

**DEPARTMENT OF TRANSPORTATION**

**Federal Railroad Administration**

**[Safety Advisory 2013-03]**

**Kicking Cars and Going Between Rolling Equipment During Flat Switching Operations**

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

**ACTION:** Notice of Safety Advisory.

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**SUMMARY:** A fatality occurred during a railroad switching operation that involved a railroad employee kicking cars and subsequently going between rolling equipment. In response, FRA is publishing this Safety Advisory 2013-03 to make recommendations to railroads regarding the adoption of car-handling procedures during flat switching operations at certain locations and to re-emphasize the importance of following procedures when going between rolling equipment due to the hazards involved. FRA previously made related recommendations to railroads and their employees regarding going between rolling equipment in Safety Advisory 2011-02.

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**SUPPLEMENTARY INFORMATION:** The overall safety of railroad operations has improved in recent years. However, in July 2012, a fatal event occurred during a switching operation which involved a railroad employee going between rolling equipment after kicking<sup>1</sup> two loaded tank cars up a 0.2-percent ascending grade. This 2012 incident illustrates the safety risks that are present when railroads allow the kicking of cars in flat switching operations at locations where the cars will likely roll back out toward the employees conducting such operations if the cars do not couple to secured standing equipment as intended. This incident also highlights the need for the railroad industry to again focus its attention on compliance with safety rules and procedures that apply to employees who, in the course of their work, must place themselves between rolling equipment.

As background, FRA previously published a safety advisory regarding the importance of following procedures when going between rolling equipment. Safety Advisory 2011-02<sup>2</sup> was issued in response to a series of fatal switching accidents that also involved employees placing themselves between rolling equipment. As discussed in that safety advisory, FRA previously established a group of industry stakeholders to examine and address a past trend of increasing deaths occurring during railroad switching operations. The group included representatives from both industry and labor organizations, and was named the Switching Operations Fatality Analysis (SOFA) Working Group. In 1999, the SOFA Working Group issued a report that contained five major findings with an accompanying recommendation and discussion for each finding.<sup>3</sup> The first of these five recommendations is directly applicable to

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<sup>1</sup> As referenced in 49 C.F.R. § 218.99(a)(2), kicking cars refers to the common railroad switching practice of shoving or pushing rolling equipment and then uncoupling the equipment and allowing it to roll free.

<sup>2</sup> 76 Fed. Reg. 62894 (Oct. 11, 2011).

<sup>3</sup> See “Findings and Recommendations of the SOFA Working Group”; available online at: <http://www.fra.dot.gov/eLib/details/L03078>. More recently, in March 2011, the SOFA Working Group issued a

situations where employees go between rolling equipment, or otherwise foul track or equipment. That recommendation reads as follows:

Any crew member intending to foul track or equipment must notify the locomotive engineer before such action can take place. The locomotive engineer must then apply locomotive or train brakes, have the reverser centered, and then confirm this action with the individual on the ground. Additionally, any crew member that intends to adjust knuckles/drawbars, or apply or remove EOT device, must insure that the cut of cars to be coupled into is separated by no less than 50 feet. Also, the person on the ground must physically inspect the cut of cars not attached to the locomotive to insure that they are completely stopped and, if necessary, a sufficient number of hand brakes must be applied to insure the cut of cars will not move. [Emphasis added]

Most railroads have procedures similar to those described in this SOFA recommendation, and other railroads have adopted or modified their procedures to be utilized when going between rolling equipment to respond to this recommendation. However, as discussed further below, in flat switching operations where cars are kicked into a coupling rather than shoved, it may be more difficult for railroad employees engaged in such operations to make the determination that cars not attached to the locomotive are stopped and secured in compliance with this SOFA recommendation. That difficulty in making the determination that cars are stopped and secured is heightened at locations where grade or other conditions can cause kicked cars to roll back out towards crews conducting switching operations, and correspondingly can lead to increased safety risks when employees then have to place themselves between rolling equipment.

### INCIDENT SUMMARY

As noted above, Safety Advisory 2011-02 discussed the circumstances surrounding five switching fatalities that occurred between 2009 and 2011. The following is an overview

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report titled "Findings and Advisories of the SOFA Working Group"; available online at: <http://www.fra.dot.gov/eLib/details/L03071>.

of the circumstances surrounding the most recent fatal switching incident that occurred in July 2012. Information regarding this incident is based on FRA's preliminary investigatory findings. The probable cause of this incident has not yet been established. Accordingly, nothing in this safety advisory is intended to attribute a definitive cause to this incident, or place responsibility for the incident on the acts or omissions of any specific person or entity.

