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RAILROAD ACCIDENT INVESTIGATION

REPORT NO 4156

DEPARTMENT OF  
TRANSPORTATION

FEB 7 1972

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CHICAGO AND NORTH WESTERN RAILWAY COMPANY

BARTONVILLE, ILLINOIS

SEPTEMBER 14, 1969

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FEDERAL RAILROAD ADMINISTRATION

BUREAU OF RAILROAD SAFETY

Washington, D C 20591

Summary

DATE:	September 14, 1969	
RAILROAD:	Chicago & North Western	
LOCATION:	Bartonville, Illinois	
KIND OF ACCIDENT:	Rear-end collision	
TRAINS INVOLVED:	Freight	Freight
TRAIN NUMBERS:	386	388
LOCOMOTIVE NUMBERS:	964, 881, 971	896, 903
CONSISTS:	100 cars, caboose	70 cars, caboose
SPEEDS:	Standing	20-25 m p h
OPERATION:	Timetable, train orders; yard limits	
TRACK:	Single; 2 <sup>o</sup> 00 curve; 0 32% ascending grade eastward	
WEATHER:	Clear	
TIME:	11:47 a m	
CASUALTIES:	2 killed; 2 injured	
CAUSE:	Failure of engineer to control the speed of the following train, within yard limits, commensurate with re- stricted visibility conditions on a curve	

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FEDERAL RAILROAD ADMINISTRATION  
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REPORT NO 4156

CHICAGO AND NORTH WESTERN RAILWAY COMPANY

SEPTEMBER 14, 1969

Synopsis

On September 14, 1969, a rear-end collision occurred between two freight trains on the Chicago and North Western Railway at Bartonville, Illinois. It resulted in death to two, and injury to two, train-service employees.

Cause

The accident was caused by failure of the engineer to control the speed of the following train, within yard limits, commensurate with restricted visibility conditions on a curve.

Location and Method of Operation

The accident occurred on that part of the Galena Division extending eastward from South Pekin to Nelson, Illinois, a distance of 93.5 miles. In the accident vicinity this is a single-track line over which trains operate by timetable and train orders. There is no automatic block-signal system in use.

The collision occurred on the main track, within yard limits, 12.1 miles east of South Pekin and 1.1 miles west of Peoria Jct. It occurred within the city limits of Bartonville, a community not shown in the carrier's timetable.

The timetable directions are east and west, and are used in this report. However, trains in the accident area move northward and southward by geographical directions.

#### Main Track

From the west on the main track there are, successively, a long tangent, and a 2°00' curve to the right 1170 feet to the collision point and 156 feet beyond. In this area the average grade for eastbound trains is 0.32% ascending.

Yard limit signs are posted 5.1 miles west and 10.3 miles east of the collision point.

#### Time and Weather

The collision took place at 11:47 a.m., in clear weather.

#### Authorized Train Speed

The maximum authorized speed for all trains in the accident area is 48 m.p.h.

#### Carrier's Operating Rules

Reduced Speed - Proceed prepared to stop short of train, engine or obstruction.

93 - Yard limits will be indicated by yard limit signs. Within yard limits the main track may be used, clearing first class trains when due to leave the last station where time is shown. Protection against second and third class trains, extra trains and engines is not required.

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Second and third class trains, extra trains and engines must move within yard limits at reduced speed unless the main track is known to be clear.

#### Sight Distance

Because of track curvature and trees alongside the railroad, a caboose standing at the collision point cannot be seen from an approaching eastbound locomotive at a distance greater than about 1100 feet.

#### The Accident

##### Train No. 386

No. 386, an eastbound third-class freight train consisting of 3 diesel-electric units, 109 cars and caboose, left South Pekin at 9:25 a.m., the day of the accident. At 10:15 a.m., it stopped on the main track, within yard limits, at Bartonville. The rear end stopped 1.1 miles west of the Peoria Jct., station. The entire crew then proceeded with the locomotive and first nine cars to East Peoria via an

auxiliary track, leaving the rear portion of the train standing on the main track. About 12:05 p m, while the crew members were returning from East Peoria with the locomotive and 81 cars, they were informed by radio that the portion of their train left standing on the main track had been struck from the rear by No. 388.

