h.	50 m.p.h.
OPERATION:	Signal indications	
TRACKS:	Double; tangent; level	
WEATHER:	Clear	
TIME:	9:58 p.m.	
CASUALTIES:	7 injured	
CAUSE:	Car derailed by insecure lading obstructing adjacent main track immediately in front of approaching train	
RECOMMENDATION:	That the Association of American Railroads undertake a study of its present rules governing the loading of lumber on open-top cars to determine the adequacy of such rules	

INTERSTATE COMMERCE COMMISSION
RAILROAD SAFETY AND SERVICE BOARD

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Synopsis

On July 20, 1966, cars of an eastbound Chicago, Milwaukee, St. Paul and Pacific Railroad freight train derailed at Whitman, Minn., and were struck by a westbound freight train moving on the adjacent main track. Six train-service employees and one trespasser were injured.

The accident was caused by a car derailed by insecured lading obstructing adjacent main track immediately in front of approaching train.

LOCATION AND METHOD OF OPERATION

The accident occurred on that part of the La Crosse Division extending between La Crosse, Wis., and St. Croix Tower, Minn., a distance of 110.7 miles. In the accident area this is a double-track line over which trains moving with the current of traffic operate by signal indications of an automatic-block-signal system, supplemented by an automatic cab-signal system for locomotives equipped with cab-signal apparatus.

At Whitman, Minn., 37.5 miles west of La Crosse, a spur-track parallels the eastward main track on the south. The spur-track switch is trailing point for eastbound movements on the eastward main track and is 175 feet west of the station. A cross-

over 227 feet long connects the main tracks. The west crossover-switch is facing point for eastbound movements on the eastward main track and is 63 feet east of the spur-track switch.

The derailment occurred on the eastward main track, 186 feet west of the Whitman station and 11 feet west of the spur-track switch. A collision occurred 363 feet east of the station, and a second collision occurred 2,309 feet farther eastward.

Neither locomotive involved in the accident had cab-signal apparatus.

Details concerning the track structure, trains involved, damages, and other factors are set forth in the appendix.

DESCRIPTION AND DISCUSSION

Extra 398 West, a westbound freight train consisting of 5 diesel-electric units, 84 cars and a caboose, left La Crosse at 9:10 p.m. on the day of the accident and proceeded on the westward main track. About 48 minutes later, it neared the Whitman station at 61 miles per hour, as indicated by the speed-recording tape. At the same time, Extra 306 East, an eastbound freight train moving on the eastward main track, was also nearing that station. The engineers of both trains dimmed the headlights of their locomotives. A few moments later, the engineer of the eastbound train extinguished his headlight, and the engineer of Extra 398 West saw sparks flying over the westward main track a relatively short distance ahead. Realizing something was wrong, he applied the brakes of his train in emergency. He then switched his headlight back to bright and saw that a derailed box car of the eastbound train was extending diagonally over the westward main track. Immediately thereafter, before the speed of Extra 398 West was materially reduced, the locomotive of that train collided with the derailed box car, the 17th car of Extra 306 East, 363 feet east of the station. All the locomotive units and the first 10 cars of Extra 398 West derailed. In addition, the middle portion of that train buckled and derailed cars fouled the north side of the eastward main track. Extra 306 East struck this derailed equipment, 2,309 feet east of the first collision point.

The engineer and front brakeman of Extra 398 West, and the engineer, front brakeman, a student brakeman, and the conductor of Extra 306 East, were injured. A trespasser on one of the trains was also injured.

Extra 306 East left St. Croix Tower at 5:47 p.m. on the day of the accident and performed switching operations en route. At 8:25 p.m., it stopped at Wabasha, Minn., 22.2 miles west of Whitman, to set out and pick up cars. After the cars destined for Wabasha were set out PRR 474598, a flat car loaded with lumber, was picked up and placed in the train. This car had been set out at Wabasha by an eastbound train the preceeding day, because its load had shifted. The load had been readjusted and several strands of wire had been used to secure the load temporarily at Wabasha by a car foreman, who then ordered the car to be moved to a repair track at La Crosse for further adjustment and re-banding of the load. Before leaving Wabasha, the conductor of Extra 306 East received a message, which was attached to the waybill for PRR 474598. The message read in part as follows:

HANDLE WITH CARE DO NOT HUMP CAR
HANDLE IN TRAIN BETWEEN TWO BOX CARS
SO LOAD CANNOT SHIFT EN ROUTE

Extra 306 East, consisting of 2 diesel-electric units, 40 cars and a caboose, left Wabasha at 9:20 p.m. and proceeded on the eastward main track with PRR 474598 as the 16th car. The 15th car was a gondola car loaded with lumber and the 17th car was HLW 34298, a box car, which was loaded with feed. The crew members said they made frequent observations of the train en route from Wabasha and noticed no unusual condition.

