4910-06-P

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

Safety Advisory 2012-02; Restricted Speed

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Notice of Safety Advisory.

SUMMARY: FRA is issuing Safety Advisory 2012-02 to remind railroads and their employees of the importance of compliance with relevant railroad operating rules when trains and locomotives are to be operated at restricted speed. This safety advisory contains a preliminary discussion of recent train accidents involving a failure to operate at restricted speed and makes recommendations to railroads to ensure employee compliance with the requirements of restricted speed operating rules.

FOR FURTHER INFORMATION CONTACT: Douglas H. Taylor, Staff Director, Operating Practices Division, Office of Railroad Safety, FRA, 1200 New Jersey Avenue, SE., Washington, DC 20590, telephone (202) 493-6255; or Joseph St. Peter, Trial Attorney, Office of Chief Counsel, FRA, 1200 New Jersey Avenue, SE., Washington, DC 20590, telephone (202) 493-6047.

SUPPLEMENTARY INFORMATION:

Background

The overall safety of railroad operations has improved in recent years. However, a series of accidents has highlighted the need for railroads to review, reemphasize, and adhere to railroad operating rules and procedures governing the requirements of restricted speed, particularly those involving wayside signals requiring the operation of trains at restricted speed. Railroad operating rules governing restricted speed require that train crews be prepared to stop within one-half their range of vision. During the previous 12 months, the railroad industry has experienced six rear end collisions that resulted in four employee fatalities, eight employee injuries, and more than $6 million in FRA-reportable railroad property damage. It appears these six incidents may have occurred because the train crews did not properly identify and comply with block and interlocking signal indications that required operation of their trains at restricted speed.

NTSB Recommendations

On January 12, 2012, in response to five of the six aforementioned rear end collisions, the National Transportation Safety Board (NTSB) issued two safety recommendations.[1] NTSB Safety Recommendations R-11-6 and R-11-7 contain descriptions of the events surrounding those five collisions, and recommend that FRA:

- Through appropriate and expeditious means, such as issuing and posting advisory bulletins on [FRA's Web site], advise all railroads of the occurrences of the following five recent rear end collisions of freight trains in which crewmembers failed to operate their trains at the required restricted speed: (1) Red Oak, IA, on April 17, 2011; (2) Low Moor, VA, on May 21, 2011; (3) Mineral Springs, NC,

[1] Available online at NTSB's Web site: http://www.ntsb.gov/doclib/recletters/2011/R-11-006-007.pdf.

on May 24, 2011; (4) DeWitt, NY, on July 6, 2011; and (5) DeKalb, IN, on August 19, 2011. (R-11-6).

- Through appropriate and expeditious means, inform [FRA's] inspectors of the details of these accidents to ensure railroads' compliance with restricted speed requirements. (R-11-7).

Publication of this safety advisory is among the ongoing efforts FRA has undertaken to address these NTSB recommendations and to improve railroad safety generally.

Recent Incidents

The following is a brief summary of the circumstances surrounding each of the recent rear end collisions that appeared to involve a failure to comply with the requirements of restricted speed operating rules. Information regarding these incidents is based on FRA's preliminary investigations and findings to date. The probable causes and contributing factors, if any, have not yet been established. Therefore, nothing in this safety advisory is intended to attribute a cause to these incidents, or place responsibility for these incidents on the acts or omissions of any person or entity.

1. On April 17, 2011, at approximately 7:00 a.m., an eastbound BNSF Railway coal train collided with the rear of a stopped maintenance-of-way train at a recorded speed of 22 mph in Red Oak, Iowa. The two crewmembers of the striking coal train were fatally injured. Just prior to the collision, the coal train had passed an intermediate automatic block signal displaying a red aspect. This signal was affixed with a qualifying appurtenance (grade marker), meaning the signal indication required the train to proceed at restricted speed (without being first

required to stop). As the coal train descended a slight grade, it impacted the rear of the standing maintenance-of-way train. Several cars were derailed and there was a subsequent fire on the lead locomotive of the striking train. Event recorder data indicates that no manipulation of the striking locomotive's controls occurred prior to the collision.

