Inv-2114

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

NORFOLK SOUTHERN RAILROAD

TIDEWATER JUNCTION, VA.

FEBRUARY 12, 1940

INVESTIGATION NO. 2414

SUMMARY

Inv-2414

Railroad:	Norfolk Southern
Date:	February 12, 1940
Location:	Tidewater Junction, Va.
Kind of accident	Collision
Train involved:	Passenger : Freight car
Train number:	50
Power unit number:	103
Consist:	Rail-bus
Speed:	20 m. p. h. : Standing
Operation:	Timetable and train orders
Track:	Double; tangent; 0.04 percent ascending grade northward
Weather:	Clear
Time:	6:35 a. m.
Casualties:	18 injured
Cause:	Improperly lined switch

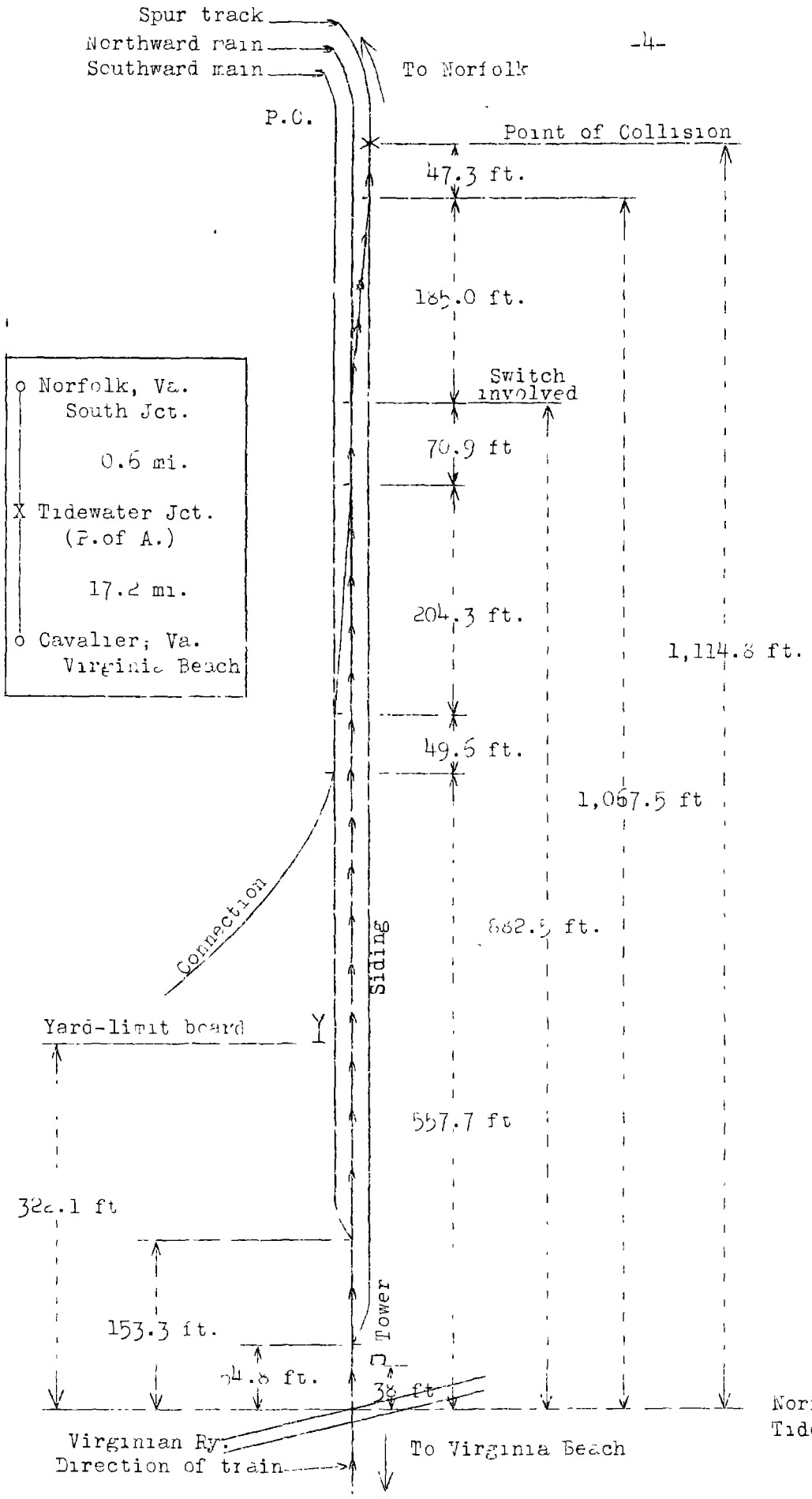
To the Commission:

