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RAILROAD ACCIDENT INVESTIGATION FEB 7 1972

REPORT NO. 4169

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NEWPORT, WASHINGTON

JUNE 6, 1970



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Synopsis

On June 6, 1970, a head-end collision occurred between a freight train and a passenger train on the line of the Burlington Northern Inc at Newport, Wash. It resulted in injury to 105 passengers, 7 train-service employees, 1 porter, 1 lounge-car attendant, and 5 dining car employees.

Cause

The accident was caused by the fireman of the freight train opening a siding-switch immediately in front of the approaching passenger train.

Location and Method of Operation

The accident occurred on that part of the railroad extending westward from Troy, Montana to Hillyard (Spokane), Wash, a distance of 134.7 miles. In the accident area, the railroad is a single-track line over which trains operate by timetable, train orders and an automatic block-signal system.

At Newport, Wash, 93.5 miles west of Troy, a siding 1.3 miles long parallels the main track on the south. The east switch of the siding is part of a left-hand No. 11 turnout and is 821 feet east of the station. Its switch stand is on the south side of the main track. The fouling point of the main track and the east end of the siding is approximately 195 feet west of the east siding-switch.

Summary

DATE: June 6, 1970

RAILROAD: Burlington Northern

LOCATION: Newport, Wash.

ACCIDENT TYPE: Head-end collision

TRAINS: Passenger Freight

TRAIN NUMBERS: 31 Extra 6432
East

LOCOMOTIVE NUMBERS: Diesel-electric units Diesel-electric units
9710, 9709, 9729 6432, 517,
426

