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49 CFR Part 232

Securement of Unattended Equipment; Final Rule

**DEPARTMENT OF TRANSPORTATION****Federal Railroad Administration****49 CFR Part 232**

[Docket No. FRA–2014–0032, Notice No. 2]

RIN 2130–AC47

**Securement of Unattended Equipment**

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

**ACTION:** Final rule.

**SUMMARY:** FRA amends the brake system safety standards for freight and other non-passenger trains and equipment to strengthen the requirements relating to the securement of unattended equipment. Specifically, FRA codifies many of the requirements already included in its Emergency Order 28, Establishing Additional Requirements for Attendance and Securement of Certain Freight Trains and Vehicles on Mainline Track or Mainline Siding Outside of a Yard or Terminal. FRA amends existing regulations to include additional securement requirements for unattended equipment, primarily for trains transporting poisonous by inhalation hazardous materials or large volumes of Division 2.1 (flammable gases), Division 3 (flammable or combustible liquids, including crude oil and ethanol), and Class 1.1 or 1.2 (explosives) hazardous materials. For these trains, FRA also provides additional communication requirements relating to job briefings and securement verification. Finally, FRA requires all locomotives left unattended outside of a yard to be equipped with an operative exterior locking mechanism. Attendance on trains is required on equipment not capable of being secured in accordance with the proposed and existing requirements.

**DATES:** This final rule is effective October 5, 2015. Petitions for reconsideration must be received on or before September 25, 2015. Petitions for reconsideration will be posted in the docket for this proceeding. Comments on any submitted petition for reconsideration must be received on or before November 9, 2015.

**ADDRESSES:** *Petitions for reconsideration and comments on petitions for reconsideration:* Any petitions for reconsideration or comments on petitions for reconsideration related to this docket may be submitted by any of the following methods:

- *Web site:* Federal eRulemaking Portal, <http://www.regulations.gov>.

Follow the online instructions for submitting documents.

- *Fax:* 202–493–2251.
- *Mail:* Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., Room W12–140, Washington, DC 20590.

- *Hand Delivery:* Room W12–140 on the Ground level of the West Building, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m. ET, Monday through Friday, except Federal holidays.

*Instructions:* All submissions must include the agency name and docket number or Regulatory Identification Number (RIN) for this rulemaking. Note that all submissions received will be posted without change to <http://www.regulations.gov> including any personal information. Please see the Privacy Act heading in the “Supplementary Information” section of this document for Privacy Act information related to any submitted comments or materials.

*Docket:* For access to the docket to read background documents or comments received, go to <http://www.regulations.gov> at any time or to Room W12–140 on the Ground level of the West Building, 1200 New Jersey Avenue SE., Washington, DC between 9 a.m. and 5 p.m. Monday through Friday, except Federal Holidays.

**FOR FURTHER INFORMATION CONTACT:** Steven Zuiderveen, Railroad Safety Specialist, Motive & Power Equipment Division, Office of Safety Assurance and Compliance, Federal Railroad Administration, RRS–14, West Building 3rd Floor, 1200 New Jersey Avenue SE., Washington, DC 20590 (telephone: 202–493–6337); Jason Schlosberg, Trial Attorney, Office of Chief Counsel, RCC–10, Mail Stop 10, West Building 3rd Floor, Room W31–207, 1200 New Jersey Avenue SE., Washington, DC 20590 (telephone: 202–493–6032).

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**I. Executive Summary***Purpose of the Regulatory Action*

While FRA’s existing securement regulations have been successful in mitigating risks associated with the unintended movement of unattended equipment, FRA recognizes that—particularly in light of certain incidents like the 2013 accident in Lac-Mégantic, Quebec, Canada—additional requirements are warranted when such equipment includes certain hazardous materials that can contribute to high-consequence events. To address these concerns, FRA issued Emergency Order 28, 78 FR 48218, Aug. 7, 2013, engaged in proceedings with the Railroad Safety Advisory Committee to draft recommended regulations, and issued a responsive notice of proposed rulemaking (NPRM) and this instant final rule. FRA is issuing this final rule pursuant to the authority granted to the Secretary of Transportation in 49 U.S.C. 20102–20103, 20107, 20133, 20141, 20301–20303, 20306, 21301–20302, 21304; 28 U.S.C. 2461, note; which the Secretary has delegated to the Administrator of FRA pursuant to 49 CFR 1.89.

*Summary of the Major Provisions of the Regulatory Action*

In this proceeding, FRA issues requirements to ensure that each locomotive left unattended outside of a yard is equipped with an operative exterior locking mechanism and that such locks be applied on the controlling locomotive cab door when a train is transporting tank cars loaded with certain hazardous materials. This rule provides that such hazardous materials trains may only be left unattended on a main track or siding if justified in a plan adopted by the railroad, accompanied by an appropriate job briefing, and proper securement is made and verified. This rule also requires additional verification of securement in the event that a non-railroad emergency responder

may have been in a position to have affected the equipment.

*Costs and Benefits of the Proposed Regulatory Action*

In this rule, the benefits (\$1,163,669 at a 7% discount, \$1,579,240 at a 3% discount) outweigh the costs (\$86,685 at

a 7% discount, \$99,909 at a 3% discount), with total net benefits over 20 years of \$1,076,984 at a 7% discount (or \$95,009 annualized) and \$1,478,331 at a 3% discount (or \$96,538 annualized).

Discounted values	Discounted value	
	Discount factor	
	7%	3%
<b>Costs</b>		
Attending Trains .....	\$36,685	\$49,909
Installing Locks .....	50,000	50,000
<b>Total Costs</b> .....	<b>86,685</b>	<b>99,909</b>
<b>Benefits</b>		
Reduced Vandalism .....	180,873	250,666
Reduced Recordkeeping .....	982,786	1,328,573
<b>Total Benefits</b> .....	<b>1,163,669</b>	<b>1,579,240</b>
Discounted values net benefits	Discounted value	
	Discount factor	
	7%	3%
<b>Total</b> .....	<b>\$1,076,984</b>	<b>\$1,479,331</b>
<b>Annualized</b> .....	<b>95,009</b>	<b>96,538</b>

## II. Background

In 2001, FRA issued regulations governing the securement of unattended equipment. 66 FR 4104, Jan. 17, 2001. These regulations have been effective in protecting against the risk of rolling equipment. Over the last few years, there has been a significant increase in the volume of rail traffic for certain types of commodities, such as petroleum crude oil (crude oil) and ethanol, both of which are highly flammable and often transported in large unit or “key” trains, as defined in the industry by the Association of American Railroads (AAR). See AAR Circular No. OT-55-N (Aug. 5, 2013), available at <http://www.boe.aar.com/CPC-1258%20OT-55-N%208-5-13.pdf>.

Since 2009, there have been a number of serious rail accidents involving the transportation of large quantities of flammable liquids. A number of these accidents involved trains transporting large quantities of ethanol. However, since 2011, there has been significant growth in the rail transport of flammable crude oil, and FRA has seen a number of accident-related releases of crude oil in that time. One significant accident involving tank cars loaded with crude oil was the July 6, 2013, derailment in the town of Lac-Mégantic, Quebec, Canada. After reviewing the facts related to this derailment, FRA

concluded that additional action was necessary to eliminate an immediate hazard of death, personal injury, or significant harm to the environment, particularly in instances where certain hazardous materials are involved. Thus, FRA issued Emergency Order 28 requiring railroads to implement additional procedures to ensure the proper securement of equipment containing certain types and amounts of hazardous materials when left unattended. See 78 FR 48213, Aug. 7, 2013. Subsequent to the issuance of Emergency Order 28, FRA also enlisted the assistance of the Railroad Safety Advisory Committee (RSAC) to develop recommendations regarding the attendance and securement of railroad equipment transporting certain hazardous materials when left unattended in light of the requirements contained in Emergency Order 28.

### A. Lac-Mégantic Derailment

#### 1. Facts

On July 6, 2013, in the town of Lac-Mégantic, Quebec, Canada, an accident involving tank cars loaded with petroleum crude oil occurred on track owned by Montreal, Maine & Atlantic Railway (MMA), a company incorporated in the United States.

The Transportation Safety Board (TSB) of Canada issued a report at the

conclusion of its investigation into the incident, and the following is a summary of the TSB’s factual findings.<sup>1</sup> On July 5, 2013, a locomotive engineer was operating freight train MMA-002 on the Sherbrooke Subdivision from Farnham (milepost 125.60) and at around 10:50 p.m. stopped near Nantes, Quebec (milepost 7.40) on its way to its destination, Brownville Junction, Maine. The train was approximately 4,700 feet long, weighed over 10,000 tons, and included a locomotive consist of 5 head-end locomotives and one VB car (which served as a type of special-purpose caboose), one box car (buffer car), and 72 tank cars loaded with approximately 7.7 million liters of petroleum crude oil (UN 1267). The locomotive engineer parked train MMA-002 on the main line, on a descending grade of 1.2%, attempted to secure the train—including setting the independent brake, but not the automatic brake—and departed by automobile, leaving the train unattended. At around 11:40 p.m., a local resident reported a fire on the train. The local fire department was called and responded with another MMA employee. At approximately

<sup>1</sup> Railway Investigative Report R13D0054, TSB, July 6, 2013, available at <http://www.tsb.gc.ca/eng/rappports-reports/rail/2013/R13D0054/R13D0054.pdf>.

midnight, the controlling locomotive was shut down and the fire extinguished. After the fire was extinguished, the fire department and the MMA employee left the site.

At approximately 1:00 a.m. the next day (the early morning of July 6th), the train began rolling and picking up speed down the descending grade toward the town of Lac-Mégantic, Quebec, located 7.2 miles away and approximately 30 miles from the United States-Canada border. At about 1:15 a.m., near the center of town, the train derailed. The locomotive consist, which separated from the train, did not derail and traveled an additional ½ mile before stopping.

The derailment caused a release of 6 million liters of petroleum crude oil, resulting in a large fire with multiple explosions and 47 fatalities.<sup>2</sup> There was also extensive damage to the town, and approximately 2,000 people were evacuated from the surrounding area.

## 2. Response

In response to this accident, Transport Canada—the Canadian government department responsible for regulating transportation safety in Canada—issued an emergency railroad directive on July 23, 2013.<sup>3</sup> While Transport Canada explained in the emergency directive that the cause of the accident in Lac-Mégantic remained unknown, the emergency directive stated that, “in light of the catastrophic results of the Lac-Mégantic accident and in the interest of ensuring the continued safety and security of railway transportation, there is an immediate need to clarify the regime respecting unattended locomotives on main track and sidings and the transportation of dangerous goods in tank cars using a one person crew to address any threat to the safety and security of railway operations.” As such, Transport Canada exercised its statutory emergency directive authority to order railroad companies in Canada to comply with certain requirements related to unauthorized entry into locomotive cabs, directional controls on locomotives, the application of hand brakes to cars left unattended for more than one hour, setting of the automatic

brake and independent brake on any locomotive attached to cars that are left unattended for one hour or less, attendance related to locomotives attached to loaded tank cars transporting dangerous goods on main track, and the number of crew members assigned to a locomotive attached to loaded tank cars transporting dangerous goods on a main track or siding.

Also on July 23, 2013, Transport Canada issued an accompanying order pursuant to paragraph 19(a)(1) of the Canadian Railway Safety Act directing railroad companies in Canada to formulate or revise certain railroad operating rules, respecting the safety and security of unattended locomotives, uncontrolled movements, and crew size requirements.<sup>4</sup> The order provides that rules should be based on an assessment of safety and security risks, and shall at a minimum ensure that the cab(s) of unattended controlling locomotives are secure against unauthorized entry; ensure that the reverse levers (commonly referred to as a “reversers”) of unattended locomotives are removed and secured; prevent uncontrolled movements of railway equipment by addressing the application of hand brakes; ensure the security of stationary railway equipment transporting dangerous goods; and provide for minimum operating crew requirements considering technology, length of train, speeds, classification of dangerous goods being transported, and other risk factors.

The Railway Association of Canada submitted proposed operating rules to Transport Canada on November 20, 2013. Transport Canada accepted the proposed rules submitted on December 26, 2013, making the operating rules applicable to all railway companies operating in Canada. See TC O 0–167. As a result, railroads operating in Canada are now required to comply with Canadian Rail Operating Rules (CROR) CROR 112, as amended.

CROR 62 pertains to “Unattended engines.” The term “unattended” is now defined in the CROR as “when an employee is not in close enough proximity to take effective action.” The new Canadian requirements, applicable to each engine left unattended outside of an attended yard or terminal, requires cab securement to prevent unauthorized entry and removal of the reverser from the engine when it does not have a high idle feature and not in sub-zero temperatures. See CROR 62 (TC O 0–

167). Transport Canada also approved expansive revisions to CROR 112, which now provides minimum requirements, acceptable methods, and factors to consider for securing equipment while switching en route or left unattended. See CROR 112 (TC O 0–167).

In direct response to the Lac-Mégantic derailment, DOT began taking actions consistent with Transport Canada to ensure the safe transportation of products by rail in the United States, with a particular focus on certain hazardous materials that present an immediate danger for communities and the environment in the event of a train accident. In Emergency Order 28, FRA sought to address the immediate dangers that arise from unattended equipment that is left unsecured on mainline tracks.

FRA has decided that Emergency Order 28 will sunset on the effective date of this final rule. AAR and the American Short Line and Regional Railroad Association (ASLRRA) concur in their comments. Until such time, however, Emergency Order 28 will remain in effect, as amended by FRA’s August 27, 2013, letter approving with conditions a joint petition for relief from the AAR and the ASLRRA. Railroads are required to comply with Emergency Order 28, as amended, in addition to 49 CFR 232.103(n). As further discussed below, once Emergency Order 28 sunsets upon the effective date of this final rule, the requirements of the Emergency Order that are not promulgated in this final rule will no longer apply. Emergency Order 28, as amended, contains six securement-related requirements governing when, where, and how certain hazardous materials tank cars may be left unattended, including certain communication requirements:

(1) A railroad must not leave equipment unattended on a mainline outside of a yard or terminal when the equipment includes a minimum number of loaded tank cars containing certain types of hazardous materials, referred to as “Appendix A Materials”—5 or more tank cars containing materials poisonous by inhalation (PIH), including anhydrous ammonia and ammonia solutions and/or 20 rail car loads of flammable gases or liquids (e.g., crude oil and ethanol)—until the railroad develops, adopts, and complies with a plan that identifies specific locations and circumstances when such equipment may be left unattended.<sup>5</sup>

(2) A railroad must develop a process for securing unattended equipment containing Appendix A Materials that includes: (a) Locking the controlling locomotive cab or

<sup>2</sup> See *id.*; see also Statistical Summary Railway Occurrences 2013, TSB, pp. 2, 5, available at <http://www.tsb.gc.ca/eng/stats/rail/2013/ssro-2013.pdf>.

<sup>3</sup> See Emergency Directive Pursuant to Section 33 of the Railway Safety Act, Safety and Security of Locomotives in Canada, July 23, 2013, available at <http://news.gc.ca/web/article-en.do?nid=829609>; see also Rail Safety Advisor Letter—09/13, Securement of Equipment and Trains Left Unattended, Transport Canada (July 18, 2013), available at <http://www.tsb.gc.ca/eng/medias-media/sur-safe/letter/rail/2013/r13d0054/r13d0054-617-09-13.asp>.

<sup>4</sup> Railroads operating within Canada were at the time of the Lac-Mégantic derailment, and are currently, required to comply with the Canadian Rail Operating Rules that have been approved by Transport Canada.

<sup>5</sup> AAR has voluntarily applied Emergency Order 28 to trains that have a single PIH materials tank car.

removing and securing the reverser and (b) communication of pertinent securement information to the dispatcher for recordation.

(3) Each railroad must review and verify, and adjust, as necessary, existing procedures and processes related to the number of hand brakes to be set on all unattended trains and equipment.

(4) Each railroad must require a job briefing addressing securement for any job that will impact or require the securement of any equipment in the course of the work being performed.

(5) Each railroad must ensure that a qualified railroad employee inspects all equipment that any emergency responder has been on, under, or between for proper securement before the train or vehicle is left unattended.

(6) Each railroad must provide notice to all employees affected by Emergency Order 28.

See 78 FR 48224, Aug. 7, 2013.

Following a request from AAR and ASLRRRA, FRA granted partial relief from Emergency Order 28's dispatcher communication requirement in certain limited situations. FRA's relief letter provides that a railroad employee may leave equipment unattended on a mainline or siding without contacting the train dispatcher when the employee is actively engaged in switching duties as long as the employee ensures that there is an emergency application of the air brakes, hand brakes are set in accordance with 49 CFR 232.103(n), and the employee has demonstrated knowledge of FRA and railroad securement requirements. See Letter from Robert C. Lauby, Acting Associate Administrator for Railroad Safety/Chief Safety Officer, Federal Railroad Administration, to Michael J. Rush, Associate General Counsel, AAR, and Keith T. Borman, Vice President and General Counsel, ASLRRRA, (Aug. 27, 2013), available at <https://rsac.fra.dot.gov/meetings/20130829.php>.

Additionally, FRA and the Pipeline and Hazardous Materials Safety Administration (PHMSA) jointly issued a Safety Advisory to railroads and commodity shippers detailing eight recommended actions the industry should take to better ensure the safe transport of hazardous materials. See Federal Railroad Administration Safety Advisory 2013-06, Lac-Mégantic Railroad Accident and DOT Safety Recommendations, 78 FR 48224, Aug. 7, 2013, available at <http://www.fra.dot.gov/eLib/details/L04720>. These recommendations include: Reviewing the details and lessons learned from the Lac Mégantic accident; reviewing crew staffing levels; removing and securing the train's "reverser" when unattended; review of all railroad operating procedures, testing and

operating rules related to securing a train; reviewing Transport Canada's directives to secure and safely operate a train; and conducting a system-wide assessment of security risks when a train is unattended and identify mitigation efforts for those risks.

Additionally, the Safety Advisory recommends testing and sampling of crude oil for proper classification for shipment, as well as a review of all shippers' safety and security plans. FRA also convened an emergency meeting of FRA's RSAC to begin the deliberative process with FRA's stakeholders, including railroad management, railroad labor, shippers, car owners, and others, as the agency considers requirements in Emergency Order 28 and recommendations in the Safety Advisory that should be made a part of its regulations.<sup>6</sup>

On August 19, 2014, the TSB released its Railway Investigation Report R13D0054, citing 18 causal and contributing factors, plus an additional 16 findings as to risk, concerning the accident at Lac-Mégantic. FRA believes that it is taking—or has already taken—action concerning each of those factors. The TSB notably included in its list of factors the MMA's weak safety culture and ineffective oversight on train securement. The report also identified factors relating directly to train securement such as insufficient hand brakes and improper hand brake test applications. The requirements in this final rule intend to enhance safety culture and oversight that addresses train securement. For instance, as further discussed below, FRA is mandating by regulation the implementation of operating rules and practices requiring that securement be part of all relevant job briefings. This final rule also requires verification with a qualified person that equipment is adequately and effectively secured in accordance with the regulations before being left unattended. These requirements aim to increase the safety dialog between railroad employees and to provide enhanced oversight within the organization. In doing so, these

<sup>6</sup> The RSAC was given three tasks. In addition to developing securement recommendations, it was also tasked with developing recommendations addressing issues relating to train crew size and hazardous materials such as identification and classification of hazardous materials, operational controls, and handling of certain hazardous materials shipments. The RSAC hazardous materials working group was able to reach consensus on amending the definitions of "residue" and "key train" and clarifying the jurisdiction concerning loading, unloading, and storage of hazardous materials before and during transportation. These recommendations have been provided to PHMSA, which has regulatory authority over hazardous materials shipments.

communications should better ensure that crew members apply the proper number of hand brakes, and more correctly apply hand brake tests, on unattended equipment. Also notable was the report's findings as to risk that states: "If trains are left unattended in easily accessible locations, with locomotive cab doors unlocked and the reverser handle available in the cab, the risk of unauthorized access, vandalism, and tampering with locomotive controls is increased." This final rule directly addresses this concern with requirements relating to the installation and use of locomotive exterior door locks and reverser removal.