On February 12, 1940, there was a collision between a passenger train and two freight cars on the Norfolk Southern Railroad at Tidewater Junction, Va., which resulted in the injury of 14 passengers, 1 employee on duty, and 3 employees off duty.

Location and Method of Operation

This accident occurred on that part of the Virginia Beach Division designated as the South Route which extends between Cavalier and South Junction, Norfolk, Va., a distance of 17.8 miles. In the immediate vicinity of the point of accident this is a double-track line over which trains are operated by time-table and train orders; there is no block system in use. The tracks extend generally east and west by compass directions, but time-table directions are north and south; the latter directions are used in this report.

Approaching from the south the track is tangent 4,224 feet to the point of accident and 370 feet beyond. The grade is practically level. A double-track line of the Virginian Railway crosses the line of the Norfolk Southern Railroad at Tidewater Junction; movements over the crossing are controlled by interlocking. The interlocking is operated from a tower which is located in the northeast corner of the intersection and 38 feet north of the Virginian Railway tracks. On the Norfolk Southern Railroad the south end of the double track is 153.3 feet north of the crossing. A yard-limit board is located 322.1 feet north of the crossing. A siding, 1,012 feet in length, parallels the northward main track on the east and its south switch is 54.8 feet north of the crossing. A track joining the north end of the siding, extending northward and paralleling the northward main track is known as the spur track; the accident occurred at a point 47.3 feet north of the south end of this track. A facing-point cross-over for northward movements connects the northward main track and the spur track; the main-track switch and the spur-track switch are located 882.5 and 1,067.5 feet, respectively, north of the crossing. A cross-over, which is trailing for movements with the current of traffic, connects the northward and southward main tracks; its north switch is 70.9 feet south of the spur-track cross-over switch. A connection track between the Virginian Railway and the Norfolk Southern Railroad extends across the northwest corner; this track is connected to the southward main track at a point 557.7 feet north of the crossing and 49.6 feet south of



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the south switch of the cross-over connecting the two main tracks. The cross-over switches to the spur track are hand operated, and all other switches mentioned are interlocked and operated from Tidewater Junction tower.

At the south end of the cross-over to the spur track there is a standard New Century switch stand of the low-stand type; it is located 49-1/2 inches east of the east rail of the northward main track and is equipped with two banners, the centers of which are 14 inches above the top of the ties. The day aspects of these banners are white for movement on the main track and red for entry to the spur track. At the time of the accident there was no switch lamp for night aspects.

Yard crews of the Norfolk & Portsmouth Belt Line Railroad, hereinafter referred to as the Belt Line, use the above-mentioned tracks to make deliveries to the Norfolk Southern Railroad.

At the time of the accident one box car and one hopper car, coupled, were on the spur track; the south end of the south car was 47.3 feet north of the north switch of the cross-over to the spur track; fifteen freight cars were on the siding south of the spur-track cross-over.