CONSISTS: 12 cars 74 cars,
caboose

SPEEDS: 16 m.p.h. Standing

OPERATION: Timetable; train orders,
automatic block-signal
system

TRACK: Single; tangent; 0.32%
ascending grade west-
ward

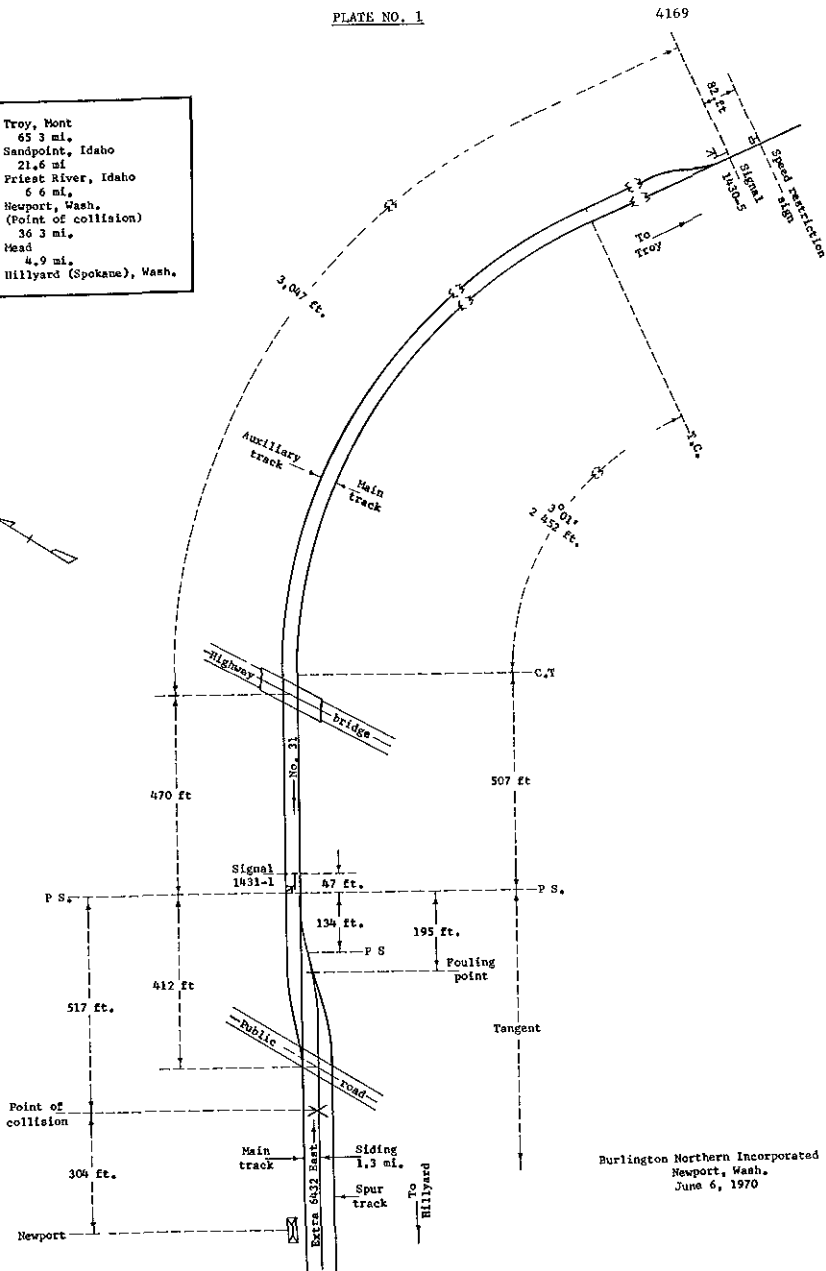
WEATHER: Rainy and Windy

TIME: 10:13 p.m.

CASUALTIES: 119 injured

CAUSE: Fireman of freight train
opening siding-switch
immediately in front of
approaching passenger
train.

- Troy, Mont
65.3 mi.
- Sandpoint, Idaho
21.6 mi
- Priest River, Idaho
6.6 mi.
- ✕ Newport, Wash.
(Point of collision)
36.3 mi.
- Head
4.9 mi.
- Billyard (Spokane), Wash.



Burlington Northern Incorporated
Newport, Wash.
June 6, 1970

The collision occurred on the siding at Newport, 517 feet west of the east siding-switch

A spur track parallels the siding on the south. The switch connecting the spur track to the siding is facing point for westbound movements and is 134 feet west of the east siding-switch

A public road crosses the main track, siding and spur track at grade, 412 feet west of the east siding-switch

Track

From the east on the main track there are, in succession, a 3°01' curve to the left 2452 feet, and a tangent 507 feet to the east siding-switch at Newport and a considerable distance westward

The grade for westbound trains is, successively, 0 28% ascending 2210 feet, 0 40% ascending 650 feet to the east siding-switch at Newport, and 0 32% ascending 517 feet to the collision point

Time and Weather

The collision took place at 10:13 p m , under rainy and windy weather conditions

Signals

Automatic signals 1430-5 and 1431-1, governing westbound movements on the main track, are 3517 and 47 feet east of the Newport east siding-switch, respectively. These signals are of the upper-quadant single-arm semaphore type and are approach lighted. The applicable signal aspects, indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
1430-5	Green with semaphore arm in vertical position	Proceed	Clear
1431-1	Red with semaphore arm in horizontal position over No Plate	Stop before any part of train *** passes the signal ***	Stop and Proceed

The circuits are so arranged that when the blocks of signals 1430-5 and 1431-1 are unoccupied and all main track switches within those blocks are in normal position, lined for movements on the main track, both signals display Clear aspects for an approaching westbound train. In the event a westbound train is moving in the block of signal 1430-5 under a Clear aspect and the east switch of the Newport siding is moved to reverse position, signal 1431-1 is caused to display a Stop aspect

Carrier's Operating Rules

4(B) Employees whose duties are in any way affected by timetable must, while on duty, have a copy of the current timetable *** in their possession

S-71 First class trains are superior to *** extra trains

S-87 An inferior train must clear the time of opposing superior trains not less than five minutes ***

104 ***

When a train or engine is on a siding or other track to be met or passed by a train, the employee who is to attend the switch must not go nearer the switch than the fouling point until the expected train has passed over the switch

106 The conductor and engineer *** are equally responsible for the safety of the train and the observance of the rules ***

802. Conductors and engineers must know that their subordinates are familiar with and perform their duties and comply with rules and special instructions. They must ascertain the extent of their subordinates' experience, instructing them when necessary, in the proper and safe performance of their work

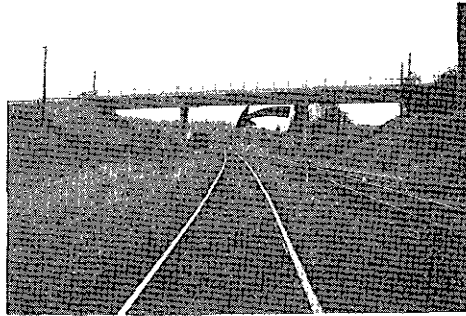
804 (A) Other members of the crew in cab of engine must give instant notice to the engineer of any signals or indication of danger or obstruction, ***

