RAILROAD ACCIDENT INVESTIGATION

Report No 3815

CHICAGO, MILWAUKEE, ST PAUL AND PACIFIC RAILROAD COMPANY

OLCWOOD, WIS

JULY 31, 958

INTERSTATE COMMERCE COMMISSION

Washington

SUMMARY

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DATE	July 31, 1958
RAILROAD	Chicago, Milwaukee, St Paul and Pacific
LOCATION	Oakwood, Wis
KIND OF ACCIDENT	Derailment
TRAIN INVOLVED	Passenger
TRAIN NUMBER	15
LOCOMOTIVE NUMBERS	Diesel-electric units 101C, 94B, 8B, and 95C
CONSIST	18 cars
SPEED	92 m p h
OPERATION	Signal indications
TRACK	Double, tangent, level
WEATHER	Clear
TIME	2 05 p m
CASUALTIES	146 injured
CAUSE	Failure of brackets securing water-tank assembly to car permitting assembly to fall to track structure

INTERSTATE COMMERCE COMMISSION

REPORT NO 3815

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

CHICAGO, MILWAUKEE, ST PAUL AND PACIFIC RAILROAD COMPANY

November 23, 1958

Accident near Oakwood, Wis , on July 31, 1958, caused by failure of brackets securing a water-tank assembly to a car permitting the assembly to fall to the track structure

REPORT OF THE COMMISSION[1]

TUGGLE, Commissioner

On July 31, 1958, there was a derailment of a passenger train on the Chicago, Milwaukee, St Paul and Pacific Railroad near Oakwood, Wis , which resulted in the injury of 125 passengers, 4 Pullman Company employees, 1 train porter, 12 dining-car employees, 2 train-service employees, and 2 other employees

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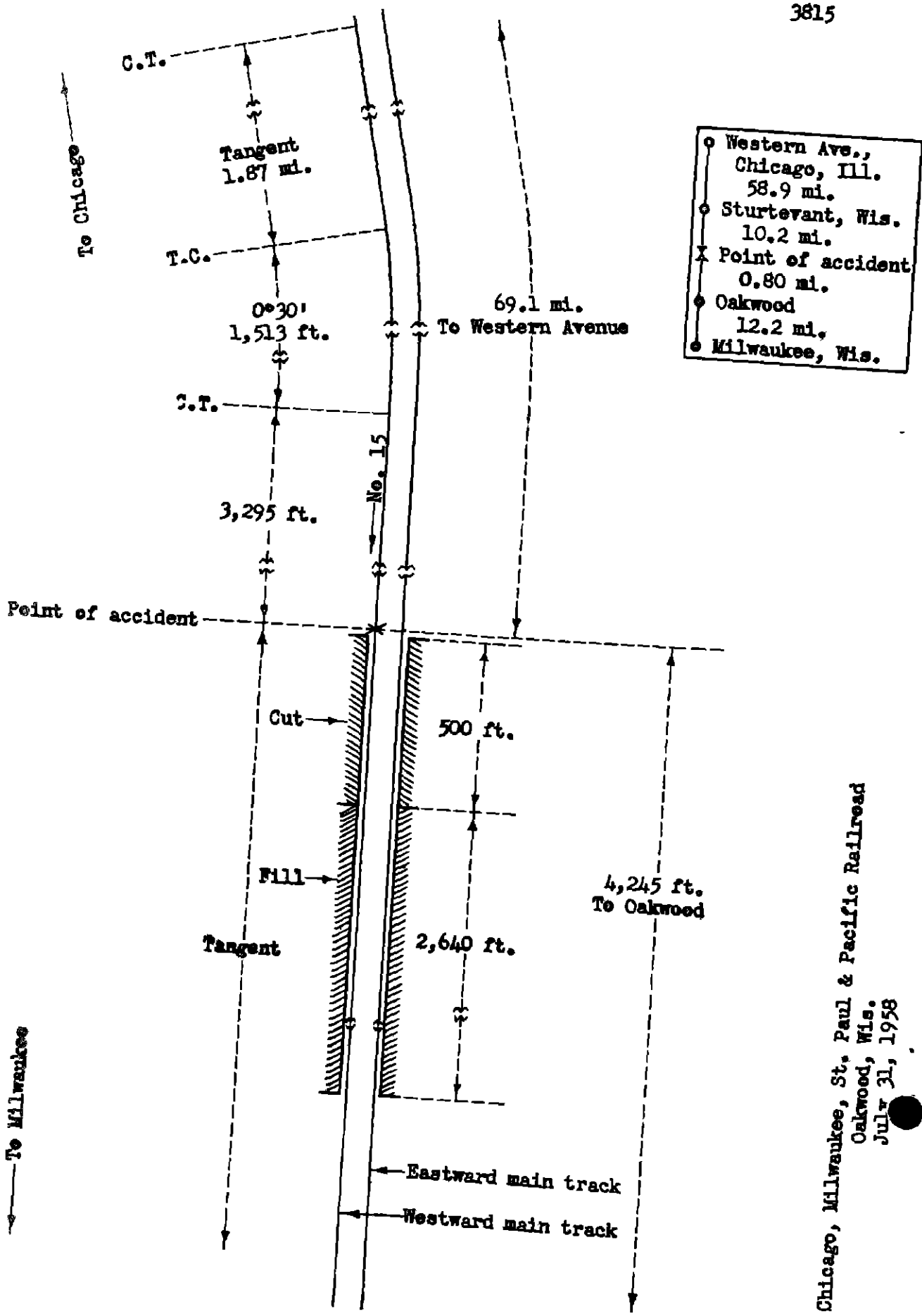
[1]Under authority of section 17 (2) of the *Interstate Commerce Act* the above-entitled proceeding was referred by the Commission to Commissioner Tuggle for consideration and disposition