2. On May 21, 2011, at approximately 11:40 a.m., an eastbound CSX Transportation, Inc. (CSX) road switcher collided with the rear of a standing grain train at Low Moor, Virginia. The switcher was traveling at a recorded speed of 13 mph at the time of the collision. FRA's preliminary investigation indicates that the train had passed an intermediate automatic block signal indicating that the train was to proceed at restricted speed. However, the train crew was not prepared to stop their train within one-half the range of vision of the standing train. The collision resulted in the derailment of the lead engine of the road switcher, and the rear car of the grain train.
3. On May 24, 2011, at approximately 3:45 a.m., a northbound CSX intermodal train collided with the rear of a standing aggregate (rock) train near Mineral Springs, North Carolina. The incident resulted in fatal injuries to the two crewmembers on board the striking intermodal train. The intermodal train was following the rock train, and had passed a dark (non-illuminated) intermediate automatic block signal. Under CSX operating rules, a dark signal is to be treated as an imperfectly displayed signal and regarded as the most restrictive indication that could be conveyed by that signal. Thus, in this case, the crew should have proceeded at restricted speed. However, after passing the signal, the train crew did not operate

their train prepared to stop within one-half their range of vision, and subsequently struck the rear of the standing rock train at a recorded speed of 47 mph.

4. On July 6, 2011, at approximately 12:20 p.m, an eastbound CSX merchandise train collided with the rear of a standing intermodal train in DeWitt, New York. Several train cars derailed, and both crewmembers of the striking train were seriously injured when they jumped from the locomotive at a speed of approximately 30 mph immediately prior to the collision. FRA's preliminary investigation indicates alleged confusion on the part of the crew of the striking train with regard to the aspect and indication displayed by the last interlocking signal they had passed immediately preceding the collision. The preliminary investigation also indicates that the signal was conveying the proper indication for the condition of the block, i.e., "Restricting" (red over steady yellow aspect). The results of the signal download support this conclusion. Both employees involved in this incident had operated daily over this territory and should have been familiar with the signal aspects.
5. On August 19, 2011, at approximately 5:45 a.m., a westbound Norfolk Southern Railway ballast train collided with the rear of a standing grain train at a speed of 20 mph in DeKalb, Indiana. The accident resulted in the derailment of two locomotives and 10 cars of the striking train, and blocked a major east/west National Railroad Passenger Corporation (Amtrak) passenger train route. The striking train had passed a controlled signal that conveyed an "Approach" indication at a speed of 45 mph and subsequently an intermediate automatic block signal conveying a "Restricting" indication immediately preceding the accident at

a speed of 50 mph. Prior to the collision, the crew of the striking train made an emergency brake application and slowed the train to approximately 20 mph at impact.

6. On January 6, 2012, at approximately 2:26 p.m., a westbound CSX merchandise train collided with the rear of a standing ethanol train near Westville, Indiana. The collision resulted in the derailment of both locomotives of the striking train and cars from both trains. Subsequently, an intermodal train operating in the same (westbound) direction on the adjacent main track encountered the accident and collided with derailed equipment. The ethanol train was standing at a controlled signal indicating "Stop," waiting for the signal to clear. Prior to impact, the initial striking train (the merchandise train) had just passed an intermediate automatic block signal that conveyed a "Restricting" indication and entered the occupied block in excess of 40 mph. The collision resulted in a debris field that blocked the adjacent main track. The westbound intermodal train, operating on the adjacent main track on a "Clear" signal indication, approached the accident site unaware of the impending collision. The crew of the intermodal train saw the wreckage and initiated an emergency application of the train's brakes before their train struck the derailed equipment. This incident resulted in serious injuries to employees and significant damage to property, but fortunately no fatalities.