#### *B. Safety Concerns Arising Out of the Lac-Mégantic Derailment and Other Train Incidents Involving Flammable Liquids and Gases and Poison Inhalation Hazard Materials*

The vast majority of hazardous materials shipped by rail each year arrive at their destinations safely and without incident. Indeed, in calendar year 2013, there were only 18 accidents in which a hazardous material was released (involving a total of 78 cars) out of approximately 1.6 million shipments of hazardous material transported in rail tank cars in the United States. However, the Lac-Mégantic incident demonstrates the substantial potential for danger that exists when an unattended train rolls away and derails resulting in the sudden release of hazardous materials into the environment. Although the Lac-Mégantic incident occurred in Canada, the freight railroad operating environment in Canada is similar to that in the United States, and a number of railroads operate in both countries.<sup>7</sup> Freight railroads in the United States also transport a substantial amount and variety of hazardous materials, including PIH materials, also known as materials toxic by inhalation (TIH), and explosive materials. Moreover, an increasing proportion of the hazardous materials transported by rail is classified as flammable.<sup>8</sup>

<sup>7</sup> As an example, MMA formerly operated in both the United States and Canada, with approximately 510 miles of track in Maine, Vermont, and Quebec, and the tank cars transporting the crude oil that derailed in Lac-Mégantic originated in the Williston Basin of North Dakota. A discussion concerning the applicable Canadian securement requirements can be found above in the section titled "2. Response," which addresses the actions taken by the United States and Canada in direct response to the Lac-Mégantic incident.

<sup>8</sup> PHMSA prescribes a comprehensive regulatory safety system that categorizes hazardous materials into nine hazard classes based on the type of hazards presented by the materials. See 49 CFR parts 172 and 173. Under PHMSA's regulations, crude oil, in most forms, meets the definition of a

The MMA train in the Lac-Mégantic incident was transporting 72 carloads of crude oil with five locomotives, a VB car, and a loaded box car. A similar type of train consist is commonly found on rail lines in the United States, because crude oil is often transported in solid blocks or by a unit train consisting entirely of tank cars containing crude oil. Crude oil is generally classified by an offeror as a Class 3 flammable liquid; per PHMSA's Hazardous Materials Regulations (HMR), however, its packing group can be I, II, or III depending on the blend of constituent crude oils.<sup>9</sup> According to the AAR, crude oil traffic increased 68-fold in the United States between 2005 and 2013. Much of this growth has occurred because of developments in North Dakota, as the Bakken formation in the Williston Basin has become a major source for oil production in the United States. Texas also has contributed to the growth of crude oil shipments by rail. As a result, carloads of crude oil increased from approximately 81,452 in 2011 to approximately 485,384 in 2013. The Bakken crude oil from North Dakota is primarily shipped via rail to refineries located near the U.S. Gulf Coast—particularly in Texas and Louisiana—or to pipeline connections, most notably to connections located in Oklahoma. Crude oil is also shipped via rail to refineries on the East Coast and West Coast, and to a lesser extent, refineries in other regions of the U.S.<sup>10</sup>

All indications from the U.S. Department of Energy's U.S. Energy Information Administration (EIA) are that rail capacity for Bakken crude oil from the Williston Basin will continue to expand to meet production.<sup>11</sup> Rail shipments from the North Dakota region are forecast to increase over the next

"Class 3" hazardous material, which signifies that it is a flammable liquid. Ethanol, discussed below, also is a Class 3 hazardous material. PIH materials, referenced above, include "Class 2 and Division 2.3" gases and "Class 6, and Division 6.1" poisons other than gases. Chlorine gas and anhydrous ammonia are two examples of PIH materials (Division 2.3) that are commonly transported by rail.

<sup>9</sup> PHMSA uses packing groups to categorize hazardous materials according to the danger presented. Hazardous materials in Packing Group I present great danger; Packing Group II present medium danger; and Packing Group III presents minor danger. See 49 CFR 171.8.

<sup>10</sup> See AAR's May 2013 paper "Moving Crude Oil by Rail", available online at: [https://www.aar.org/safety/Documents/Assets/Transportation\\_of\\_Crude\\_Oil\\_by\\_Rail.pdf](https://www.aar.org/safety/Documents/Assets/Transportation_of_Crude_Oil_by_Rail.pdf).

<sup>11</sup> See EIA reports "Bakken crude oil price differential to WTI narrows over last 14 months," available online at: <http://www.eia.gov/todayinenergy/detail.cfm?id=10431>; and "Rail delivery of U.S. oil and petroleum products continues to increase, but pace slows," available online at: <http://www.eia.gov/todayinenergy/detail.cfm?id=12031>.

two years (as are pipeline shipments). Much of the near-term growth in rail originations is a function of how quickly rail car manufacturers can meet the demand by producing new tank cars, primarily for transporting Bakken crude oil. The rise in rail originations in crude oil is subject to changes in the number of tank cars available, price of crude oil, overall production of crude oil in that region; and if, or how quickly, additional pipeline capacity from that region comes online. However, for the foreseeable future, all indications are for continued growth of rail originations of crude in that region as new tank car fleets come online to meet demand.

As demonstrated by the Lac-Mégantic derailment, in a high-consequence incident, crude oil is problematic when released because it is flammable. This risk is compounded because it is commonly shipped in large unit trains. Subsequent to the Lac-Mégantic derailment, the United States has seen at least three major rail-related incidents involving crude oil unit trains that evidence the dangerous results that can occur when crude oil is not transported safely. FRA recognizes that none of these three derailments resulted from a roll-away situation that would have been addressed by this rule.

On April 30, 2014, there was a derailment near downtown Lynchburg, Virginia, of an eastbound CSX Transportation, Inc. (CSX) unit train consisting of 105 tank cars loaded with crude oil. Seventeen of the train's cars derailed. One of the tank cars was breached, leading to a crude oil fire. Emergency responders were forced to evacuate approximately 400 individuals and 20 businesses from the immediate area. Additionally, three of the derailed tank cars came to rest in the adjacent James River, causing up to 30,000 gallons of crude oil to be spilled into the river. The National Transportation Safety Board (NTSB) and DOT both investigated this accident and determined that it was caused by a sudden rail failure under the moving train.

On December 30, 2013, a westbound grain train derailed 13 cars near Casselton, North Dakota, fouling main track 2.<sup>12</sup> Simultaneously, an eastbound crude oil unit train was operating on main track 2. The crude oil unit train reduced its speed and collided with a derailed car that was fouling, resulting in the derailment of the head-end

<sup>12</sup> This derailment currently is being investigated by the National Transportation Safety Board (NTSB), and information regarding this incident can be found at the NTSB Web site. See [http://www.ntsb.gov/doclib/reports/2014/Casselton\\_ND\\_Preliminary.pdf](http://www.ntsb.gov/doclib/reports/2014/Casselton_ND_Preliminary.pdf).

locomotives and the first 21 cars of the crude oil unit train. Eighteen of the 21 derailed tank cars ruptured, releasing an estimated 400,000 gallons of crude. The ruptured tank cars ignited causing an explosion. There were no reported injuries by either train crew, nor were there any injuries to the public; however, about 1,400 people were evacuated. Damages from the derailment are estimated at \$6.1 million.<sup>13</sup>

Also, on November 8, 2013, a 90-car crude oil train derailed in a rural area near Aliceville, Alabama. The crude oil shipment had originated in North Dakota and was bound for Walnut Hill, Florida, to be transported by a regional pipeline to a refinery in Saraland, Alabama. More than 20 cars derailed and at least 11 cars ignited, resulting in an explosion and fire. Although there were no reported injuries, an undetermined amount of crude oil escaped from derailed cars and fouled a wetlands area near the derailment site.

The dangers related to crude oil trains are not necessarily unique. They also exist with other hazardous materials such as ethanol, which is another flammable liquid that is commonly transported in large quantities by rail. In 2012, more carloads of ethanol were transported via rail than any other hazardous material. The railroads experienced an increase in ethanol traffic of 442 percent between 2005 and 2010. Although in 2013 the number of carloads dropped by 10 percent from 2010 levels, there were still approximately 297,000 carloads transported by rail. Since 2009, there have been at least six major mainline derailments resulting in the breach of tank cars containing ethanol. While FRA recognizes that none of these six derailments resulted from a roll-away situation, they are instructive on the destructive potential of a derailment involving tank cars containing flammable products:

- On August 5, 2012, in Plevna, Montana, a BNSF Railway Co. train derailed 18 cars while en route from Baker, Montana. Seventeen of the 18 cars were tank cars loaded with denatured alcohol, a form of ethanol. Five of the cars caught on fire resulting in explosions, the burning of surrounding property not within the railroad's right-of-way, and the evacuation of the immediate area.

- On July 11, 2012, in Columbus, Ohio, a Norfolk Southern Railway Co. train derailed while operating on main track. Thirteen tank cars containing ethanol derailed resulting in a fire and

<sup>13</sup> See *id.*

the evacuation of 100 people within a one-mile radius of the derailment.

- On February 6, 2011, in Arcadia, Ohio, a Norfolk Southern Railway Co. train operating on single main track derailed 33 tank cars loaded with ethanol. The derailment caused a major fire and forced the evacuation of a one-mile radius around the derailment.

- On June 19, 2009, in Cherry Valley, Illinois, a Canadian National Railway train derailed 19 tank cars loaded with ethanol. Thirteen of the 19 derailed cars caught fire, and there were reports of explosions. One person died, and there were 9 reported injuries related to the fire. Additionally, approximately 600 residences were evacuated within a 1/2-mile radius of the derailment.

- On October 7, 2011, at about 2:14 a.m. CDT, at milepost 121.8 on the No. 1 Subdivision near Tiskilwa, Illinois, an eastbound Iowa Interstate Railroad (IAIS) freight train No. RI-BI-06—with two locomotives and 131 cars—derailed its head 26 cars. The derailed cars included ten cars of ethanol, several of which were breached and lost a substantial amount of their product, resulting in a fire and an evacuation of about 800 residents. The emergency responses began almost immediately and were supported by surrounding local fire and police departments to control and suppress the fire and execute the evacuation. The fire suppression was sustained over two and half days. There were no injuries or fatalities.

- On February 4, 2015, in Dubuque, Iowa, a Canadian Pacific Railway unit train—with 13 of its 80 tank cars containing denatured alcohol—derailed, with at least one of the cars falling into the Mississippi River. Three of the cars caught fire and there was a release of an unknown quantity of denatured alcohol into the river. Officials established a half-mile evacuation zone, but there were no occupied structure in that area.

While these accidents were serious, their results had potential for higher-consequence outcomes. The higher-consequence releases created the potential for additional deaths, injuries, property damage, and environmental damage.

There are other hazardous materials that have similar potential for higher-consequence danger. For example, accidents involving trains transporting other hazardous materials, including PIH materials such as chlorine and anhydrous ammonia, can also result in serious consequences as evidenced by the following accidents:

- On January 6, 2005, in Graniteville, South Carolina, a Norfolk Southern Railway Co. train collided with another

Norfolk Southern Railway Co. train that was parked on a customer side track, derailed both locomotives and 16 cars of the moving train. The accident was caused by a misaligned switch. Three tank cars containing chlorine derailed, one of which was punctured. The resulting chlorine exposure caused 9 deaths, approximately 554 people were taken to local hospitals, and an additional 5,400 people within a one-mile radius of the site were evacuated by law enforcement personnel. FRA's analysis of the total cost of the accident was \$126 million, including fatalities, injuries, evacuation costs, property damage, environmental cleanup, and track out of service.

- On June 28, 2004, near Macdona, Texas, a Union Pacific Railroad Co. train passed a stop signal and collided with a BNSF Railway Co. train. A chlorine car was punctured, and the chlorine gas that was released killed three and injured 32.

- On January 18, 2002, a Canadian Pacific Railway train containing 15 tank cars of anhydrous ammonia derailed half a mile from the city limits of Minot, North Dakota due to a breaking of the rail at a joint. Five of these tank cars ruptured, which resulted in an ammonia vapor that spread 5 miles downwind over an area where 11,600 people lived. The accident caused one death, 11 serious injuries, and 322 minor injuries. Environmental cleanup costs reported to the NTSB were \$8 million.

- On July 18, 2001, 11 of 60 cars in a CSX Transportation, Inc. freight train derailed while passing through the Howard Street Tunnel in downtown Baltimore, Maryland. The train included 8 tank cars loaded with hazardous material; 4 of these were among the cars that derailed. A leak in a tank car containing tripropylene resulted in a chemical fire. A break in a water main above the tunnel flooded both the tunnel and the streets above it with millions of gallons of water.

FRA recognizes that these four incidents did not result from a roll-away situation. However, they illustrate the destructive potential of PIH materials' derailments.

While train accidents involving hazardous materials are caused by variety of factors, nearly one-half of all accidents are related to railroad human factors or equipment defects. FRA's data shows that since 2009, human factors have been the most common cause of reportable train accidents. Based on FRA's accident reporting data for the period from 2010 through May 2014, approximately 34 percent of reported train accidents/incidents, as defined by 49 CFR 225.5, were human factor-

caused.<sup>14</sup> With regard to the securement of unattended equipment, specifically, FRA accident/incident data indicates that approximately 8.7 percent of reported human factor-caused train accidents/incidents from calendar year 2010 until May 2014 were the result of improper securement, which means that improper securement is the cause of approximately 2.9 percent of all reported accidents/incidents.<sup>15</sup> The types of securement errors that typically lead to accidents/incidents include failing to apply any hand brakes at all, failing to apply a sufficient number of hand brakes, and failing to correctly apply hand brakes. Emergency Order 28 and this final rule intends to address some of the human factors failures that may cause unattended equipment to be improperly secured to protect against a derailment situation similar to that which occurred in Lac-Mégantic.

### C. Current Securement Regulations and Related Guidance

As previously noted, FRA has existing regulations—issued years before the accident at Lac-Mégantic and promulgation of Emergency Order 28—designed to ensure that trains and vehicles are properly secured before being left unattended. See 49 CFR 232.103(n). In FRA's view, if existing regulations are followed, the risk of movement of unattended equipment is substantially reduced. Despite the demonstrated effectiveness of FRA's current securement regulations, FRA has determined that the increased shipments of hazardous materials such as crude oil and ethanol, combined with the potential for higher-consequences from any accident that might occur due to improper securement, particularly on mainline track and mainline sidings outside of a yard, proper securement has become a serious and immediate safety concern. Therefore, FRA established additional securement measures in Emergency Order 28 to ensure the continued protection of the health and safety of railroad employees, the general public, and the environment. In this final rule, FRA establishes permanent rules to strengthen the current regulations and ensure public safety by adopting the necessary and effective

<sup>14</sup>FRA estimates that there were a total of approximately 8976 accidents/incidents reported during that time period. Approximately 3030 of those accidents/incidents were caused by human factors, and 906 involved equipment that was placarded as containing hazardous materials.

<sup>15</sup>There were a total of approximately 264 reported accidents/incidents that were caused by securement errors. Of those 264 accidents/incidents, approximately 98 involved equipment that was placarded as containing hazardous materials.

securement measures FRA included in Emergency Order 28 as part of its immediate response to the Lac-Mégantic derailment.

The current regulations define “unattended equipment” as “equipment left standing and unmanned in such a manner that the brake system of the equipment cannot be readily controlled by a qualified person.” *Id.* Section 232.103(n) generally addresses the securement of unattended equipment by stating that a train’s air brakes must not be depended on to hold equipment standing unattended on a grade. More specifically, § 232.103(n) also requires that the railroad apply a sufficient number of hand brakes to hold the equipment with the air brakes released and that the brake pipe pressure be reduced to zero with the angle cock opened on one end of a cut of cars when not connected to a locomotive or other compressed air source. The existing regulations also require railroads to develop a process or procedure for verifying that the hand brakes applied are sufficient to hold the equipment with the air brakes released. When dealing with locomotives and locomotive consists, § 232.103(n)(3) establishes specific additional requirements:

- All hand brakes must be fully applied on all locomotives in the lead consist of an unattended train.
- All hand brakes must be fully applied on all locomotives in an unattended locomotive consist outside of yard limits.
- The minimum requirement for an unattended locomotive consist within yard limits is that the hand brake must be fully applied on the controlling locomotive.
- Railroads must develop, adopt, and comply with procedures for securing any unattended locomotive that is not equipped with an operative hand brake. Additionally, FRA continues to require each railroad to adopt and comply with instructions addressing each unattended locomotive’s position of the throttle, generator field switch, isolation switch, and automatic brake valve and the status of its reverser and independent brakes. *See* 49 CFR 232.103(n)(4).

FRA has also issued guidance documents interpreting these regulations. For instance, on March 24, 2010, FRA issued Technical Bulletin MP&E 2010–01, Enforcement Guidance Regarding Securement of Equipment with Title 49 Code of Federal Regulations Section 232.103(n) (TB 10–01), *available at* <http://www.fra.dot.gov/eLib/details/L02394>. While FRA continues to believe that the securement

requirements of § 232.103 are not met where there is a complete failure to apply even a single hand brake on unattended equipment, FRA also recognizes that there are times when it is necessary to have unsecured equipment, such as during switching activities when assembling and disassembling trains within classification yards. Therefore, TB 10–01 has provided guidance regarding alternative forms of securement in such instances. For example, TB 10–01 notes that FRA will allow a train crew cutting away from a cut of cars to initiate an emergency brake application on the cut of cars, and then close the angle cock, if the crew is taking a locomotive consist directly to the opposite end of the cut of cars to in order to couple the locomotive consist to the cars or to open the angle cock at the other end and leave the angle cock open and vented to the atmosphere, as required under 49 CFR 232.103(n)(2). Additionally, TB 10–01 makes clear that FRA will allow the use of skates and retarders in hump classification yards, classification yards with bowl tracks, or flat switching yards if the retarders and skates are used within their design criteria and as intended. In the NPRM to this proceeding, FRA considered codifying TB 10–01 by amending the rule at the final rule stage of this proceeding. The final rule makes the amendment considered and codifies the existing guidance contained in TB 10–01. This particular amendment does not include any additional requirements from the original guidance issued in the technical bulletin and is further explained below.

Also notable is that in 2013 and 2014, FRA and PHMSA undertook nearly two dozen actions to enhance the safe transport of crude oil. This comprehensive approach included near- and long-term steps such as the following: launching “Operation Classification” in the Bakken region to verify that crude oil is properly classified; issuing safety advisories, alerts, emergency orders and regulatory updates; conducting special inspections; aggressively moving forward with a rulemaking to enhance tank car standards; and reaching agreement with railroad companies on a series of immediate voluntary actions including reducing speeds, increasing inspections, using new brake technology and investing in first responder training. Most of those actions have been well outside the scope of securement. However, FRA references these actions here to help place this rulemaking in the broader context of DOT’s wide-ranging response to the safety issues created by

these trains. For a summary of these actions, *see* Federal Railroad Administration’s Action Plan for Hazardous Materials Safety, Federal Railroad Administration (May 20, 2014) *available at* <http://www.fra.dot.gov/eLib/details/L04721>.

