

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING
AN ACCIDENT ON THE CHESAPEAKE AND OHIO RAILWAY AT ELK
HILL, VA., ON NOVEMBER 24, 1932.

January 5, 1933.

To the Commission:

On November 24, 1932, there was a head-end collision between two freight trains on the Chesapeake and Ohio Railway at Elk Hill, Va., which resulted in the death of four employees and the injury of two employees

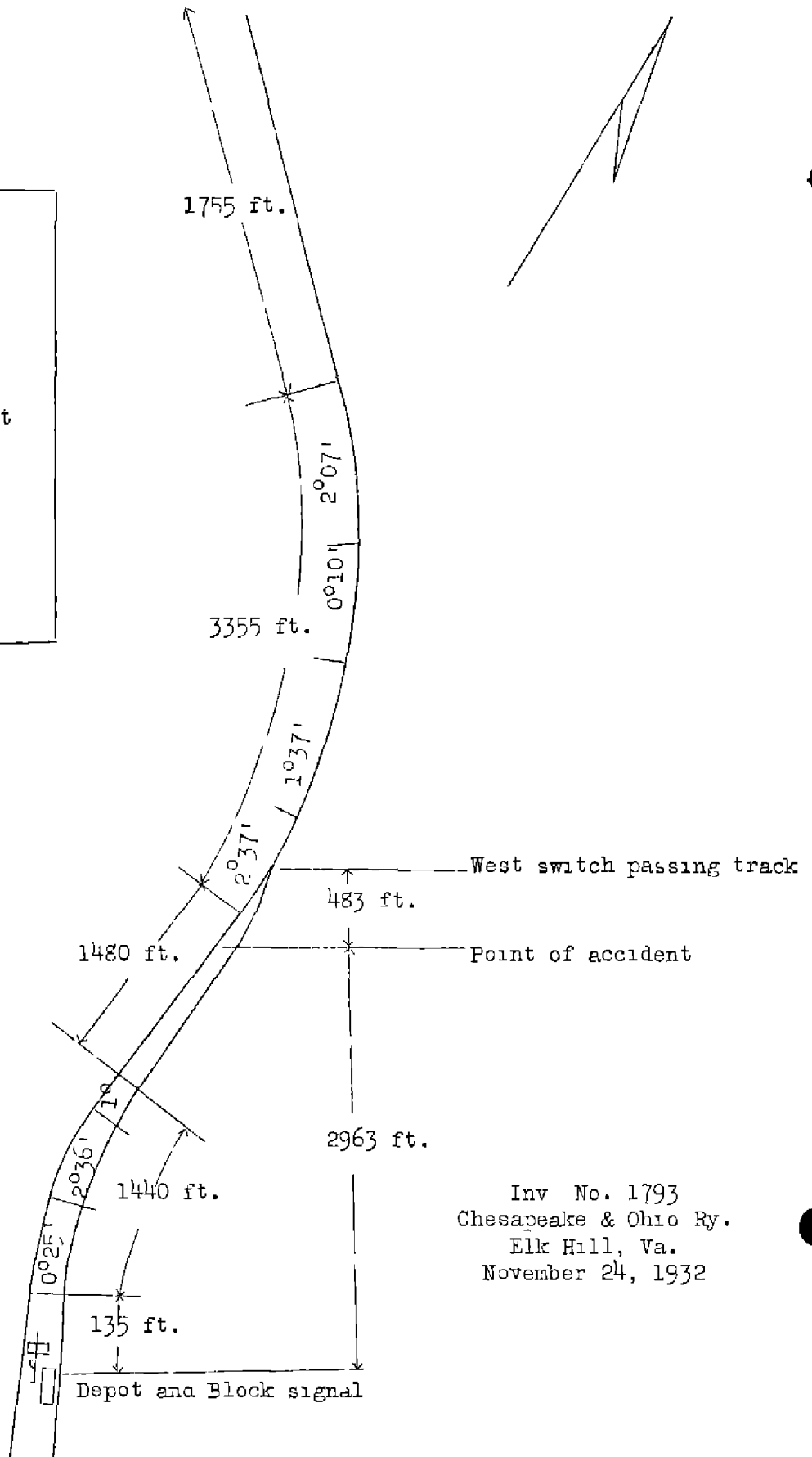
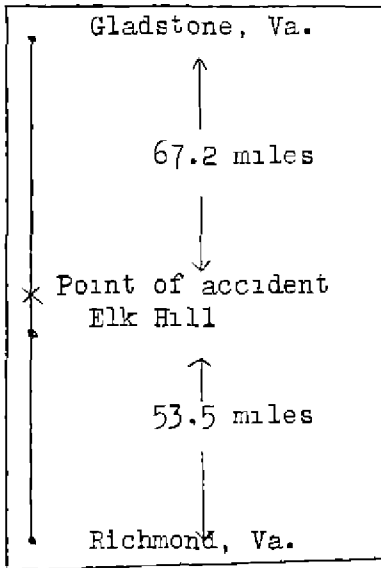
Location and method of operation

