

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4056

THE PENNSYLVANIA RAILROAD COMPANY

RIEGELSVILLE, N. J.

AUGUST 19, 1965

INTERSTATE COMMERCE COMMISSION

WASHINGTON

SUMMARY

DATE	August 19, 1965	
RAILROAD	Pennsylvania	
LOCATION	Riegelsville, N. J.	
KIND OF ACCIDENT	Head-end collision	
TRAINS INVOLVED	Freight	Freight
TRAIN NUMBERS	Extra 8634 South	Extra 8916 North
LOCOMOTIVE NUMBERS	Diesel-electric unit 8634	Diesel-electric units 8916, 8631
CONSISTS	10 cars, caboose	55 cars, caboose
ESTIMATED SPEEDS	10 m.p.h	22 m p.h.
OPERATION	Train orders, manual block-signal system, timetable special instructions	
TRACK	Single, 2°55' curve, 0.21 percent descending grade southward	
WEATHER,	Hazy	
TIME	5 58 a m., dawn	
CASUALTIES	4 injured	
CAUSE	Overlapping of block authority of opposing extra trains as a result of misunderstanding between engineer of northbound train and operator	
RECOMMENDATION	That the Pennsylvania Railroad provide additional protection for train movements in manual block-signal territory.	

INTERSTATE COMMERCE COMMISSION
RAILROAD SAFETY AND SERVICE BOARD

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SYNOPSIS

On August 19, 1965, a head-end collision occurred between two Pennsylvania Railroad freight trains near Riegelsville, N. J. Four train-service employees were injured.

The accident was caused by overlapping of block authority of opposing extra trains as a result of misunderstanding between engineer of northbound train and operator.

LOCATION AND METHOD OF OPERATION

The accident occurred on that part of the New York Division extending between Trenton and Belvidere, N. J., a distance of 64.6 miles. In the accident area this is a single-track line over which trains operate by timetable special instructions, train orders, and a manual block-signal system.

The collision occurred on the main track, 43.0 miles north of Trenton and 1.1 miles north of Riegelsville.

Block station MG, and block-limit stations RK, MD, HD and Kent are, respectively, 1.4, 22.8, 34.9, 38.9, and 49.0 miles north of Trenton.

At the time of the accident, RK, MD and HD were controlled by the MG operator. Kent was controlled by the operator at block station G., 0.7 miles south of Belvidere.

Details concerning the track, carrier's operating rules, trains, damages, and other factors are provided in the appendix

DESCRIPTION AND DISCUSSION

Extra 8634 South, a southbound freight train consisting of one diesel-electric unit, 10 cars and a caboose, originated at Kent. About 5 30 a.m. on the day of the accident, the conductor telephoned the operator at G for authority to leave Kent. The operator responded by giving Extra 8634 South verbal authority to enter the manual block at Kent and proceed southward on the main track to HD. He also transmitted train order No. 710 to the conductor. This order, which the conductor copied in duplicate, read in part as follows.

C&E Extra 8916 North HD via MG
 C&E Eng 8634 Kent via G
 Eng 8634 run extra Kent to MG
 Extra 8916 North meet Extra 8634 South at Switch 1 HD
 Extra 8634
 South take siding ***

Under the verbal authority provided by the operator and the provisions of train order No 710, Extra 8634 South, the inferior train by timetable directions, was authorized to proceed on the main track from Kent to Switch 1 of the HD siding. It was required to enter the HD siding at Switch 1 and clear the main track for Extra 8916 North, a northbound freight train. The order restricted Extra 8916 North, the superior train, and required it to stop clear of Switch 1 at HD until Extra 8634 South had entered the HD siding and cleared the main track. All the crew members of Extra 8634 South read order No 710 and understood its requirements.

Extra 8634 South left Kent at 5.40 a.m. About 15 minutes later, it approached a switch indicator located 5,002 feet north of the Riegelsville north siding-switch. The train speed at this time, according to estimates of crew members, was between 25 and 30 miles per hour. As the train closely approached the switch indicator, the engineer saw that the indicator was displaying a yellow aspect. This indicated to him that the Riegelsville north siding-switch was in reverse position or that the main track was occupied in the area of the switch. The engineer said he then initiated a service brake application, reducing the speed

to about 10 miles per hour as the train approached the curve where the accident occurred. A few moments after the train entered the north end of the curve, the front brakeman saw the locomotive of Extra 8916 North come into his view at a distance which he estimated to be about 800 feet. He called a warning and the engineer promptly moved the automatic-brake valve handle to emergency position. Moments later, apparently before its speed was reduced materially, Extra 8634 South collided with Extra 8916 North, 1.1 miles north of the Riegelsville station.

The engineer and front brakeman of Extra 8634 South and the front brakeman and flagman of Extra 8916 North were injured.