Rules 104, 104 (c), and 688 of the operating rules read in whole or in part as follows:

> 104. Switches must be left in proper position after having been used.
>
> Conductors are responsible for the position of switches used by them and their Trainmen, * * *
>
> * * *
>
> 104(c). When a main track switch is opened, the employee opening same will remain in charge thereof until it is closed, * * *
>
> After using a switch it must be seen that the switch point is closed against stock rail and that the target shows proper indication. * * *
>
> The person who locks a switch must grasp chain and pull the lock to see that it is securely fastened.
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> * * *
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> * * *

Engineman will be held equally responsible for enforcement of all rules in regard to the proper handling of switches.

* * *

688 (Engineman.) They are required to observe the position of all switches and know that such switches are right before passing over them.

Time-table general instructions pertaining to yard limits provide as follows:

All trains shall approach yard limits with trains under full control and run carefully through the yard. The responsibility for accidents at such points will rest with approaching trains.

The maximum authorized speed for passenger trains is 50 miles per hour, and an additional restriction requires all trains to reduce speed to 15 miles per hour over the Virginian Railway crossing.

The weather was clear and day was breaking at the time of the accident, which occurred about 6:35 a.m.

Description

No. 50, a north-bound passenger train, with Conductor Swann and Motorman Parsons in charge, consisted of rail-bus 103. This train departed from Cavalier, 17.2 miles south of Tidewater Junction, at 6 a. m., according to the train sheet, on time, passed Tidewater Junction at 6:35 a. m., on time, entered the spur-track cross-over switch, proceeded through the cross-over, and, while moving at a speed estimated at 20 miles per hour, struck two freight cars standing on the spur track.

None of the equipment was derailed. The impact drove the two freight cars northward a distance of 59.7 feet, and the rail-bus rebounded 8 feet from the point of collision. The front end of the rail-bus was badly damaged; the headlight and windows were broken, the front frame was bent, the front panels were torn and the front end-sill was crushed inward a distance of 2-1/2 feet. The roof was torn loose at the front end of the car.

The employee on duty who was injured was the conductor.

Summary of Evidence

Motorman Parsons, of No. 50, stated that he tested the air brake at Cavalier and it functioned properly en route. The sanders functioned properly. He said that the rail-bus was equipped with two headlights; a large headlight which projected a beam about 800 feet ahead was mounted on the roof at the center of the front end of the car, and a small headlight which projected a broad beam that illuminated the track directly in front of the car was mounted in the center of the front end of the car beneath the windows. When approaching Tidewater Junction a proceed indication was displayed for the route. Because of a speed restriction at that point the rail-bus passed over the Virginian Railway crossing at a speed of 15 miles per hour. He assumed that the way was clear through the yard and increased speed to between 27 and 30 miles per hour. Soon afterward he saw by the beam of the headlight that the switch point of the cross-over switch north of the crossing was partly open. He applied the air brake in emergency and opened the sanders; his train entered the open switch, proceeded through the cross-over and struck the first car on the spur track. He thought the speed was about 20 miles per hour when the impact occurred. Full braking effect was not obtained because of a slippery rail condition. About 10 minutes after the accident he examined the main-track cross-over switch and saw that it was lined and locked for the cross-over, and that previously it had been run through. There was an aperture of about 2 inches between the east switch point and the stock rail; the bridle rod was sprung. He did not see the switch target. He said that if the switch stand had been equipped with a lamp he probably would not have seen it, because it is difficult to see a switch light at daybreak. It was difficult to see the low switch target because 15 freight cars stood on the siding south of the spur track and because interlocking apparatus was in line with the hand-operated switch. He understood that he was required to run carefully through the yard in compliance with time-table general instructions and that responsibility for an accident rested with the approaching train if it collided with another train on the main track. He did not think that the time-table instructions or the provisions of rule 688 required him to operate through yard limits at such speed as to be able to observe the position of all switches before passing them. In order to maintain schedule time he assumes that all switches are lined and locked for the main track and, even in foggy weather, operates his train accordingly except at danger points; he did not consider any main track switch a danger point. Motormen are subject to the same rules which apply to enginemen. He was last examined on the operating rules and time-table instructions about 7 or 8 years ago. The accident occurred at 6:35 a. m., at which time the weather was clear.