This accident occurred on the Rivanna Sub-division of the Richmond Division, extending between R Cabin, Richmond, and Gladstone, Va., a distance of 120.7 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and a manual block-signal system. Eastbound trains are superior to westbound trains of the same class. The point of accident was 2,963 feet west of the station at Elk Hill, approaching this point from the east, beginning at the station at Elk Hill, the track is tangent for a distance of approximately 135 feet, then there is a compound curve to the right 1,440 feet in length, varying in curvature from $0^{\circ} 25'$ to $2^{\circ} 36'$, followed by tangent track for a distance of 1,480 feet, the accident occurring on this latter tangent at a point 92 feet from its western end. Approaching from the west, there is a compound curve to the right 3,355 feet in length, varying in curvature from $0^{\circ} 10'$ to $2^{\circ} 37'$, followed by the tangent track on which the accident occurred. The grade is level at the point of accident.

A passing track 6,954 feet in length parallels the main track on the north, the west switch being located 3,446 feet west of the station. The block section within which this accident occurred extends between Elk Hill and Columbia, the latter station being 4.9 miles west of Elk Hill.

An engine at the point of accident can be seen from a point approximately 1 mile west thereof, but it can not be determined whether the engine is on the main track or siding until a point 844 feet west of it has been reached.

The weather was clear at the time of the accident, which occurred about 1.35 p.m.



Inv No. 1793
 Chesapeake & Ohio Ry.
 Elk Hill, Va.
 November 24, 1932

Description

Westbound fifth-class freight train No. 57, in charge of Conductor Fleming and Enginemen Gilman, departed from R Cabin, Richmond, at 9.15 a.m., according to the train sheet, 2 hours and 45 minutes late. At Westham, 9.5 miles west of R Cabin, train order No. 24 was received, reading:

"No. 72 wait at Sebot until 10.55 a.m.,
Vinita, 11.05 a.m., for No. 57. No. 57
meet No. 74 at Rockcastle, No. 92 and
No. 58 at Elk Hill."

At Pemberton, Order No. 46, Form 19, was received, reading:

"No. 57 meet No. 58 at Elk Hill and No.
92 at Columbia. No. 58 take siding.
Order No. 24 is annulled."

Train No. 57, consisting of a caboose, 116 cars, and a caboose, in the order named, hauled by engine 2339, passed Pemberton at 1.24 p.m., 4 hours and 12 minutes late, and arrived at Elk Hill at 1.50 p.m., where another copy of train order No. 46, previously quoted, was received, together with clearance cards, Forms A and B, the former being authority to pass the stop signal and the latter reading:

"Signal indicates stop on account of No. 58
and No. 92 in block. Train No. 58 entered
block 1.20 p.m. No. 92 on main line Columbia".

Train No. 57 entered the block for the purpose of proceeding to the west switch of the passing track and just as it was coming to a stop at that point it was struck by train No. 58.

Eastbound fifth-class freight train No. 58, in charge of Conductor Carter and Engineman Vest, departed from Gladstone at 7.11 a.m., according to the train sheet, 26 minutes late. At Stratmore, 50.1 miles east of Gladstone, train order No. 24, previously quoted, was received, and at Columbia, 4.9 miles west of Elk Hill, copies of train order No. 46 were received, but not in the same words as addressed to train No. 57 at Pemberton, there being no provision about taking siding. Clearance cards, Forms A and B, also were received at Columbia, the latter reading:

"Signal indicates stop on account of meeting
57 at Elk Hill. Train No. 57 not yet entered
block."

Train No. 58, consisting of a caboose, 25 cars, and a caboose, in the order named, hauled by engine 1107, departed from Columbia at 1.20 p.m., 2 hours and 43 minutes late, passed the west switch of the passing track at Elk Hill and collided

with train No. 57 at a point 483 feet beyond the switch while traveling at a speed estimated to have been from 30 to 35 miles per hour.