Extra 8916 North, consisting of 2 diesel-electric units, 55 cars and a caboose, left Morrisville, Pa., at 3.10 a.m. and moved through the Fair interlocking at Trenton soon afterward. At 3.27 a.m., it passed MG and entered the single-track line involved. As it passed, the MG operator delivered copies of a train order and Clearance Card (Form K) to the crew members. The provisions of the train order and clearance card authorized the train to run extra from MG to Kent, to pass three block-limit stations en route to Lambertville, 14.7 miles north of MG, and required it to enter the Lambertville siding to meet Extra 8602 South, a southbound freight train.

Extra 8916 North entered the Lambertville siding about 4.10 a.m. and cleared the main track to meet Extra 8602 South, as required. Extra 8602 South passed at 4.16 a.m. At this time, the engineer of Extra 8916 North telephoned the MG operator from a wayside telephone booth, reported that Extra 8602 South had passed, and requested authority for Extra 8916 North to reenter the main track and proceed. The MG operator replied that he had a train order to transmit to Extra 8916 North when it stopped to report at RK. To avoid stopping and reporting at RK, the engineer requested the order be given to the train at Lambertville, instead. The operator then transmitted train order No. 708 to the engineer. The order, which the engineer copied in duplicate on the prescribed form, read in part as follows:

Yard limits between RK and HD are clear Extra 8916 North proceed at authorized speed within these limits.

The engineer said that after copying order No. 708 and repeating it as required, the operator told him to "Take clear block out of Lambertville No. 1 with a clear card by RK, MD and HD." The engineer also said that because the wayside telephone booth did not have a supply of clearance cards (Form K), he could not copy this block information on the prescribed form. Instead, he copied it on the lower portion of both of his duplicate copies of order No. 708 in the following manner

Clear RK, MD and HD - no report, 4:44 a.m. The engineer said that after copying this information, he repeated it to the MG operator and no exceptions were taken.

The block information that the engineer inscribed on the lower portions of his copies of order No. 708 indicated the MG operator had authorized Extra 8916 North to proceed at RK, MD and HD as though Clear block signals were displayed, and that the train was not required to stop at those block-limit stations and report to the MG operator. According to the MG operator, however, he had not authorized the train to pass HD.

After the engineer of Extra 8916 North completed his telephone conversation with the MG operator, he gave the front brakeman one of the copies of train order No. 708. The front brakeman then lined switch 1 of the Lambertville siding for reentry of Extra 8916 North to the main track and placed the copy of order No. 708 under the switch padlock. Shortly thereafter, the train reentered the main track at switch 1 and the flagman picked up the copy of order No. 708 when he restored the switch to normal position. He then reboarded the caboose, and gave the train order to the conductor.

The opposing train involved was not reported as ready to depart from Kent until approximately 5:30 a.m. and train order No. 710 establishing the meeting point at HD was made "Complete" at 5:28 a.m. Block authority was then issued for the opposing train to proceed to HD, overlapping the written block authority issued to Extra 8916 North.

Extra 8916 North left Lambertville about 4:50 a.m. and as it proceeded northward, the front brakeman, conductor and flagman read the copies of train order No. 708, including the clearance card (Form K) information shown on the lower portions of these copies. They took no exception as to the manner in which the clearance card (Form K) information was transmitted to them, and understood it authorized their train to proceed, without stopping to report, at RK, MD and HD as though Clear block

signals were displayed. The train passed RK and MD, then passed HD about 5 45 a. m. It passed Riegelsville about 10 minutes later and entered the curve where the collision occurred at 22 miles per hour, according to the crew members' estimates. Shortly thereafter, as the train moved on the curve, the engineer saw Extra 8634 South come into his view at a distance which he estimated to be about 200 feet. He immediately initiated an emergency brake application. The collision occurred a few moments later, before the speed of Extra 8916 North was reduced materially.

The MG operator stated that at 4 44 a.m., after transmitting order No. 708 to the engineer of Extra 8916 North, he gave the engineer clearance card (Form K) authority for his train to re-enter the main track at switch 1 Lambertville and proceed to HD. He said he also told the engineer that Extra 8916 North "had a clear card by RK and MD" and that it was not required to report at those points. The MG operator said the engineer correctly repeated this clearance card (Form K) information. The operator also said that because he had given Extra 8916 North permission to proceed only as far as HD, he assumed the engineer would stop his train at HD to report and obtain authority to pass that block-limit station. However, the MG operator did not make the required office copy of the clearance card (Form K) information transmitted to the engineer of Extra 8916 North, and the terminology he used in transmitting this information was not in accordance with prescribed practice.

