

Inv-2235

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
SOUTHERN RAILWAY SYSTEM

SALVISA, KY.

DECEMBER 12, 1937.

INVESTIGATION NO. 2235

SUMMARY

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Railroad:	Southern	
Date:	December 12, 1937	
Location:	Salvisa, Ky.	
Kind of accident:	Head-end collision	
Trains involved:	Freight	:Freight
Train numbers:	Extra 4582 west	:1st 57
Engine numbers:	4582	:4593
Consist:	19 cars and caboose	:45 cars and caboose
Speed:	30-32 m.p.h.	:35 m.p.h.
Track:	6° curve to the left, 1.29 percent ascending grade for west-bound trains.	
Weather:	Cold and foggy	
Time:	About 6:02 a.m.	
Casualties:	4 killed and 2 injured	
Cause:	Failure of operator to copy train order properly; failure of inferior train to clear the waiting time of a superior train as designated in train order.	

Inv-2235

January 18, 1938.

To the Commission:

On December 12, 1937, there was a head-end collision between two freight trains on the Southern Railway System, near Salvisa, Ky., which resulted in the death of four employees and the injury of two employees.

Location and method of operation

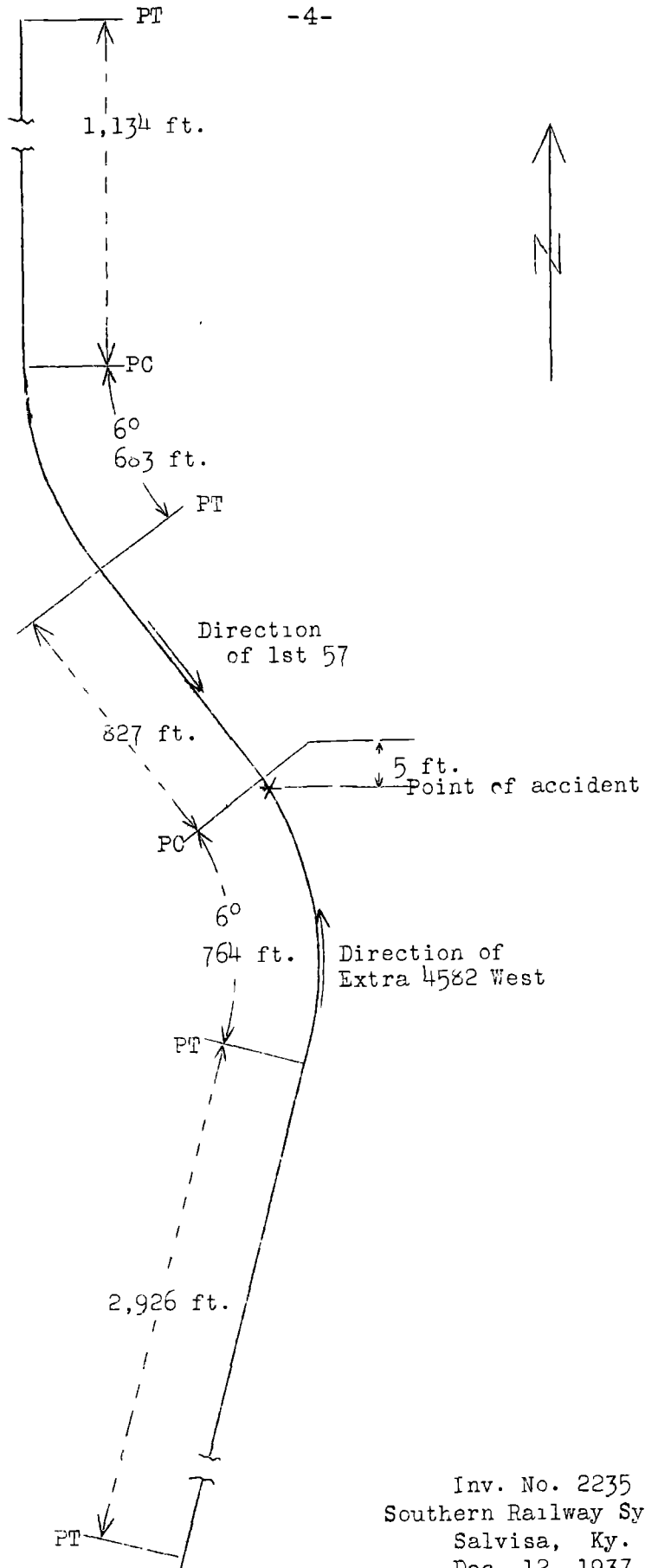
This accident occurred on that part of the Louisville Division which extends between Danville and Louisville, Ky., a distance of 93.2 miles. This is a single-track line over which trains are operated by timetable and train orders, no block-signal system being in use. The accident occurred at a point 2,540 feet east of the east switch of the siding at Salvisa. Approaching this point from the west the track is tangent for a distance of 1,134 feet, followed by a 6° curve to the left 683 feet in length, then tangent track for 827 feet, and a 6° curve to the right 764 feet in length; the accident occurred on this latter curve at a point 5 feet from its western end. Approaching from the east there is tangent track for a distance of 2,926 feet followed by the curve on which the accident occurred. The grade is 1.29 percent ascending for west-bound trains. Due to the track curvature and trees nearby, the view to be had from the engines of two opposing trains approaching the point of the accident was restricted to a distance of 900 feet.