Engine 2339, of train No. 57, was derailed but remained upright on the roadbed, the tender, caboose and first four cars were not derailed or seriously damaged but the next six cars buckled, resulting in considerable damage. Engine 1107, of train No. 58, was derailed and badly damaged, but remained upright; the tender turned over, the caboose behind the tender was demolished and the next four cars were derailed and damaged. The employees killed were the engineman of train No. 57 and the conductor and two brakemen who were riding in the head caboose of train No. 58, those injured were the engineman and fireman of train No. 58.

Summary of evidence

Fireman Purvis, of train No. 57, stated that train No. 58 was about a mile distant when he first saw it, as his train neared the west switch train No. 58 was about 15 or 20 car-lengths distant, traveling at a speed of 30 or 35 miles per hour, and consequently he warned his engineman that train No. 58 was not going to stop at the switch and the engineman applied the independent brake, his train was then traveling at a speed of 2 or 3 miles per hour and did not proceed more than 20 feet after the brake had been applied. Fireman Purvis further stated that the inspector at Richmond reported the brakes as working properly.

Conductor Fleming, of train No. 57, was riding on the rear platform of the leading caboose and first saw train No. 58 when it was about one-fourth mile distant. It was approaching at a good rate of speed and when it was about 20 car-lengths from his own train he saw that it was not going to stop and all of those on the caboose jumped off. Conductor Fleming was not told anything about the condition of the brakes in his train before leaving Richmond and did not know anything about them except that stops en route were made without difficulty.

Engineman West, of train No. 58, stated that train order No. 46 as received by him said nothing about his train taking siding at Elk Hill. On passing Island, approximately 2 miles west of Elk Hill, he saw the smoke of train No. 57, which then appeared to be about at the east switch of the passing track, he continued to watch it but due to the trees on the inside of the curve he did not see that train No. 57 was on the main track until he reached Byrd Creek, just west of the west switch of the passing track. He immediately closed the throttle, applied the brakes in emergency and jumped off. He estimated the speed of his train at that time to have been between 30 and 35 miles per hour. Engineman West did not think he was operating his train at a high rate of speed approaching Elk Hill, saying he would have been able to stop at the block

station with the engine brake had train No. 57 not been on the main track. It had not impressed him as being strange that he should receive a caution card at Columbia, even though under the orders as received by him his train retained its superiority and would therefore keep to the main track at Elk Hill. Engineman West further stated that he made a test of the air brakes before leaving Gladstone, the air-brake inspector coupled the hose and remained at the rear end while the brakeman standing near the engine signaled to apply the brakes; the engineman made a 25 brake-pipe reduction of about 30 seconds duration and then received a proceed signal from the brakeman. Engineman West stated that he was not informed relative to the condition of the brakes in his train, but stops were made with the automatic brake in a satisfactory manner and he had no reason to believe that the brakes were defective.

Rear Brakeman Meredith, of train No. 58, stated that after the emergency application of the air brakes had been made it was a matter of only a few seconds before the accident occurred, the train traveling a distance of one or one and one-half car-lengths after the application was made. Brakeman Meredith did not know the condition of the brakes, but the gauge in the caboose showed a pressure of 70 pounds, and when stops were made en route the brakes seemed to take hold properly, he also had occasion to apply the brakes from the rear end at Rivanna and found them working properly. Brakeman Meredith further stated that it is the practice at Gladstone for an inspector to couple up the air hose and then from the rear of the train to signal for an application of the brakes, the inspector then examines the caboose and a few rear cars to see if the brakes are applied and signals to the engineman that the train is ready to proceed. He has never seen the inspectors make an examination of the individual cars.

Train Dispatcher Roth said that train order No. 46 as issued by him required train No. 58 to take siding when meeting train No. 57 at Elk Hill. This order was issued simultaneously by telephone to those addressed, and according to the order book the addresses were in the following order; No. 57 at Pemberton, Operator at Elk Hill, No. 58 and operator at Columbia, and No. 92 at Strathmore. In repeating this order he thought the operator at Pemberton repeated first, and as soon as the operator at Strathmore repeated it the order was made complete at once in order to advance train No. 92, but he was unable to state whether or not the operator at Columbia or Elk Hill repeated the order next, there was nothing in the order book to indicate the order in which the operators repeated. Each operator repeated the order correctly and he underscored each word each time it was repeated by each of the four operators. The telephone line was clear and the voices distinct, and no question was raised in con-

nection with the orders. Dispatcher Roth further stated that it is a daily practice for opposing trains to meet within block limits and to occupy the main track within such block as was being done by train No. 57 in this instance, and he gave as a reason the varied position of the passing tracks with relation of train order offices. There is, however, a telephone located at the west end of Elk Hill passing track where the conductor of train No. 58 could have reported when into clear, in fact, most of the long passing tracks on this division have telephones at each end, and the dispatcher said that had neither train been permitted to pass the block signal in stop position the accident would not have occurred.

