INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3678

NORFOLK AND WESTERN RAILWAY COMPANY

IN RE ACCIDENT

NEAR GLEN ALUM, W. VA., ON

FEBRUARY 14, 1956

SUMMARY

Date:	February 14, 1956	
Railroad:	Norfolk and Western	
Location:	Glen Alum, W. Va.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Locomotive
Train numbers:	Extra 2116 West	: Extra 2151 West
Locomotive numbers:	Steam locomotive 2116	: Steam locomotive 2151
Consist:	15 cars, caboose	:
Estimated speeds:	8-10 m. p. h.	: 25 m. p. h.
Operation:	Timetable, train orders, and automatic block-signal system	
Tracks:	Double; 3° curve; 0.17 percent descending grade westward	
Weather:	Foggy	
Time:	11:45 p. m.	
Casualties:	2 killed; 1 injured	
Cause:	Failure to operate following train at restricted speed as required by rule, and failure to provide protection for preceding train	
Recommendation:	That the carrier take measures to insure that adequate protection is provided for any train entering a main track at a hand-operated switch	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3678

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

NORFOLK AND WESTERN RAILWAY COMPANY

March 30, 1956

Accident near Glen Alum, W. Va., on February 14, 1956, caused by failure to operate the following train at restricted speed as required by rule, and failure to provide protection for the preceding train.

REPORT OF THE COMMISSION[1]

CLARKE, Commissioner:

On February 14, 1956, there was a rear-end collision between a freight train and a locomotive on the Norfolk and Western Railway near Glen Alum, W. Va., which resulted in the death of one mechanical department employee and one train-service employee, and the injury of one train-service employee.

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[1] 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.

Report No. 3678
Norfolk and Western Railway
Near Glen Alum, W. Va.
February 1, 1956

Location of Accident and Method of Operation

This accident occurred on that part of the Pocahontas Division extending between Bluefield and Williamson, W. Va., 99.32 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by timetable, train orders, and an automatic block-signal system. At Bon, 68.96 miles west of Bluefield, a siding 1.25 miles in length is located between the main tracks. At Glen Alum, 70.05 miles west of Bluefield, a line designated as the Briar Mountain Branch converges with the westward main track. The junction switch, which is trailing-point for west-bound movements, is located 721 feet west of the station at Glen Alum and 3,184 feet west of the west siding-switch at Bon. The accident occurred on the westward main track at a point 4,461 feet west of the station at Glen Alum. From the east there are, in succession, a tangent 196 feet in length, a 5°55' curve to the right 1,295 feet, a tangent 100 feet, a compound curve to the left, having a maximum curvature of 6°, 2,334 feet, a tangent 1,744 feet, and a compound curve to the right, having a maximum curvature of 3°, 1,058 feet to the point of accident and 1,728 feet westward. At the point of accident the curvature is 3° and the grade is 0.17 percent descending westward.

Automatic signal 4395, governing west-bound movements on the westward main track, is located 361 feet east of the main-track switch at the west end of the siding at Bon, and 1.38 miles east of the point of accident. This signal is of the position-light type and is continuously lighted. No signals are provided to govern west-bound movements entering the westward main track from the siding at Bon or from the Briar Mountain Branch at Glen Alum. The aspects of signal 4395 applicable to this investigation and the corresponding indications and names are as follows:

Aspect	Indication	Name
Three amber lights in vertical position	Proceed at prescribed speed	Clear
Three amber lights in horizontal position	Stop; then proceed at low (restricted) speed	Stop and Proceed

The controlling circuits are so arranged that when the blocks of signal 4395 and the signal in advance are clear, the signal indicates Proceed. When the block of signal 4395 is occupied, the signal indicates Stop-then-proceed-at-low-(restricted)-speed.

Switch indicators are located near the switch stands at the west siding-switch at Bon and at the junction switch at Glen Alum. The aspects and the corresponding indications are as follows:

Aspect	Indication
Two amber lights in diagonal position to right.	Use Main Track See Rule 346
Two amber lights in horizontal position	Use Main Track Only Under Flag Protection

When the block of signal 4395 and the blocks of the two signals immediately east of that signal are clear, each switch indicator displays two amber lights in diagonal position. When any of these three blocks is occupied, each indicator displays two amber lights in horizontal position.

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

DEFINITIONS

Low (Restricted) Speed--A speed that will permit stopping short of another train or an obstruction, but not exceeding 15 miles per hour.

11. A train finding a fusee burning red on or near its track must stop and extinguish the fusee and then proceed at low (restricted) speed.

15 (a). In automatic block signal territory fusees and torpedoes will be used by trainmen of trains carrying passengers as prescribed by Rule 99, * * * but will not be used by freight trainmen except in emergency.

35. The following signals will be used by flagmen:

* * *

Night signals--A red light,
A white light,
Torpedoes and
Fusees

99. * * *

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fusees must be thrown off at proper intervals.