About 38 minutes after leaving Wabasha, Extra 306 East neared Whitman at 50 miles per hour, as indicated by the speed-recording tape. The engineer saw Extra 398 West approaching on the westward main track and dimmed the headlight of his train. A few moments later, he extinguished the headlight. Shortly thereafter, as the front portion of Extra 306 East was passing the Whitman spur-track switch, lumber from the 16th car of Extra 306 East fell onto the eastward main track structure and under the front of the 17th car a short distance west of the spur-track switch, causing the front truck of the 17th car to derail to the north 11 feet west of the switch. Immediately afterward, wheels of the derailed truck struck the west turnout of the Whitman crossover and the front of the 17th car was diverted to the westward main track structure in front of Extra 398 West. A separation apparently occurred between the 16th and 17th cars at this

time, resulting in an emergency brake application. The engineer said the locomotive of Extra 398 West had just passed when the emergency brake application occurred, and he was unaware of anything being wrong before that time. He thought a broken air hose had caused the brake application and was gradually reducing power when he felt and heard his locomotive striking derailed cars that had buckled from the middle portion of the westbound train and fouled the north side of the eastward main track.

PRR 474598, the 16th car of Extra 306 East, was loaded with wood planking at Morton, Wash., on June 28, 1966, by personnel of the shipper. A representative of the Chicago, Milwaukee, St. Paul and Pacific Railroad inspected the lading, found it to be loaded in accordance with the Association of American Railroad's rules governing the loading of forest products on open top cars, and accepted it for shipment. The car was inspected at various locations en route by the carrier's car department employees and no exceptions were taken. However, on July 6th, the car was removed from a train at Mobridge, S. D., because the lading had shifted. Two bands, which encircled the pile of planking on the west end of the car were broken and one band, which encircled the pile on the east end of the car, was loose. The lading was readjusted and rebanded, and the car was moved eastward in another train. Subsequently, the car was again removed from a train at Olivia, Minn., because the lading had shifted. The lading was readjusted and rebanded by mechanical department employees and the car was moved to the repair track at St. Paul, Minn., on July 17th. The car department force at St. Paul adjusted and rebanded that portion of the load on the west end of the car. The car was then inspected by a car department foreman on July 19th. He took no exceptions and released the car for movement eastward. Later the same day, the car was removed from a train at Wabasha, because the pile of planking on the east end had shifted due to broken and loose banding. On July 20th, a car department foreman readjusted the lading on this end of the car and used several strands of wire to secure that portion of the lading temporarily. He then ordered the car to be moved to the repair track at La Crosse for further securement of the lading. He inspected the lading on the west end of the car before releasing the car for movement from Wabasha, and took no exceptions.

The first mark of derailment on the eastward main track appeared at the spur-track switch. It consisted of a batter mark on a bolt connecting the switch rod to the switch clip on the south

closure rail, 11 feet west of the switch point. At a point 2 feet east of the switch point, a flange mark appeared on a tie on the gage side of the south rail. Opposite this point, on the field side of the north rail, a flange mark appeared on top of a tie, indicating that a pair of wheels, evidently the front wheels of the front truck of Milw. 34298, the 17th car of Extra 306 East, had derailed to the north. The flange marks extended eastward to the west turnout of the crossover, where the derailed wheels diverged northward and guided the east end of the 17th car onto the westward main track structure in front of Extra 398 West.

A piece of planking of the same type comprising the lading of PRR 474598, the 16th car of Extra 306 East, was found lying on the track structure 1.9 miles west of the accident point, and fragments of wood planking were found lying on the eastward main track structure throughout a distance of about 300 feet west of the spur-track switch. The west end of the guard rail opposite the frog of the spur-track switch bore heavy abrasion marks and was surrounded with wood splinters. From the north closure rail to the bent stock rail, there were increasing amounts of planking fragments on the track structure. At the crossover, there were several large pieces of broken planking.

Examination of the equipment of Extra 306 East after the accident disclosed that the lading of PRR 474598, the 16th car, had shifted and that approximately 30 pieces of planking had fallen from the west end of the car. The 1-1/4-inch high-tension steel bands encircling the two piles of wood planking, and the high-tension steel bands and wire strands stretching between the side stakes and above the load were broken and loose. The planking in both piles had shifted longitudinally, and numerous separators between layers of the planking were displaced. Several pieces of planking from the top of the pile at the west end of the car were found to have shifted a sufficient distance westward to permit their west ends to drop to the car floor at an oblique angle.