Additionally, in August 2014, PHMSA, in coordination with FRA, published an NPRM proposing enhanced tank car standards and operational controls for high-hazard flammable trains, which is defined as a single train carrying 20 or more tank cars of a Class 3 flammable liquid in a continuous block or a single train carrying 35 or more tank cars of a Class 3 flammable liquid throughout the train consist. *See* “Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains,” 79 FR 45015, Aug. 1, 2014. PHMSA recently issued that final rule including operational controls considered in the PHMSA NPRM such as speed restrictions and enhanced braking systems for HHFTs. *See* 80 FR 26643, May 8, 2015. FRA expects that the operational controls contemplated in that PHMSA final rule will work in concert with the securement requirements that FRA is implementing in this final rule.

#### *D. Emergency Order 28 and Related Guidance*

On August 2, 2013, FRA issued Emergency Order 28 establishing additional requirements on the treatment of securement of unattended equipment. On the same date, FRA issued a related Safety Advisory and announced an emergency RSAC meeting. *See* Federal Railroad Administration Safety Advisory 2013–06, Lac-Mégantic Railroad Accident and DOT Safety Recommendations, 78 FR 48224, Aug. 7, 2013, *available at* <http://www.fra.dot.gov/eLib/details/L04720>. FRA also subsequently issued guidance related to Emergency Order 28 and granted partial relief from Emergency Order 28 to the AAR and ASLRRRA. *See* Guidance on Emergency Order 28 (Aug. 21, 2013), *available at* <https://rsac.fra.dot.gov/meetings/20130829.php>; Letter from Robert C. Lauby, Acting Associate Administrator for Railroad Safety/Chief Safety Officer, FRA, to Michael J. Rush, Associate General Counsel, AAR, and Keith T. Borman, Vice President and General Counsel, American Short Line and Regional Railroad Association, (Aug. 27, 2013), *available at* <https://rsac.fra.dot.gov/meetings/20130829.php>.



### E. RSAC Overview

In March 1996, FRA established the RSAC, which provides a forum for collaborative rulemaking and program development. RSAC includes representatives from all of the agency's major stakeholder groups, including railroads, labor organizations, suppliers and manufacturers, and other interested parties. A list of RSAC members follows:

- American Association of Private Railroad Car Owners (AARPCO);
- American Association of State Highway & Transportation Officials (AASHTO);
- American Chemistry Council (ACC);
- American Petroleum Institute (API);
- American Public Transportation Association (APTA);
- ASLRRRA;
- American Train Dispatchers Association (ATDA);
- AAR;
- Association of State Rail Safety Managers (ASRSM);
- Association of Tourist Railroads and Railway Museums (ATRRM);
- Brotherhood of Locomotive Engineers and Trainmen (BLET);
- Brotherhood of Maintenance of Way Employes Division (BMWED);
- Brotherhood of Railroad Signalmen (BRS);
- Chlorine Institute;
- Federal Transit Administration (FTA);\*
- Fertilizer Institute;
- Institute of Makers of Explosives;
- International Association of Machinists and Aerospace Workers (IAM);
- International Brotherhood of Electrical Workers (IBEW);
- Labor Council for Latin American Advancement (LCLAA);\*
- League of Railway Industry Women;\*
- National Association of Railroad Passengers (NARP);
- National Association of Railway Business Women;\*
- National Conference of Firemen & Oilers;
- National Railroad Construction and Maintenance Association (NRC);
- National Railroad Passenger Corporation (Amtrak);
- National Transportation Safety Board (NTSB);\*
- Railway Passenger Car Alliance (RPCA)
- Railway Supply Institute (RSI);
- Safe Travel America (STA);
- Secretaria de Comunicaciones y Transporte;\*
- SMART Transportation Division (SMART TD);

- Transport Canada;\*
- Transport Workers Union of America (TWU);
- Transportation Communications International Union/Brotherhood of Railway
- Carmen (TCIU/BRC);
- Transportation Security Administration (TSA).

\* Indicates associate, non-voting membership.

When appropriate, FRA assigns a task to RSAC, and after consideration and debate, RSAC may accept or reject the task. If accepted, RSAC establishes a working group that possesses the appropriate expertise and representation of interests to develop recommendations to FRA for action on the task. These recommendations are developed by consensus. The working group may establish one or more task forces or other subgroups to develop facts and options on a particular aspect of a given task. The task force, or other subgroup, reports to the working group. If a working group comes to consensus on recommendations for action, the package is presented to RSAC for a vote. If the proposal is accepted by a simple majority of RSAC, the proposal is formally recommended to FRA. FRA then determines what action to take on the recommendation. Because FRA staff play an active role at the working group level in discussing the issues and options and in drafting the language of the consensus proposal, and because the RSAC recommendation constitutes the consensus of some of the industry's leading experts on a given subject, FRA is often favorably inclined toward the RSAC recommendation. However, FRA is in no way bound to follow the recommendation and the agency exercises its independent judgment on whether the recommended rule achieves the agency's regulatory goals, is soundly supported, and is in accordance with applicable policy and legal requirements. Often, FRA varies in some respects from the RSAC recommendation in developing the actual regulatory proposal or final rule. Any such variations would be noted and explained in the rulemaking document issued by FRA. If the working group or RSAC is unable to reach consensus on recommendations for action, FRA resolves the issue(s) through traditional rulemaking proceedings or other action.

The RSAC convened an emergency session on August 29, 2013, in response to the accident at Lac-Mégantic, to brief members on the preliminary findings of the accident, to discuss the safety issues related to the accident, and to discuss Emergency Order 28. At that meeting, the RSAC accepted Task No. 13-03 to

refer to the Securement Working Group (SWG) the responsibility of ensuring that "appropriate processes and procedures are in place to ensure that any unattended trains and vehicles on mainline track or mainline sidings outside of a yard or terminal are properly secured against unintended movement, and as appropriate, such securement is properly confirmed and verified." In doing so, the SWG was tasked with reviewing: The standards for the securement of unattended equipment under 49 CFR 232.103(n) and its concomitant regulatory guidance published in TB 10-01; the requirements of Emergency Order 28; and the recommendations contained in Federal Railroad Administration Safety Advisory 2013-06—Lac-Mégantic Railroad Accident Discussion and DOT Safety Recommendations. The SWG was also tasked with identifying any other issues relevant to FRA's regulatory treatment of securement of equipment to prevent unintended movement. While the RSAC also tasked the SWG with reviewing operational testing, the SWG concluded that no changes were necessary to the regulations relating to operational testing. FRA notes that, in its comments, NTSB suggested that more emphasis should be made on observations by railroad supervisors, as part of operational testing programs, to ensure unattended equipment is properly secured. While FRA does not contest this suggestion, it is outside the scope of this rulemaking, since FRA declined to consider operational testing.

In addition to FRA, the following organizations contributed members to the SWG:

- AAR, including members from BNSF Railway Company (BNSF), Canadian National Railway (CN), Canadian Pacific Railway (CP), CSX Transportation, Inc. (CSX), Genesee & Wyoming Inc. (GNWR), Kansas City Southern Railway (KCS), Long Island Rail Road (LIRR), Metro-North Railroad (MNCW), Northeast Illinois Regional Commuter Railroad Corporation (METRA), Norfolk Southern Railway Company (NS), Railway Association of Canada, and Union Pacific Railroad Company (UP);
- Amtrak;
- API;
- APTA, including members Keolis North America, Massachusetts Bay Commuter Railroad Company, LLC (MBCR); and North County Transit District (NCTD);
- ASLRRRA, including members from Anacostia Rail Holdings, Central California Traction Company (CCT), OmniTRAX, Rio Grande Pacific

Corporation, and WATCO Companies, Inc. (WATCO);

- ASRSM, including members from California Public Utilities Commission (CPUC);

- ATDA;
- BLET;
- BMWED;
- BRS;
- IAM;
- NRC, including members from Herzog Transit Services (Herzog);

- NTSB;
- PHMSA;
- RSI;
- SMART TD;
- TCIU/BRC;
- Transport Canada; and
- TWU.

The SWG convened subsequently on October 30, 2013, December 17, 2013, January 28, 2014, and March 4, 2014, in Washington, DC to respond to these tasks and voted to approve the recommendation on March 4, 2014. The SWG presented its recommendation to the full RSAC, which voted by electronic ballot between March 25 and March 31, 2015, to accept the recommendations. On April 2, 2014, the RSAC announced that by majority vote the recommendations had been approved and would become its recommendation to the Administrator.

The recommendation of the RSAC included amendments to 49 CFR 232.103(n) that would do the following: (1) Provide additional requirements for the securement of unattended equipment carrying certain hazardous materials; (2) mandate the implementation of operating rules and practices requiring that securement be part of all relevant job briefings; and (3) require adoption and compliance with procedures to secure equipment subsequent to an emergency response. The RSAC recommendation also included amendments to 49 CFR 232.105 that would require equipping locomotives with exterior locking mechanisms.

#### F. NPRM and Comments

On September 9, 2014, FRA issued the NPRM in this proceeding. See 79 FR 53356, Sept 9, 2014. Subsequent to the issuance of the NPRM, FRA received comments from: Amsted Rail Company, Inc. (Amsted), BLET, CPUC, NTSB, the North America Freight Car Association (NAFCA), Riverkeeper, Inc. (Riverkeeper), and the State of New York Department of Transportation (NYSDOT). AAR and ASLRRRA also filed a joint comment on behalf of their member railroads. These comments are addressed in detail in the section-by-section analysis contained below.

### III. Rescinding Emergency Order 28

This final rule codifies the requirements of Emergency Order 28 that FRA believes are necessary to ensure the safe securement of the types of trains and equipment identified in the Emergency Order. Once this final rule becomes effective, FRA believes that the unsafe condition or practices identified in the Emergency Order will be addressed by the provisions of this final rule. Accordingly, Emergency Order 28 is rescinded on the effective date of this final rule.

### IV. Section-by-Section Analysis

Unless otherwise noted, all “part” and “section” references below refer to provisions either in title 49 of the CFR or proposed to be in title 49 of the CFR.

Before entering into specific analysis of each section, it is important to make clear that this final rule, which like Emergency Order 28 provides more restrictive securement requirements for specific types of equipment than the existing regulations, does not affect FRA’s policy concerning the Federal hours of service requirements. FRA continues to believe that a railroad may not require or allow a train employee with an accumulated time on duty of 12 hours or more to remain on a train for the sole purpose of meeting the securement requirements, including those proposed here. A train employee may, however, remain on an unsecured train, if that employee is legitimately waiting for deadhead transportation from duty to a point of final release, performs no covered or commingled service,<sup>16</sup> and is free to leave the

<sup>16</sup> A person is considered by the hours of service laws to be neither on duty nor off duty during periods they are either waiting for or in deadhead transportation to their point of final release (*i.e.*, have completed their time on duty and are waiting for or in transportation to end their duty tour). In order to be considered “waiting for” deadhead transportation, the person must not be required to perform other duties. Merely being on a train is not inherently performing a duty; being on or with the train is a necessary element of waiting for transportation from the train. This is true even when the railroad receives the benefit of having the train attended while employees aboard wait for transportation. Such time is considered “limbo time” and is not contingent upon the train’s securement status. See *BLET v. Atchison Topeka and Santa Fe Railway*, 516 U.S. 152 (1996) (holding that the time waiting for deadhead transportation under the hours of service laws must be counted as “limbo time”). However, should the employee be required to perform some activity to prevent the movement of the equipment or to secure the train prior to departing with deadhead transportation, then the time spent performing the activity and any intervening time spent waiting would be considered covered and commingled service respectively. See 49 CFR part 228, app. A. Thus, whether a train is secured or unsecured when an employee is waiting for deadhead transportation, that waiting time will count as limbo time, so long as no covered activities are performed.

equipment when deadhead transportation arrives. In this case, time spent waiting for and in deadhead transportation is treated as neither time on duty nor time off duty.

In its comment, BLET expressed concern about FRA’s discussion in the NPRM of the hours of service implications of the proposed rule. BLET particularly objected to the reference in the directly preceding footnote regarding employees “remaining sufficiently alert to respond to unattended movement,” which it viewed as potentially establishing a new requirement. To reduce confusion, and as there was no intention to establish a new requirement, FRA has eliminated that language in this preamble to the final rule. FRA’s intention was merely to provide an example of the application of the hours of service laws in the NPRM for the benefit and convenience of the reader. This final rule does not in any way change the application of the hours of service laws to the time that employees may spend waiting for deadhead transportation aboard an unsecured train.

FRA also notes that this final rule does not include the portion of Emergency Order 28 that requires railroads to review, verify, and adjust, as necessary, existing requirements and instructions related to the number of hand brakes to be set on unattended trains and vehicles, and to review and adjust, as necessary, the procedures for verifying that the number of hand brakes is sufficient to hold the train or vehicle with the air brakes released. As stated in the NPRM, it was FRA’s concern that existing railroad processes and procedures related to setting and verifying hand brakes on unattended trains and equipment were not sufficient to hold all trains and vehicles in all circumstances. FRA believes that the railroads have fulfilled this requirement and thus there is no need to include it in this final rule.

NAFCA has expressed concern with the elimination of the requirement in Emergency Order 28 that the railroads review, verify, and adjust their existing requirements and instructions related to the number of hand brakes to be set on unattended trains and vehicles and to ensure that such a number is sufficient to hold the train or vehicle with the air brakes released. While NAFCA recognizes that FRA believes that the railroads have already fulfilled this requirement, it contends that FRA is eliminating a salutary safety measure that is not unduly burdensome to the railroad. NAFCA recommends that the requirement remain in place while FRA and the industry gain more experience

with the Class 3 flammable liquid transportation issues and consider removing the requirement at a later time.

NYSDOT concedes that periodic review, verification and adjustment of those processes and procedures are an inherent obligation of the railroads, citing the existing and continuing requirement under § 232.103(n)(1) that “[r]ailroads shall develop and implement a process or procedure to verify that the applied hand brakes will sufficiently hold the equipment with the air brakes released.” Given FRA’s expressed confidence that the railroads have fulfilled the requirement in Emergency Order 28 to review, verify, and adjust, as necessary, those requirements, NYSDOT agrees that it is unnecessary to include it in this final rule.

FRA declines to postpone elimination of this specific requirement, which was designed as a one-time requirement to emphasize the need following the Lac-Mégantic derailment for each railroad to review their securement policy and procedures to ensure that it had sufficient measures in place. It is unclear to FRA the benefits of maintaining a requirement that has already been fulfilled and NAFCA does not explain what benefits could be gained with additional experience beyond the years in which the securement regulations have already been in place. Moreover, FRA’s existing regulations already require railroads to have procedures in place and comply with those procedures to ensure that unattended equipment is properly secured. Thus, retention of a duplicate provision would not be in the interest of regulatory economy.

#### Amendments to 49 CFR Part 232

##### *Section 232.5 Definitions*

In this final rule, FRA is including a new defined term, “mechanical securement device”. “Mechanical securement device” means a device, other than the air brake, that provides at least the equivalent securement that a sufficient number of hand brakes would provide in the same situation. In TB 10–01, further analyzed below, FRA contemplated the proper use of skates, retarders, or inert retarders to secure equipment in certain circumstance and within classification yards. FRA recognizes, however, that other current and future securement technologies could perhaps be utilized for the same purpose. By using the more generalized, performance-based term, mechanical securement device, FRA intends to provide additional flexibility, and to

“future proof” the regulation, to allow the use of other sufficient securement technologies in the same circumstances and locations. By definition, FRA understands mechanical securement devices to include current examples such as skates, retarders, and inert retarders; which are also further discussed below.

In the 2001 rule, the definition of “unattended equipment” was included in § 232.103(n). As further discussed below, this final rule includes a new paragraph (h) for § 232.105, which also makes use of the definition for “unattended equipment.” Since the term would be used in multiple sections, this final rule moves the definition to the more broadly applicable definitions in § 232.5. Doing so allows FRA to rephrase paragraph (n) for clarity purposes, as discussed further below. Placement of the definition in § 232.5 does not change its meaning and is solely for applicability and clarity purposes. FRA received no comments on this organizational change and is amending § 232.5 accordingly.

FRA is also changing the term “yard limits” to “yard” without any change to its definition, with concurrent changes from “yard limits” to “yard” in § 232.103(n). FRA is also including the term “yard” in its new § 232.105(h). As currently defined in part 232, a yard limit is “a system of tracks, not including main tracks and sidings, used for classifying cars, making-up and inspecting trains, or storing cars and equipment.” But in part 218, yard limits are described as a railroad-designated operating territory that is established by yard limit signs; and timetable, train orders, or special instructions. *See* 49 CFR 218.35(a). Making this change minimizes the risk of ambiguity and confusion by clarifying that specific securement practices are connected to the physical presence of a yard, and not to an operating practices description of yard limits, which could potentially encompass an entire railway system.

NTSB concurred with this change removing the word “limits” from the term “Yard limits.” According to NTSB, this distinction will appropriately define the intent of the rule to include only those main tracks that are connected to the physical presence of a yard and will avoid the operating practices description of yard limits that could potentially encompass an entire railway system. FRA received no negative comments on this clarifying change and is amending § 232.5 accordingly.

##### *Section 232.103 General Requirements for all Train Brake Systems*

As previously noted, FRA is moving the definition of “unattended equipment” to § 232.5, creating an opportunity to rephrase and clarify the introductory language of paragraph (n). Part of this rephrasing includes moving the opening sentence of paragraph (n)—“A train’s air brake shall not be depended upon to hold equipment standing unattended on a grade (including a locomotive, a car, or a train whether or not locomotive is attached)” to paragraph (n)(2). The remaining introductory language of paragraph (n) would become more succinct and clear.

While it is not an RSAC recommendation, FRA is also amending paragraph (n)(1) to make more clear its existing expectation that in most circumstances at least one hand brake must be applied to hold unattended equipment. Although this has been stated in earlier rulemakings and guidance documents (*see, e.g.*, TB 10–01), there has been some confusion about whether the use of wheel chocks, skates, or other securement devices is sufficient to hold unattended equipment. FRA’s longstanding interpretation is that at least one hand brake is required to hold unattended equipment except in certain limited situations. For instance, in a hump classification yard, an alternative form of securement, such as skates and retarders, may be allowed provided they are used within their design criteria and as intended. FRA believes adding explicit language to the regulatory text is warranted in order to formally address the requirement to set at least one hand brake in most instances. Further changes to the rule to incorporate TB 10–01 are discussed further below.

NAFCA encourages FRA to harmonize its changes to § 232.103 in the final rule with the Emergency Directive Pursuant to Section 33 of the Railway Safety Act—Securement of Railway Equipment—issued by Transport Canada on October 29, 2014. In this Emergency Directive, the Canadian government replaced the “sufficient number of hand brakes” requirement with a requirement that trains have a specific number of hand brakes, determined by the weight of the train and the slope of the track. NAFCA favors the increased specificity of the Canadian approach and urges FRA to develop harmonized rules with Canada that are prescriptive, based on sound engineering, and incorporate factors such as train consist/weight, terrain,

environmental, and other considerations. According to NAFCA, it is critically important that the two countries' respective efforts be harmonized, given the closely integrated nature of the North American railroad system. NAFCA asserts that anything less than full harmonization of the two regulatory regimes will significantly disrupt the current flow of rail cars, particularly the tank cars that are the primary topic of the regulatory efforts, between Canada and the United States.