Rule 87 requires extra trains to clear the time of opposing regular trains not less than five minutes.

Rule 108 specifies that a train must not be run at a speed faster between stations than that authorized in the current timetable showing minimum time between stations.

Rule 209, in part, reads as follows: "Operators receiving train orders must write them in manifold during transmission. If they cannot at one writing make the requisite number of copies, they must make others from one of the copies previously made, and repeat to the train dispatcher from the new copies each time additional copies are made."

o	Louisville, Ky.	
	63.3 mi.	
o	Lawrenceburg	
	8.4 mi.	
o	Salvisa	
x	Point of accident	
	5.0 mi.	
o	Talmage	
	4.5 mi.	
o	Judd	
	2.8 mi.	
o	Harrodsburg	
	6.1 mi.	
o	S.J. Tower	
	3.1 mi.	
o	Danville, Ky.	



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 Southern Railway System
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Rule 201 specifies among other things that train orders must not be altered.

Rule 211, in part, reads as follows: "When a '19' train order has been transmitted, operators must, unless otherwise directed, repeat it at once from the manifold copy, in the succession in which the several offices have been addressed. Each operator receiving the order must observe whether the others repeat correctly, and must at once call attention to any discrepancy. When the order has been repeated correctly by an operator, the response 'complete', and the time, with the initials of the chief dispatcher, will be given by the train dispatcher. The operator receiving this response will then write on each copy the word 'complete', the time, and his last name in full..."

The weather was cold and foggy at the time of the accident, which occurred at about 6:02 a.m.

Description

First 57, an east-bound second-class freight train, consisted of 45 cars and a caboose, hauled by engine 4593, and was in charge of Conductor Hanley and Engineman McAdams. This train received train order No. 27, Form 31, at Lawrenceburg, located approximately 9 miles east of the point of the accident, reading as follows: "First 57 fifty seven Eng 4593 wait at Talmage until 601 six naught one a.m. Judd 615 six fifteen a.m. Harrodsburg 628 six twenty eight a.m. for Exa 4582 west." This train departed from Lawrenceburg at 5:40 a.m., according to the train sheet, 1 hour late, and collided with Extra 4582 West at a point about one-half mile east of Salvisa while traveling at a speed estimated to have been about 35 miles per hour.

Extra 4582, a west-bound freight train, consisted of 19 cars and a caboose, hauled by engine 4582, and was in charge of Conductor Knoderer and Engineman Summers. This train passed S. J. Tower, 18.4 miles west of Salvisa, at 5:30 a.m., according to the train sheet, and received two train orders, Form 19, one of which was order No. 27 which read as follows: "First No 57 fifty seven eng 4593 wait at Law ren ceburg until 601 six naught one am Judd 615 six fifteen am Harrodsburg 628 six twenty eight am for Extra 4582 West Other over due trains are by S J Tower." This order was issued over the initials "JHD", Chief Dispatcher, and it was made complete at 5:04 a.m. following which the name "Treadway" with the title of "Opr." appeared thereon. This train proceeded beyond Talmage and collided with First 57 while

traveling at a speed estimated to have been between 30 and 32 miles per hour.