* * *

346. Trains entering the main track from any point, or crossing from one track to another, will stop and inspect switch indicator before fouling main track. The member of the crew handling the switch must examine the indicator and when indication is Stop or lights are horizontal, * * * crew will protect as prescribed by Rule 99 before entering the main track. It will not be necessary for enginemen to leave engine to examine switch indicator, but they must see that it is examined by member of the crew handling the switch. At points other than in yard or station limits, crews must protect before entering main track, regardless of indication of switch indicator. Train entering main track under above condition, will run at low (restricted) speed to next automatic block signal.

* * *

The maximum authorized speed for locomotives in backward motion is 30 miles per hour.

Description of Accident

Extra 2116 West, a west-bound freight train, consisted of steam locomotive 2116 with an auxiliary water car, 15 cars, and a caboose. The engine was headed eastward and moving in backward motion. This train entered the westward main track from the Brier Mountain Branch at Glen Alum about 11:35 p. m., and while moving at an estimated speed of from 8 to 10 miles per hour it was struck by Extra 2151 West. The accident occurred at a point 3,740 feet west of the junction switch at Glen Alum.

Extra 2151 West, a west-bound train, consisted of steam locomotive 2151 with an auxiliary water car. The locomotive, which was of the 2-8-8-2 type, was headed eastward and moving in backward motion. This train entered the westward main track at the west siding-switch at Ben about 11:40 p. m., and while moving at an estimated speed of 25 miles per hour it struck Extra 2116 West.

The caboose and the fourteenth and fifteenth cars of Extra 2116 West were derailed and overturned. The caboose and the fifteenth car were considerably damaged, and the fourteenth car was somewhat damaged. Extra 2151 West stopped with the west end of the auxiliary water car 138 feet west of the point of accident. The west end of the car was derailed, and the car was considerably damaged.

The conductor of Extra 2116 West and a machinist who was riding in the caboose of this train were killed. The front brakeman of this train was injured.

There was fog of varying density at the time of the accident, which occurred at 11:45 p. m.

The tender of locomotive 2151 is 47 feet 11-3/4 inches in length. The auxiliary water car is a rebuilt tender and is coupled to the rear end of the tender. A headlight is provided on the rear end of the auxiliary water car.

Discussion

On the day of the accident locomotive 2151 arrived at Ben as a helper in Extra 2197 East, an east-bound freight train. The train stalled at Ben because adequate steam pressure could not be maintained on this locomotive. At this time locomotive 2117 without cars was en route from Bluefield to Williamson. The crew of locomotive 2117 was instructed to leave the locomotive at Ben to replace locomotive 2151, and to take locomotive 2151 to Williamson.

The operator at Devon, 6.61 miles west of Glen Alum, said that the conductor of Extra 2116 West called him from Glen Alum at 11:27 p. m. and reported that the train was ready to leave that point. The operator said he told the conductor that an east-bound freight train was crossing over at the east end of Ben and that Extra 2117 West without cars should be leaving that point soon with instructions to exchange locomotive 2117 for the helper locomotive in Extra 2197 East at the west end of Ben. He said that at 11:33 p. m. the conductor of Extra 2116 West called again and told him that the indicator at Glen Alum showed that a west-bound train was approaching. He told the conductor that the train was Extra 2117 West. The conductor inquired as to whether the instructions for the crew to exchange locomotives at the west end of Ben had been changed. The operator told him that the instructions had not been changed, and the conductor then told him that Extra 2116 West would leave Glen Alum ahead of Extra 2151 West. The operator said that after this conversation he had no further conversation with any of the members of the crew of Extra 2116 West.

The front brakeman of Extra 2116 West said that when the train arrived at Glen Alum, about 11:25 p. m., he and the conductor proceeded to the station. After talking with the operator at Devon on the telephone, the conductor told the brakeman to line the junction switch for the movement of their train. When the brakeman reached the switch he saw that the indicator indicated Use-main-track-only-under-flag-protection. He said that the conductor gave him a signal to line the switch, but he left the switch in normal position. He saw the conductor return to the station, and short time later the conductor called and told him to line the switch. He then lined the switch for entry to the westward main track. The swing brakeman was in the vicinity of the station at the time the front brakeman reached the switch. He observed that the front brakeman was not lining the switch, and he then saw that an indicator in the station indicated that a west-bound train was approaching. He informed the conductor of this fact. The conductor then returned to the telephone and called the operator at Devon, and the swing brakeman said he heard the conductor tell the operator that Extra 2116 West would enter the westward main track under flag protection. The swing brakeman lighted a fusee and gave a proceed signal, and then proceeded eastward a short distance to provide protection. As Extra 2116 West was leaving Glen Alum the front brakeman boarded the locomotive, and the conductor and the swing brakeman boarded the caboose. The flagman, who had remained at the rear of the train, said that he asked the conductor whether there were any following trains in the vicinity. He said the conductor told him that there was a locomotive at Ben being exchanged for the locomotive on an east-bound train. The flagman restored the junction switch to normal position, and after he boarded the caboose the swing brakeman extinguished the fusee which he was carrying. He did not leave torpedoes or a fusee. The engineman said that as the train moved westward their range of vision was restricted by fog to a distance of approximately 800 feet. The surviving members of the train crew said that the fog was not of sufficient density to materially restrict their range of vision. The flagman said that a short time after the train departed from Glen Alum he entered the cupola of the caboose. At this time the conductor and the swing brakeman were both inside the caboose. As the flagman entered the cupola he glanced eastward and saw the headlight of an approaching train. He called a warning, and he and the swing brakeman proceeded to the rear platform with a lighted fusee. They then saw that Extra 2151 West was closely approaching, and they alighted immediately before the collision occurred.