Conductor Swann, of No. 50, stated that approaching the point of accident the speed of his train was about 20 miles per hour when the air brake became applied in emergency.

Motorman Gettel, of No. 51, stated that his train was operated against the current of traffic over the northward main track from Norfolk to Tidewater Junction. He passed Tidewater Junction at 6:11 a. m., at which time it was dark. His train passed over the main-track cross-over switch involved in a trailing movement at a speed of about 12 miles per hour; he did not know that his car had damaged the switch. Although the headlight was burning he did not see the position of the switch target. If the switch stand had been equipped with a lamp he could have seen a red aspect in time to stop before reaching the switch. It was his understanding that rule 688 and the time-table general instructions required him to observe that all facing-point switches were in proper position before passing over them; however, he said that when darkness or fog restricted visibility to a short distance only he did not reduce speed for switches. If speed were reduced for all switches it would be impossible to maintain schedule running time.

Engineman Crawford, of Belt Line engine 41 which arrived at Tidewater Junction at 2:45 a. m., stated that two freight cars consigned to the Norfolk Southern Railroad were pushed ahead of the engine through the connection track. He stopped the engine and the two cars on the northward main track just south of the main-track cross-over switch. As the two cars could not be placed on the siding, because it was already blocked with cars, and as he was aware that the front brakeman, who had only recently entered the service, required assistance at times he sent the fireman ahead to instruct the brakeman that the cars would be placed on the spur track and that he should close and lock the main-track switch after the engine backed out. The cars were pushed through the cross-over and left on the spur track and the engine backed through the cross-over, over the switch involved, and stopped on the cross-over between the northward and southward main tracks. The engineman said that he and the fireman then adjusted the grease plug on the right main-pin, which had become hot. About 2 minutes after the cars had been placed on the spur track he saw the brakeman at the engine. All three men boarded the engine and it was backed through the connection. He did not know whether the switch was left open or closed. The hot main-pin distracted his attention and he did not observe the actions of the brakeman nor see the position of the main-track switch of the cross-over to the spur track. He said that possibly the brakeman locked the switch open before the engine shoved the two cars through the cross-over to the spur track, but he did not think that such was the case as the fireman had told the brakeman what to do. When his engine backed out of the spur-

track cross-over the rear headlight was burning but the front headlight was not burning, consequently he was unable to distinguish the position of the switch target. He said that if the switch stand had been equipped with a lamp he might have seen its position. After the accident the brakeman told him that he had closed and locked the switch. The engineman denied having told the towerman that the brakeman had said he did not know whether he had locked the switch. He had performed switching service on the Norfolk Southern Railroad for several years and knew the normal position of the switch involved. Although he possessed a copy of the Norfolk Southern book of rules he had never been examined on the operating rules of that line. It was his understanding that the rules of any railroad upon which he was operating applied while such service was being performed.

Fireman Revell, of Belt Line engine 41, stated that at Tidewater Junction the engineman instructed him to tell the brakeman to set out two cars on the spur track, and when the engine backed out to line and to lock the switch for the main track. The fireman said this precaution was taken because the brakeman had only recently been employed. After telling the brakeman what to do and pointing out the switch to be opened, he returned to the engine. After the cars were set out, the engine backed over the switch and stopped on the next cross-over southward. About 2 or 3 minutes later, as he was helping to adjust the main-pin grease plug, he saw the brakeman come around the front of the engine. He did not see the brakeman handle the switch involved.