Both locomotives were derailed but remained upright on the roadbed and were badly damaged, the front ends being deeply telescoped, the frames broken and the cabs destroyed. The boiler of engine 4593 was driven back 6 inches. The cisterns of both tenders were displaced and the tender frames were demolished. The first four cars of First 57 stopped at the sides of and on top of engine 4593, the three leading cars being badly damaged. The body of the fifth car was raised above the trucks but the trucks were not derailed. The seventeenth car was knocked off center and it sustained a broken train-line. The first and second cars of Extra 4582 West were destroyed and the debris stopped against both engines; the third car stopped against the debris of the first and second cars and it was badly damaged; the fourth car was knocked off center but not derailed.

The employees killed were the fireman and head brakeman of First 57 and the engineman and head brakeman of Extra 4582 West; the employees injured were the engineman of First 57 and the fireman of Extra 4582 West.

Summary of evidence

Train Dispatcher Dearing stated that on the night of the accident he called the operator at Lawrenceburg on the telegraph line and instructed him to make three copies on train order Form 31 and then called the operator at S. J. Tower and instructed him to make three copies on train order Form 19. The dispatcher then sent order No. 27, addressing the order to First 57 at Lawrenceburg and to Extra 4582 West at S. J. Tower. The body of the order read as follows: "First No. 57 engine 4582 wait at Talmage until 6:01 a.m., Judd 6:15 a.m., Harrodsburg 6:28 a.m. for Extra 4582 West;" the time at each point was spelled out and the order was signed "J.H.D." Dispatcher Dearing instructed the operator at Lawrenceburg to repeat first and while this was being done the dispatcher copied the order in the train-order book. Then there was an interruption of about two minutes when the operator at Boonville reported a train leaving his station. Following this the dispatcher instructed the operator at S. J. Tower to repeat order No. 27 and as the latter did so the dispatcher underscored each word and figure in the order and as soon as this was accomplished the dispatcher sent "Other overdrains are by S. J. Tower," which was added to the bottom of the order given S. J. Tower; "complete" was given at 5:02 a.m. Shortly thereafter another order was given S. J. Tower but it had no relation to First 57. Dispatcher Dearing said there was

no occasion for anyone to hurry in handling the order in question since it was 28 minutes before Extra 4582 passed S. J. Tower; he also said that the order was handled according to the rules as far as he was concerned. About 6:45 a.m., after the dispatcher had learned of the accident, he called S. J. Tower on the wire and asked the operator if he had delivered order No. 27 to Extra 4582 and on receipt of an affirmative reply he was instructed to repeat the order and while doing so the operator sent the word "Lawrenceburg" instead of "Talmage." The dispatcher then called Lawrenceburg and instructed that operator to repeat this order and it was repeated correctly. In answer to the dispatcher's inquiry, the operator at Lawrenceburg said that he had heard the operator at S. J. Tower repeat the order in question. It was Dispatcher Dearing's opinion that the incorrectly worded order at S. J. Tower was caused either by the operator recopying it after having first repeated it correctly, or by leaving a blank space in the order during the transmission and later filling it in after repeating it correctly. He said that the operator at S. J. Tower had worked with him for the last 60 to 90 days and that he was an operator of average ability. The dispatcher said there were no intermediate open offices to which a "middle" order could be sent.

