

SP-20

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

Log R-510

ISSUED: May 24, 1985

Forwarded to:

Mr. R. D. Sanborn
President and Chief Executive Officer
Seaboard System Railroad
500 Water Street
Jacksonville, Florida 32202

SAFETY RECOMMENDATION(S)
R-85-22

At 9:30 a.m. on April 10, 1984, 18 cars of eastbound Seaboard System Railroad freight train FERHL derailed at Marshville, North Carolina, following the failure of a freight car axle journal as a result of the journal overheating. Two of the four derailed tank cars loaded with methanol, a flammable liquid, were breached during the derailment, and the released methanol was ignited. Three buildings and four automobiles were destroyed by the fire. An estimated 2,100 persons within a 1-mile radius of the accident site were evacuated, U.S. Highway 74 was closed, and the fire was allowed to burn until it subsided at 10 p.m. on the day of the accident. One person received a minor injury during the evacuation. Damage was estimated to be \$1,383,000. 1/

The traincrew had three opportunities to detect the journal problem and to prevent the derailment, and on each occasion they failed to take proper action. The engineer received a radio message stating that smoke had been observed coming from a journal on car SAL 45678 (the 47th car), which was transporting pulpwood. The engineer did not repeat the message he had received to the crewmembers at the rear of the train; rather he advised them that a car loaded with pulpwood had a sticking brake. Had the engineer repeated exactly the message he received and had one of the crew performed a proper inspection of car SAL 45678, the overheated journal could have been identified, and the car would have been removed from the train. Instead, the rear brakeman, using the information provided by the engineer, located and released a sticking brake on one of the pulpwood cars (the 44th through 49th cars), and the train proceeded.

1/ For more detailed information read Railroad Accident Report — "Seaboard System Railroad Freight Train FERHL Derailment and Fire, Marshville, North Carolina, April 10, 1984" (NTSB/RAR-85/05)

The second opportunity the traincrew had to identify the overheated journal was when a hotbox detector provided an alarm by radio and a message that the left journal on the 157th axle from the rear of the 362-axle train was overheating. The front brakeman, using procedures differing from those established by Seaboard for identifying a suspect car after receipt of an alarm from a hotbox detector, looked for an overheated journal on the car identified by his calculations and count of the cars as they were pulled by his location beside the track. The front brakeman stated that he used his bare hands to feel the journals of five cars on each side of the car initially inspected, with the rearmost car being the 50th car from the locomotive. His statement cannot be correct. Such an inspection would have included the overheated journal on the 47th car, which would have burned his bare hand if placed against the journal even momentarily. Since many of the cars he allegedly inspected were transporting pulpwood, it might be expected that the front brakeman would have related this information to the earlier radio transmission. Had he related the two events, he might have had more confidence in the validity of the hotbox detector alarm and rechecked his computations for using the information provided by the hotbox detector. Moreover, an instruction he received from the conductor to obtain information from the journal on the 43rd car in the train rather than the one he initially inspected also should have alerted the front brakeman that he might have made a mistake in his computations using the hotbox detector information. Had the front brakeman begun his inspection at the 43rd car and properly inspected five cars in each direction, this inspection should have detected the overheated journal.

The third opportunity the traincrew had to identify the overheated journal was when the train was stopped to set out cars and to add a locomotive. At this location and in violation of Seaboard Operating Rule No. 111, the conductor took no action to cause the train to be inspected despite the earlier report of smoke and the hotbox detector alarm. Even absent the previous difficulties, the conductor was responsible for requiring an inspection of the train to comply with Seaboard's operating rules.

The actions of each of the train crewmembers demonstrated a less-than-adequate understanding of Seaboard's operating rules even though each crewmember had many years of experience and each previously had passed required tests. The annual testing performed by Seaboard of its crewmembers, which according to Seaboard is representative of the industry practice, does not test fully a crewmember's knowledge of the operating rules because the tests are not comprehensive and because Seaboard has a policy of coaching employees on questions missed and then allowing them to immediately take the same test to meet the examination requirements. Such testing procedures only determine a crewmember's short-term memory of the rules included in the examination.

Seaboard contends that its annual rules examination actually constitutes training rather than testing. Further, it contends that it determines its employees' knowledge of the operating rules through its program of monitoring traincrew performance. The Safety Board agrees that the annual rules examination could better be characterized as training rather than testing of employees, but does not agree that Seaboard's present monitoring of train operations is adequate for determining a crew's knowledge or application of the operating rules. At the same time, the Safety Board believes that what Seaboard calls its training program does not even constitute a training program in comparison to training programs used on some more progressive railroads and throughout other sectors of the transportation community. While the operations of each crew are to be monitored, the crewmembers involved in this accident, according to Seaboard's records, had never been

monitored to determine if each knew how to use information provided by hotbox detectors for locating overheated journals. Also, Seaboard has no specific proficiency test to determine if crewmembers understand what each is to do in the event of an emergency, such as a derailment, that involves the release or potential release of hazardous materials.

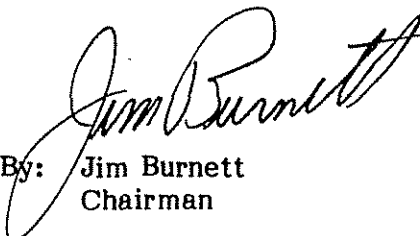
Seaboard has the responsibility to determine not only that its crewmembers are knowledgeable of its operating rules, but that crewmembers know how to apply the rules and that the rules are consistently followed. Programs appear to be in place for achieving these objectives, but this accident and others investigated by the Safety Board demonstrate that the programs and their administration by Seaboard officials are not accomplishing the desired results. While the annual training and rules testing may enhance a crewmember's current knowledge on selected rules, it does not ensure that a crewmember knows all operating rules. Moreover, the on-the-job monitoring of crewmember activities is ineffective because all crews are not monitored periodically on all rules, and crews are not monitored at sufficiently frequent intervals to ensure consistent compliance. Seaboard furnished information concerning the efficiency testing (operational testing and inspection) of the members of this traincrew for a period of approximately 4 years prior to this accident. During this time, Seaboard was in the process of phasing in a new test program. This information disclosed that the engineer had not been monitored on approximately 39 percent of the applicable tests, the conductor on approximately 38 percent, the front brakeman on approximately 41 percent, and the rear brakeman on approximately 37 percent. The information furnished by Seaboard revealed that none of the crewmembers of this train had been tested for proper performance at a hotbox detector during the period of time the information covered. The failure of Seaboard to enforce its efficiency test program not only reduces the level of safety for the crews, but endangers the public as well. Seaboard should enforce its policy requiring officials to monitor periodically each operating employee to ensure that each employee understands and complies with every company rule, timetable instruction, and bulletin applicable to the proper and safe performance of assigned duties and to correct deficiencies detected.

Therefore, the National Transportation Safety Board recommends that the Seaboard System Railroad:

Immediately institute a program that requires that each traincrew member is monitored periodically on every applicable operational test.
(Class II, Priority Action) (R-85-22)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in this recommendation.


By: Jim Burnett
Chairman