Front Brakeman Vincent, of Belt Line engine 41, stated that his conductor instructed him to set out two cars on the Norfolk Southern track at Tidewater Junction. The conductor and the flagman remained with the portion of the train left standing on the Virginian Railway. When the two cars were being pushed ahead of the engine through the connection track, he rode on the forward car and, when a stop was made at the spur-track cross-over, the fireman came forward with instructions from the engineman to place the cars on the spur track; then the fireman returned to the engine. He said that the fireman did not point out which switch to use nor say anything about lining the switch for the main track and locking it after the engine backed out. The brakeman said that he unlocked the switch, lined and latched it for the cross-over, placed the lock on the head-block by the latch, and gave a proceed signal. The north cross-over switch was already lined for the spur track and the cars were pushed through the cross-over and placed on the spur track. When the engine backed through the cross-over, he boarded the front end of the engine and alighted at the switch involved. He then lined the switch for the main track, locked it, and pulled on the chain to determine that the lock was fastened. He did not examine the switch points. Then

he proceeded to the point where the engine had stopped. The engine backed through the connection, picked up the cars left standing on the Virginian Railway, and proceeded. He said that this was the first time he had set out cars unassisted on the spur track. He felt certain that he did not lock the switch open for the cross-over, nor did he throw the north cross-over switch and mistake it for the main-track switch. After the accident he told his engineman that he had lined and locked the switch involved. He served as a student brakeman about 3 weeks and then was employed as brakeman by the Belt Line December 2, 1939; he had worked as a brakeman a total of about 15 days. Copies of the book of rules and timetable of the Norfolk Southern Railroad were not furnished him, nor was he examined on the rules. He was not conversant with the rules and special instructions of the Belt Line, the Virginian Railway, or the Norfolk Southern Railroad.

Conductor Schultz, of Belt Line engine 41, stated that when the two cars were being placed at Tidewater Junction he remained at his caboose, which was on the main track of the Virginian Railway, and did not know what transpired at the switch involved. He was certain that the front brakeman was competent to perform the duty of setting out cars, especially under the supervision of the engineman. The flagman was affording protection to the rear portion of the train. His train stopped at Tidewater Junction at 2:45 a. m. and departed at 3:10 a. m. He did not possess a copy of the Norfolk Southern book of rules and had not been instructed on them.

Flagman McCotter, of Belt Line engine 41, added nothing of importance.

Operator-Leverman Leigh stated that day was breaking at 6:35 a. m., when No. 50 passed Tidewater Junction. After the accident occurred he proceeded to the scene and observed that the main-track switch involved was lined and locked for the cross-over; its points were sprung and they stood about 3/4-inch open; apparently it had been run through previously by No. 51, which passed at 6:11 a. m. The last train to use the switch was Belt Line engine 41, which arrived at 2:47 a. m., February 12, and set out two cars. He said that during the afternoon of the day of the accident the engineman of Belt Line engine 41 told him that his brakeman did not remember whether he locked the switch, and that nothing was said about the position of the switch.

Dispatcher Griffin stated that about 2:52 a. m. two cars were set out on the spur track by Belt Line engine 41. The next train to use the Norfolk Southern tracks was No. 51, a south-bound passenger train, which moved over the northward track against the current of traffic and passed Tidewater Junction at 6:11 a. m.

Section Foreman Green stated that the switch points were not damaged but it was necessary to renew both switch rods.

General Superintendent Wickersham stated that time-table general instructions pertaining to operation within yard limits ordinarily did not apply to passenger trains, but were applicable in instances when other trains were occupying the main track within yard limits. He said that rule 688, which requires enginemen to observe the position of all switches and to know that such switches are in proper position before passing over them, was not intended to be so restrictive as to be impracticable. The requirement of rule 688, as applied to first-class trains, is that enginemen shall maintain reasonable and ordinary alertness. Since considerable fog is encountered in the vicinity of Tidewater Junction, a strict and literal application of this rule would preclude the possibility of schedules being maintained. No attempt is made to place absolute responsibility on enginemen to know the position of all switches over which they may have to operate at high speed in all kinds of weather; employees are not disciplined in instances wherein proper alertness and care have been shown. Belt Line crews make deliveries at Tidewater Junction under full protection of the interlocking except at the manually operated main-track cross-over switch involved. The only tracks of this division of the Norfolk Southern which are used by Belt Line crews are at this interchange point. In view of the fact that the Belt Line operations are confined exclusively to yard movements under yard rules, it is considered that ample protection is afforded without conducting periodic rules examinations. Most of the train movements on this division are made during daylight hours. In the Norfolk area switch lamps have not been used for many years. Experience has demonstrated that it is difficult to maintain switch lamps, because of acts of vandalism. It has not developed that operation is less safe since the discontinuance of switch lamps. In this instance there was no indication of tampering. The switch lock was not damaged and was continued in use.