Operator Treadway, who was on duty at S. J. Tower the morning of the accident, stated that he had been an operator for 20 years and had worked at S. J. Tower since October, 1937. He said that he copied order No. 27 just as it came over the telegraph wire from the train dispatcher. The operator at Lawrenceburg repeated first and while doing so the attention of Operator Treadway was temporarily distracted by the ringing of a telephone and during the time he was answering this telephone call he did not hear the operator at Lawrenceburg repeat the word "Talmage." Operator Treadway then repeated the order, according to his statement, just as it came over the wire to him and insisted the word "Talmage" was not sent. He also stated that he did not think it was necessary for him to advise the dispatcher that he had not heard all of the order repeated by the operator at Lawrenceburg. However, in a later statement, Operator Treadway stated that he was following closely in copying order No. 27 during its transmission and that he had copied the order correctly up to and including the words "wait at." Following this he mistook the Morse code short dash character which represents the letter "T" for a long dash which represents the letter "L"; then followed the letter "A" and he anticipated the third letter would be "W" and recorded it. He then realized that "Talmage" was being sent instead of "Lawrenceburg" and he left a blank space and jumped to the word "until," intending to recopy the order before repeating to the

dispatcher. He heard the operator at Lawrenceburg repeat and noted that the latter sent the word "Talmage." Operator Treadway then repeated the order without recopying it and sent the word "Talmage," as transmitted by the dispatcher, having in mind at this instant that he would recopy the order later. After a short time had elapsed he completed the unfinished word "L-A-W", making it read "Lawrenceburg", but was unable to explain why he did so and said that the word "Talmage" entirely slipped from his mind until he learned of the accident. He stated the dispatcher did not send the order too rapidly to him and said that he was last examined on the operating rules in June, 1937.

Operator Gibson, who was on duty at Lawrenceburg, heard Operator Treadway repeat order No. 27 correctly in all essential details.

Fireman Scott, of Extra 4582 West, stated that the brakes were tested at Danville and they worked properly en route. Order No. 27 was handed up to his train when passing S. J. Tower and he read it; later, he asked the engineman to permit him to read it again as it did not appear correct to him. However, he as well as the engineman and head brakeman understood that First 57 would wait at Lawrenceburg until 6:01 a.m. His first intimation of the impending collision was when the head brakeman called a warning and not more than one or two seconds elapsed before the accident occurred. He thought the accident occurred about 5:58 a.m., gauging this time from the fact that it was 5:57 a.m. by his watch at the time of passing Vanarsdell, 2.2 miles east of Salvisa.

Conductor Knoderer, of Extra 4582 West, understood that First 57 would wait at Lawrenceburg until 6:01 a.m. and said that his train was proceeding at a speed of 31 or 32 miles per hour when the accident occurred at about 6:00 a.m. He said the intention was to clear at Salvisa. The conductor said that his watch was 10 seconds fast when compared with the station clock at Danville and after the accident his time agreed with that of the conductor of First 57. The two conductors agreed that the accident occurred at about 6:00 a.m. Conductor Knoderer saw a copy of order No. 27 in the caboose of First 57 and noted that it read "Talmage" instead of "Lawrenceburg." He stated that he was into clear so far as the rules were concerned and had plenty of time.

Engineman McAdams, of First 57, said that the brakes were tested at Louisville and they functioned properly en route. His first intimation of the impending accident was when he observed the headlight of Extra 4582 West at a point about 600 feet distant. At that time the speed of his train was about 35 miles

per hour and the distance was too short to avoid the accident although he applied the brakes in emergency. He said the accident occurred at 6:02 a.m. because the watch of the dead fireman of his train stopped at 6:02 a.m. Engineman McAdams stated that Extra 4582 should have been in the clear five minutes prior to the waiting time shown in the train order. At the time of the accident the headlight of his engine was burning.

Conductor Hanley, of First 57, stated the accident occurred about 6:00 a.m., and his train had 4 1/2 miles more to cover before reaching Talmage where the waiting time specified was 6:01 a.m.

Trainmaster Baker stated that Rule 87 requires an inferior train to clear a superior train not less than five minutes and therefore Extra 4582 should have been in the clear not later than 5:56 a.m. He also pointed out that Rule 108 requires trains to observe the minimum running time between stations as shown in the timetable and since Extra 4582 passed S. J. Tower at 5:30 a.m. and the minimum running time permitted freight trains between S. J. Tower and Talmage is 25 minutes, the extra train should have cleared at Talmage. It was his opinion that this train was proceeding to Salvisa on the premise that First 57 would consume at least 15 minutes between Lawrenceburg and Salvisa, the minimum running time for freight trains between these points. The trainmaster said a check of the train-order book for a period of 30 days was made and it was found that Operator Treadway had handled an average of 2.8 train orders per eight-hour trick for the Louisville Division and that he had seldom copied an order for the C.N.O. & T.P. R.R. The number of trains handled per eight-hour trick was less than 6 trains. In addition, the operator is required to operate the interlocking plant levers to admit trains from the C.N.O. & T.P. to the Louisville Division but the trainmaster did not think the operator was over-worked. Trainmaster Baker stated that the employees are examined on the operating rules once each year.