NYSDOT agrees with FRA's clarification that at least one hand brake must be applied except in limited circumstances, such as when skates or retarders are applied in a classification yard. However, similar to NAFCA, NYSDOT states that a more uniform approach to ensuring that unattended trains are left with a sufficient number of hand brakes could be accomplished by codifying in regulation the appropriate number of hand brakes required given the weight, number of cars, and track gradient. According to NYSDOT, this would ensure uniformity amongst all railroads, and would allow inspectors the ability to verify that unattended trains are left with the required amount of hand brakes applied.

When FRA initially drafted the securement rule, it purposefully developed a performance-based requirement in order to permit a railroad to develop appropriate operating rules to verify the sufficiency of the hand brakes applied which can be tailored to the specific territory and equipment operated by the railroad. See 66 FR 4104, 4157, Jan. 17, 2001. When drafting the rule, FRA did not limit such operating rules to a matrix format and stated that the number of hand brakes required to be applied depends on a wide variety of factors not easily captured in a matrix format and that a matrix approach might result in either too few or too many hand brakes being applied. While the commenters listed a few variables—such as the weight, number of cars, and track gradient—FRA does not believe that such a list is definitely exhaustive. FRA also does not presume to know all location and equipment configurations; a regulatory matrix may result in inadvertently ignoring certain other variables to which the railroads may be more intimately aware and cognizant. Moreover, FRA has not found the existing performance requirement to be insufficient; its concern relates primarily to its application, compliance, and enforcement. For the same reasons, in this instance and at this time, FRA does not support developing a technical-

based regulation to apply a uniform regulatory procedure. FRA recognizes that Canada is a strong partner in maintaining cross-border railroad safety and FRA continues to believe that harmonization between Canadian and United States rail safety regulations is beneficial, particularly when differences in regulations create barriers to cross-border transportation, and should be maximized to the extent possible. Therefore, FRA traditionally seeks out and incorporates the views of Canada in developing its safety regulations. FRA, for instance, has actively engaged Canada as a member of RSAC. However, there is no requirement that FRA harmonize each of its requirements with those in Canada and, in light of the aforementioned reasons, FRA believes in this instance that a uniform technical standard is not ideal and that its performance-based securement measures better and more appropriately capture the variables presented by the different rail systems throughout the United States. Further, FRA does not see the absence of harmonization as potentially establishing barriers to cross-border train movements; first, because the operational issue of securement can easily be handled differently on either side of the border, and, second, because in many instances there will not be an actual difference in the number of hand brakes applied to secure similarly situated unattended equipment.

In its comments, BLET indicated that another component of rail securement is derail protection. While BLET acknowledges that this was not discussed in detail in the RSAC SWG, derail protection would reduce the risk of a more serious accident by preventing inadvertently rolling equipment from moving further and gaining speed and momentum. This particular means of securement was not discussed in the NPRM, and FRA is not convinced that this is the safest securement practice. Nevertheless, FRA will continue to monitor the safety efficacy of derail protection as it is applied by regulation in Canada.

As previously mentioned, paragraph (n)(2) now includes language originally placed in the introduction of paragraph (n), which prohibits a train's air brake from being "depended upon to hold equipment standing unattended *on a grade* (including a locomotive, a car, or a train whether or not locomotive is attached)." (Emphasis added.) This final rule also removes the phrase "on a grade," as such a requirement is arguably superfluous and confusing. In its comments, Amsted indicated its support for this change. Perfectly level track is rare, and there is still a risk of

unattended movement caused by numerous factors, such as a mistake in the location or length of the level track, the effect of extreme weather, or an impact from other equipment. Moreover, the phrase "on a grade" has led some to the erroneous conclusion that hand brakes must only be applied if the equipment is left on a grade. While grade is likely a factor in determining the number of hand brakes that would sufficiently hold unattended equipment, it is not a factor in determining whether hand brakes should be applied at all. Accordingly, this final rule makes clearer that the hand brake application requirement is not contingent upon the existence of a grade.

Proposed paragraphs (n)(6) through (n)(8) address the aforementioned heightened concerns relating to the securement of unattended equipment carrying certain hazardous materials. Paragraph (n)(6) defines the type of equipment covered by these requirements and is intended to ensure that proposed paragraphs (n)(7) and (n)(8) apply only to equipment that includes loads. Specifically, paragraph (n)(6) provides that the substantive requirements of paragraphs (n)(7) and (n)(8) apply to:

- (1) Any loaded tank car containing PIH material, including anhydrous ammonia and ammonia solutions; or
- (2) twenty (20) or more loaded tank cars or loaded intermodal portable tanks of any one or any combination of PIH materials (including anhydrous ammonia and ammonia solutions), or any flammable gas, flammable or combustible liquid, explosives, or a hazardous substance listed at § 173.31(f)(2) of this title.

FRA notes that this language is broader than the language used in PHMSA's NPRM on Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains (HHFTs). See 79 FR 45016, Aug. 1, 2014. In that rule, PHMSA proposed certain new requirements for HHFTs, which it defines as "a train comprised of 20 or more carloads of a Class 3 flammable liquid and ensures that the rail requirements are more closely aligned with the risks posed by the operation of these trains." 79 FR at 45017. Paragraph (n)(6) includes new securement requirements that cover a single PIH tank car. Moreover, where the proposed PHMSA rule would only cover trains with 20 or more carloads of flammable liquids, paragraph (n)(6) covers situations where there are 20 or more loaded tank cars or loaded intermodal portable tanks of PIH materials,

flammable gases, flammable or combustible liquids, explosives, other hazard substances listed at § 173.31(f)(2), or any combination thereof.

FRA sought comment on this proposal and on whether a defined term should be used for equipment covered under paragraph (n)(6).

From the standpoint of public safety, NYSDOT supports FRA's broadening the language of this rule to include the securement of unattended equipment transporting hazardous materials beyond those defined as HHFTs in PHMSA's earlier NPRM. NYSDOT also suggests using a "defined term" for the equipment covered under paragraph (n)(6), which it says would provide a simple way to differentiate it from those defined elsewhere in regulation (e.g. HHFTs).

AAR and ASLRRRA expressed concern that this requirement in Emergency Order 28 applied to a "loaded tank car," but that the proposed rule applies to a "loaded freight car." AAR and ASLRRRA assert that this change could potentially and inadvertently affect a much larger number of rail cars, including those intermodal shipments of miscellaneous items such as cleaning supplies and swimming pool chemicals. Accordingly, AAR and ASLRRRA recommend that the final rule retain the original language from Emergency Order 28.

FRA recognizes the merit in AAR's and ASLRRRA's comment and is reverting to the language that was originally proposed at the RSAC level. As for using a defined term to capture the types of equipment delineated in paragraph (n)(6), FRA declines. FRA recognizes and appreciates the benefits of using a more elegantly defined term. However, no such term was offered and FRA is unaware of any appropriate term to use at this time.

The regulatory text exempts residue cars from consideration. Residue cars are defined by PHMSA under the HMR. See 49 CFR 171.8. FRA will continue to rely on the HMR for this definition, even if amended. FRA does not believe the train placement requirements in that PHMSA rulemaking will affect the securement regulations we are adopting in the instant proceeding. Nevertheless, the labor representatives have expressed concerns that such inconsistent use may foster confusion or be "pitted against one another." FRA sought further comment explaining how such confusion or conflict may manifest itself.

NYSDOT believes that exempting residue cars from the requirements of this rule would appear contradictory to the language contained throughout the HMR, which have been written from a perspective that a packaging containing residue remains potentially hazardous. Although FRA does not believe that any resulting train placement regulation would affect the securement regulations we are considering, it is not clear to NYSDOT what particular advantage is gained by granting this exception for residue cars. From a risk perspective, NYSDOT believes it would seem reasonable to treat all placarded residue cars as potentially hazardous until such time that they are cleaned and purged, including for the purposes of securement. In order to avoid the potential for confusion in terms of interpreting the HMR, NYSDOT contends that the provisions that apply to residue cars should remain consistent throughout. Therefore, NYSDOT recommends that the exclusion outlined in 232.103(n)(6)(ii) not be included in the final rule.

Riverkeeper believes that residue cars are still inherently dangerous and

should be covered by the regulation. According to Riverkeeper, cars carrying crude oil such as heavy, sinking tar sands oils, are expected to become more regularly shipped and, if spilled, could cause equally significant economic and environmental damage.

When considering whether to apply the applicable requirements to residue cars, FRA made an effort to balance the associated risks with the cost of compliance. While FRA recognizes that certain residue tank cars may still pose inherent danger in the event of a release, experience has shown that the magnitude of the results are significantly less than those from an event releasing the contents of a loaded tank car. Further, loaded tank cars are generally treated more rigorously by existing Federal safety regulations. See, e.g., 49 CFR 172.204(b)(2), 174.14, and 174.86(b). Given the cost of compliance, FRA believes that regulatory relief is warranted here. Moreover, FRA notes that all of its existing securement requirements contained in paragraph (n) apply to trains and cars containing residue cars. Nevertheless, FRA will continue to monitor accidents involving residue tank cars and will continue to dialog with PHMSA to determine whether further action will become necessary in the future.

Paragraph (n)(7) provides certain conditions under which such equipment may be left unattended, including the development of a plan identifying locations where such equipment may be left unattended. Paragraph (n)(8) includes specific requirements regarding the securement of such equipment. The following chart attempts to quickly summarize the requirements of paragraphs (n)(7) and (n)(8).

SECUREMENT OF UNATTENDED EQUIPMENT DEFINED BY § 232.103(N)(6)

Paragraph	Equipment	Track location	Requirement
(7)(i)	All	Main track or siding outside and not adjacent to a yard.	Plan.
(7)(ii)	Freight train	In or adjacent to yard	Verify (8)(i) and Apply Lock (8)(ii).
(8)(i)	Freight train or standing freight car or cars.	Main line outside yard	Verify (8)(i) and Apply Lock (8)(ii).
(8)(ii)	Controlling locomotive cab	Everywhere	Apply Lock.
(8)(iii)	Locomotive	In or adjacent to yard	Exception to applying lock if locomotive not equipped with lock, or if lock not operable and reverser not removable.

Emergency Order 28 prohibits each railroad from leaving trains or vehicles that are transporting certain hazardous materials on mainline track or mainline siding outside of a yard or terminal unless the railroad adopts and complies

with a plan that identifies the specific locations and circumstances for which it is safe and suitable for leaving such trains or vehicles unattended. According to Emergency Order 28, the plan must contain sufficient analysis of

the safety risks and any mitigating circumstances the railroad has considered in making its determination. FRA expressed its intent not to formally grant approval to any plan. However, it does monitor such plans, and, in the

event that FRA determines that adequate justification is not provided, the railroad is required to ensure that trains and equipment are attended until appropriate modifications are made to the railroad's plan.

In paragraph (n)(7)(i), FRA continues these requirements by regulation. While FRA continues to believe that it is not necessary to provide approval for each plan, which could take considerable resources, FRA must ensure proper enforcement and oversight.

Accordingly, paragraph (n)(7)(i) also requires that the railroad notify FRA when it modifies its existing plan and provide FRA with a copy of the plan upon request. For similar reasons, FRA will also retain the right to require modifications to any insufficient plan.

Riverkeeper notes that the equipment defined under paragraph (n)(6) can be left unattended if a justification is provided to FRA, characterizing this allowance as a "loophole." Riverkeeper also criticizes FRA's decision to reserve the right to review any plan as an "abrogation of responsibility" and asserts that railroads should not be left to develop their own plans without FRA review.

FRA disagrees with Riverkeeper's characterization. The existing regulations have always allowed equipment to be left unattended and provided that certain actions be taken to secure equipment in such instances. From an economic perspective, this would be extremely burdensome. From a safety perspective, there would only be a marginal benefit to require at all times attendance on a train defined by § 232.103(n)(6) when it has been properly secured in accordance with the provisions in this final rule. The "justification" referenced by Riverkeeper is not a "loophole" because it relates solely to the new requirement that the railroads identify locations where equipment may be left unattended. Moreover, FRA's decision to not require FRA approval of each plan is also consistent with the principles of regulatory economy and FRA's budget and personnel capabilities. The plans, which concern appropriate and safe locations, do not necessarily include any additional safety requirements per paragraph (n)(7). Thus, FRA does not believe that prior FRA approval is absolutely necessary here. Nevertheless, FRA has reserved the right to access, review, and require modification of the plan in the event it determines a location is insufficiently safe to leave equipment unattended.

In relation to the requirement that the railroad must notify FRA when it

modifies its existing plan and provide FRA with a copy of the plan upon request, CPUC requests that such authority extend to all State Safety Participation personnel. CPUC also requests that FRA and its state partners have access upon request to the underlying research that validates these plans as safe to provide for "validating oversight."

FRA believes that the modification proposed by CPUC is unnecessary because state inspectors that have the authority to inspect for part 232 compliance would be entitled to independently receive the plan directly from a railroad as long as it is requested in the course of a safety inspection and it is necessary for determining compliance with the relevant section in part 232. While state inspectors have faced difficulties with railroad responsiveness, FRA inspectors have experienced the same problems. The agency has engaged AAR on this issue to ensure that railroads are providing requested materials in a timely manner. See Letter to Edward R. Hamberger, President, AAR, from Joseph C. Szabo, Administrator, FRA (April 4, 2013). If FRA or state inspectors are unable to obtain such documentation, they should contact the appropriate FRA Railroad System Oversight Manager (RSOM) or FRA Regional personnel for assistance.

Paragraph (n)(7)(i) differs from Emergency Order 28 in one manner. The final rule allows a railroad to leave a train or equipment unattended on mainline track that is running through a yard or on mainline track that is adjacent to the yard without covering the location in the railroad's plan. This change is based on feedback received during the SWG meetings, which voted unanimously to adopt the language in paragraph (n)(7)(i), with the recommendation of the full RSAC to move forward with the regulatory provision.

In Emergency Order 28, FRA made a decision that it was not necessary to include mainline tracks and mainline sidings that run through a yard in a railroad's plan for leaving equipment unattended. FRA's rationale for this decision was that a yard was defined space where the railroad performed a particular set of tasks (classifying cars, making-up and inspecting trains, or storing cars and equipment). As a result of the tasks performed there, yards tend to have appropriate geographic characteristics, sufficient railroad activity, and a population of railroad personnel in close proximity that make them appropriate places for leaving equipment unattended. In FRA's view, mainline track that runs through a yard

shares those characteristics with the yard tracks surrounding it. As a result, it is often used as a *de facto* "yard" track to assist with classifying cars and with making-up and inspecting trains. As such, FRA did not see a need when drafting Emergency Order 28 for railroads to identify mainline tracks within a yard in the railroad's securement plan before a railroad would be allowed to leave equipment unattended on the mainline track that is surrounded by a yard.

The feedback received through the RSAC process was that tracks adjacent to the yard share many of the same characteristics as mainline tracks that run through a yard. Therefore, this final rule, as proposed in the NPRM, treats mainline track that is adjacent to the yard in the same manner that it is currently treating mainline track that runs through a yard under Emergency Order 28. This requirement intends only to cover those tracks that are immediately adjacent to the yard and that are in close enough proximity to the yard that the adjacent tracks share the characteristics of the yard.

NAFCA contests this requirement as proposed, believing that such a change should be postponed until after more experience with observing multi-car train movements of Class 3 flammable liquids. According to NAFCA, the requirement in Emergency Order 28 is not unduly burdensome to the railroad. FRA declines to postpone treating the identified adjacent tracks as mainline yard tracks. NAFCA does not explain what benefits could be gained with additional experience and does not provide quantifiable or qualified information to support its position that such a postponement would not be unduly burdensome to the railroads.

Given that there are vast differences in surrounding population densities and in the amount of railroad activity that takes place at different rail yards, NYSDOT believes that there should be no differentiation in plan requirements simply because the mainline tracks go through or are adjacent to rail yards. According to NYSDOT, there are many railroad yards located in rural areas of New York State with limited rail operation activity, low population density and in which ambient lighting may be poor or nonexistent. In a letter to President Obama dated September 23, 2014, Governor Cuomo recently outlined New York's safety concerns in and around the areas in which crude-by-rail trains dwell. NYSDOT believes that sufficient analysis of the safety risks and any mitigating circumstances should be part of a railroad's plan for all mainline tracks and sidings irrespective of

whether those tracks go through or are adjacent to a rail yard.

Similarly, Riverkeeper contends that FRA is assuming that trains are inherently more secure in and around yards to the point that they do not need to be included in these securement regulations, because rail yards and sidings generally have more activity than lone, far-flung mainline track. Riverkeeper asserts that this conclusion is not supported by any presented facts and ignores the risks of unsecured trains rolling out of yards, or sidings, or mainlines near yards, potentially toward imminent and significant disaster. According to Riverkeeper, FRA's decision to treat yard-adjacent tracks the same as mainline tracks within the yard arbitrarily relies on nonspecific "railroad" activity and the assumption that rail yard workers would be able to respond to a runaway train in time to avoid disaster. Riverkeeper concludes that any final rule on securement must apply to all unattended trains, regardless of where they are left.

As discussed previously, the yard exception in paragraph (n)(7)(i) is due to FRA's assessment that yards overwhelming tend to have appropriate geographic characteristics for leaving equipment unattended and that there is a higher likelihood of qualified people being present and switching operations occurring. FRA believes that some commenters misunderstand the purpose of the plan, which is merely to identify locations where equipment may be left unattended. The plan requirement does not exempt the railroads from any securement requirements under § 232.103(n). In other words, securement of unattended equipment is required regardless of location—except as subject to certain switching-related exceptions, including those relating to TB 10–01—and paragraph (n)(7)(i) does not affect those requirements. To the extent that those commenting on paragraph (n)(7)(i) are concerned that the plan would exempt railroads from complying with the hand brake and other mechanical securement requirements, FRA assures them that this is not the case.

Paragraph (n)(7)(ii) establishes new requirements for those trains that are left unattended on mainline track that is running through a yard or on mainline track that is adjacent to the yard. It applies aspects of Emergency Order 28 to these tracks by requiring verification that securement has been completed in accordance with the railroad's process and procedures (see discussion below concerning paragraph (n)(8)(i)), and that the locomotive cab is locked or the reverser is removed from the control

stand and placed in a secured location (see discussion below concerning paragraph (n)(8)(ii)), unless the exception contained in paragraph (n)(8)(iii) is applicable.

Emergency Order 28 requires railroads to develop specific processes for employees responsible for securing any unattended train or vehicles transporting certain hazardous materials that must be left on mainline track or a mainline siding outside of a yard. FRA believes that this requirement should continue in regulation. This final rule allows a railroad to leave a paragraph (n)(6) train unattended on mainline track or a siding outside of a yard where the railroad has a plan in place and on mainline tracks that are in or adjacent to yards. In doing so, paragraph (n)(8)(i) requires the employee responsible for the securement of the equipment to verify securement and paragraph (n)(8)(ii) requires the train crew to lock the controlling locomotive cab or remove and secure the reverser from the control stand.<sup>17</sup>

NYSDOT expresses confusion as to the consistency of cross-referencing language in paragraphs (n)(7)(ii) and (n)(8)(i). Paragraph (n)(7)(ii) refers to trains described in paragraph (n)(6) that are "left unattended on a main track or siding that *runs through, or is directly adjacent to a yard,*" and states that the requirements of paragraph 8(i) and 8(ii) "shall apply." (Emphases NYSDOT's.) However, paragraph (n)(8)(i) states, "Where a freight train or standing freight car or cars as described in paragraph (n)(6) of this section is left unattended on a main track or siding *outside of a yard, and not directly adjacent to a yard,* an employee responsible for securing the equipment shall verify with another person qualified to make the determination that the equipment is secured in accordance with the railroad's processes and procedures." (Emphasis NYSDOT's.) According to NYSDOT, the wording "shall apply" would seem to render the provisions of paragraph (n)(7)(ii) moot, since it appears to default to the provisions of paragraphs (n)(8)(i) and (n)(8)(ii) for all trains left unattended, irrespective of their location relative to a yard.