Authorized Speed

The maximum authorized speed for passenger trains in the territory involved is 79 m p h. In the immediate vicinity of Newport, however, westbound passenger trains are restricted to a maximum authorized speed of 45 m p h. beginning at a speed-restriction sign posted 3599 feet east of the east siding-switch

Sight Distance

A highway bridge spans the main track and an auxiliary track on the north, 470 feet east of the east siding-switch. In this area the main track is laid in a cut. Because of track curvature, the cut and supports for the highway bridge, enginemen of a westbound train have a restricted view of the east siding-switch and signal 1431-1 (see photograph on the following page)



View westward on main track from 875 feet east of signal 1431-1 (arrow). Auxiliary tracks at right and auxiliary-track switch at center were not involved in accident. East siding-switch is 47 feet beyond signal 1431-1.

Circumstances Prior to Accident

Train No. 31

This was a westbound first-class passenger train consisting of 3 car-body type diesel-electric units, 1 baggage car, 1 baggage-dormitory car, 4 coaches, 2 dome cars, 1 dining car and 3 sleeping cars, in that order.

No 31 left Troy at 8:05 p.m. the day of the accident. It passed Sandpoint, Idaho, 28.2 miles east of Newport, at 9:37 p.m., on time. Approximately 35 minutes later, while moving two or three minutes late, it approached Newport. According to the timetable, the train was scheduled to pass Newport at 10:10 p.m. As No 31 approached that point, the engineer and fireman were in the control compartment at the front of the first locomotive unit. The conductor and front brakeman were in the third car; the flagman was in the last car. The train brakes had been tested and had functioned properly when used en route.

Train Extra 6432 East

Extra 6432 East, an eastbound freight train consisting of 3 road-switcher type diesel-electric units, 73 cars and a caboose, left Hillyard at 8:35 p.m. the day of the accident and stopped at Mead, Wash. 4.9 miles eastward. After picking up one car at Mead, the train entered the single-track line involved and proceeded eastward on the main track. The engineer, fireman and front brakeman were in the control compartment at the front of the first diesel-electric unit. The conductor and flagman were in the caboose.

The front brakeman's normal occupation was that of a switchman at Hillyard.

The fireman had about three weeks experience at that occupation, and about seven months previous experience as a switchman. Because of the Washington State full-crew law, he was assigned to be a member of the train crew from Hillyard to Newport, which is on the Washington-Idaho state-line. He was to go off duty at Newport and return to Hillyard on a westbound freight train.

The Accident

No. 31

The speed-recording tape indicates No. 31 was moving westward on the main track at 46 m p h. when it passed the speed-restriction sign and signal 1430-5 located, respectively, 3599 and 3517 feet from the east siding-switch at Newport. Both enginemen said signal 1430-5 displayed a Clear aspect. Immediately after passing that signal, the train entered a 3°01' curve to the left and the engineer initiated a service brake application, which gradually reduced the speed. While the train was nearing the west end of the curve with its brakes applied, both enginemen, according to their statements, saw signal 1431-1 displaying a Clear aspect and called this aspect to each other. They stated that soon afterward, apparently as the train began to move under the highway bridge spanning the main track, they saw a proceed signal being given with a lighted lantern from a point in the vicinity of the east siding-switch at Newport, and the engineer acknowledged this signal by sounding the locomotive horn. Immediately afterward, however, both enginemen saw the aspect of signal 1431-1 change to Stop and also saw the target for the switch stand associated with the east siding-switch was displayed. This indicated to them that the switch was in improper position, lined for movement from the main track to the siding. The train was moving about 37 m p h at that time, as indicated by the speed-recording tape, and the engineer promptly applied the brakes in emergency. No. 31 then passed signal 1431-1 and entered the siding at the east switch. A few seconds later, when the speed had been reduced to 16 m p h., it collided head on with Extra 6432 East, 517 feet west of the switch.

The engineer jumped from the locomotive before the collision. The fireman proceeded to the engine room behind the control compartment and was in that engine room at the time of the impact.

