

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3686

THE DENVER AND RIO GRANDE WESTERN RAILROAD
COMPANY

IN RE ACCIDENT

AT TROUBLESOME, COLO., ON

MAY 15, 1956

SUMMARY

Date: May 15, 1956

Railroad: Denver and Rio Grande Western

Location: Troublesome, Colo.

Kind of accident: Side collision

Trains involved: Freight : Freight

Train numbers: Extra 5434 West : Extra 5554 East

Locomotive numbers: Diesel-electric : Diesel-electric
units 5434, units 5554,
5433, and 5401 : 5553, 5552,
and 5551

Consists: 44 cars, caboose : 76 cars, caboose

Speeds: 30 m. p. h. : 50 m. p. h.

Operation: Signal indications

Track: Single; tangent; 0.85 percent descend-
ing grade westward

Weather: Clear

Time: 5:55 a. m.

Casualties: 4 injured

Cause: Failure to operate east-bound train
accordance with signal indications

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3686

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

THE DENVER AND RIO GRANDE WESTERN RAILROAD COMPANY

June 25, 1956.

Accident at Troublesome, Colo., on May 15, 1956, caused by
failure to operate the east-bound train in accordance
with signal indications.

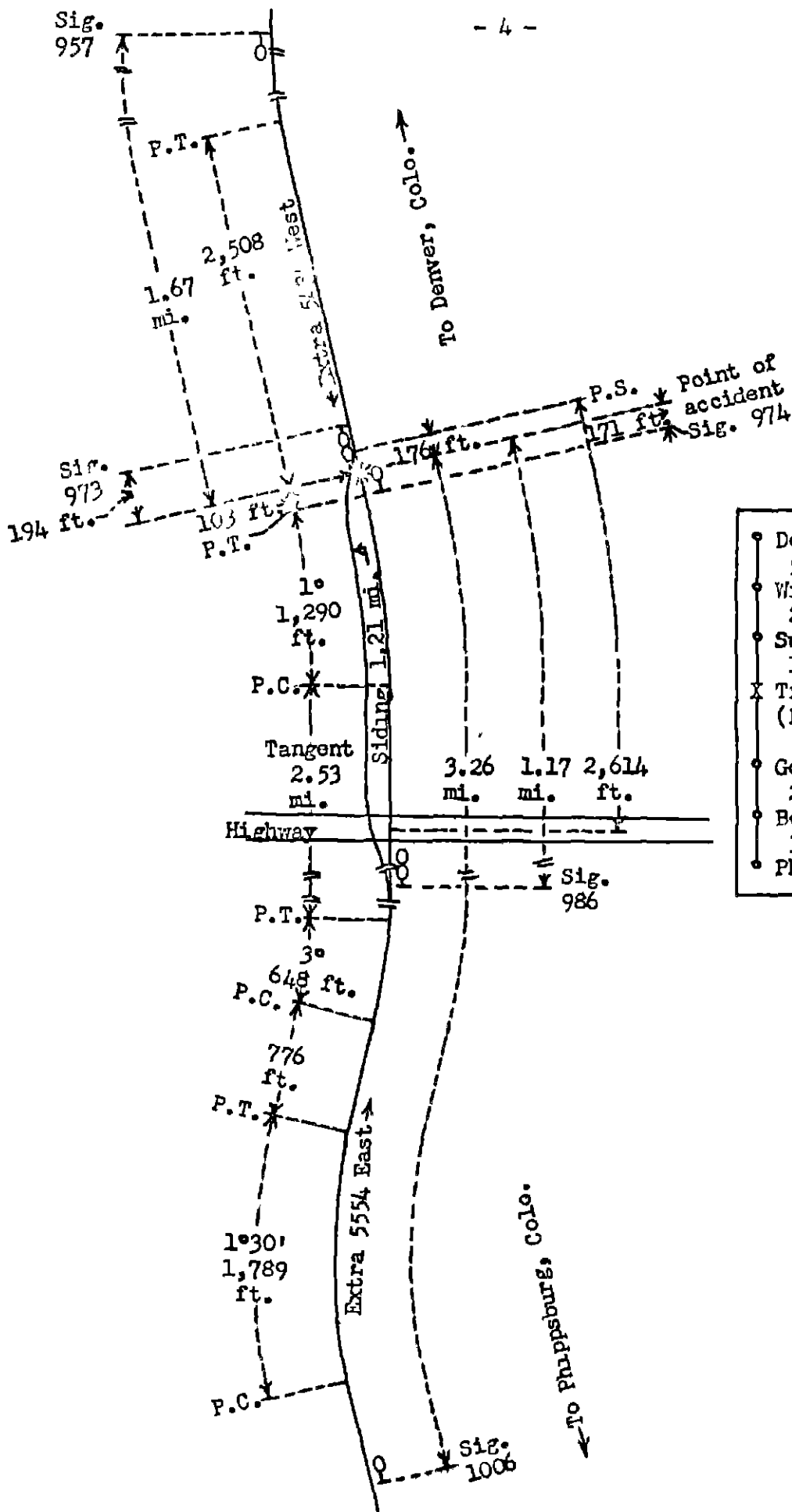
REPORT OF THE COMMISSION¹

CLARKE, Commissioner:

On May 15, 1956, there was a side collision between two freight trains on the Denver and Rio Grande Western Railroad at Troublesome, Colo., which resulted in the injury of four train-service employees. This accident was investigated in conjunction with representatives of the Public Utilities Commission of Colorado.