FINDINGS

The investigation disclosed that the lading of PRR 474598 had been inspected by a representative of the Chicago, Milwaukee, St. Paul and Pacific Railroad Company, and had been found to be loaded in accordance with Section 5, Figure 1, of the Association

of American Railroads Rules for the Loading of Forest Products on Open-Top Cars. However, while en route eastward, the lading shifted on numerous occasions, and the car was set out of various trains to have the lading readjusted and rebanded. It was last set out at Wabasha on the day before the accident, because the lading at the east end had shifted. After this portion of the lading was readjusted, the car was picked up by Extra 306 East on the day of the accident.

As Extra 306 East approached Whitman, the high tension steel bands encircling the pile of planking on the west end of PRR 474598, the 16th car, loosened sufficiently to permit longitudinal movement of that pile of planking and several pieces of planking from the top of this pile dropped off the west end of the car onto the eastward main track. The front truck of the 17th car evidently struck one of these pieces, causing the truck to derail to the north. At the west end of the Whitman crossover, the east end of the car was diverted to the north and onto the westward main track immediately in front of Extra 398 West, causing the collisions.

Although the lading on PRR 474598 was loaded and secured in accordance with specifications of the Association of American Railroads, it is evident that the lading shifted while en route to Mobridge and that it was not adequately secured thereafter for safe movement to its destination.

CAUSE

This accident was caused by a car derailed by insecure lading obstructing adjacent main track immediately in front of approaching train.

RECOMMENDATION

It is recommended that the Association of American Railroads undertake a study of its present rules governing the loading of lumber on open-top cars to determine the adequacy of such rules.

*Dated at Washington, D. C., this
25th day of January 1967.*

*By the Commission, Railroad
Safety and Service Board.*

H. NEIL GARSON,
Secretary.

(SEAL)

APPENDIX

Tracks

The main tracks are tangent and the grade is practically level a considerable distance east and west of the accident point.

Trains Involved

Extra 398 West consisted of road-switcher type diesel-electric units 398, 180, 380, 394 and 190, coupled in multiple-unit control, 84 cars, and a caboose. As this train approached the accident 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 train brakes had been tested and had functioned properly when used en route.

Extra 306 East consisted of road-switcher type diesel-electric units 306 and 311, coupled in multiple-unit control, 40 cars and a caboose. As this train approached the accident point, the engineer, front brakeman and student 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 train brakes had been tested and functioned properly when used en route.

PRR 474598, the 16th car of Extra 306 East, was a flat car of all-steel construction and was equipped with wooden flooring. Its lightweight, nominal capacity and load limits were, respectively, 51,300, 140,000 and 168,700 pounds. Its height above the tops of the rails was 3 feet 4 inches. Its width was 9 feet 3 inches and its length over strikers was 49 feet 10 1/2 inches. The trucks were of the four-wheel type, having 33-inch one-wear wrought steel wheels and 6-inch by 11-inch friction journals. The truck centers were spaced 38 feet 11-1/2 inches apart.

The lading of PRR 474598 consisted of about 420 pieces of rough planking 4"x10"x16' in size, placed in two equal piles longitudinally on the car. Each pile was about 21 layers high with each layer consisting of 10 pieces of planking. Wooden separators, 3"x6"x9'2", extended across the width of the car between each pair of side stakes. These separators were between the eleventh and twelfth layers of each pile and between the bottom layer and the car floor. Additional 1/2"x3" wooden separators of various

lengths were between various layers of both piles. At least two 1-1/4-inch high tension steel bands, at equally spaced intervals, had encircled each pile. The pile of planking on the west end of the car was between four pair of side stakes and the pile on the east end of the car was between three pair of side stakes. Each pair of stakes was tied together, immediately above the top of the load, by 1-1/4-inch high-tension steel bands. Longitudinal ties, consisting of 1"x4" wooden boards connected the side stakes as required.

This car was loaded by the Patrick Lumber Company, Packwood, Wash. The lading was consigned to the Chesapeake and Ohio Railway Company, Saginaw, Mich.

Damages

Extra 398 West stopped with the front end 219 feet west of the first collision point. The 1st diesel-electric unit stopped upright with the front end about 60 feet north of the track structure. The 2nd and 3rd units overturned onto their right sides and stopped about 40 feet north of, and at right angles to, the westward main track. The 4th unit stopped upright at a 45°-angle to the westward main track with the front end on the north side of the track structure. The 5th unit stopped on the north side of the track structure. The 1st to 10th cars, and the 46th to 57th cars, inclusive, derailed and stopped in various positions on or near the track structure. The 5 locomotive units were heavily damaged. Of the 22 cars derailed, 7 were destroyed, 12 were heavily damaged and 3 were slightly damaged.