Extra 6432 East

The engineer's statements indicate he was aware of the fireman's inexperience, but considered him to be above average compared to other inexperienced fireman he had worked with on previous occasions.

Some time after Extra 6432 East left Mead, the engineer and front brakeman had a discussion about where their train should clear the main track for No. 31 and decided it had sufficient time to proceed to Newport for that purpose.

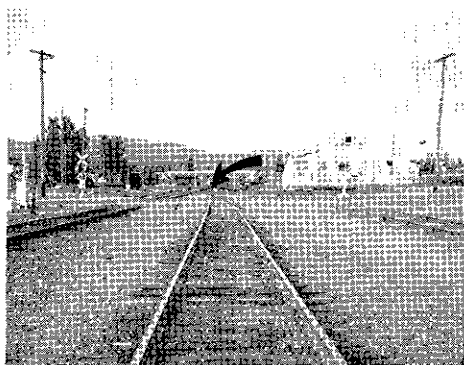
The fireman said he did not participate in the discussion, but knew it pertained to movements of opposing trains. He further said that he did not fully understand what the engineer and front brakeman were talking about, and that he did not have a copy of the current timetable in his possession, as required by the carrier's timetable rule No. 4(B).

About 10:00 p.m., Extra 6432 East stopped on the main track short of the west siding-switch at Newport. The front brakeman then moved that switch to reverse position, and the train began to enter the siding and clear the main track for No. 31 as required. About that time, according to his statements, the engineer asked the fireman if he would "highball" the east siding-switch when the train departed from Newport, i.e. line the switch for Extra 6432 East to re-enter the main track and restore it to normal position after the train moved through the switch and departed from Newport without stopping. Under similar circumstances, according to the engineer, it was common practice for a crew member of an eastbound freight train to do this when he was to go off duty at Newport and return to Hillyard on a westbound train. The engineer said the fireman assented to the request.

As Extra 6432 East was entering the Newport siding at the west switch, the engineer saw that an eastward block signal displayed a restrictive aspect, and this indicated to him that No. 31 had passed Priest River, Idaho, 6.6 miles east of Newport. According to his statements, he then told the fireman "Well, you won't have long to wait" and warned him twice to stay on the north side of the main track and at least 50 feet from the east siding-switch during the approach of the opposing train. About the same time, the front brakeman volunteered to operate the east siding-switch after the passage of No. 31. The engineer, however, reportedly declined this offer, stating that it was standard practice for the fireman to operate the switch under the existing circumstances.

At 10:13 p.m., after entering the Newport siding and clearing the main track for No. 31 as required, Extra 6432 East stopped on the siding with the front end near the station and short of the rail-highway grade crossing at Newport (see photograph on the following page).

Immediately before or after the train stopped on the siding, the fireman alighted from the locomotive and deposited his handbag inside the station. Both the engineer and front brakeman said the fireman returned to the locomotive, and then proceeded eastward toward the east siding-switch after being warned again to stay on the north side of the main track and at least 50 feet away from the east siding-switch during the approach of the opposing train. The engineer further stated that he then went to the steps at the rear of the first diesel-electric unit to answer a call of nature while the fireman walked toward the east siding-switch. Thinking that the fireman comprehended the situation and the instructions given him, the engineer did not watch his progress toward the east siding-switch.



View eastward on Newport siding from collision point, 517 feet west of east siding switch (arrow). Main track is at left. Signal 1431-1 shown on other side of main track at arrow.

In general, the front brakeman's statements corroborated those of the engineer. He remained in the control compartment at the front of the first locomotive unit as the fireman proceeded toward the east siding-switch. He said that he watched the fireman walk about half way to the switch, and was confident the fireman "knew exactly what he was supposed to do."

Statements made by the engineer and front brakeman do not indicate that either told the fireman specifically that Extra 6432 East had entered the Newport siding to meet No 31.

The fireman stated, "I knew we were heading in to meet a train but was not aware which train it was. While pulling through the siding, the engineer asked if I would line the switch to let them out. I do not believe he mentioned the passenger train. In my opinion, he was under the impression I knew what was going on." In answer to a query as to whether the engineer had instructed him not to approach the east siding-switch closely before the opposing train passed, the fireman replied "Yes he did, but I got mixed up."