According to the train dispatcher, after he was informed that Extra 8602 South had passed Lambertville he authorized the MG operator to give Extra 8916 North permission to reenter the main track at switch 1 Lambertville and proceed in the block to RK. In addition, he instructed the operator to give Extra 8916 North clearance card (Form K) authority to pass RK and MD and to proceed to HD. At 5-28 a. m., approximately 28 minutes after Extra 8916 North left Lambertville, the dispatcher transmitted order No. 710 to the MG and G operators, then authorized the G operator to permit Extra 8634 South to proceed from Kent to HD. The dispatcher considered that because he had authorized Extra 8916 North, the superior train, to proceed only as far as HD he had taken sufficient precautions, as required by rule, to insure safety when issuing a restricting train order for delivery to the superior train at the meeting point.

Examination of the MG "Station Record of Train Movements" for the day involved disclosed this record indicated that the MG

operator had given Extra 8916 North authority to proceed from Lambertville to HD. The operator had made no entry that indicated Extra 8916 North had been given authority to pass HD and proceed to Kent

FINDINGS

The investigation disclosed that after Extra 8916 North entered the Lambertville siding, the engineer obtained verbal permission by telephone from the MG operator to reenter the block between MG and RK and to proceed to RK. The MG operator then transmitted order No 708 and clearance card (Form K) information to the engineer which should have given Extra 8916 North authority to proceed at RK and MD, without stopping to report, as though Clear-block signals were displayed. The operator, however, did not transmit the clearance card information in the prescribed manner, and the engineer copied it on the train order form because the wayside telephone booth was not supplied with the prescribed forms. The engineer understood from the clearance card (Form K) information transmitted by the MG operator and entered on his copies of order No 708 that Extra 8916 North had received clearance card (Form K) authority to proceed, without stopping to report, at RK, MD and HD as though Clear-block signals were displayed. When the engineer repeated the clearance card information as written the MG operator did not take exception. As Extra 8916 North was authorized by train order to proceed to Kent the block authority in this form did not restrict this train at HD. Extra 8634 South under authority provided by the operator at G proceeded southward. Since Extra 8916 North did not stop at HD to report, the MG operator could not effect delivery of order No. 710, and the crew members of Extra 8916 North were unaware that an opposing train was occupying the block between HD and Kent until the engineer and front brakeman saw Extra 8634 South approaching on the curve immediately before the collision.

In the instant case there apparently was an error in the transmission or receipt of block authority, resulting in the admission of opposing trains to the same block. When block authority is intended to expire at an unattended block-limit station, there would be less likelihood of misunderstanding between the employees involved, if the limit of such block authority were specifically designated on the clearance form.

CAUSE

This accident was caused by overlapping of block authority of opposing extra trains as a result of misunderstanding between engineer of northbound train and operator

RECOMMENDATION

It is recommended that the Pennsylvania Railroad provide additional protection for train movements in manual block-signal territory

*Dated at Washington, D C , this 17th
day of January, 1966
By the Commission, Railroad Safety
and Service Board*

(SEAL)

H NEIL GARSON
Secretary

APPENDIX

Track

From the south on the main track there are, in succession, a reverse curve having a 2°25' curvature to the right 486 feet, a 3°50' curvature to the left 2,005 feet, and a 2°55' curvature to the right 1,170 feet to the collision point and 163 feet northward. From the north there are, successively, a 3°25' curve to the right 893 feet, a tangent 428 feet, and the curve on which the collision occurred. In the collision area, the grade is 0.21 percent descending southward.

Carrier's Operating Rules

S-208. ***

A train order must not be sent to a superior train at the meeting or waiting point if it can be avoided. When an order is so sent, the fact will be stated in the order and special precautions must be taken to insure safety.

MANUAL BLOCK SIGNAL SYSTEM

316 (For absolute block for following and opposing movements on the same track)

Before admitting a train or engine, other than a passenger train, to a block, the operator in charge of the block station or block-limit station at the entrance of the block must know that the block is clear of passenger trains and clear of all other trains and engines outside yard limits, and that no other train or engine has been given permission or a signal to enter the block outside yard limits.

Signals governing opposing movements, where provided, must display Stop-signal. The operator will then display Clear-block signal for the train or engine to be admitted to the block. The operator in charge of a block-limit station may give a train or engine at that block-limit station verbal permission to enter one block. The operator, when authorized *** will issue Clearance Card (Form K) to a train to pass one or more block-limit stations as though Clear-block signal were displayed.

A train or engine must not be admitted to a block unless it is clear ***

361 ***

Unless authorized to proceed by Clearance Card (Form K), *** trains must stop at block-limit stations and the conductor or engineman must communicate with the operator in charge as to the condition of the next block. After clearing a block at a block-limit station the conductor, engineman *** must report clear unless otherwise directed.