FRA understands that NYSDOT is expressing confusion in that paragraph (n)(7)(ii) applies to trains in or adjacent to a yard must follow paragraph (n)(8)(i), which actually applies to trains outside a yard. FRA would like to

<sup>17</sup> The reverser is the directional control for the locomotive. Removing the reverser would essentially put the locomotive in neutral, preventing it from moving forward or backward under the power of the engine.

clarify that the distinction here is that (n)(7)(ii) limits the applicability of (n)(8) only to trains left unattended in yards or adjacent to them, whereas the provisions of (n)(8) apply to both trains and cars left outside of yards. In other words, in context with one another, these paragraphs require securement verification and lock application on all unattended freight trains defined under paragraph (n)(6), regardless of whether they are located inside or outside of a yard, and on all standing freight cars defined under paragraph (n)(6) on a main line outside of a yard. The implication is that these requirements do not apply to standing freight cars inside and adjacent to yards. FRA intends the above chart to act as a visual aid to communicate these similarities and differences.

NYSDOT is in agreement with the requirement that an employee responsible for securing the equipment shall verify with another qualified person that the equipment is secured in accordance with railroad procedures for all trains left unattended. Based upon its interpretation as written, NYSDOT suggests that paragraph (n)(7)(ii) be omitted and that the language of paragraph (n)(8)(i) be changed to: "Where a freight train or standing freight car or cars as described in paragraph [(n)(6)] of this section is left unattended on a main track or siding, an employee responsible for securing the equipment shall verify [ . . . ] etc."

Paragraph (n)(8)(i) requires that an employee responsible for securing equipment defined by paragraph (n)(6) verify securement with another qualified person. This is similar to Emergency Order 28, which requires employees to verify proper securement with a qualified railroad employee. This may be done by relaying pertinent securement information (*i.e.*, the number of hand brakes applied, the tonnage and length of the train or vehicle, the grade and terrain features of the track, any relevant weather conditions, and the type of equipment being secured) to the qualified railroad employee. The qualified railroad employee must then verify and confirm with the train crew that the securement meets the railroad's requirements. However, paragraph (n)(8)(i) does not contain a requirement that the railroad maintain a record of the verification of proper securement.

FRA believes that the type of verification requirement in paragraph (n)(8)(i) will serve to ensure that any employee who is responsible for securing equipment containing hazardous materials will follow appropriate procedures because the



employee will need to fully consider the securement procedures to relay what was done to the qualified employee. Further, the qualified railroad employee (e.g. a trainmaster, road foreman of engines, or another train crew employee) will be in a position to ensure that a sufficient number of hand brakes have been applied. Under this final rule, the qualified railroad employee must have adequate knowledge of the railroad's securement requirements for the specific location or for the specific circumstance for which the equipment will be left unattended. Without limiting the type of employee who may be qualified, FRA envisions that a dispatcher, roadmaster, yardmaster, road foreman of engines, or another crew member would be able to serve in the verification capacity.

Riverkeeper criticizes FRA's "refusal" to limit the type of employee who may be qualified and claims that FRA also fails to specify the type of verification or even the details that must be provided.

As previously noted, FRA believes that a certain set of qualifications or base of knowledge is necessary to be part of the conversation relating to securement. While the employee's "type" or title may be instructive, it should not be the sole or primary element in determining whether an individual is qualified to apply or verify the securement rules. FRA also believes that the existing rule and this final rule address the needs relating to the type of verification or its required details. As for the required details, they have already been established in the existing regulations and in each railroad's processes and procedures. According to the proposed text, the responsible employee must "verify with another person qualified to make the determination that the equipment is secured in accordance with the railroad's processes and procedures." Riverkeeper suggests no further details clarifying its position to FRA.

FRA has decided not to continue the recordation requirement based on experience enforcing section 2b of Emergency Order 28. FRA has found that requiring recordation of securement information is superfluous because the verification requirement ensures that two individuals consulting with each other make certain that the appropriate securement method is used. The intent of the recordation requirement was to ensure the communications are taking place. FRA has found that, since issuance of Emergency Order 28, communications occur in the course of the verification process. Therefore, it does not believe requiring railroads to

make a record of each securement event is necessary to ensure proper securement. FRA sought comment concerning enforcement of the verification requirement, absent recordation.

CPUC does not see sufficient justification for eliminating the recordation requirement under Emergency Order 28. CPUC recommends that FRA at least reinstate some form of recording of the details of securing the train—such as a crew member filling out a form and leaving on the controlling locomotive—detailing the method used and the specifics of implementing the method—such as the number of hand brakes tied per the railroad's process and procedure already required by regulation. According to CPUC, such a requirement would enhance accountability, require more careful attention, provide better crew-to-crew communications, avoid dispatcher time and record keeping, and aid in accident investigations, enforcement efforts, and safety practice improvements.

CPUC would also not rely on FRA's recent experience as sufficient to warrant removal of the recordation requirement. CPUC believes that as more time passes and attention to the Lac-Mégantic accident fades, the public cannot be confident that all safe practices will be followed without structured verification.

NAFCA believes that recordation is a salutatory safety measure that should remain in place for the foreseeable future, recommending that it only be rescinded after FRA gains more experience in this area.

NTSB believes that a recordation process for the verification of proper securement is critical for ensuring that unattended equipment is secure and that FRA should continue this requirement from Emergency Order 28, which provided a definitive check on the process. NTSB suggests that written verification (recordation) be required when one crew member leaves a train unattended. According to NTSB, such a requirement would provide verification of the work performed and offer information to the relieving crew (for inclusion in job briefings) regarding the condition and status of equipment. NTSB also claims that in the NPRM FRA provided no data to support its decision not to continue the recordation requirement "based on experience in enforcing Emergency Order 28."

NYSDOT supports maintaining the recordation requirement and believes that its removal would make extremely challenging enforcement of § 232.103(n) as it relates to such recordation and to

verify how actual and adequate securement. NYSDOT notes that it aids the incoming train crew in its assessment of how many hand brakes need to be released before the train continues its movement.

Riverkeeper also believes that the recordation requirement should remain. Otherwise, states Riverkeeper, an employee may easily not comply with safety protocols and FRA may find it difficult to meaningfully enforce the securement requirements. Riverkeeper also characterizes as circular FRA's justification for removing the recordation requirement; while FRA's purpose to require recordation was to ensure that communications are taking place, FRA found that over the last year that communications occur in the course of the verification process and that recording is not necessary. Riverkeeper asserts that FRA failed to provide any evidence supporting its contention that "over the last year . . . communications occur" between the securing employee and the overseeing employee. Riverkeeper also believes that FRA misses the point that maintaining records is to allow for oversight and enforcement.

Under the existing rule, the railroads are required to secure unattended equipment by applying a sufficient number of hand brakes and other safety procedures. FRA continues to believe that the existing requirements, if followed, include sufficient protections. FRA's concerns have been raised, particularly in the face of the accident in Lac Mégantic, regarding compliance with those measures. Thus, when FRA issued Emergency Order 28, it included requirements with the primary goal to increase railroad compliance with the existing safety requirements as they apply to certain hazardous materials shipments. The requirement that the employee responsible for securement verify with a qualified person whether the equipment was secured appropriately was drafted as a communicative measure to ensure compliance with existing securement requirements. The recordation requirement was an additional, second layer of communication to also ensure such compliance. While its supplementary benefits included a documentation of the information that could aid other crews, future investigations, and enforcement actions, those were not FRA's primary goals. While recordation would provide such additional benefits, FRA believes that verification should be sufficient at this time, especially since recordation of securement could result in expending railroad resources as an unnecessary



redundancy. FRA's inspectors have extensive experience in enforcing communicative regulations without the benefit of documentation (*see, e.g.*, 49 CFR 218.99, 218.103, 218.105, and 218.109). While recordation may be helpful in some instances, it is not necessary. For instance, since verification must be accomplished by at least two people, an inspector may interview them both to determine whether verification occurred correctly.

FRA has faced similar questions before regarding recordation of certain activities. For instance, in a rulemaking codifying the requirements of Emergency Order 24 concerning the handling of equipment, switches, and fixed derails, FRA declined to continually require the use of a Switch Position Awareness Form (SPAF) to remind employees of the importance of properly lining and locking main track switches. *See* 73 FR 8442, 8448, Feb. 13, 2008. While the resulting paperwork burden and communication redundancy was acceptable for the purposes of Emergency Order 24, FRA decided not to require a SPAF in the associated final rule because other comprehensive communication regulatory requirements created a direct enforcement mechanism that made enforcement through a SPAF redundant. *See id.* In that rulemaking, and in its own proceedings, NTSB supported removal of the similar paperwork burden. *See id.; NTSB, Collision of Norfolk Southern Freight Train 192 With Standing Norfolk Southern Local Train P22 With Subsequent Hazardous Materials Release at Graniteville, South Carolina, Railroad Accident Report, NTSB/RAR-05/04, at 45, available at <http://www.nts.gov/investigations/AccidentReports/Reports/RAR0504.pdf>.* FRA's position in this rulemaking is consistent with the position taken in the final rule codifying Emergency Order 24. There have not been adverse safety consequences associated with eliminating the reporting requirement in Emergency Order 24, and FRA does not expect any adverse safety consequences in this instance. However, FRA will continue to monitor securement of equipment defined under paragraph (n)(6) to assess the effectiveness of the verification process that is being instituted in this final rule.

Also under Emergency Order 28, the employees responsible for securing the train or vehicles must lock the controlling locomotive cab door or remove and secure the reverser before leaving it unattended. Accordingly, paragraph (n)(8)(ii) requires further protection of the locomotive to prevent movement of unattended equipment

that could be caused by unauthorized access to the locomotive cab.

Representatives from the railroad labor strongly suggested at the SWG meetings that a locking mechanism be applied to each locomotive covered under this rule, seeking that lock installation be complete within 18 months. BLET stated that locomotive cab security is a major concern to the labor caucus.

The language approved by the SWG provided that the controlling locomotive cab shall be locked on locomotives capable of being locked or the reverser on the controlling locomotive shall be removed from the control stand and placed in a secured location. The use of the conjunctive appears to indicate a choice; each railroad may opt to either lock the locomotive or remove its reverser. However, based on the discussions during the SWG meetings, FRA believes that the SWG intended for paragraph (n)(8)(ii) to mean that all covered locomotives should be locked when so equipped. FRA has made slight alterations to the language in paragraph (n)(8)(ii) from the language that was approved by the SWG in order to more accurately address the lock requirement. FRA understands that the reverser provision is intended for the interim period until locks are installed or for when a locomotive has been equipped with a lock but the lock has become inoperative. FRA also notes that under this final rule a railroad would be free to require both the locking of the locomotive and the removal of the reverser. FRA does not intend to limit a railroad to just one or the other. FRA sought comment on this understanding, particularly as to whether the alternative of removing the reverser should only be available during the timeframe when the locking mechanism becomes broken or otherwise ineffective or whether, in the interest of safety redundancy, the regulations should require railroads to both lock cab doors and to remove reverser handles.

NTSB believes that, in the interest of safety, the regulation should require the locking of the locomotive cab doors, as well as removing and securing the reverser handles. According to NTSB, such redundancy will ensure a higher level of safety.

NYSDOT also supports the view that redundancy of safety or security procedures is beneficial in terms of addressing risk. Therefore, NYSDOT believes that, when the train is left unattended, the locomotive cab door lock must be engaged (if operative) and the reverser must be removed and secured where feasible.

FRA is not persuaded by the comments, which provide no new information or argument. FRA continues to believe that it is not necessary to ensure safety by requiring by regulation the locking of the cab door and removal of the reverser. FRA recognizes that the railroads are already, or will be, installing locks on cab doors. This final rule formally requires such installation and requires their application for unsecured equipment in accordance with this rule. While this final rule does not require removal of the reverser in cases where an operative lock is applied, the railroads are free to include such a requirement in their respective operating rules. For the purpose of this final rule, the lock will be the primary means of locomotive cab securement and reverser removal will be required only as a backup.

When a railroad relies on removing the reverser as a means for securement, FRA expects that the reverser will be taken by the appropriate railroad employee from the controlling locomotive cab so that it is not accessible to an unauthorized person such as a trespasser. Alternatively, FRA anticipates allowing the reverser to be secured in the cab of an unlocked controlling locomotive as long as the reverser is kept in a box or other compartment that can be locked within the locomotive cab. However, FRA would not consider a reverser "secured" within the meaning of this final rule if the railroad allows the reverser to be stored merely out of plain sight.

In most instances, FRA would consider a locomotive with an ineffective locking mechanism to be noncompliant with paragraph (n)(8)(ii) if the locomotive is left unattended with the reverser remaining in the control stand. FRA recognizes that there may be limited circumstances where a locomotive's lock becomes inoperative and its reverser cannot be removed, thus making compliance with proposed paragraph (n)(8)(ii) nearly impossible. Accordingly, for such instances, this final rule includes an exception under paragraph (n)(8)(iii). FRA believes that application of this exception would only be utilized on the rare occasion where older locomotives with integrated reversers may be utilized or where weather conditions make the reverser necessary for operations (*i.e.*, to prevent the locomotive from freezing) and that such trains would only be left unattended in a yard or on a track directly adjacent to a yard. FRA sought comments on the intent, application, and language of this proposed exception.

NYSDOT states that the data provided in the analysis section of the NPRM indicates that the cost associated with repairing or replacing a locking mechanism is relatively small.

According to NYSDOT, it is accepted that the goal of this particular exception is to provide relief in the rare instances where operation of "non-conforming" equipment (e.g. locomotive cabs without operative locks or removable reversers) would be required. However, given the acknowledged security concerns inherent with leaving trains unattended, NYSDOT asserts that consideration should be given to requiring attendance on the affected equipment until such time that the inoperative locking mechanisms can be repaired or replaced in conformance with paragraph (n)(8)(ii).

The purpose of the existing securement rule and this final rule is not to require attendance, but to require certain safety protocols when certain equipment is left unattended. To require attendance, as suggested by NYSDOT, would have this rule go further than FRA's intent and could amount to substantial and unnecessary costs for the railroads. Moreover, such a requirement likely would result in unanticipated impacts affecting FRA's hours of service rules, which is not FRA's intent in this rulemaking.

FRA believes that the job briefing requirement in Emergency Order 28 should be codified in regulation. Accordingly, paragraph (n)(9) requires each railroad to implement operating rules and practices requiring the discussion of securement among crew members and other involved railroad employees before engaging in any job that will impact or require the securement of any equipment in the course of the work being performed. This requirement is analogous to other Federal regulations that require crew members to have a job briefing before performing various tasks, such as confirming the position of a main track switch before leaving an area. The purpose of this job briefing requirement is to make certain that all crew members and other involved railroad employees are aware of what is necessary to properly secure the equipment in compliance with § 232.103(n).

Under this final rule, FRA expects that the crew will discuss the equipment that is impacted, the responsibilities of each employee involved in the securement of a train or vehicle, the number of hand brakes that will be required to secure the affected equipment, the process for ensuring that securement is sufficient, how the verification will be determined, and any

other relevant factors affecting securement. FRA sought comments on whether these expectations are reasonable, accurate, and either sufficiently comprehensive or somehow lacking.

NYSDOT agrees that the specific job briefing requirements should be left up to the railroads and that effective policies and procedures are important. However, NYSDOT remains concerned about the ability to record or document the actions taken in accordance with those policies and procedures.

Riverkeeper believes that, although FRA claims that new requirements of the rules proposed here would indeed "enhance safety culture and oversight," the new requirements do not go far enough and lack the enforceability needed to actually change the status quo. Riverkeeper says that, while the NPRM proposes "requiring that securement be part of all relevant job briefings," FRA has no ability to ascertain whether briefed employees understand, or are implementing, securement policies. Riverkeeper similarly states that although FRA proposes requiring that there be more "dialog between railroad employees [which would] provide enhanced oversight within the organization," it has no way to ensure that such dialogs occur, or whether they actually improve compliance rates. Riverkeeper notes that neither of these cultural changes will necessarily be reported to the FRA or the public in a manner that promotes transparent oversight and robust enforcement.

FRA disagrees with Riverkeeper's assessment regarding the effectiveness of the job briefing requirement and its regulatory enforceability. Crew members are already trained and qualified to understand briefing contents and the procedures and mechanics involved with securing unattended equipment. FRA also has extensive experience enforcing the job briefing criteria (*see, e.g.*, 49 CFR 214.315, 218.99, 218.103, 218.105, and 218.109) and expects to apply similar investigative methods when enforcing paragraph (n).

FRA recognizes that, in some instances, there may be only one crew member performing a switch or operation and that crew member would have to secure equipment alone at the end of the activity. In the NPRM, FRA expressed its belief that the issue of self-satisfying a job briefing is best left to the railroad when complying with part 218 and sought comment on how to apply this requirement in a situation involving a single person crew and how it interrelates with part 218.

NYSDOT acknowledges that single person crews pose a challenge in terms of ensuring that the safety benefits inherent with effective job briefings are assured in all instances, including single-person operations. At a minimum, states NYSDOT, the procedures for conducting job briefings should be established in the railroad's operating rules or in its timetable special instruction for all locations and operations to ensure that expectations are clearly established.

FRA continues to believe that it is sufficient for a one-person crew to self-satisfy a job briefing in accordance with the railroad's own operating rules developed pursuant to part 218.

Under paragraph (n)(10), FRA is requiring railroads to develop procedures to ensure that a qualified railroad employee inspects all equipment that any emergency responder has been on, under, or between for proper securement before the rail equipment or train is left unattended. As it may be necessary for emergency responders to modify the state of the equipment for the performance of their jobs by going on, under, or between equipment, it is critical for the railroad to have a qualified employee subsequently inspect the equipment to ensure that the equipment continues to be properly secured before it is again left unattended.

The final rule requires railroads to establish a process to ensure that a qualified railroad employee inspects all equipment that any emergency responder (e.g., fireman, policeman, or paramedic) has been on, under, or between for proper securement before the train or vehicle is left unattended. FRA understands that on rare occasions there may be situations where an emergency responder accesses railroad equipment without the knowledge of the railroad. FRA will expect that a qualified railroad employee inspect equipment after it has been accessed by an emergency responder in any circumstance where the railroad acting in a reasonable manner knew or should have known of an emergency responder's presence on, under, or between the subject equipment.

The final rule requires that these procedures are followed as soon as safely practicable after learning that an emergency responder has interfaced with the equipment. In the NPRM, FRA sought comments on what should be considered "as soon as safely practicable."

AAR and ASLRRRA reiterated earlier statements that the railroads support, and that the final rule should include,

the language “as soon as safely practicable.” AAR and ASLRRRA assert that this language addresses the reality of situations where an emergency responder has had contact with rail equipment.

NYSDOT believes that the type and severity associated with any emergency event will significantly influence the definition of “as soon as safely practicable.” NYSDOT would recommend that, given their significant training regarding personal safety and protection, the first responders on-site would be a reasonable ‘real time’ resource to provide the requisite guidance in each case. NYSDOT consulted with counterparts from the NYS Division of Homeland Security and Emergency Services (DHSES), Office of Fire Prevention and Control (OFPC) on this topic. OFPC recommends that for scenarios in which first responders access unattended equipment without the on-site presence of railroad personnel, effective communication and coordination will be critical in assuring that the incident scene and access to the equipment be turned over to the appropriate railroad representative (*i.e.* “qualified employee”) when it has been determined safe to do so. NYSDOT also states that in no case should the affected equipment be left in a potentially unsafe or unattended condition prior to the arrival of railroad personnel designated by the railroad to inspect and assume responsibility for that equipment and its proper securement.