The data submitted by the railroad disclose that the lightweight rail motor-car, designated as a rail-bus, is designed for single-unit operation, and weighs 41,400 pounds. It is divided into a baggage compartment and two passenger compartments having a total seating capacity of 53 passengers. It is 56 feet 7 inches in length and 9 feet in width. The underframe is of steel construction, welded and riveted together. The car is powered with a Hall-Scott model 180 horizontal motor mounted beneath the floor, and supported by two special Cor-Ten steel cross-beams. The body frame is of steel construction except the side sheathing, the skirts and the letter panels which are of aluminum. The car

is equipped with Westinghouse SME type air brake. The brake valve is hand operated, self lapping, and is arranged with both hand and foot-operated safety control. The car was built in June, 1936.

Observations of the Commission's Inspectors

The Commission's inspectors examined the switch and found that the switch points and switch stand were undamaged; two switch rods had been renewed. The switch lock was undamaged. Inspection of the rail-bus disclosed that there were slid-flat spots about 1 inch in length on all wheels of the front truck.

Discussion

According to the evidence, No. 50 entered the cross-over and collided with a car on the spur track. Soon after the accident the northward main-track switch of the cross-over to the spur track was found lined and locked for entry to the spur track. The switch lock was undamaged; this fact indicated that tampering was not involved. The main-track switch points had been sprung; this condition indicated that a train moving against the current of traffic on the northward main track had run through the switch some time before the accident occurred. The last crew which used this switch was that of Belt Line engine 41, which passed through the cross-over both forward and backward about 3 hours 30 minutes before the accident occurred. Between the time the Belt Line engine used the cross-over and the time of the accident, No. 51, which passed 24 minutes before No. 50, was the only train that moved on the northward track; therefore, it appears conclusive that the switch involved was left locked for entry to the spur track after being used by engine 41, and that No. 51 subsequently trailed through it.

The front brakeman of the Belt Line engine was the only member of the crew who operated the switch involved. The conductor and the flagman remained at the rear of their train, which was on the Virginian Railway. The engineman and the fireman did not observe the position of this switch; the front brakeman felt certain that he lined and locked this switch for the main track after his engine backed from the spur track. After having spent about 3 weeks on student trips, the brakeman had worked only about 15 days prior to the accident. It is possible that the inexperienced brakeman became confused concerning the position of this particular switch as his engine passed through five switches, one of which being the switch involved, within a distance of 510 feet.

The rules required all trains to approach yard limits under control and enginemen were required to observe the position of all switches and to know that they were properly lined before using them. However, the general superintendent said that it would be impossible to maintain schedules if these requirements were enforced literally. If it were disclosed that reasonable and ordinary alertness had been maintained by enginemen, there was no attempt to place responsibility when an accident occurred at a switch within yard limits. The engineman of No. 50 said that he operated his train according to the rules as interpreted by the general superintendent, also, that if there had been a switch lamp provided at the switch involved it probably would not have been of any benefit because of its location and because it is difficult to see night signals at daybreak.

The rules of the Norfolk Southern hold the conductor and the engineman responsible for the position of switches used by them. The engineman of the Belt Line had a copy of the Norfolk Southern book of operating rules but he had never been examined on the rules of this railroad; however, he knew the normal position of the switch involved.

Conclusion

This accident was caused by an improperly lined switch.

Respectfully submitted,

S. N. MILLS,

Director.