Chicago, Milwaukee, St. Paul & Pacific Railroad
Oakwood, Wis.
July 31, 1958

Location of Accident and Method of Operation

This accident occurred on that part of the Milwaukee Division extending between Western Avenue, Chicago, Ill , and Milwaukee, Wis , 82 1 miles In the vicinity of the point of accident this is a double-track line over which trains moving with the current of traffic are operated by signal indications The derailment occurred on the westward main track at a point 69 1 miles west of Western Avenue and 4,245 feet east of the station sign at Oakwood From the east there are, in succession, a tangent 1 87 miles in length, a 0°30' curve to the right 1,513 feet, and a tangent 3,295 feet to the point of derailment and a considerable distance westward In the vicinity of the point of accident the grade is level

The tracks are laid in a cut extending westward from the point of accident throughout a distance of approximately 500 feet The walls of the cut rise to a maximum height of 6 feet Immediately west of the cut the tracks are laid on a fill extending throughout a distance of approximately 2,640 feet The maximum height of the fill is 13 feet

In the vicinity of the point of accident the north and south rails of the westward main track consist of 131-pound and 132-pound rail, respectively, 39 feet in length, laid new in 1937 and 1953, respectively, on an average of 24 ties per rail length The track is fully tieplated with double-shoulder tie plates, double-spiked, and is provided with 6-hole, 36-inch joint bars, and an average of 10 rail anchors per rail It is ballasted with gravel to a depth of 24 inches below the bottoms of the ties

The maximum authorized speed for passenger trains in the vicinity of the point of accident is 90 miles per hour

Description of Accident

No 15, a westbound first-class passenger train, consisted of diesel-electric units 101C, 94B, 8B, and 95C, coupled in multiple-unit control, 1 baggage car, 1 baggage-dormitory car, 4 coaches 1 lunch-lounge car, 5 coaches, 1 dome-coach, 1 dining car, 1 chair car, 2 sleeping cars, and 1 observation car, in the order named The 13th car was of convertional all-steel construction and the other cars were of lightweight construction The 2nd to the 18th cars, inclusive, were equipped with tightlock couplers This train departed from its originating station in Chicago, 2 9 miles east of Western Avenue, at 1 00 p m , on time, passed Sturtevant, 58 9 miles west of Western Avenue, the last open office, at 1 58 p m , 8 minutes late, and while moving at a speed of 92 miles per hour, as indicated by the tape of the speed-recording device, the 8th to the 18th cars, inclusive, were derailed at a point 4,245 feet east of the station sign at Oakwood

The locomotive stopped with the front end 3,278 feet west of the point of accident A separation occurred between the 12th and 13th cars because of a broken coupler at the rear end of the 12th car The 8th to the 12th cars, inclusive, stopped in line, down the fill, with the front end of the 8th car and the rear end of the 12th car 2 feet and 50 feet, respectively, north of the track The 8th to the 10th cars, inclusive, leaned slightly to the north, the 11th car stopped upright, and the 12th car leaned slightly to the south The 13th to the 18th cars, inclusive, stopped approximately in line, with the front end of the 13th car 745 feet west of the point of accident and 30 feet north of the track The 18th car stopped with the rear end 5 feet north of the track The 14th car leaned to the north at an angle of 30 degrees The 15th to 18th cars, inclusive, leaned slightly to the north The 12th, the 14th, and the 15th cars were heavily damaged The other derailed cars were somewhat damaged

The front brakeman and the flagman of No 15, and a division engineer and a roadmaster, who were in the train, were injured