#### Train No. 388

No. 388, an eastbound third-class freight train, left South Pekin at 11:05 a m the day of the accident, without having its brakes tested as prescribed by the Power Brake Law of 1958. At 11:25 a m, it stopped at Sommer, 7.5 miles east of South Pekin, and picked up two cars. The train consisting of 2 diesel-electric units, 70 cars and a caboose, left Sommer at 11:35 a m, without the crew members making an intermediate terminal air brake test as prescribed by the Power Brake Law. The engineer, front brakeman, flagman and an off-duty brakeman were in the control compartment at the front of the first locomotive unit. An off-duty fireman and engineer were in the control compartment of the second locomotive unit. The train conductor was in the caboose with an off-duty conductor and brakeman.

The train apparently proceeded eastward from Sommer and within yard limits at a speed somewhat in excess of 30 m p h, but below its maximum authorized speed of 48 m p h. As it neared Peoria Jct., the off-duty engineer on the second locomotive unit observed smoke coming from under the cars. He then went ahead to the first unit and informed the train engineer of the situation. The off-duty engineer said he was about to return to the second locomotive unit when he heard the train flagman call the warning "way car" (caboose), and heard an emergency brake application immediately thereafter. He then ran along the outside walkway to the rear platform of the first unit and remained there until after the collision. He estimated the train had reduced speed to 20 or 25 m p h at the time of the collision.

No. 388 was moving on a 2°00' curve to the right as it neared the collision point. The flagman said he called the warning "way car" when the caboose of No. 386 came into view at a distance which he estimated to be 1000 feet. He then left the control compartment, and jumped from the first locomotive unit when his train was about 500 feet from the standing train ahead.

The off-duty brakeman ran to the rear platform of the first locomotive unit and remained there with the off-duty engineer throughout the collision. The train engineer and front brakeman remained in the control compartment of the first locomotive unit. The off-duty fireman remained in the control compartment of the second unit.

### Damages

#### No. 386

The caboose and five rear cars of this train were derailed. The caboose and three cars were destroyed. One car was substantially damaged and one was slightly damaged.

#### No. 388

No. 388 stopped with the front end 390 feet east of the collision point. Both locomotive units and the first five cars were derailed. The two locomotive units stopped upright, in leaning positions, adjacent to and paralleling the main track. The cab of the first unit was torn off because of the caboose overriding the underframe at the front of the unit. Both locomotive units were substantially damaged. Three derailed cars were destroyed and two were slightly damaged.

Approximately 350 feet of track structure was heavily damaged or destroyed.

The cost of damage to equipment and track was \$263,475, according to the carrier's estimate.

### Casualties

The engineer and front brakeman of No. 388 were killed. The train flagman, and the off-duty engineer riding No. 388, were slightly injured.

### Train Crews' Hours of Service

At the time of the accident, the crew members of No. 386 had been on duty 4 hours 2 minutes, after having been off duty more than 15 hours. The crew members of No. 388 had been on duty 1 hour 17 minutes, after having been off duty 13 hours 45 minutes or more.

#### Engineer of No. 388

The engineer was 43 years old. He was hired as a fireman on September 10, 1946, and was promoted to engineer on October 26, 1958. According to the carrier's records, the engineer was subjected to disciplinary action in 1962 for running through a switch and for refusing to accept a call; in 1964 for responsibility in the derailment of two locomotives, and in 1966, in connection with a side collision and derailment.

### Analysis of Accident

No. 386 stopped within yard limits at Bartonville and part of the train was left standing on the main track without flag protection against following trains, while all the crew members went with the locomotive and first nine cars to East Peoria. Under the circumstances, none of the crew members

was required by the carrier's rules to provide flag protection against following trains for the portion of their train left on the main track

The brakes of No 388 had not been tested as required before departure from South Pekin and Sommer. However, they were apparently operative, as evidenced by the reduction in speed caused by the emergency brake application made after the caboose of No 386 was seen standing on the main track ahead

No 388 evidently was moving within yard limits at a speed somewhat below its maximum authorized speed of 48 m p h, when it entered the curve where the rear portion of No 386 was standing at Bartonville. Although the crew members on the locomotive had a restricted view of the track ahead at that time, and had no knowledge as to whether the track in the curve was clear, they apparently felt no concern about the speed of their train. When the caboose of No 386 was seen standing on the track ahead at a distance of about 1000 feet, the engineer applied the brakes in emergency. However, because of its speed at that time, the train had insufficient braking distance to stop short of the caboose ahead, resulting in it colliding with the caboose while moving between 20 and 25 m p h

It is evident that No 388 was moving within yard limits at excessive speed approaching the collision point, and that at this time it was not being operated in such manner that would permit stopping short of a train, engine or obstruction, as required by the carrier's operating rule No 93. Had the engineer taken action to reduce the speed commensurate with visibility conditions at the curve, the collision probably would have been averted.