TELEPHONE-TRAINPHONE

705. Employees must insure being in communication with the proper persons and must not take action until certain that all the conversation concerning them has been heard, understood, acknowledged and finished.

Arrangements or instructions relating to trains, engines, *** or other equipment being clear of or desiring to occupy certain tracks *** must be repeated by the employee receiving them by trainphone or telephone

FORMS OF BLANKS

FORM K

FORM K

THE PENNSYLVANIA RAILROAD
CLEARANCE CARD

. . . Block Station. . . . M. . . . 19 . . .
 Train. . . . Engine. . . .
 (For extra train show direction)

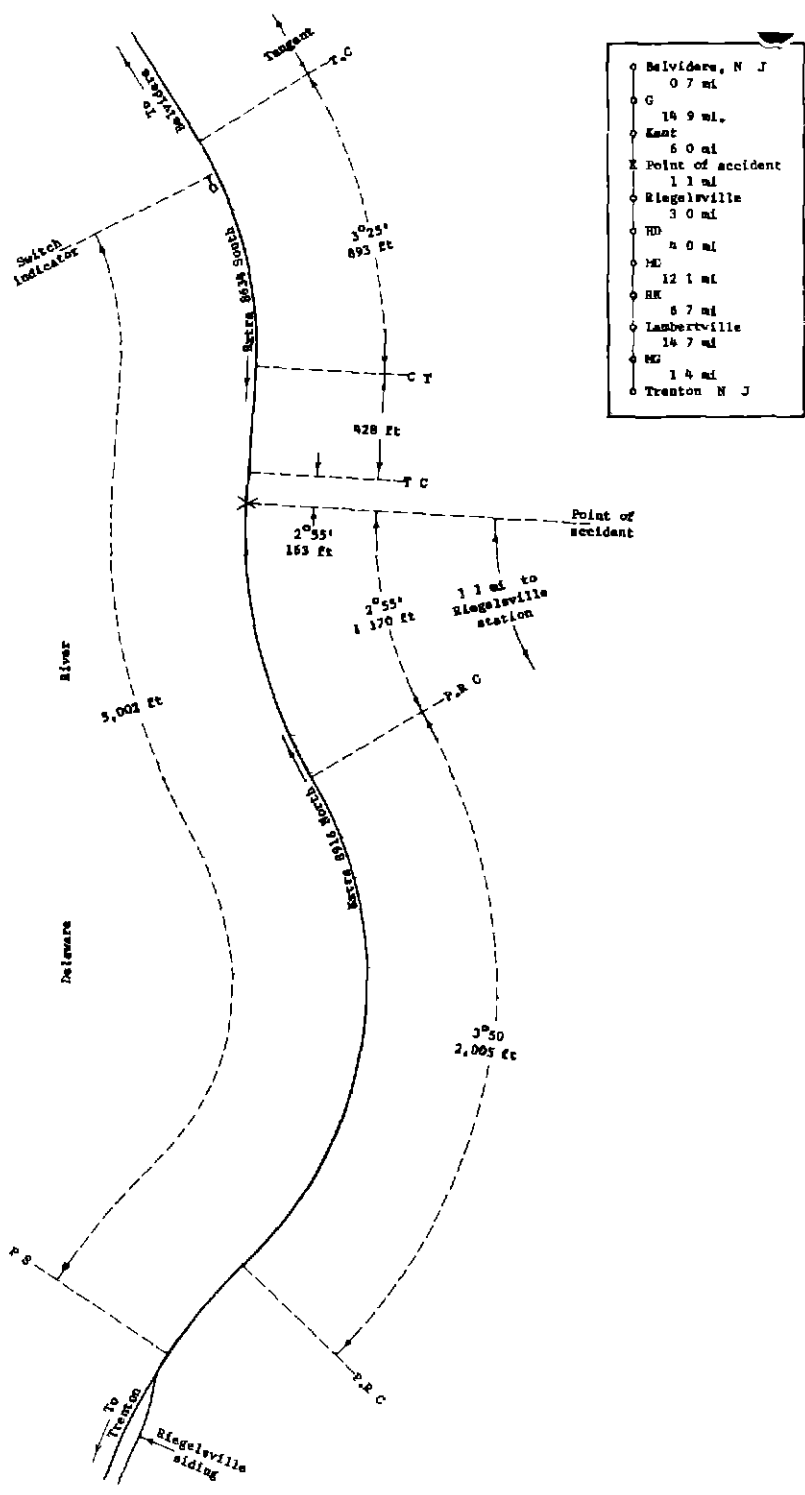
Proceed at.

As though. block signal were displayed

Do not report clear at

.
 Operator

Train receiving this card properly filled out and signed, or authorized by the operator to fill it out, may proceed as directed above.



The Pennsylvania Railroad
 Riegelville N. J
 August 19 1965

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