The fireman could not recall having returned to the locomotive after depositing his handbag inside the Newport station. He stated that "As I left the depot I walked east on the left side of the main track looking for the switch to the siding. I had never lined this switch before. When I was half way to the switch, I crossed over to the right of the main track. It was blowing and raining real hard. I first found the spur-track switch but, after looking around, realized this was not the switch I was to throw. I continued to walk on the right side of the main track until I came to the switch at the east end of the passing track (siding). I turned and looked back at our train and couldn't

see anyone; the headlight was out but the classification and number lights were burning. I unlocked the switch lock, turned, and looked at our train once more. I was confused and didn't know what the engineer meant. I pulled the lock out, threw the switch, turned, and looked at our train again. I had my back to the passenger train. I heard a noise, train noise, I didn't hear a whistle. When I looked eastward, I could see the headlight of the passenger train; it was not very far away. I realized the switch was wrong, but did not have time to throw it back. I gave a stop sign with my lantern. I did not hear the engineer answer the stop sign with the locomotive horn. I continued to give the stop sign until the locomotive passed me."

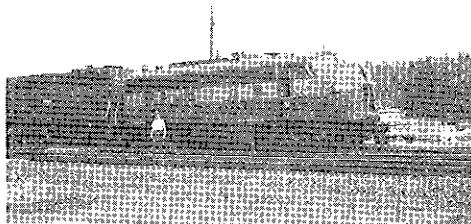
No. 31 entered the Newport siding at the east switch as it passed the fireman of Extra 6432 East. At that time, both the engineer and front brakeman of Extra 6432 East were in the control compartment at the front of their locomotive. Realizing a collision was imminent, they jumped from the locomotive before the impact occurred.

The fireman said he felt the accident was caused "by my not being familiar with the tracks and area, and because I just did not know what the engineer wanted me to do."

Damages

No. 31

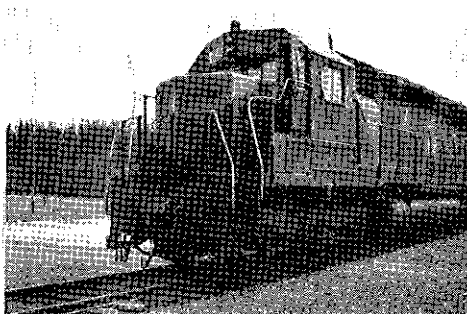
This train stopped with its front end against the front of Extra 6432 East at the collision point. Both trucks of the first locomotive unit; the left front wheel of the second unit; the rear truck of the third car, and all trucks of the fourth and fifth cars were derailed. The derailed equipment stopped upright on and in line with the siding structure. Damage to the train was relatively minor, as indicated in the following photograph of the first locomotive unit.



First locomotive unit of No. 31 with first unit of Extra 6432 East attached.

Extra 6432 East

No equipment of this train was derailed. Damage to the train was minor, as indicated in the photograph on the following page.



Front of first locomotive unit of Extra 6432 East

Cost of Damages

The carrier estimated the cost of damages to the track structure and equipment of both trains to be \$21,082

Casualties

The accident resulted in injury to the engineer and front brakeman of Extra 6432 East, and to the engineer, fireman, conductor, front brakeman, flagman, 1 porter, 1 lounge-car attendant, 5 dining-car employees, and 105 passengers on No 31.

Hours of Service

No. 31

At the time of the accident, both enginemen had been on duty 2 hours 13 minutes, after having an off-duty period of 9 hours 45 minutes. The other crew members had been on duty 4 hours 18 minutes, after having been off duty 11 hours 50 minutes.

Extra 6432 East

The crew members of this train had been on duty 2 hours 43 minutes at the time of the accident, after having been off duty over ten hours.

Crew Members of Extra 6432 East

Engineer

This employee, age 57, was first employed by the carrier as a fireman in August 1942, and was promoted to engineer in August 1952. His service record indicates that in July 1960, he was suspended from service for seven days due to excessive speed, and that in January 1964 a notation was entered in his record for a minor rule violation. He last

received instructions on rules and a physical examination in November 1968 and December 1969, respectively

Fireman

He was 23 years old, and was first employed as a switchman on August 12, 1968. On March 21, 1969, he resigned from service to return to college. His record indicates he completed two years of college, and returned to the carrier's service on May 12, 1970, less than one month before the accident. He then qualified for the position of fireman by making five trips as a student fireman and taking a short written and oral examination on the carrier's operating rules. According to his statements, the examination was completed in about 45 minutes.