#### Discussion of Carrier's Regulations

A provision of Rule 93 required the engineer to operate No 388 within the yard limits involved at Reduced Speed, prepared to stop short of a train, engine or obstruction. On the other hand, a timetable instruction authorized a maximum speed of 48 m p h. As a result, the engineer was authorized to operate No 388 within yard limits at any speed up to 48 m p h that he judged to be safe. In this case, the engineer's judgement was faulty, resulting in his train moving at a speed which prevented it from being stopped short of a collision after the rear portion of No 386 was seen standing on the main track a relatively short distance ahead. Similar faulty judgements have been primary causes of yard-limit collisions investigated by us in the past. Consequently, it would appear that if any railroad desires to have trains operate within yard limits prepared to stop short of a train, engine, obstruction, etc., the maximum authorized speed within yard limits should be restricted to a specific slow speed which is compatible with visibility conditions and which would permit the train to stop safely.

Findings

1. At the time of the accident, the rear portion of No 386 was standing on the main track in accordance with applicable rules of the carrier, and under conditions which did not require protection against following trains
- 2 The engineer of No 388 failed to control the speed of his train within yard limits as required by the carrier's Rule 93
- 3 Because of the engineer's failure to control the speed commensurate with visibility conditions at the curve involved, there was insufficient braking distance for No 388 to stop short of a collision after the caboose of No 386 was seen on the main track ahead
4. Although the brakes of No 388 had not been tested as prescribed by law, they apparently functioned effectively when applied in emergency before the collision
- 5 The carrier's rules and instructions are incompatible with respect to permissible speeds within yard limits

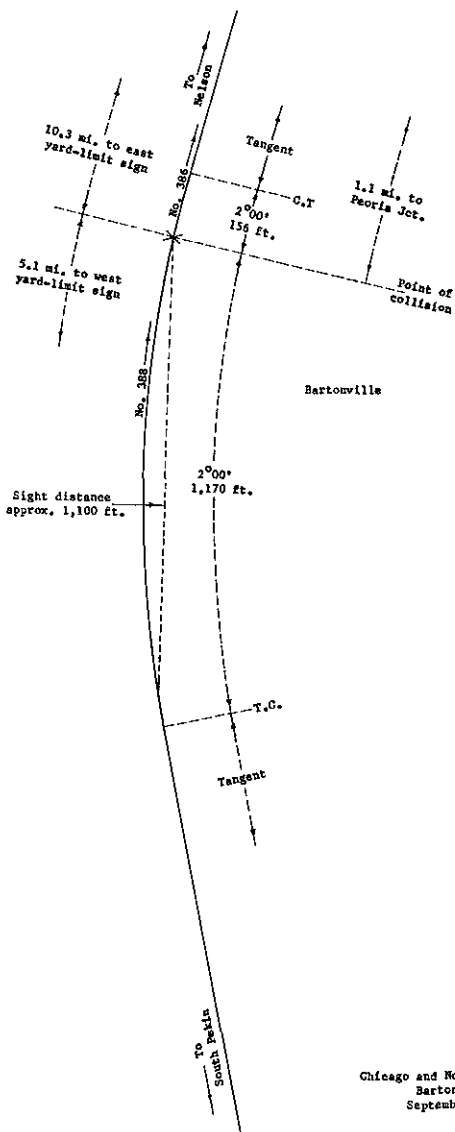
Dated at Washington, D C , this 7th  
day of August 1970  
By the Federal Railroad Administration

Mac E Rogers, Director  
Bureau of Railroad Safety



- Nelson, Ill.  
80.3 mi.
- Peoria Jct.  
1.1 mi.
- ✕ Point of collision  
(Bartonville)  
4.6 mi.
- Somers  
7.5 mi.
- South Pekin, Ill.

Timetable  
directions



Chicago and North Western Railway  
Bartonville, Ill.  
September 14, 1963