

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
NORFOLK SOUTHERN RAILROAD AT ARTHUR, N.C., ON JUNE
22, 1930.

July 29, 1930.

To the Commission:

On June 22, 1930, there was a derailment of a passenger train on the Norfolk Southern Railroad at Arthur, N.C. which resulted in the death of one employee.

Location and method of operation

This accident occurred on that part of the Raleigh District of the Western Division extending between Glenwood and Marsden, N.C., a distance of 101.6 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at the south switch of the passing track at Arthur; this passing track parallels the main track on the east, and the south switch is located about one-half mile south of the station. Approaching this point from the south, the track is tangent for a distance of about $1\frac{1}{2}$ miles, and the grade is 0.6 per cent ascending for northbound trains.

The track is laid with 80-pound rails, 33 feet in length, with an average of 21 ties to the rail-length, and is ballasted with gravel to a depth of 18 inches; the track is well maintained. The switch stand at the south passing-track switch is of the Ramapo type and is located on the east side of the main track. The switch target is 4 feet 8 inches above the head-block ties, and displays a white disk 15 inches in diameter when the switch is set for the main track and a red banner of fish-tail shape when it is set for the passing track. This switch was not equipped with a switch lamp as such lamps are not used except in certain yards.

The weather was clear at the time of the accident, which occurred about 1.10 a.m.

Description

Northbound passenger train No. 4 consisted of one combination mail and baggage car, two coaches, and one Pullman sleeping car, hauled by engine 103, and was in charge of Conductor Singleton and Engineman Ferratt. This train left

Wilson, 27.6 miles south of Arthur, at 12.08 a.m., three minutes late, and was derailed at the south passing-track switch at Arthur while traveling at a speed estimated to have been between 30 and 40 miles per hour.

The engine came to rest on its right side across the passing track, with its rear end 289 feet north of the switch points. The tender stopped just beyond the engine, upright, although its position was completely reversed; both the engine and tender were considerably damaged. All of the cars in the train were derailed except the rear truck of the last car. The forward end of the first car led off to the west and stopped in a ditch alongside the track, while the other cars remained in line with the roadbed. The leading car was quite badly damaged, and the following two cars sustained slight damage. The employee killed was the engine-man.

Summary of evidence

Fireman Rankin stated that due to the ascending grade on which the accident occurred, he had been working on the fire, and had just returned to his seatbox when the engine was derailed at the south passing-track switch, and when the engine started to overturn he jumped off. He said that the engineman had sounded a station whistle signal and was in the act of acknowledging a signal from the train to stop at Arthur, but let go of the whistle cord and applied the brakes in emergency, the derailment occurring immediately afterwards; he estimated the speed of the train at that time between 30 and 35 miles per hour. After assisting the engine-man from the cab, the engineman remarked that the switch was open and that the target was red, but that it was too late to stop. Fireman Rankin said he did not see the switch target while approaching the point of accident and did not examine the switch after the accident as he was slightly injured when he jumped off. He further stated that nothing out of the ordinary occurred prior to the accident except that the train struck a rule at Appie, a station 13 miles south of Arthur. The train was stopped and after the engineman examined the front end of the engine, the train proceeded.

Conductor Singleton stated that several stops were made en route and no difficulty was experienced in making these stops, also that he noticed no unusual riding of the train prior to the accident. After the engineman sounded a station signal approaching Arthur, the flagman communicated a signal to stop at Arthur, and immediately after it was acknowledged the brakes were applied in emergency and in another instant the train was derailed, while traveling at a speed of about 40 miles per hour. The conductor got off the train as soon as possible and started towards the head end, but before reaching it he met the engineman and fireman alongside the train, the engineman stating that the switch was cocked. About 15 or 20 minutes

later, Conductor Singleton went back and examined the switch and found the switch lever out of the socket, the points open about one-half inch, and the switch lock open and hanging by a chain attached to the sand; the lock showed no evidence of having been tampered with. The conductor further stated that upon reaching the next station beyond where the mule was struck, he inspected the front end of the engine and the only damage was where the grab iron and uncoupling lever handle on the fireman's side were bent back against the end sill.

Baggageman White stated that he was riding in the forward end of the first coach at the time of the accident, and estimated the speed of the train at the time it was derailed at not more than 30 miles per hour. Due to the front vestibule being crushed as a result of the accident, he climbed out of a window and started towards the front end of the train. When he met the engineman he asked the engineman what caused the accident and the engineman replied that it was caused by a split switch. He accompanied the engineman to the hospital, but no further mention was made regarding the cause of the accident.