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Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



○	Denver, Colo.	56.9 mi.
○	Winter Park	29.3 mi.
○	Sulphur	11.8 mi.
×	Troublesome (Point of accident)	8.0 mi.
○	Gore	23.3 mi.
○	Bond	38.7 mi.
○	Phippsburg, Colo.	

Report No. 3686
 Denver and Rio Grande Western Railroad
 Troublesome, Colo.
 May 15, 1956

Location of Accident and Method of Operation

This accident occurred on that part of the Pueblo Division extending between Denver and Phippsburg, Colo., 168.0 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by signal indications. At Troublesome, 98.0 miles west of Denver, a siding 1.21 miles in length parallels the main track on the north. The accident occurred 176 feet west of the east siding-switch, at the fouling point of the siding and the main track. From the east there is a tangent 2,508 feet to the point of accident and 103 feet westward. From the west there are, in succession a 1°30' curve to the right 1,789 feet in length, a tangent 776 feet, a 3° curve to the left 648 feet, a tangent 2.53 miles, a 1° curve to the left 1,290 feet, and the tangent on which the accident occurred. The grade for east-bound trains is, successively, 0.02 percent ascending a distance of 2,260 feet, 0.13 percent ascending 600 feet, 0.39 percent ascending 1,500 feet, and 0.85 percent ascending 1,824 feet to the point of accident.

Automatic signal 957, and semi-automatic signal 973, governing west-bound movements, are located, respectively, 1.67 miles and 194 feet east of the point of accident. Automatic signal 1006 and semi-automatic signals 986 and 974, governing east-bound movements, are located, respectively, 3.26 miles, 1.17 miles, and 171 feet west of the point of accident. These signals are of the search-light type. Signals 957 and 1006 are approach lighted, and the other signals are continuously lighted. The aspects applicable to this investigation and the corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
957	Yellow	Proceed preparing to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	APPROACH
973	Red-over-yellow	Proceed medium speed through turnout, preparing to stop at next signal, except when entering siding, be governed by Rule 105.	DIVERGING APPROACH
1006	Green	Proceed.	CLEAR
986	Yellow-over-red	Proceed preparing to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	APPROACH

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
974	Red	Stop.	STOP

These signals form part of a traffic-control system which extends between Winter Park, 56.9 miles west of Denver, and Bond, 129.3 miles west of Denver. The control machine is located at Sulphur, 86.2 miles west of Denver. The control circuits are so arranged that a controlled signal will not display an aspect to proceed when any opposing controlled signal or signal governing movements over a conflicting route is displaying other than its most restrictive aspect, when the block between adjacent controlled points is occupied by an opposing train, or when a switch within the route governed by the signal is not in proper position and locked. Time, indication, and route locking is provided. The time locking at the east end of the siding at Troublesome is set at 3 minutes 51 seconds. When the routes are lined for a westbound movement from signal 957 into the siding at Troublesome and for an eastbound movement from signal 1006 to signal 974, signal 957 indicates Proceed-preparing-to-stop-at-next-signal, signal 973 indicates Proceed-medium-speed-through-turnout, signal 1006 indicates Proceed, signal 986 indicates Proceed-preparing-to-stop-at-next-signal, and signal 974 indicates Stop.

This carrier's operating rules read in part as follows:

Definitions

MEDIUM SPEED. A speed not exceeding 30 miles per hour.

105. Unless otherwise provided, a train or engine using a siding must proceed at restricted speed, unless the track is seen to be clear.

* * *

294. All members of engine and train crews must, when practicable, communicate to each other the aspects (colors) of each signal affecting the movement of their train or engine.

Timetable special instructions read in part as follows:

21. In freight service, fireman (helper) will patrol engine room as frequently as conditions require after which he will immediately return to his proper place in the control room of the operating unit. He is responsible for operating conditions, observance of signals,

etc., only when he is in the control unit.

In the vicinity of the point of accident the maximum authorized speed for freight trains is 50 miles per hour. It is restricted to 30 miles per hour through the turnouts at each end of the siding at Troublesome.