Operator Payne, at Columbia, stated that he was sending a message on the county telephone when the dispatcher called him, so it was a minute or more before he was able to answer his call. The dispatcher then gave his order No. 46 for train No. 58 and Operator Payne said he repeated the order as copied and he was not corrected, the order was then made complete, and in it there was nothing about train No. 58 taking siding at Elk Hill. He immediately delivered the orders to the conductor and brakeman of train No. 58, who were in the office, and as they left he heard the conductor remark to the brakeman "it is a wonder that they did not put us in the side track at Elk Hill". Operator Payne looked at his record again, but the order as copied by him did not read for train No. 58 to take siding. Operator Payne did not hear the operators at Pemberton, Elk Hill or Strathmore repeat the order, assuming either that the order was given to the others before he answered the telephone and that they were waiting for him, or else that in his haste to deliver the orders and to get No. 58 started, he failed to hear the others repeat the order. He did not remember whether or not the dispatcher instructed him to give train No. 58 a caution card, and did not know why he issued such a card, which would not have been required for train No. 58 if train No. 57 were to take siding.

Operators Rhodes, Ransone, and Smith, on duty at Pemberton, Elk Hill and Strathmore, respectively; said train order No. 46 as issued directed train No. 58 to take siding in the meet with train No. 57 at Elk Hill, and the first two operators said each of the operators at all the stations addressed, repeated correctly. Operator Smith did not hear the operators at Columbia and Elk Hill repeat the order, which was first made complete to him with instructions to clear train No. 92. In the course of his statements, Operator Ransone made the following answers to questions asked by General Superintendent Cary:

- Q What do you understand is the reason for these blocks?
A To keep trains apart.
Q When you give them caution cards you are not keeping them apart?
A The engineer is supposed to run carefully.

Rule 219 of the operating rules provides that an operator must not repeat or give the "X" response to a train order for a train which has been cleared or the engine of which has passed his train-order signal, until he has obtained the signatures of the conductor and engineman to the order. Operator Smith, at Strathmore, accepted and copied order No. 46, restricting the superiority of train No. 92, which had been cleared and the engine of which had passed his train-order signal. This order being completed to him, Operator Smith left his office to deliver the order, and it was for this reason that he did not hear the order repeated by the operators at Columbia and Elk Hill.

Conclusions

This accident was caused by the failure of Operator Payne at Columbia to copy as transmitted that portion of a train order which directed a train which was superior by direction to take siding at a meeting point with an opposing train of the same class.

The weight of evidence indicates that when the dispatcher transmitted train order No. 46 simultaneously to the operators at Strathmore, Columbia, Elk Hill and Pemberton, Operator Payne, at Columbia, failed to include the words "No. 53 take siding". Operator Payne did not hear the other operators repeat the order or he would have discovered his error.

Examination of the dispatcher's train-order book revealed the fact that the orders were very difficult to decipher, in addition, it showed that each word of train order No. 46 was not underscored properly to indicate that each operator who copied the order had repeated each word in the order correctly, and furthermore the trains were not addressed in order of superiority.

Under the rules of this railway a train in possession of a caution card is permitted to pass a block signal at stop and proceed to an outlying switch, as was being done in this particular case by the crew of train No. 57. In connection with this manner of operating a manual block-signal system, attention is called to the following statement made in connection with an accident which occurred under similar conditions on the Southern Railway near Cleveland, Tenn., on September 28, 1923:

"The practice of permitting trains to pass a block station and proceed to some outlying switch, there to await the arrival of an opposing train, is usually for the purpose of saving the delay of a few minutes which would result were the train to wait at the entrance to the block. It is obvious, however, that this removes the benefit of block signal protection and leaves to the employees the proper observance of order and in-

structions which have been issued to them. Several accidents in block signal territory which the Commission has investigated have resulted from the existence of such a practice, and the officials of this railway, as well as those of other railways upon whose lines such conditions exist, should take immediate steps looking toward a proper observance and use of the block signal system."

In the case here under consideration, each train was being operated in accordance with instructions as delivered to their respective crews, and there is little doubt that the accident would not have occurred had train No. 57 not been allowed to enter a block already occupied by an opposing train.

Operator Payne was 68 years of age and had been in the employ of the Chesapeake and Ohio as an operator since December, 1891. His service record was good.

Respectfully submitted,

W. P. Borland,

Director.