The weather was clear at the time of the accident, which occurred about 2 05 p m

The 12th car, Milw 652, a lightweight steel coach, was built in 1947 Its lightweight is 113,500 pounds It is 85 feet long between the pulling faces of the couplers and is mounted on two 4-wheel trucks The wheelbase of each truck is 8 feet and the distance between the centerlines of the trucks is 59 feet 6 inches It is provided with two 150-gallon stainless-steel water tanks of welded construction Each tank is 22 inches in diameter and 8 feet 3-½ inches in length The shells are of 13-gauge steel and the heads are 3/16 inch thick Two 3/16-inch thick baffle plates are provided inside each tank The tanks are mounted side-by-side longitudinally beneath the center sills of the car with the centers of the tanks approximately 40 feet from the B end of the car They are insulated and are encased in a casing constructed of 19-gauge steel Two semi-circular reinforcing plates 5 inches wide and 3/32 inch thick fit over the top portion of each tank shell and are secured by welding The centerlines of these plates are spaced 4 feet apart and the centerline of each plate is 2 feet 1-3/4 inches from an end of the tank A bracket consisting of a rectangular-shaped plate 4-15/32 inches by 4 inches by 3/16 inch is welded in a vertical position to each semi-circular plate near the top and in a plane parallel to the longitudinal centerline of the tank Each of these plates is attached by two 5/8-inch bolts to an 8-inch by 2-inch by 2-inch angle iron The angle iron is secured to the center sill of the car by welding A 1/8-inch thick plate having a maximum width of 5 inches extends between the brackets at each end of the tanks These plates are located in vertical planes at right angles to the longitudinal centerlines of the tanks and are secured to the brackets by welding When filled to capacity the tank assembly weighs 4,200 pounds

On the day of the accident the water tanks were filled to capacity before No 15 departed from Chicago

Discussion

As No 15 was approaching the point where the accident occurred the speed was 92 miles per hour The enginemen were in their respective places in the control compartment of the first diesel-electric unit and were maintaining a lookout ahead The members of the train crew were in various locations in the cars of the train The brakes of this train had been tested and had functioned properly when used en route The members of the crew said that before the accident occurred they noticed no unusual condition in the movement of the train The first the enginemen became aware of anything being wrong was when the brakes became applied in emergency as a result of the derailment The engineer said that he then observed dust arising from the derailed equipment indicating that cars near the middle of the train had become derailed and as the train proceeded westward it became obvious from the dust that other cars were derailing ahead The helper conductor, who was in the 12th car, said that he heard an object strike the bottom of the car immediately before the car became derailed The first the other members of the crew became aware of anything being wrong was when the derailment occurred

Examination of the track structure of the westward main track after the accident occurred disclosed that, beginning at a point 2 8 miles east of the point of accident and extending throughout the distance to the point of accident, highway grade crossings and track motorcar setoffs bore scrape marks between the rails Scrape marks also appeared intermittently on the tops of ties between the

rails in that area Approaching the point of accident these marks became more numerous The guard rails of a bridge approximately 2,600 feet east of the point of accident bore scrape marks Batter marks were found on a joint-bar bolt and the east end of a joint bar located, respectively, 65 feet and 52 feet east of the point of accident These marks indicated that a part of the equipment of No 15 was dragging as the train was approaching the point of accident The first mark of derailment was a flange mark on the top of a tie 10 inches north of the gage side of the south rail Beginning at a point a short distance east of this mark the track structure was destroyed throughout a considerable distance

Examination of the equipment of No 15 after the accident occurred disclosed that the water-tank assembly had become detached from the 12th car, Milw 652, and had fallen to the track structure It was found that the four brackets securing the assembly to the center sills of the car had broken Examination of the brackets disclosed that the left front bracket had rusted to the extent that it had failed at the bolt holes The other brackets showed partial old breaks It is apparent that one end of the assembly became detached where dragging marks first appeared on the track structure, and that the other end became detached in the vicinity of the point of accident The assembly then fell to the track structure and became lodged under the rear truck of the 12th car derailing that truck to the north As the train proceeded westward, the rear end of the car moved down the fill pulling the front truck and, in turn, the 11th to the 8th cars, inclusive, from the rails

Car Milw 652 received the last heavy repairs prior to the accident in December 1955 It was inspected before departure from Chicago on the day the accident occurred and no exceptions were taken to the condition of the water-tank assembly brackets Three operators and one agent observed No 15 when it passed their respective stations, and the members of the crew made observations of the train en route from Chicago to the point of accident None of these employees observed any defective or dragging equipment

Cause

This accident was caused by failure of brackets securing a water-tank assembly to a car permitting the assembly to fall to the track structure

Dated at Washington, D C this twenty-third day of November, 1958

By the Commission, Commissioner Tuggle

Harold D McCoy,

(SEAL)

Secretary