Front Brakeman

This employee, age 52, was first employed as a laborer in February 1941. His record indicates that he was promoted to switchman in May 1941 and was last examined on the rules in November 1968. He was suspended for 5 days in July 1961 due to a violation of the carrier's air brake rule No. 44.

Analysis

The investigation revealed that because of inexperience and superficial training, the fireman of Extra 6432 East was unfamiliar with the carrier's operating rules and/or the application of those rules to train operations. It further revealed the engineer and front brakeman of Extra 6432 East were aware of the fireman's lack of experience and familiarity with the rules.

It is clear the fireman did not fully comprehend the reason for Extra 6432 East taking the siding at Newport and the instructions he received from the engineer with respect to attending the east siding-switch for the meet with No. 31. Because of this, the fireman became confused to the extent that he really did not know what he was supposed to do. As a result, he moved the east siding-switch to reverse, or improper, position immediately in front of No. 31, causing the train to be diverted to the siding and collide with the train occupying the siding.

Considering the hazards inherent in the meeting of trains on a single-track line in non-traffic control territory, the inexperience of the fireman, and the availability of an experienced front brakeman, it is quite apparent the engineer erred in judgment when he declined the offer of the front brakeman to attend the east siding-switch and requested the inexperienced fireman to attend the switch instead. That he felt some misgiving about sending the fireman to attend the switch seems obvious, considering his allegation that he thrice instructed the fireman as to how he should attend the switch. It is apparent, however, that after reiterating the instructions, the engineer felt the fireman would surely remain away from the switch, as required, until No. 31 had passed.

As a result of misplaced confidence in the fireman, neither the engineer nor the front brakeman maintained a lookout ahead to ascertain whether the fireman stayed away from the east siding-switch, as required, until No. 31 had passed. Had either maintained this lookout, it is possible he could have averted the accident by signaling the fireman to move away from the switch when he looked back toward his train just before moving the switch to reverse position in front of No. 31.

Findings

1 No. 31 was moving in accordance with applicable rules and regulations when the east switch of the Newport siding was moved to reverse position immediately in front of that train. There was insufficient braking distance to prevent No. 31 from entering the siding at the improperly lined switch or from colliding with the train occupying the siding.

2 Extra 6432 East entered the Newport siding and cleared the main track to meet No. 31 in accordance with applicable rules.

3 The fireman of Extra 6432 East was inexperienced and had only superficial training. He was apparently unfamiliar with the carrier's operating rules and/or the application of those rules. Both the engineer and front brakeman of Extra 6432 East were aware of his inexperience.

4 Apparently due to not having a timetable in his possession, as required by the carrier's operating rule No. 4(B), and to not being informed by either the engineer or front brakeman, the fireman was unaware of the identity of the opposing train to be met at Newport by Extra 6432 East.

5 Subsequent to his train stopping on the Newport siding, the inexperienced fireman walked forward under inclement weather conditions to attend the east siding-switch. He had received instructions from the engineer to remain on the north side of the main track (the side opposite that of the switch stand for the east siding-switch) and at least 50 feet away from the switch during the approach of the opposing train. The engineer's instructions were not fully in accordance with the carrier's operating rule No. 104, which required the fireman to not go nearer the switch than the fouling point, 195 feet distant.

6 Apparently due to confusion arising from his surroundings and lack of full understanding of the engineer's instructions and the circumstances under which his train entered the siding, the inexperienced fireman proceeded to the east siding-switch and moved it to reverse position immediately in front of No. 31, causing the accident.

7. Significant causal factors in the accident appear to be (a) the engineer permitting the inexperienced fireman to attend the east siding-switch and declining the experienced front brakeman's offer to attend that switch, (b) failure of the engineer and front brakeman to watch the fireman's progress toward the switch and see whether he attended the switch properly, and (c) the fireman's lack of adequate training relative to operating rules and the application of the rules to train operations

Dated at Washington, D C , this 25th
day of June 1971
By the Federal Railroad Administration

Mac E Rogers, Director
Bureau of Railroad Safety