FRA shares NYSDOT’s concerns. However, while emergency and first responder training would certainly be beneficial, FRA will refrain from imposing such requirements at this time. Emergency response is primarily a local function that falls under State or local governance, which could impose such training requirements. FRA notes, however, that AAR is currently providing training at its Transportation Technology Center, Inc. (TTCI) to emergency responders on handling accidents involving crude oil. Moreover, if each railroad’s employee is properly trained and complies with this regulation, there is little need to require emergency responder training, which could be quite costly nationwide.

AAR and ASLRRRA also make clear their belief that, in such a situation, the railroad has to have actual knowledge that an emergency responder has been on the equipment and it has to be safe for the employee to inspect the equipment. According to AAR and ASLRRRA, in some situations, the railroad might not know that an emergency responder has been in contact with the equipment until

sometime after the contact. Additionally, AAR and ASLRRRA assert that in a potential emergency situation, the railroad needs to be able to ensure that its employees can safely examine the equipment before being able to verify its securement.

When enforcing this provision, FRA will consider the railroad’s actual and constructive knowledge of any emergency responder’s presence. However, FRA does not expect to hold the railroad accountable if there is no reasonable means for the railroad to have known. Further, the “safely practicable” language is intended to take into consideration the circumstances presented. FRA’s intent with this regulation is not put a railroad employee in harm’s way by requiring him or her to enter an unsafe situation following an instance where a first responder goes on, under, or between equipment. However, FRA will require the railroad to take action once it can be reasonably ascertained that securement can be effectuated without unnecessary danger.

As noted above, on March 24, 2010, FRA issued TB 10–01 to provide enforcement guidance regarding the securement of equipment, particularly in classification yards. In the NPRM to this proceeding, FRA proposed codifying TB 10–01 by amending the rule at the final rule stage of this proceeding. Accordingly, this final rule includes a clarifying amendment to ensure that FRA’s long-standing interpretation and application of the existing regulation is contained directly in the regulation. These amendments are for clarification purposes only and add no new requirements to the regulations.

NYSDOT agrees with the exception in TB 10–01 that, in certain circumstances within classification yards, skates or retarders in lieu of hand brakes may be used to secure equipment. AAR and ASLRRRA expressed concern that the NPRM did not include any proposed regulatory text and recommended that FRA place the issue before the RSAC SWG for discussion.

TB 10–01 was issued approximately five years ago and the railroad industry has had significant opportunity to become accustomed to its interpretations of the existing rules. TB 10–01, and its codification in this rulemaking, does not provide any new requirements; if anything, it formalizes exceptions that provide operational flexibility for railroads in classification yards. FRA sought comment on this issue and had not received any regulatory text recommendations. Accordingly, FRA does not believe it is

necessary to either extend the comment period on this issue or recall the RSAC SWG for further discussion.

The purpose of TB 10–01, and its codification in this final rule, is to indicate how § 232.103(n) applies in classification yards. Much of TB 10–01 is purely guidance, which will be incorporated into this preamble for posterity. There are a few portions of TB 10–01, however, which provide alternative securement options. These alternatives are being codified into the rule text as further discussed below. Upon the effective date of this final rule, which will incorporate TB 10–01, that guidance document itself will be rescinded. However, for continued guidance and educational purposes, FRA has placed the illustrative photographs from TB 10–01 into the docket of this proceeding.

Prior to issuance of TB 10–01, FRA’s Railroad Safety Board reiterated that the failure to apply any hand brakes on unattended equipment does not comply with the securement requirements of § 232.103.<sup>18</sup> However, FRA recognizes that it is sometimes necessary in the switching of trains within classification yards to have equipment unsecured with hand brakes. Therefore, like the TB, this final rule allows for alternate forms of securement in limited circumstances—including where they may be appropriate and what constitutes effective use of alternate forms of securement. It also provides flexibility in the application of securement on repair tracks.

Section 232.103(n) addresses the securement of unattended equipment by means of applying hand brakes, venting the brake pipe to zero and leaving the angle cock open on one end of a cut of cars, and requiring the railroad to develop and implement procedures to verify that the equipment is secure. Unattended equipment is equipment left standing and unmanned in such a manner that the brake system of the equipment cannot be readily controlled by a qualified person. When assessing this situation for compliance, FRA may take into account the following factors:

- Can an individual take corrective action if the equipment should start to roll away?
- Can the individual readily mount the car and apply the hand brake, or can the individual safely open an angle cock should the equipment start to roll away?

<sup>18</sup> See Letter from Grady C. Cothen, Jr., Deputy Associate Administrator for Safety Standards and Program Development, Federal Railroad Administration, to Thomas J. Healey, Regulatory Counsel, and Jeffery A. Liepelt, VP Operations, Canadian National Railway Company, Docket No. FRA–2008–0060 (Apr. 3, 2009).

- Can the individual readily mount the locomotive and either apply the hand brake or operate the brake handles or emergency brake valve to stop the unexpected movement?

- Is a qualified person focused on the situation?

- If the individual is eating lunch or in the bathroom, full attention is not being given to the equipment.

- If the individual is in a crew room or talking on the phone, full attention is not being given to the equipment.

If an engineer and crew get off of their train to watch a passing train, and remain in close proximity to their locomotive consist, hand brakes would not have to be applied on the locomotives as long as someone is close enough to readily mount the locomotive and apply an emergency brake or hand brake, should the locomotives or train start to roll away. In these situations, FRA would consider the equipment attended. However, if the engineer and crew get off their train and position themselves with the passing train between them and their train, hand brakes have to be applied, as their train would be considered unattended.

Paragraph (n)(1) of § 232.103 includes a performance-based requirement that a sufficient number of hand brakes be applied to hold the equipment and that railroads have to develop and implement a process or procedure to verify that the applied hand brakes will sufficiently hold the equipment when the air brakes are released. This requires a railroad to develop appropriate operating rules to verify the sufficiency of the hand brakes applied, which can be tailored to the specific territory and equipment operated by the railroad. This can be as elaborate as the use of a sophisticated matrix or some other type of “set calculations” that specify exactly how many hand brakes have to be applied on specific numbers of cars; or it can be as simple as having the engineer release the pneumatic brakes after the hand brakes have been applied (and before uncoupling from the cars) to determine if the equipment is secure. To simply have instructions that state “a sufficient number of hand brakes have to be applied” does not satisfy the intent of the regulation, unless there is the provision that the pneumatic brake has to be released to determine the equipment is secure. When observing this practice, it is important that the pneumatic brakes fully release. This can be accomplished by observing piston travel on the rearmost car, or observing and ensuring that the end-of-train brake pipe pressure returns to its original setting.

Unless alternate forms of securement are permitted (as discussed below), it is FRA’s enforcement policy that one or more hand brakes will have to be applied to a car in order to sufficiently secure equipment in accordance with the regulation. The application of no hand brakes on a car or a block of unattended freight cars will not meet the securement requirements of 49 CFR 232.103(n).

In paragraph (n)(11) of this final rule, FRA is including exceptions from certain portions of the remainder of § 232.103(n) as long as a delineated alternative is followed.

Paragraph (n)(11)(i) provides the flexibility to allow a railroad to use in a prescribed location an alternative means of securement in lieu of hand brakes per the remainder of paragraph (n). Like in TB 10–01, FRA continues to believe in this final rule that unattended equipment in classification yards—a series of tracks where locomotives and cars are classified or switched to dismantle and make-up train sets—present situations where alternate forms of securement can be allowed. Classification yards may have hump, bowl, flat, graded, or other characteristics. These characteristics and other local conditions, such as prevailing winds and possible severe weather, should be considered by the railroad in developing its instructions for using alternate forms of securement. The burden of proof is on the railroad in the use of alternate securement. If alternate securement is not effective, securement defaults to the application of a sufficient number of hand brakes.

In classification yards, securement is not required for the end of the yard that is actively being switched and is attended by the switch crew or hump tower operator. At these locations, FRA does not require securement for cars or blocks of cars on the yard tracks, as long as the equipment on the opposite end of those tracks being actively switched are secure. FRA believes that this flexibility applies only when active switching is occurring and is not otherwise affected by the commodities being handled, including equipment defined by paragraph (n)(6). If the operations at these locations do not work for 24 hours a day, 7 days a week, then the equipment at each end of the track would have to be secured, but cars in between the secured equipment would not have to be secured. At these locations, if a train crew removes a car or block of cars, the railroad shall have instructions in place to ensure any car remaining in the track is secure. This could be accomplished by either placing the burden on the train crew making the

pickup, or by having other workers in place to secure the remaining equipment. At all other locations outside of actively switched yards—such as sidings, storage yards, or the mainline—each car and each individual block of unattended equipment must be secure in compliance with the regulation.

FRA recognizes that there may be overlap between the securement requirements within locomotive and car repair track areas and with the alternate methods of Blue Signal Protection (49 CFR 218.29), which are the primary methods of ensuring safety in these areas. However, once repair tracks become unattended and the blue signals are removed, securement will be required in these areas subject to the limitation that under certain repair and servicing situations it will be impractical or unnecessary to require the application of a hand brake. These would include equipment in repair status that may be lacking hand brakes, wheels, or trucks; and that is secured by means of a mechanical securement device; which could include jack stands, chocks, chains, skates, or other similar devices.

Without applying hand brakes in classification yards, an alternative means of securement is required per paragraph (n)(11)(i). FRA is generally referring to such alternative means as mechanical securement devices, which, as previously noted, FRA is including in this final rule a new defined term. FRA intends mechanical securement devices to include skates, retarders, inert retarders, and other devices that provide at least the equivalent securement that a sufficient number of hand brakes would provide in the same situation. In these situations, skates or retarders are considered an alternative form of securement, if they are maintained and used within their design criteria and as intended.

A skate (or rail skid) is a portable sliding device placed on the rail to engage with a car wheel so as to provide continuous braking by sliding friction. If using a skate to comply with this paragraph, the rail car must be at rest and at least one skate must be fully engaged to prevent movement. To be clearer, the following applies for the use of skates:

- The railcar shall be constructively placed at rest, fully engaged, with at least one skate, preventing movement away from the actively switched direction of the yard track.
- Unengaged skates placed near the clearance points of yard tracks (without a railcar in place) are not considered securement.

- A single railcar secured by a skate that is overwhelmed by the mass of following railcars shall be considered the same as an insufficient quantity of hand brakes, and a violation may be taken.

Under paragraph (n)(11), a railroad may also use a retarder, which is a powered or unpowered braking device permanently built into a railway track to reduce the speed or secure railcars by means of brake shoes that press against the lower sides of railcar wheels. When installed at the exit of a hump yard, they are often referred to as inert retarders or skate retarders (not to be confused with a skate defined above). It is not necessary to have the first car in each block engaged by the retarder during active switching. Also, a car may be past a retarder and be considered secure if it is coupled to a car engaged by the retarder and is not in a fouling condition as defined in § 218.101. However, if a railcar or following railcars are switched into a retarder in a manner that overwhelms the capacity of the device and consistently places equipment in a fouling condition, it shall be considered the same as an insufficient quantity of hand brakes, and a violation may be taken. While unengaged skates may be placed after retarders to provide additional safety in the event that a retarder is overwhelmed; their sole use will not be considered a properly used mechanical securement device. If skates are being engaged excessively, FRA may consider the retarders as being overwhelmed or not being maintained, and a violation may be taken. For these and similar reasons, skates and retarders are not usually considered sufficiently safe securement alternatives to hand brakes when used outside of a classification yard or within a repair shop environment where blue signal protection has been initiated.

In paragraph (n)(11)(ii) to this final rule, FRA is also incorporating the flexibility afforded by TB 10–01 as it relates to the isolation of the train pipe, also known as “bottling of air.” FRA will continue to not take exception to a train crew cutting away from a cut of cars, initiating an emergency brake application on the cut of cars, and then closing the angle cock for the sole purpose of taking the locomotives or otherwise proceeding directly to the opposite end of the cut of cars to either: (1) Couple the locomotives to the cars or (2) open the angle cock at the other end and leave the angle cock open and vented to the atmosphere, as required under 49 CFR 232.103(n)(2). However, if the locomotive cuts away from the cars and closes the angle cock without the

locomotive or an employee going “directly” to the other end to either open the angle cock or couple the locomotives to the cars, the railroad will be in violation of 49 CFR 232.103(n)(2). The emphasis is on “directly” because, even though it may be the train crew’s intent to go directly to the opposite end of the cars to take the appropriate action, if a train dispatcher, or whoever, directs the crew to perform another job task before they directly go to the opposite end of the cars, a violation is committed. It is only with the understanding that the train crew goes directly to the other end of the cars to take the appropriate action that FRA will permit this type of activity.

#### *Section 232.105 General Requirements for Locomotives*

New paragraph (h) to § 232.105 provides further requirements concerning locking mechanisms on locomotive doors. While § 232.103(n)(8)(ii) provides securement requirements for the controlling locomotive cab that is left unattended on a mainline track or siding as part of a train that meets the minimum quantities of hazardous materials established in proposed § 232.103(n)(6)(i), FRA believes that additional requirements should apply to all locomotives left outside a yard except if directly adjacent to the yard. Accordingly, FRA includes those requirements under § 232.105.

During the meetings of the RSAC SWG, representatives of the labor unions proposed requiring the installation of locking mechanisms on all locomotives covered by this rulemaking. AAR subsequently committed that *all* locomotives will be equipped with cab door locks by March of 2017. AAR clarified its statement by ensuring that there will be no distinction between interchange and non-interchange locomotives. In the interest of codifying this deadline as applicable to the scope of this proposed rule, paragraph (h)(1) requires that after March 1, 2017, each locomotive left unattended outside of a yard be equipped with an operative exterior locking mechanism. By no means does this requirement limit AAR’s ambition that its members equip additional locomotives (e.g., switching locomotives inside a yard) in their respective fleets. FRA is also including this requirement in § 232.105 so that it applies to all locomotives left unattended outside of a yard, but not on a track directly adjacent to a yard, not just those locomotives defined under § 232.103(n)(6).

BLET expresses concern with a 2017 deadline, describing it as too long. BLET

also asserts that, without explanation or supporting data, the proposed rule, in comparison to the RSAC recommendation, narrowed the scope of the lock requirement to locomotives left outside of a yard. In one-day snapshot surveys performed in 2004 and 2008, BLET says that most respondents replied that there was no secured access to—or security presence within—their rail yards. Many reported seeing trespassers in the yard on the day they were surveyed, although the second survey showed a marked decrease.

NTSB supports the labor union’s suggestion that locking mechanisms be applied to each covered locomotive within 18 months after the effective date of this final rule.

NYSDOT supports the intent of this requirement, but notes that while it requires all locomotives to have operative locks by 2017, other than the language in paragraph (n)(8)(ii) for hazardous trains as defined in paragraph (n)(6)(i), there is no requirement for the train crew to apply the lock. NYSDOT suggests additional language to that included in paragraph (n)(8)(ii) to cover all unattended locomotives on mainline tracks and sidings regardless of the lading carried by the train.

Given that the railroads are already voluntarily installing locks and have committed to a reasonable deadline of March 2017, which is supported by factors highlighted by AAR during the RSAC process, FRA does not believe it is appropriate to accelerate the process by regulation. Without additional information, which was not provided in comments, shortening the deadline by regulation could be viewed as arbitrary. Nevertheless, at the time this final rule becomes effective, it will be close to 18 months away from that deadline anyway, thus rendering BLET’s and NTSB’s concerns moot.

FRA also notes that AAR has issued standards regarding locomotive cab securement and has committed to install locks on all locomotives. See Locomotive Cab Securement, S–5520, AAR Manual of Standards and Recommended Practices, Section M–Locomotives and Locomotive Interchange Equipment (May 2014). Regardless of whether they operate in or out of yards, this final rule only requires lock installation on locomotives left unattended outside of yards, where trespasser access is arguably easier. Nevertheless, as previously discussed under paragraphs (n)(7)(ii) and (n)(8)(ii), any locomotive covered under paragraph (n)(6) with an installed locked left unattended anywhere, either within or outside of a yard, must have

that lock applied. Ultimately, this may provide each railroad with the flexibility to determine on its own whether to install and operate locks on locomotives dedicated to switching operations and confined to classification yard limits.

Paragraphs (h)(2) and (h)(3) are meant to ensure that locking mechanisms, if broken or otherwise inoperative, are repaired in a reasonable timeframe. FRA expects that each locomotive equipped with a locking mechanism will be inspected and maintained at the time of the locomotive's periodic inspection. See 49 CFR 229.23. If a locking mechanism is found inoperative at any time other than the periodic inspection, paragraph (h)(3) requires the railroad to repair it within 30 days. However, if the periodic inspection falls within the 30-day limit for repair, FRA would expect that the lock will be repaired at the time of the periodic inspection in accordance with the requirement in paragraph (h)(2). For instance, if a locomotive engineer were to find the lock inoperative during a daily inspection and the periodic inspection was scheduled 15 days later, then FRA would expect that the railroad could repair the locking mechanism at the time of the periodic inspection. Alternatively, if the same situation were to arise but the periodic inspection was scheduled to occur 45 days later, the railroad would be expected to repair the locking mechanism prior to the time of the periodic inspection to comply with the 30-day time limit in paragraph (h)(3).

For the purposes of this regulation, "operative" means that, when applied, the locking mechanism will reasonably be expected to keep unauthorized people from gaining access into a locomotive while the locomotive is unoccupied. However, in doing so, the railroad must assure that ingress and egress is provided for in normal circumstances and emergencies. In the NPRM, FRA sought comments on this understanding. FRA also sought information and comments on the possibility of a qualified person having difficulty accessing the locomotive cab in the event of an unintentional movement of the equipment.

NYSDOT believes that the proposed definition is reasonable. NYSDOT understands that whatever type of

locking mechanism is provided by the railroad would be based upon its effectiveness and appropriate functionality to accommodate the required ingress and egress under all conditions.

Since the railroad would decide upon the locking mechanism, NYSDOT suggests relying upon the railroad to develop appropriate procedures to address this scenario. In the event there is unintentional movement of the equipment as described, and access to the cab is problematic, NYSDOT would expect that the qualified person would likely attempt to apply the hand brake from the outside of the locomotive.

In its comments, AAR and ASLRRRA indicated that the railroads have evaluated this concern and that qualified employees will all have keys to locked locomotives. AAR and ASLRRRA also say that, if the qualified employee has lost his or her company issued key, the train can be accessed by a non-lead locomotive, which is where the train could be placed into emergency.

For the moment, FRA is satisfied with AAR's and ASLRRRA's explanation that, if locked out of a rolling locomotive, a qualified employee could alternatively enter a non-lead locomotive and make an emergency brake application. FRA also recognizes that, just as with a rolling consist of cars without a locomotive, the qualified employee would be expected to apply the outwardly-facing hand brakes in such a situation.

Under paragraph (h)(4), if the railroad discovers that a locking mechanism has become inoperative in the interval between a locomotive's periodic inspection dates, this provision does not require that a locomotive be removed from service. Railroads may continue to use the locomotive without an operative lock. However, if such equipment covered by § 232.103(n)(6) is left unattended and without an operative lock, then the railroad must default to the alternative securement option governing the reverser under proposed § 232.103(n)(8)(ii) or fall under the exception provided per proposed § 232.103(n)(8)(iii).