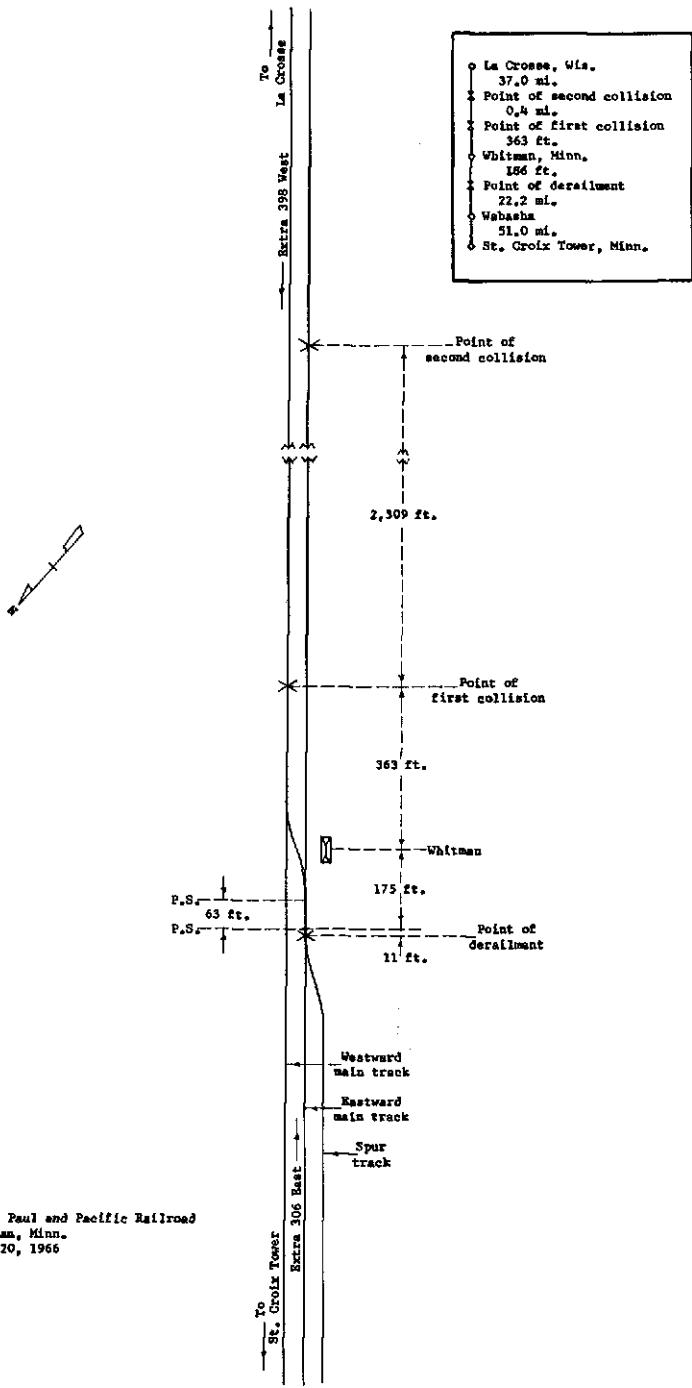
Extra 306 East stopped with the front end 649 feet east of the second collision point and 2,958 feet east of the first collision point. The 17th to 30th cars, inclusive, were derailed as a result of the initial derailment. The 1st diesel-electric unit and the 2nd, 3rd, 7th, 8th and 9th cars were derailed as a result of the 2nd collision. The derailed equipment stopped in various positions on or near the structures of the main tracks. In addition to the 19 cars derailed, 9 other cars were also damaged as a result of being struck by derailed equipment of Extra 398 West. Of the 28 cars derailed and damaged, 9 were destroyed, 5 were heavily damaged, 9 were somewhat damaged and 5 were slightly damaged.

Other Factors

The accident occurred at about 9:58 p.m., in clear weather.

The maximum authorized speed for freight trains in the accident area is 60 miles per hour.

According to their daily time returns, the crew members of Extra 398 West had been on duty 1 hour 8 minutes at the time of the accident. The engineer had been off duty 5 hours 35 minutes before the accident trip. He was previously on duty 4 hours 30 minutes after having been off duty 24 hours. The conductor, front brakeman and flagman had been off duty 5 hours 30 minutes before the accident trip. They had previously been on duty 4 hours 35 minutes after having been off duty 24 hours. The engineer, front brakeman, conductor and flagman of Extra 306 East had been on duty 7 hours 28 minutes at the time of the accident, after having been off duty at least 16 hours.



Chicago, Milwaukee, St. Paul and Pacific Railroad
 Whitman, Minn.
 July 20, 1966

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