When Extra 2117 West arrived at Ben, locomotive 2151 was standing on the siding with the west end of the auxiliary water car a short distance west of signal 4395. The engineer of Extra 2117 West said that as he approached signal 4395 the signal indicated Proceed. He then saw a member of the crew of Extra 2197 East open the west siding-switch, and the indication of the signal changed from Proceed to Stop-then-proceed-at-low-(restricted)-speed. The engineer stopped locomotive 2117 at the signal, then moved it westward a short distance to a point opposite locomotive 2151. After the enginemen exchanged locomotives, Extra 2151 West entered the westward main track and proceeded westward. The engineer estimated that he departed approximately 3 or 4 minutes after his arrival on Extra 2117 West. As Extra 2151 West was approaching the point where the accident occurred the speed was about 30 miles per hour. The enginemen were maintaining a lookout ahead from their respective positions in the cab of the locomotive. The headlight at the west end of the auxiliary water car was lighted. The enginemen said that their range of vision was considerably restricted by mist and fog. The fireman thought that his range of vision was restricted to a distance of about 900 feet. The engineer said that the density of the fog varied, and that his range of vision was about 1,000 feet at some points and not more than about 400 feet at other points. Because of curvature of the track and the restricted visibility, the fireman did not see the rear end of Extra 2116 West until his locomotive reached a point which he thought was about 300 feet east of the caboose. When he saw the markers on the caboose he called a warning, and the engineer immediately made an emergency application of the brakes. The fireman said that after the caboose became visible to him he saw an employee with a lighted fusee emerge from the rear door and jump to the ground. It had been raining, and the engineer said that when he applied the brakes the wheels locked and slid on the wet rails. Because of curvature of the track and the length of the tender and the auxiliary water car, the caboose was not visible to him before the accident occurred. He estimated that the speed had been reduced to about 25 miles per hour when the accident occurred.

After the accident occurred observations were made to determine the distance at which a caboose standing at the point of accident could be seen from an approaching westbound locomotive. A locomotive of the same type as locomotive 2151 was used in making these observations. The locomotive was provided with an auxiliary water car and was headed eastward. From the fireman's position on the locomotive, the caboose could be seen at a maximum distance of

500 feet. The locomotive was then moved westward and coupled to the caboose. Because of curvature of the track, the caboose was not visible at any time from the engineer's position on the locomotive. These observations were made during the day time.

Rule No. 99 of this carrier provides that when a train is moving under conditions in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. This rule is modified by rule No. 15(a), which provides that in automatic block signal territory fusees and torpedoes will not be used by the trainmen of freight trains except in emergency. In the instant case the crew of Extra 2116 West were not aware that an emergency existed until immediately before the accident occurred, and no action was taken to protect the rear of the train. No fusees or torpedoes were left at Glen Alum by the crew of this train, and no fusees were used after the train departed. The swing brakeman of this train said that he had previously been criticized for leaving lighted fusees, and for this reason he extinguished the fusee he was carrying at the time the train departed from Glen Alum.

The rules also provide that in automatic block signal territory a train entering a main track at a hand-operated switch must proceed at low (restricted) speed to the next signal. In the instant case the engineer of Extra 2151 West was aware of this requirement, but before the accident occurred he was under the impression that the block in which he was moving was clear. Signal 4395 indicated Proceed when he arrived at the west end of the siding at Ben on Extra 2117 West, and the indication changed to Stop-then-proceed-at-low-(restricted)-speed when the west siding-switch was opened. The engineer assumed that the signal was actuated by the operation of the switch, and that since the signal indicated that the block was clear when he arrived on Extra 2117 West the block would also be clear for the movement of Extra 2151 West.

In this accident, the following train was required to be operated in such manner that it could be stopped short of a preceding train. Under slightly different circumstances, however, a similar accident could have occurred while the following train was moving on a proceed signal indication. When Extra 2116 West entered the westward main track at Glen Alum the crew had no assurance, other than the conversation between the conductor and the operator at Devon, that a westbound train had not passed signal 4395. Under these conditions the provisions of rule No. 99, as modified by rule No. 15(a), would not provide adequate protection against any train which may have passed signal 4395 before the switch at Glen Alum was opened.

Cause

This accident was caused by failure to operate the following train at restricted speed as required by rule, and failure to provide protection for the preceding train.

Recommendation

It is recommended that the carrier take measures to insure that adequate protection is provided for any train entering a main track at a hand-operated switch.

Dated at Washington, D. C., this thirtieth day of March, 1956.

By the Commission, Commissioner Clarke.

HAROLD D. McCOY,

Secretary.

(SEAL)