Historically, the railroad industry has reported the cause of these type of rear end collisions as "automatic block or interlocking signal displaying other than a stop indication – failure to comply", as the above facts indicate noncompliance with automatic

block or interlocking signals that conveyed indications requiring the striking trains to proceed at restricted speed. However, main track rear end collisions are seldom the result of a single factor or cause. Preliminary investigations of the above-described collisions have established that they likely resulted from a combination of unrelated factors, some of which include: employee fatigue; distraction due to the improper use of cell phones; work-related discussions in the cab of the controlling locomotive; alleged confusion over signal indications; and, what FRA refers to as "self dispatching." Self-dispatching is the operation of a train based on assumptions about the locations of other trains. These assumptions are sometimes developed through overheard radio conversations among other train crewmembers.

Operating employees must work together as a team, because they work in an environment which is often without on-site managerial oversight. Both the locomotive engineer and conductor of a train are equally responsible for safe operation of their train and compliance with railroad operating rules. Indeed, both the engineer and conductor, and any other crewmembers present in the controlling locomotive of a train, must remain vigilant and must assist each other in the safe operation of the train. As the above accidents indicate, even slight lapses in situational awareness, particularly when operating trains on "Approach" and "Restricting" signal indications can lead to tragedy. An environment must be created and maintained in the locomotive control compartment where the crew exclusively focuses on properly controlling the train in compliance with the operating rules.

A railroad's safety culture must support employees' undisturbed attention to the tasks at hand without the distraction of electronic devices or the loss of situational

awareness due to fatigue. All train crewmembers must maintain this enhanced level of awareness. Initial investigations of the accidents described above indicate that the crewmembers involved were properly trained, experienced, and were qualified on the territory over which they operated. However, in every case, it appears that there was a lack of attentiveness to the signal indications being conveyed prior to the collisions. This discussion is not intended to place blame or assign responsibility to individuals or railroad companies, but simply to point out that a culture of operating rules compliance must be everyone's job. Peer support for the railroad employees who perform each task in the prescribed manner helps individuals maintain responsibility for their own safety.

RECOMMENDED RAILROAD ACTION: In light of the above discussion, FRA recommends that railroads:

1. Review with operating employees the circumstances of the six rear end collisions identified above.
2. Discuss the requirements of restricted speed and related operational tests at future instructional classes (and also as part of ad hoc coaching and briefings) for operating employees, with a focus on the railroad's absolute speed limit for such operations, as well as requirements that ensure the ability to stop in one-half the range of vision. Special emphasis should be placed on situations in which the range of vision is limited (e.g., curves).
3. Evaluate quarterly and 6-month reviews of operational testing data as required by Title 49 Code of Federal Regulations (CFR) section 217.9, and, as appropriate, increase the level of operational testing with regard to the operation of trains on main tracks at restricted speed. A representative number of operational tests

should be conducted on trains following other trains into an occupied block, particularly in high-density corridors. Operational tests should also include a review of locomotive event recorder data to verify compliance with restricted speed requirements.

4. Reinforce the importance of communication between crewmembers located in the controlling locomotive, particularly during safety critical periods when multiple tasks are occurring, including such activities as copying mandatory directives; closely approaching or passing fixed signals that require trains to operate at restricted speed; approaching locations where trains' movement authority is being restricted; and during radio conversations with other employees or job briefings about work to be done at an upcoming location.
5. Review with operating employees the requirements of subpart C of 49 CFR part 220, and reinforce that the improper use of electronic devices during safety critical periods often leads to a loss of situational awareness and resultant dangers.

FRA encourages railroad industry members to take actions that are consistent with the preceding recommendations and to take other actions to help ensure the safety of the Nation's railroad employees. FRA may modify this Safety Advisory 2012-02, issue additional safety advisories, or take other appropriate actions it deems necessary to ensure the highest level of safety on the Nation's railroads, including pursuing other

corrective measures under its rail safety authority.

Issued in Washington, DC, on April 20, 2012.

Robert C. Lauby
Acting Associate Administrator for Railroad Safety/Chief Safety Officer

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