## V. Regulatory Impact and Notices

### A. Executive Orders 12866 and 13563 and DOT Regulatory Policies and Procedures

This final rule has been evaluated in accordance with existing policies and procedures, and determined to be significant under Executive Order 12866, Executive Order 13563, and DOT policies and procedures. 44 FR 11034, Feb. 26, 1979. For purposes of analyzing this rule, FRA uses as a baseline the rules in effect at the time of publication, including Emergency Order 28. The analysis separately quantifies ongoing costs of Emergency Order 28 that might exceed business practices that would remain in effect in absence of Emergency Order 28. It is reasonable to assume that most of the requirements of Emergency Order 28 would continue as business practices; for example the railroads have already improved their practices in determining the proper application of hand brakes to secure a train and the verification that the hand brake application is adequate. Further, the exterior locking mechanism provision in the rule reflects an existing commitment among AAR member railroads, which had been working on developing a lock standard applicable to its members for over a year, so the costs associated with this provision are limited to non-AAR member railroads, primarily short line railroads. FRA received comments that the analysis should include the total cost of installing locks; however, the analysis only counts costs that would not have been incurred in the absence of the final rule. Since AAR members were in the process of installing locks compliant with the final rule on the affected locomotives, FRA will not include those costs in this analysis. This analysis also does not include sunk costs.

FRA was able to quantify the costs of the final rule, but not able to quantify all the benefits, as many of the benefits are the result of reducing risk from high consequence, low probability events that are not easily quantified. Thus, FRA will discuss the benefits that can be quantified, that by themselves justify the cost of the final rule and will provide a brief discussion of the non-quantified benefits. The monetized discounted and annualized net benefits would be:

Discounted values	Discounted value	
	Discount factor	
	7%	3%
Total .....	\$1,076,984	\$1,479,331
Annualized .....	95,009	96,538

Statement of Need

The United States has experienced a dramatic growth in the quantity of flammable materials being shipped by rail in recent years. According to the rail industry, in the U.S. in 2009, there were 10,800 carloads of crude oil shipped by rail. In 2013, there were 400,000 carloads. In the Bakken region, over one million barrels a day of crude oil was produced in March 2014,<sup>19</sup> most of which is transported by rail. Transporting flammable material carries safety and environmental risks. The risk of flammability is compounded in the context of rail transportation because petroleum crude oil and ethanol are commonly shipped in large unit trains. In recent years, train accidents involving a flammable material release and resulting fire with severe consequences have occurred with increasing frequency (*i.e.* Arcadia, OH, Plevna, MT, Casselton, ND, Aliceville, AL, Lac-Mégantic, Quebec).

Shippers and rail companies are not insured against the full liability of the potential consequences of incidents involving hazardous materials. As a result, these events impose externalities. Among Class I railroads, a self-insured retention of \$25 million is common, though it can be as much as \$50 million, especially when PIH/TIH material is involved. Smaller regional and short line carriers, *i.e.*, Class II and Class III railroads, on the other hand, typically maintain retention levels well below \$25 million as they usually have a more conservative view of risk and usually do not have the cash-flow to support substantial self-insurance levels. At this time, the maximum coverage available in the commercial rail insurance market appears to be \$1 billion per carrier, per incident.<sup>20</sup> While this level of insurance is sufficient for the vast majority of accidents, it appears that no amount of coverage is adequate to cover a higher consequence event. One example of this

issue is the incident that occurred at Lac Mégantic, Quebec, in July of 2013. The rail carrier responsible for the incident was covered for a maximum of \$25 million in insurance liability, and it had to declare bankruptcy because that coverage and the companies remaining capital combined were insufficient to pay for more than a fraction of the harm that was caused. This is one example where rail carriers and shippers may not bear the entire cost of “making whole” those affected when an incident involving crude and ethanol shipment by rail occurs.

FRA believes that the failure to secure equipment decreases the safe transportation of goods by rail, and increases the possibility of a higher-consequence event, particularly when dealing with a key train transporting a material such as crude oil. It is difficult to assess how much of the decrease in safety is from railroads not requiring their employees to secure equipment or from employees failing to comply with railroad securement requirements. The Lac-Mégantic accident shows that the railroads were not successful using operating rules in effect at the time of the accident, perhaps because an employee did not follow those rules or might not have had adequate guidance on what constituted adequate securement. FRA believes that use of its authority will enhance compliance with railroad issued orders. There may also have been an issue of incomplete information—which can cause a market failure—that was corrected in the wake of the Lac-Mégantic accident and Emergency Order 28, in that railroads had not yet developed the procedures required in response to Emergency Order 28. This problem of incomplete information related to securement procedures has been addressed, so it is not part of the baseline. Finally, incomplete information also may be causing a market failure among some railroads that have not put locks on their locomotives left outside yards.

Cost-Benefit Analysis of Individual Sections

Following is a discussion of the regulatory costs and benefits associated with each requirement.

Changes to the definition in § 232.5 have no substantive impact and do not result in any new costs or benefits.

Changes to § 232.103(n)(2) will have negligible impact or real burdens, but may increase compliance with existing rules. As noted above, the changes to this paragraph merely clarify FRA’s longstanding interpretation, application, and enforcement of the existing regulation.

Section 232.103(n)(6) lists types of trains and equipment covered by § 232.103(n)(7) and (n)(8), but does not directly impose any specific requirements.

Section 232.103(n)(7)(i) prohibits leaving affected equipment unattended on a main track or siding (except when that main track or siding runs through, or is directly adjacent to a yard) until the railroad has adopted and is complying with a plan identifying specific locations or circumstances when the equipment may be left unattended. Railroads already have developed and implemented such plans under Emergency Order 28, so there is no cost to create such plans. The initial revision and notification burden would have been in identifying safety rationale related to such locations and circumstances, but that has already been accomplished through compliance with Emergency Order 28. To the extent that railroads further revise their plans in the future, there will be some additional costs. This will not occur frequently, resulting in nominal burden in the future.

Section 232.103(n)(7)(ii), an expansion of Emergency Order 28 that applies to trains left unattended on main tracks that are in or adjacent to yards, requires trains left in yards to have the locomotive cab locked, or the reverser removed, if possible, but would not impose additional requirements in a yard if the locking mechanism is inoperative. This portion of the final rule’s requirements is part of longstanding railroad business practices, and will add no costs or benefits.

In paragraph (n)(8)(i), there is a new requirement, which in almost all cases was already in place as a business practice. It requires that the qualified individual who secures the train verify with a second qualified individual that

<sup>19</sup> Information regarding oil and gas production is available at the following URL: <http://www.eia.gov/petroleum/drilling/#tabs-summary-2>.

<sup>20</sup> See “The Transportation of Hazardous Materials: Insurance, Security, and Safety Costs,” DOT Report to Congress, December 2009, at <http://www.dot.gov/office-policy/transportation-hazardous-materials-insurance-security-and-safety-costs>.



the train has been secured in accordance with the railroad's operating rules, including whatever the employee has done to ensure that an adequate number of hand brakes have been employed. On a train with two or more crew members, the train crew will verify among themselves. This would happen as a matter of business practice. In the event that the train is secured by a single person crew, the verification would involve a second person, typically a yardmaster, who is also qualified. All safety-critical activities by train crews are communicated to at least one additional person as a standard operating practice. This is part of the railroads' conscious effort to avoid a single point human factor failure that can cause an accident. FRA believes that less than one-tenth of one-percent (0.1%) of the affected trains will be operated by a single crew member when securing in a yard, because there are very few single person crews operating affected trains, and because many affected trains will be operated continuously to their destination. Some trains will be secured outside of yards, but that burden is discussed below in this analysis. In this analysis, FRA assumes that there will be 1,000 affected trains per day, of which 0.1% (1 daily or 365 annually) would have a single person crew. Further, FRA assumes that in the absence of the final rule, 95 percent of railroads would require the verification as a business practice. This means that over 20 years, only 365 trains would be affected. FRA believes the communication will take 15 seconds of two qualified individuals' time, or 30 labor seconds. There is no cost to initiate communication, because in any event a person leaving a train would have to communicate with the yardmaster to let the yardmaster know where the crew member left the train and to let the yardmaster know the train would no longer be moving in the yard. Over the 20-year life, the undiscounted value would be 182.5 labor minutes or roughly 3 labor hours. At \$50 per hour the cost over 20 years, undiscounted cost would be \$150, and the annual cost would only be \$7.50. FRA requested comments on the current and future levels of train operations impacted and the labor estimates associated with compliance, but did not receive any comments which directly discussed costs or benefits of this provision.

Section 232.103(n)(8)(i) requires that where a freight train or standing freight car or cars as described in paragraph (n)(6) is left unattended on a main track or siding outside of a yard, an employee responsible for securing the equipment

shall verify with another person qualified to make the determination that the equipment is secured in accordance with the railroad's processes and procedures. This will impose no new burden nor create any new benefit since it is identical to what is currently required by Emergency Order 28. Where train crews with more than one crew member are involved, then the crew members would need to discuss the securement and ensure that they had secured the correct number of hand brakes and taken other steps to properly secure the train. Where single member crews are involved, then the crew member would have to call the dispatcher or some other qualified railroad employee to verify with the qualified employee that the train had been properly secured. As noted above, Emergency Order 28 requires this communication to occur presently, thus railroads already have these procedures established and continuing such practice will not impose an additional cost. Thus, the changes to § 232.103(n) would create no new benefits or costs, compared to the base case.

Section 232.103(n)(8)(ii) requires that the controlling locomotive cab of a freight train described in paragraph (n)(6) shall be locked on locomotives capable of being locked or the reverser on the controlling locomotive shall be removed from the control stand and placed in a secured location. In the case of a locomotive with an operative lock, the compliance will simply be locking the lock. Railroads all require their employees to lock unattended locomotives equipped with operative locks, for both safety and security reasons. This provision of the final rule codifies current business practices, and creates no new benefits or costs. Under § 232.105(h) each locomotive will have been equipped with a lock, and if there should be a lock malfunction, removing the reverser will be sufficient to comply. Removing the reverser of such a locomotive is likely to be a business practice required by operating rules except for two conditions. The first condition is where the locomotive does not have a removable reverser. Such locomotives are relatively old and are rarely used outside of yard operations. The second condition is where there is a reason to keep the locomotive running while standing. Almost all locomotives can idle with the reverser removed, but there are no locomotives that can run at speeds above normal idle, sometimes needed for cold weather conditions, with the reverser removed. If a lock should malfunction under either of

those two conditions, a railroad could comply by several means:

- A railroad could remove the reverser; almost all locomotives can idle with the reverser removed, except in very cold weather;
- A railroad could attend the locomotive, which could involve either placing a qualified individual aboard the locomotive while it stands, or boarding a new crew and having the new crew continue moving the train toward its destination. The most economical way to accomplish this would be to board a new crew and take the train further along its route. The railroad was going to have to call a crew to move the train on its route anyway, so if the railroad has sufficient time to call a new crew, generally two hours, the railroad would call a crew earlier than originally planned. Dispatchers continually adjust the flow of trains, and adding a single train earlier than originally planned would have little effect on operations in almost all cases. If the train is already close to its destination, this would not be practical if the consignee unloading or transfer operation were not available, or if the train could not proceed for some other reason, such as track congestion or blockage, the railroad would not simply board the next crew and the railroad would have to comply by some other means;

- A railroad could arrange for the train to stop in a yard, or on a main track in or adjacent to a yard. This might involve having the dispatcher expedite the train so it can make a yard further along its route, which might have minimal costs;
- A railroad could have the train crew switch locomotives, putting a lock-equipped locomotive in the lead, which would be costly and impractical; or
- A railroad could arrange to have the lock repaired before leaving the train unattended, which would also carry a cost.

The burdens of § 232.103(n)(8)(ii) on main track or sidings outside of yards are imposed by Emergency Order 28, so they are not new burdens, and they still are relatively small. For purposes of this analysis, FRA conservatively estimates that 1,000 trains per day<sup>21</sup> will be subject to the requirements of § 232.103(n)(8)(ii), but that 90 percent of them will be excepted under § 232.103(n)(8)(iii), because they will have routing that calls for unattended stops only in or adjacent to yards.<sup>22</sup>

<sup>21</sup> In an analysis of the safety of HHFTs, PHMSA estimates that there are 150 trains per day. FRA's estimate of 1,000 trains per day is conservative.

<sup>22</sup> FRA assumes that railroads will fix locks in or adjacent to the first yard available, as a business



That leaves 100 trains per day, or 36,500 trains per year. FRA estimates that one in 500 locomotives or 73 per year will have a defective lock. FRA also estimates that 50 percent, or 36.5 locomotives per year, would have been left running while unattended, or would have been equipped with a non-removable reverser. A locomotive would be left running either to avoid cold weather starting or to avoid a brake test when the next crew takes charge of the train. If the locomotive would have been left running to maintain brake pressure, the train crew can leave one of the trailing locomotives running to maintain brake pressure, and lock its door. FRA estimates that in all but ten cases per year, the railroad will have been notified of the lock malfunction, and will have the next crew or current crew take the train to a yard or its destination, avoiding any costs.<sup>23</sup>

- Trains per year:
  - Affected by the final rule: 365,000.
  - No planned stop outside yards (90 percent of 365,000): 328,500.
  - Planned stop outside yards (365,000–328,500): 36,500.
  - Defective lock and planned stop outside yard (36,500/500): 73.
  - Removing reverser provides compliance (50 percent of 73): 36.5.
  - Further action needed (73–36.5): 36.5.
  - Sent on to next yard or destination: 26.5.
  - Remedial action must be taken: 10.<sup>24</sup>
- FRA believes that in half the cases remaining (five cases), the railroad will repair or replace the lock, and in the other half (also five cases), the railroad will have personnel attend a standing train. The railroad may repair or replace

the lock, in which case the cost is the additional cost of repairing the lock outside of a yard. A railroad using AAR standard locks may attach an additional locking mechanism, not compliant with AAR standards until the AAR standard lock can be replaced. This appears to be the lowest cost means of complying with the rule. If a hasp is present, the railroad may have provided the crew with a spare lock, in which case the cost is negligible, two of the five cases per year. If a hasp is not present, the railroad may have repair personnel locate to the train, estimated at an average cost of \$0.56 per mile for 20 miles, or \$11.20 per incident. In addition, the installation is expected to require two hours service time, including travel, for two repair personnel, at an estimated cost of \$50 per person hour,<sup>25</sup> for a labor cost of \$200. The installation is expected to cost \$100 if the railroad does not install a standard lock, one case per year. The total cost for this repair would be \$11.20 for transportation, \$100 for materials, plus \$200 for labor, a total of \$311.20. If the railroad replaces the existing lock, then no materials cost is added, because the railroad could have been expected to replace the lock at the next yard. The total cost to replace an existing lock would be \$11.20 for transportation, plus \$200 for labor for a total of \$211.20. The total cost to replace existing locks is 2 times \$211.20, or \$422.40. The total cost for lock replacement includes the negligible costs if the crew has a lock that fits an existing hasp, plus \$311.20 to install a new hasp and lock, plus \$422.20 to replace existing locks, a total of \$733.60. In any estimate of net

present value, the labor costs for lock installation should not be incremented by a factor to account for growth in real wages, because the growth in real wages is assumed to be directly related to productivity. The more productive the worker, the fewer hours needed to install a lock, including reductions in time needed to travel. FRA believes that small railroads will not be affected by these costs because small railroads will use a lock and hasp system and will be able to replace the lock before the train is left stopped, should the lock malfunction.

FRA estimates the cost to switch locomotives at \$150 for the cost of switching and at least \$500 for a brake test after switching, for a total of \$650 per train. A railroad is unlikely to do this unless the purpose of keeping engines running was to keep the engines warm on a cold day, no stop was likely at a location where the lock could be repaired, and at least one more stop was likely on the train's route. The likelihood of such a situation is so small as to be negligible. FRA does not believe this is a likely response, and this value is not used any further.

FRA estimates the cost to attend a standing train at \$470 per incident,<sup>26</sup> or a total of \$2,350 per year for 5 incidents, which assumes a burdened rate for labor of \$51.04 per hour.

In summary of the foregoing costs associated with locomotive locks, FRA believes the likely responses to inoperative locking mechanisms, where the railroad cannot simply remove a reverser or move the train, will break down as follows:

Approach taken	Unit cost	Frequency	Annual total cost
Place Lock in Existing Hasp .....	\$0.00	2	\$0.00
Install New Hasp and Lock .....	311.20	1	311.20
Replace Existing Lock .....	211.20	2	422.40
Attend Train .....	470.00	5	2,350.00
Total .....	.....	.....	<sup>27</sup> 3,083.60

practice, and will leave any unattended trains in yards locked.

<sup>23</sup> Taking the train further along its route is the least costly method of attending a train. The railroad is obligated to provide a crew to move the train further along its route anyway, and train crews are on call. Once the train gets to the first yard on its path, the lock will be repaired. Unloading facilities are not part of the railroad, and FRA does not regulate securement at unloading facilities, which are subject instead to PHMSA regulations.

<sup>24</sup> In the NPRM, FRA requested comment on the number of cases per year where remedial action

would be required, and on the assumptions relied upon to estimate that number. Since FRA did not receive any such comments, it continues to rely on the assumptions used in the NPRM.

<sup>25</sup> Surface Transportation Board (STB) wage data show that the average compensation for personnel engaged in Maintenance of Equipment & Stores was \$28.46 in 2013. FRA adds a 75 percent burden which would yield \$49.81 per hour, which is rounded here to \$50 per hour.

<sup>26</sup> STB wage data show that the average compensation for personnel engaged in Train, Yard and Engine was \$29.16 in 2013. FRA adds a 75

percent burden which would yield \$51.04 per hour. The minimum payment for qualified personnel called out is a fixed sum or hourly pay, whichever is greater. The fixed amount is roughly equal to 8 hours' pay. There may be instances where the duration of the assignment exceeds 8 hours. FRA assumed a 9 hour average pay, or 9 times \$51.04, for a burdened wage of \$459.32 per incident. FRA further assumed \$11.20 in travel costs, or a total cost of \$470.52 per incident, which FRA rounded to \$470 per incident.

<sup>27</sup> Rounds to \$3,100.

The total cost imposed by § 232.103(n)(8)(ii) would be \$2,350 plus \$311.20 plus \$411.40 per year, a total of \$3,083.60, or roughly \$3,100, per year.