Description of Accident

Extra 5434 West, a west-bound freight train, consisted of Diesel-electric units 5434, 5433, and 5401, coupled in multiple-unit control, 44 cars, and a caboose. This train departed from Winter Park at 2:50 a. m., passed signal 957, which indicated Proceed-preparing-to-stop-at-next-signal, passed signal 973, which indicated Proceed-medium-speed-through-turnout, and while entering the siding at Troublesome at a speed of 30 miles per hour the twenty-sixth car was struck by Extra 5554 East.

Extra 5554 East, an east-bound freight train, consisted of Diesel-electric units 5554, 5553, 5552, and 5551, coupled in multiple-unit control, 76 cars, and a caboose. This train departed from Bond at 4:50 a. m., passed signal 1006, which indicated Proceed, passed signal 986, which should have indicated Proceed-preparing-to-stop-at-next-signal, passed signal 974, which should have indicated Stop, and while moving at a speed of approximately 50 miles per hour it struck the twenty-sixth car of Extra 5434 West.

The Diesel-electric units of Extra 5554 East were derailed and stopped approximately 30 feet south of the main track and parallel to it, with the front end of the first unit approximately 275 feet east of the point of accident. The first and fourth units were considerably damaged, and the other units were badly damaged. The first 11 cars of Extra 5554 East and the twenty-sixth to the thirty-seventh cars, inclusive, of Extra 5434 West were derailed and damaged in the vicinity of the east siding-switch. There was a second derailment and collision approximately 1,300 feet west of the switch, apparently as a result of the impact of the first collision, and the thirty-seventh to the forty-ninth cars, inclusive, of Extra 5554 East, and the seventh to the fifteenth cars, inclusive, of Extra 5434 West were derailed and damaged in this vicinity.

The conductor of Extra 5434 West, and the engineer, the fireman, and the front brakeman of Extra 5554 East were injured.

The weather was clear at the time of the accident, which

occurred at 5:55 a. m.

The locomotive of Extra 5554 East was provided with 24-RL brake equipment. A safety-control feature actuated by a pedal was provided.

Discussion

The train dispatcher intended that Extra 5434 West would take the siding at Troublesome to meet Extra 5554 East. He said that he lined the route for Extra 5554 East to move from signal 1006 to signal 974 about 5:30 a. m., and that he lined the route for Extra 5434 West to enter the siding at Troublesome about 5:49 a. m. The indicators on the panel of the control machine indicated that the system functioned properly.

As Extra 5434 West was approaching Troublesome the engine-men were in the control compartment at the front of the locomotive, the front brakeman and the flagman were in the control compartment at the rear of the locomotive, and the conductor was in the caboose. The enginemen said they entered the siding at Troublesome at a speed of approximately 30 miles per hour. Until the front end of Extra 5554 East was passing their locomotive they were not aware that the train was operating at a speed at which it could not be stopped short of the east siding-switch. They could not tell whether the brakes of Extra 5554 East were applied as the front of that train passed them.

As Extra 5554 East was approaching Troublesome the engineer and the front brakeman were in the control compartment at the front of the locomotive. The conductor and the flagman were in the caboose. The fireman had left the front control compartment to patrol the units when the train was in the vicinity of Gore, 8.0 miles west of Troublesome, and he was in the rear unit when the collision occurred. The brakes of the train had been tested but had not been used after the train departed from Bond, the initial terminal for this crew. The engineer and the front brakeman said that they called the indication of signal 1006, which indicated Proceed. As the train moved eastward these employees were looking toward the sun, but the engineer said that with his sun visor down the sun did not interfere with his view of the signals. Both of these employees said that they were conversing as the train approached Troublesome, and neither of them saw the aspect of signal 986. At this time these employees had been on duty approximately 1 hour 25 minutes after having been off duty over 12 hours. Both of them said that they were fully alert and that there was no condition which would have prevented them from seeing the signal. The engineer first

saw Extra 5434 West entering the siding as his locomotive was approaching the east siding-switch. When he saw the train he immediately made an emergency application of the brakes, but the collision occurred before the speed of the train was materially reduced. Neither the engineer nor the front brakeman noticed the indication of signal 974. Both the conductor and the flagman said that there was an emergency application of the brakes before the collision occurred. According to the tape of the speed-recording device, the speed was approximately 52 miles per hour when the brake application became effective and approximately 50 miles per hour when the collision occurred.

After the signal equipment which was damaged in the accident was repaired, the signal apparatus in the vicinity of the point of accident was inspected and tested. No condition was found which would have caused an improper operation of the signal system.

In observations made after the accident occurred it was found that signal 986 is visible at a maximum distance of 1.65 miles and signal 974 is visible at a maximum distance of 1.66 miles. These observations were made approximately 2 hours later in the day than the time at which the accident occurred.

Cause

This accident was caused by failure to operate the east-bound train in accordance with signal indications.

Dated at Washington, D. C., this twenty-fifth day of June, 1956.

By the Commission, Commissioner Clarke.

(SEAL)

HAROLD D. McCOY,

Secretary.