- On July 31, 2012, at approximately 2:30 a.m., a conventional three-person crew, consisting of an engineer, a footboard yardmaster, and a conductor/switchman (switchman) were conducting switching operations. The crew kicked—rather than shoved—two loaded tank cars southward into a yard track with the goal of coupling them to other cars that had been previously placed into the yard track and secured. The yard track had a 0.2-percent ascending grade (southward). The switchman had originally positioned himself to verify that the cars kicked into the track coupled to the standing equipment. However, after the footboard yardmaster was not able to uncouple the cars and kick them into the track, he shoved the cars toward the switchman's location so that the switchman could make the cut and kick the cars into the standing equipment. After the two tank cars were kicked into the yard track by the switchman, he noticed that the knuckle on the last car of the block of cars still attached to the crew's locomotive had fallen to the ground and needed to be reinserted. The switchman then informed the crew that the knuckle pin was missing. Following applicable railroad rules, prior to reinserting and adjusting the knuckle, the switchman first requested and received "Red Zone" protection. However, the two loaded tank cars that had previously been kicked into the yard track did not couple to the standing cars on that track as intended, and the uncoupled cars rolled back northward. As the

switchman adjusted the knuckle, the two loaded tank cars struck him and the standing equipment attached to the locomotive. The conductor sustained fatal injuries.

In the incident discussed above, the switchman did not physically inspect the cut of cars to verify that they were stopped and secured prior to going between them and the cars still attached to the locomotive. Further, because the tank cars were kicked toward the standing equipment rather than shoved into a coupling, and, thus, not stretched as is standard railroad operating practice to ensure that a coupling is made, it may have been more difficult for the switchman to ascertain whether the cars had coupled. These factors became particularly significant because the switching operation occurred on a track with a 0.2-percent grade, and because the sloshing action that typically occurs in loaded tank cars can cause the cars to roll in the opposite direction after they have stopped. Environmental factors such as the time of day (light) and noise interference from a refrigerated car standing approximately 50 feet away from the incident location on an adjacent track may have also interfered with the employee's ability to see and hear the two approaching free rolling tank cars. In addition, during flat switching operations when cars are kicked into a coupling, and, thus, have to roll free for a certain distance, employees are often physically located farther from the location where a coupling is to be made than if the cars are shoved into a coupling, dependent on the number of cars to be cut off and distance that the cars have to travel into a track. The farther an employee is from the location of an intended coupling, the more difficult it may be to make a proper determination that cars are stopped and secured.

As a result, in such situations, it is imperative that railroad employees adhere to—and the railroads require—verification that the cars the employees go between are completely stopped, and, if necessary, secured with handbrakes. Depending on a track's grade and the

type of equipment being switched, kicking cars rather than shoving them into a coupling increases safety risks because if the kicked cars fail to couple, there is a likelihood that the equipment may roll backward toward employees who have to place themselves between rolling equipment in the course of conducting switching operations. Thus, one of FRA's recommendations below is that railroads adopt procedures to prohibit crews from kicking cars in flat switching operations at locations where the physical characteristics make it likely that such cars will roll back out toward the crew if a proper coupling is not made.

The discussion contained in this safety advisory is not intended to place blame on or assign responsibility to individuals or railroads, but rather to emphasize the fact that a culture of safety and rules compliance is everyone's responsibility. FRA encourages railroad management to adopt and adhere to policies that promote the safest course of action in conducting switching operations, particularly by taking into account unique characteristics that exist at different locations when adopting those policies. Further, a culture of performing each task safely and as instructed in training in accordance with applicable railroad operating rules must be reinforced not only by management, but by railroad employees as well. Railroad management must positively reinforce, via job briefings and other appropriate means, safe job performance in accordance with established rules and procedures. Support from railroad management and positive peer pressure from fellow railroad employees encouraging individuals to perform each task in a safe manner via the proper procedures will help railroad employees maintain responsibility for their own safety.

**RECOMMENDED RAILROAD ACTION:** In light of the above discussion, and in an effort to maintain a heightened sense of vigilance among railroads and their employees who conduct switching operations, FRA recommends that railroads:

(1) Review with their employees the circumstances of the fatal incident described in this Safety Advisory 2013-03.

(2) Evaluate locations where flat switching operations are conducted and identify those where the physical characteristics and the types of cars being switched heighten the possibility that cars will roll out toward the employees conducting such operations. After identifying such locations, FRA recommends that railroads adopt procedures requiring that cars be shoved into couplings rather than kicked during such operations in an effort to lessen the potential safety risks, particularly when employees have to go between equipment.

(3) Review with their employees, including management employees, SOFA Safety Recommendation # 1, *Adjusting Knuckles, Adjusting Drawbars, and installing End of Train Devices*, reproduced above, and communicate its procedures implementing that recommendation to employees working in yards or other locations where the possibility of entering between rolling equipment exists. FRA recommends that railroads place emphasis on the portion of SOFA Safety Recommendation #1 discussing the need to ensure that equipment not attached to the locomotive is stopped, and is secured with handbrakes when necessary, before employees go between rolling equipment. Inherent in complying with SOFA Safety Recommendation #1 is recognition of the physical characteristics of the track on which switching operations are being conducted and the rolling characteristics of the type of equipment being switched, particularly as related to the handling of loaded tank cars.

(4) Re-emphasize the recommendations contained in previous Safety Advisory 2011-02 with all of their employees, including railroad management.

FRA encourages railroad industry members to take actions that are consistent with the preceding recommendations, and to take other complementary actions to help ensure the

safety of the Nation's railroad employees. FRA may modify this Safety Advisory 2013-03, issue additional safety advisories, or take other appropriate actions 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

Joseph C. Szabo  
Administrator