Discussion

The evidence is to the effect that train order No. 27 was handled by the dispatcher and the operator at Lawrenceburg according to the rules. During the progress of copying this order the operator at S. J. Tower was recording it as rapidly as it came over the wire. In the word following "at" he mistook the letter "T" for the letter "L" in the Morse code. The next letter was "A" and, anticipating that the word would be "Lawrenceburg", he wrote the letter "W" as the third letter of the word and then realized that "Lawrenceburg" was not being sent. He then left a blank space and took up the order again at the word "until", intending to recopy the order before repeating to

the dispatcher. The operator at S. J. Tower then heard the operator at Lawrenceburg repeat the order and noted that the word "Talmage" appeared where "L-a-w" and the blank space appeared in his order. Operator Treadway in turn repeated the order without recopying it, supplying the word "Talmage" from his mind. His intention following this was to recopy it before delivering the order to Extra 4582; however, for some reason unknown to himself, he completed the unfinished word "Law", making it read "Lawrenceburg."

There was some discrepancy in the statements with respect to the time the accident occurred. The fireman of Extra 4582 West thought it was at 5:58 a.m. but said it was 5:57 a.m. at the time of passing a point 2.2 miles east of the point of accident. The engineman of First 57 placed the time at 6:02 a.m. because his fireman's watch stopped at that time. The minimum running time for freight trains between S. J. Tower and Talmage, indicated in the timetable, is 25 minutes and the minimum running time between Talmage and Salvisa is 9 minutes. In view of the fact that Extra 4582 departed from S. J. Tower at 5:30 a.m. this train was not permitted to pass Talmage before 5:55 a.m. or Salvisa before 6:04 a.m. Since the waiting time for First 57 named in the copy of train order No. 27, which was held by the crew of Extra 4582, was 6:01 at Lawrenceburg, and under the rules Extra 4582 was required to clear for that train by not less than five minutes, Extra 4582 should have been into clear after passing Judd not later than 5:56 a.m. Had the requirements of this rule been complied with, this accident would have been prevented notwithstanding the error in the copy of train order held by Extra 4582. The evidence indicates, however, that the crew of Extra 4582 was depending upon the minimum running time which First 57 was required to use between Lawrenceburg and Salvisa, namely, 15 minutes, to give them time to clear for that train; under this requirement and the specified waiting time of 6:01 a.m. at Lawrenceburg, First 57 should not have arrived at Salvisa before 6:16 a.m. However, the mistake in the train order rendered this calculation incorrect. The trainmaster indicated that the inferior train was not permitted to add the minimum running time or any part of the minimum running time of the superior train between stations to the 6:01 a.m. waiting time at Lawrenceburg; however, the statement of the conductor of Extra 4582 that he had plenty of time to clear First 57 indicates that it may be the custom among trainmen and enginemen to use the time requirements to advance their trains under orders similar to the order involved in this case, and this matter should be given prompt attention by responsible operating officers.

During the 30-day period preceding the date of this accident, 60 passenger trains and 194 freight trains were operated in each direction over the track involved, an average of 16.9 trains per day. In view of this density of traffic and the circumstances in this case, consideration should be given by the carrier to the need for the additional protection which would be afforded by the installation of the block system on this line.

Conclusions

The primary cause of this accident was the failure of an operator properly to copy a train order. Had Extra 4582 West properly cleared the train-order waiting time of the superior train the accident would have been averted.

Recommendation

It is recommended that the officials of this company give consideration to the necessity for the installation of some form of block system on this line.

Respectfully submitted,

W. J. PATTERSON,

Director.