Flagman Stevenson stated that he was riding in the smoking compartment of the first coach and as soon as the engineman sounded the station whistle signal, he signalled the engineman to stop at Arthur, and then started towards the door, but before he reached it the brakes were applied in emergency, followed almost immediately by the derailment. After ascertaining that none of the passengers was injured, he procured flagging equipment and started back to protect his train. Upon reaching the switch, he examined it and found it unlocked, with the lever half raised, the switch points open about one-half inch, and the target displaying a white indication for a main line movement. He hung a red lantern on the switch stand but did not touch the switch, and after going farther back and placing torpedoes, he returned to the train.

Section Foreman Cair, in charge of the section on which the accident occurred, stated that he is required to inspect and make a report on all switches once each month, his last inspection for this purpose being on June 20. This inspection was made by riding over the section slowly on a motor car and closely observing all switch stands and points, and was positive that if the switch involved was unlocked and the switch lever out of position, he would have noticed it. He also passes over his section on an average of once a week, either by train or motor car, and had not seen a train use the south end of the passing track at Arthur for some time, as there was only room enough for an engine and three cars between the clearance point and some cars stored on the passing track at that point. He arrived at the scene of

accident at about 3.30 a.m., inspected the track south of the point of accident, and found it to be in good condition. The switch points were open about one-half inch, the switch lever was raised, and the switch target showed practically a clear indication. He said that the switch ties were renewed at that point in 1927 and that no work or adjustments had been made to the switch since that time, and no repairs to the switch were required after the accident. The section foreman also said he was the only member of the section crew in possession of a switch key, he had never lost a key since he was employed, and that he had had no trouble with any of crew nor any of the land owners adjacent to the right of way.

Supervisor Harrell reached the scene of derailment about 7 a.m., and at this time the switch was closed and locked. He inspected the switch, including the lock, and found them in good condition, with no evidence of tampering. He had not authorized any work on this switch prior to or subsequent to the accident, the switch not being damaged by the derailment, had had no occasion to unlock the switch recently, and had received no complaints from train crews as to the condition of the track in that vicinity; in his opinion the track was in good condition.

Roadmaster Lilley stated that he had personally used the switch on June 5 while making an inspection on a motor car, and at that time the switch lock and switch points were in perfect shape. He said the switch was not equipped with a switch lamp. He had heard of no trouble with anyone, and had received no complaints.

Road Foreman of Engines Sumner stated that when he arrived at the point of accident, he examined the engine and found the throttle closed, the brake valve in emergency position, and the brake shoes set firmly against the wheels. A gauge of the wheels disclosed they were in perfect condition. He could not find anything missing from the engine, and was of the opinion there was nothing defective that could have caused the accident. He said that from his experience he thought the switch target could be seen by the aid of an electric headlight for a distance of from 600 to 800 feet.

Special Agent Howard stated that he conducted an investigation to determine if possible the last train to occupy the passing track at Arthur and whether any switch keys were missing. This investigation developed that train No. 1 used the north end of the siding to meet another train on June 21. With the exception of two switch keys in possession of furloughed employees all of the keys were accounted for.

An inspection of the track by one of the Commission's inspectors subsequent to the accident showed no marks on the track south of the south switch. The joint at the heel of the switch point had been forced out of line about 2 inches but this had been replaced, and was the only evidence of any work having been done on the track in the immediate vicinity of the point of derailment. The switch lock was in good condition, showing no marks of having been struck and when it was unlocked the lever had to be pressed down firmly in order to remove the lock from the hasp. A test was made by operating the switch several times, and in each case the points fitted properly. When the lever was raised from the locked position, the switch points immediately opened about $\frac{3}{4}$ inch. With the switch in this position, there was no appreciable change in the position of the target, and tests from a distance of 500 feet showed that the target indicated the switch was set for the main track. In order to determine whether the switch lock was faulty, it was locked in position and struck several times before it was forced open, and after this had been done the lock was badly scarred and damaged to such an extent that it had to be replaced. There was a slight mark on the tip of the switch point, and 11 feet from the point there was a well-defined flange mark on a lug brace between the switch point and the east rail of the passing track, the first mark appearing on a spike head on the gauge side of the west rail, 22 feet from the point.

Conclusions

This accident was caused by a cocked or partly open switch.

The evidence indicates that Engineman Ferratt discovered that the switch was partly open just before his train reached it and that he closed the throttle and applied the brakes in emergency at about the time the engine reached the switch. An examination of this switch after the accident disclosed that the switch lock was open and out of the hasp, the lever was out of its socket, and the points were open approximately one-half inch, although the switch target displayed nearly a clear indication; the switch lock was not damaged.

It appears that the last time this switch was used was on June 5 when Roadmaster Lilley placed his motor car on the passing track to clear a train, while Section Foreman Carr examined all switches on his section on June 20 and at that time the switch involved appeared to be in proper order. In addition, on June 21 five northbound and five southbound trains passed over this switch without any trouble. The investigation did not develop anything which would place responsibility for the switch being partly open at the time of the accident.

The employees involved were experienced men and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND,

Director.