To more accurately annualize these costs, however, FRA must also consider the direct wage portion of the costs attending trains and provide for annual real wage increases. Of the aforementioned burdened wage rate, \$29.16 is the direct wage portion. Multiplying the direct wage portion hourly rate against 9 hours pay per event with 5 events per year, the direct wage portion annual cost total is

\$1,312.33, which we will round to \$1,300. These direct wage costs for train personnel will need to be incremented by a factor of 1.18 percent per year to account for increases in real wage, induced by increased productivity in accordance with estimates from the Congressional Budget Office.<sup>28</sup>

FRA compiled the following summary table, using initial annual costs of \$3,100 (*i.e.*, the first year's annual locomotive locks costs total rounded up), broken into direct wage costs for simply attending trains, \$1,300—which are increased every year by 1.18 percent

to account for growth in real wages, whereas the first year's increase would result in a direct wage cost of \$1,315.34—and other costs of \$1,800, including initial burden on wages to attend trains, labor costs to repair or replace locks, where productivity growth is assumed to match growth in real wages, and costs for other items. The costs are all the result of actions taken to comply with attendance of a train in the event a locking mechanism becomes inoperative:

Year	Wage inflator (%)	Direct wage cost	All other costs	Discounted value		
				Total costs	Discount factor	
					7%	3%
2015	101.18	\$1,315.34	\$1,800	\$3,115.34	\$3,115	\$3,115
2016	102.37	1,330.86	1,800	3,130.86	2,926	3,040
2017	103.58	1,346.57	1,800	3,146.57	2,748	2,966
2018	104.80	1,362.45	1,800	3,162.45	2,582	2,894
2019	106.04	1,378.53	1,800	3,178.53	2,425	2,824
2020	107.29	1,394.80	1,800	3,194.80	2,278	2,756
2021	108.56	1,411.26	1,800	3,211.26	2,140	2,689
2022	109.84	1,427.91	1,800	3,227.91	2,010	2,625
2023	111.14	1,444.76	1,800	3,244.76	1,888	2,561
2024	112.45	1,461.81	1,800	3,261.81	1,774	2,500
2025	113.77	1,479.06	1,800	3,279.06	1,667	2,440
2026	115.12	1,496.51	1,800	3,296.51	1,566	2,381
2027	116.47	1,514.17	1,800	3,314.17	1,472	2,324
2028	117.85	1,532.04	1,800	3,332.04	1,383	2,269
2029	119.24	1,550.11	1,800	3,350.11	1,299	2,215
2030	120.65	1,568.40	1,800	3,368.40	1,221	2,162
2031	122.07	1,586.91	1,800	3,386.91	1,147	2,111
2032	123.51	1,605.64	1,800	3,405.64	1,078	2,060
2033	124.97	1,624.58	1,800	3,424.58	1,013	2,012
2034	126.44	1,643.75	1,800	3,443.75	952	1,964
Total					36,685	49,909
Annualized					3,236	3,257

Section 232.103(n)(8)(ii) also provides a direct safety benefit of this rulemaking. Only about 36.5 trains per year are likely to be affected, as described above. FRA believes that in the absence of this rulemaking all locomotives would be equipped with locks as a business practice, as described below. FRA believes that as a business practice, the locomotives that can be locked will be locked, and the remaining locomotives that have reversers that can be removed that are not left running would have their reversers removed and secured. FRA believes that trains left running with reversers in place are the most vulnerable to serious harm as a result of casual mischief. It is possible that a vandal moving a reverser in an unattended running locomotive could

cause a higher-consequence event, given the kinds of materials regulated here. Further, individuals who believe they are doing some good—for example first responders who believe the train is in a dangerous location—may also be tempted to try to move the train. If they lack proper skills, this movement creates a risk. FRA does not have a good way to estimate the likelihood of a serious event from such a small number of affected trains; however, given the kinds of trains involved, FRA finds that the costs are justified by the benefits of risk reduction.

Section 232.103(n)(8)(iii) provides an exception for trains left unattended on main tracks in or adjacent to yards, and does not change burdens from Emergency Order 28. The communication requirement in

§ 232.103(n)(9) is unchanged from Emergency Order 28, and will impose no new burden nor create any new benefit for train crews with more than one crew member. Section 232.103(n)(10) requires railroads to adopt and comply with procedures to ensure that, as soon as safely practicable, a qualified employee verifies the proper securement of any unattended equipment when the railroad has knowledge that a non-railroad emergency responder has been on, under, or between the equipment. This was required by Emergency Order 28 and remains unchanged from Emergency Order 28, and will impose no new burden nor create any new benefit. FRA also believes that after the Lac Mégantic accident that railroads would have adopted this practice even

<sup>28</sup> Based on real wage growth forecasts from the Congressional Budget Office, DOT's guidance

estimates that there will be an expected 1.18

percent annual growth rate in median real wages over the next 30 years (2013–2043).

in the absence of Emergency Order 28, as a standard business practice, so FRA is confident that this section creates no new benefits or costs.

One requirement of Emergency Order 28 that is not included in the final rule is a requirement that employees who are responsible for securing trains and vehicles transporting Appendix A Materials must communicate to the train dispatcher the number of hand brakes applied, the tonnage and length of the train or vehicle, the grade and terrain features of the track, any relevant weather conditions, and the type of equipment being secured; train dispatchers must record the information provided; and train dispatchers or other qualified railroad employees must verify and confirm with the train crew that the securement meets the railroad's requirements. The final rule includes verification procedures but does not include the recordkeeping required by Emergency Order 28. FRA's Paperwork Reduction Act analysis of the recordkeeping requirements shows the annual burden at 867 hours to notify the dispatcher to make the record, and an additional 867 hours to make the record. FRA estimates that there will be an average of 26,000 communications (100 instances on 260 days per year) to dispatchers triggering the recording requirement, which takes an average of four minutes to complete, for a total of 1,734 hours. If the value of the employees' time is \$50 per hour, the annual cost of the Emergency Order 28 recordkeeping requirement is \$86,700, and that cost would be eliminated by the final rule. FRA believes the recordkeeping requirements have been relatively more onerous for smaller railroads, but does not have a breakdown of the proportion of the cost reduction benefit that will accrue to small railroads.

Section 232.105(h) requires, after March 1, 2017, that each locomotive left unattended outside of a yard shall be equipped with an operative exterior locking mechanism. AAR standard S-5520 requires that each locomotive left unattended outside of a yard shall be equipped with an operative exterior locking mechanism, and requires that locomotives be equipped in order to be used in interchange service. These mechanisms will meet the requirements of § 232.105(h). FRA believes that for Class I and Class II railroads, all costs and benefits of § 232.105(h) will be a result of business practices because their locomotives operate in interchange service. These railroads are already in the process of installing exterior locking mechanisms on all of their locomotives that do not operate exclusively in yard

service. FRA further believes that small railroads have already equipped virtually all of their locomotives with exterior locking mechanisms. This was discussed at RSAC meetings.

FRA believes that the reason Class I and Class II railroads have just recently started installing locking mechanisms on their locomotives is that until recently there was no standard for keying the locking mechanisms. Locomotives of these railroads operate in interchange service and can move from railroad to railroad. If each railroad had to maintain a set of keys for all other railroads' locomotives, that would have been cumbersome. The recent, common keyed, industry standard provides a solution, and allows the business practice of installing locking mechanisms to proceed.

FRA believes that, for smaller railroads, locking locomotive cabs is a good business practice that already takes place because it avoids vandalism and locomotive cab intruders. Several reports indicate that a locomotive belonging to the Adirondack Scenic Railroad was vandalized on or around October 15, 2013.<sup>29</sup> Damage to the locomotive was approximately \$50,000, and does not include lost revenue. Anecdotal reports are that the vandals removed the copper wiring, which has value as scrap. This event was not reported to FRA. This is an example of unreported vandalism, and FRA staff believes that a great deal of vandalism is unreported, largely because the events do not meet all the requirements that would result in filing an accident/incident report with FRA. Over the years, FRA staff has received several first-hand accounts of vandalism or cabs occupied by intruders. FRA believes that the likelihood of vandalism or cabs being occupied by trespassers increases as the likelihood of railroad observation of the train decreases. Most small railroads operate in environments with a lower than average likelihood of observation. FRA believes that vandalism is also more likely to have a severe impact on a small railroad's operations since these railroads do not have many spare locomotives or personnel. If a railroad has ten locomotives and five get vandalized, its operations will be severely impacted. Likewise if a small railroad's operating crew is injured by an intruder in a cab, the operations for that day will likely be halted. As indicated by small railroad representatives at RSAC, small railroads do generally equip their locomotives

with exterior cab locks. FRA believes that if all small railroads considered the impacts of vandalism and intruders, the small railroads would and have installed exterior cab locks.

The unit cost for a locking mechanism meeting AAR standard S-5520 is \$215. FRA believes that smaller railroads could comply with § 232.105(h) with a simpler lock and hasp system, for a unit cost of \$100. Given the smaller number of locomotives, personnel, territory, and facilities, use of this type of system would not be problematic. FRA requested comment regarding this estimate. ASLRRRA commented that its members claim that the unit cost will be greater for small railroads than the \$210 per unit estimated for AAR type locks. FRA rejects the contention that a hasp and padlock would cost more than \$100 per unit, based on observation of hasp and lock costs at hardware stores, and FRA staff knowledge of the costs to install a hasp by welding, based on actual work experience as Class III railroad employees. Nevertheless, FRA points out that the business benefits of installing locks far exceed the unit costs of \$210 per locomotive for AAR type locks, so even if FRA were to accept the ASLRRRA comment, the business benefits of locks would still exceed their costs.

FRA believes that no more than 500 locomotives belonging to Class III railroads lack locking mechanisms that comply with § 232.105(h). Thus, the cost to install the locking mechanisms would be no more than 500 times \$100, or \$50,000.

Based on anecdotal information from FRA staff, between 1 percent and 3 percent of locomotives are vandalized each year. Some vandalism is relatively minor, such as graffiti sprayed on the walls of the cab, but some is much more serious, for example damage or removal of electrical equipment, or of instruments. More modern cabs have very expensive control systems, with one or more monitor screens. It would not be difficult for vandals to cause more than \$50,000 in damage to a modern cab. The repairs not only would involve removal and replacement of damaged components, but would also involve calibration. For purposes of this analysis, FRA is assuming 1 percent of locomotives would be vandalized each year if not equipped with locks, and the mean cost of a vandalism incident is \$3,000. The expected cost of vandalism is therefore \$30 per locomotive year for unequipped locomotives.

Locomotive cabs are also occupied by unauthorized occupants, usually homeless, from time to time. Based on staff anecdotal data, FRA assumes that

<sup>29</sup> Adirondack Scenic Railroad Locomotive Vandalized, North County Public Radio Web site, October 15, 2013.

five percent of locomotive cabs are occupied at least once per year. FRA believes that the cost per incident is \$100, including costs to clean debris and inspect to determine that nothing in the cab has been damaged. This cost represents 20 minutes delay with a train delay cost. The economic impact of slowing trains depends upon multiple factors including other types of trains, other train speeds, dispatching requirements, work zones, and topography. Looking at numerous variables, for purposes of another analysis, DOT estimated the average cost of a train delay to be \$500 per hour.<sup>30</sup> This cost estimate was determined by reviewing costs associated with crew members, supply chain logistic time delays based on

various freight commodities, and passenger operating costs for business and other travel. It is reasonable to assume that delays to smaller railroad operations are lower in cost. Thus, for purposes of this analysis, for the impacted railroads, FRA is using an hourly train delay cost of \$300 per hour. FRA requests comment regarding this assumption. Thus the cost per year for 500 locomotives would be 500 times 5 percent times \$100, or \$2,500, or \$5 per locomotive year. Added to the vandalism cost the total cost of exposure would be \$35 per locomotive year. If an installation of a locking mechanism costs \$100, it would take less than 3 years for the locks to pay for themselves (before applying discount factors). FRA believes that in the absence of this rule

most small railroads would apply locking mechanisms to locomotives left unattended outside of yards, especially in light of the vandalism incident on the Adirondack Scenic Railroad. FRA believes the net cost of installing and using the locks for small railroads is less than zero because the installation cost is more than offset by the business benefits. FRA did not receive any comments taking issue with FRA's estimates of locomotive vandalism costs.

FRA assumes the locks will be purchased in the first year, because the business benefit is apparent. Thus, the costs are \$100 times 500 locomotives, or \$50,000, the same at both discount rates because 2015 is not discounted.

Year	Total costs	Discounted value	
		Discount factor	
		7%	3%
2015 .....	\$50,000.00	\$50,000	\$50,000
Total .....	50,000.00	50,000	50,000
Annualized .....	.....	4,411	3,263

A more serious crime with far more potential to cause harm off the railroads' rights-of-way is theft and operation of a train. In 1975, two teenagers stole a switching locomotive and operated it until it crashed.<sup>31</sup> FRA staff has received anecdotal information regarding other locomotives being stolen and operated, but permanent records of the incidents could not be found. If a train described in § 232.103(n)(6) were stolen and operated, it could easily cause the kinds of harm seen at in the Graniteville, South Carolina accident and the Lac Mégantic incident, with societal costs of \$260 million to \$1.2 billion. The Lac Mégantic incident is illustrative of, but not necessarily the outer limit of, a high-consequence event scenario for derailment of a paragraph (n)(6) train. The derailment occurred in a small town with a low population density by U.S. standards, but resulted in the deaths of 47 people and the destruction

of much of the downtown area. A year after the event, decontamination of the soil and water/sewer systems is still ongoing. Cleanup of the lake and river that flows from it has not been completed, and downstream communities are still using alternative sources for drinking water. Initial estimates of the cost of this event were roughly \$1 billion, but the cleanup costs have doubled from initial estimates of \$200 million to at least \$400 million, and the total cost to clean up, remediate, and rebuild the town could rise as high as \$2.7 billion. The frequency and magnitude of these events is highly uncertain. It is, therefore, difficult to predict with any precision how many of these higher consequence events may occur over the coming years, or how costly these events may be. In the worst case scenario for a fatal event, the results could be several times the

damages seen at Lac Mégantic both in loss of life and other associated costs.

In estimating the damages of a higher-consequence event, we begin with the current estimated damages of Lac Mégantic. We used this accident to illustrate the potential benefits of preventing or mitigating events of this magnitude. It is challenging to use this one data point to model potential damages of higher consequence events that differ in nature from the Lac Mégantic accident. However, as the volume of crude oil shipped by rail continues to grow, it is reasonable to assume that events of this magnitude may occur.

By installing locks to avoid such dangers, the benefits indicated in the following table are \$17,500 per year (\$35 times 500 locomotives), starting in 2016, the year after the locks are installed.

<sup>30</sup>In analyzing the NPRM, FRA noted that PHMSA's proposed rule "Hazardous Materials: Enhanced Rail Tank Car Standards and Operational Controls for High-Hazard Flammable Trains" applied a \$500 per hour estimate of the cost of delay for the rail network overall. 79 FR 45015,

Aug. 1, 2014. There were no comments to the NPRM taking issue with that estimate, and FRA continues to use that estimate here.

<sup>31</sup>Pierce Haviland, The Putnam Division, last updated November 10, 2010, available at <http://piercehaviland.com/rail/putnam.html>

This incident was probably not reportable because it occurred on an abandoned railroad, no longer part of the general system of rail transportation.

Year	Total benefits	Discounted value	
		Discount factor	
		7%	3%
2015	\$0.00	\$0	\$0
2016	17,500.00	16,355	16,990
2017	17,500.00	15,285	16,495
2018	17,500.00	14,285	16,015
2019	17,500.00	13,351	15,549
2020	17,500.00	12,477	15,096
2021	17,500.00	11,661	14,656
2022	17,500.00	10,898	14,229
2023	17,500.00	10,185	13,815
2024	17,500.00	9,519	13,412
2025	17,500.00	8,896	13,022
2026	17,500.00	8,314	12,642
2027	17,500.00	7,770	12,274
2028	17,500.00	7,262	11,917
2029	17,500.00	6,787	11,570
2030	17,500.00	6,343	11,233
2031	17,500.00	5,928	10,905
2032	17,500.00	5,540	10,588
2033	17,500.00	5,178	10,279
2034	17,500.00	4,839	9,980
Total		180,873	250,666
Annualized		15,956	16,358

In addition to the above noted benefits, the final rule itself reduces costs—by removing the requirement to

record securement activities, provided under Emergency Order 28—by \$86,700 per year, with no decrease in safety. In

FRA's view, these savings more than offset the minor costs associated with the final rule.

Year	Total benefits	Discounted value	
		Discount factor	
		7%	3%
2015	\$86,700.00	\$86,700	\$86,700
2016	86,700.00	81,028	84,175
2017	86,700.00	75,727	81,723
2018	86,700.00	70,773	79,343
2019	86,700.00	66,143	77,032
2020	86,700.00	61,816	74,788
2021	86,700.00	57,772	72,610
2022	86,700.00	53,992	70,495
2023	86,700.00	50,460	68,442
2024	86,700.00	47,159	66,448
2025	86,700.00	44,074	64,513
2026	86,700.00	41,191	62,634
2027	86,700.00	38,496	60,810
2028	86,700.00	35,977	59,038
2029	86,700.00	33,624	57,319
2030	86,700.00	31,424	55,649
2031	86,700.00	29,368	54,029
2032	86,700.00	27,447	52,455
2033	86,700.00	25,651	50,927
2034	86,700.00	23,973	49,444
Total		982,796	1,328,573
Annualized		86,700	86,700

FRA calculated the total monetized costs of the rule, with the costs for

locomotive lock installation accounted for only for the first year:

Year	Wage inflator (%)	Direct wage cost	All other costs	Total costs	Discounted value	
					Discount factor	
					7%	3%
2015	101.18	\$1,315.34	\$51,800	\$53,115.34	\$53,115	\$53,115

Year	Wage inflator (%)	Direct wage cost	All other costs	Total costs	Discounted value	
					Discount factor	
					7%	3%
2016	102.37	1,330.86	1,800	3,130.86	2,926	3,040
2017	103.58	1,346.57	1,800	3,146.57	2,748	2,966
2018	104.80	1,362.45	1,800	3,162.45	2,582	2,894
2019	106.04	1,378.53	1,800	3,178.53	2,425	2,824
2020	107.29	1,394.80	1,800	3,194.80	2,278	2,756
2021	108.56	1,411.26	1,800	3,211.26	2,140	2,689
2022	109.84	1,427.91	1,800	3,227.91	2,010	2,625
2023	111.14	1,444.76	1,800	3,244.76	1,888	2,561
2024	112.45	1,461.81	1,800	3,261.81	1,774	2,500
2025	113.77	1,479.06	1,800	3,279.06	1,667	2,440
2026	115.12	1,496.51	1,800	3,296.51	1,566	2,381
2027	116.47	1,514.17	1,800	3,314.17	1,472	2,324
2028	117.85	1,532.04	1,800	3,332.04	1,383	2,269
2029	119.24	1,550.11	1,800	3,350.11	1,299	2,215
2030	120.65	1,568.40	1,800	3,368.40	1,221	2,162
2031	122.07	1,586.91	1,800	3,386.91	1,147	2,111
2032	123.51	1,605.64	1,800	3,405.64	1,078	2,060
2033	124.97	1,624.58	1,800	3,424.58	1,013	2,012
2034	126.44	1,643.75	1,800	3,443.75	952	1,964
Total					86,685	99,909
Annualized					7,647	6,520

FRA calculated the total monetized benefits of the rule, which includes savings from relief of Emergency Order

28's recordation requirement for each year plus savings provided each year

from the use of locomotive locks after the first year of installation:

Year	Total benefits	Discounted value	
		Discount factor	
		7%	3%
2015	\$86,700.00	\$86,700	\$86,700
2016	104,200.00	97,383	101,165
2017	104,200.00	91,012	98,218
2018	104,200.00	85,058	95,358
2019	104,200.00	79,494	92,580
2020	104,200.00	74,293	89,884
2021	104,200.00	69,433	87,266
2022	104,200.00	64,891	84,724
2023	104,200.00	60,645	82,256
2024	104,200.00	56,678	79,861
2025	104,200.00	52,970	77,535
2026	104,200.00	49,505	75,276
2027	104,200.00	46,266	73,084
2028	104,200.00	43,239	70,955
2029	104,200.00	40,411	68,888
2030	104,200.00	37,767	66,882
2031	104,200.00	35,296	64,934
2032	104,200.00	32,987	63,043
2033	104,200.00	30,829	61,207
2034	104,200.00	28,812	59,424
Total		1,163,669	1,579,240
Annualized		102,656	103,058

Summary of the Costs and Benefits  
To summarize the above identified costs and benefits, FRA tabulated the

contributions of each item to the total discounted costs and benefits over 20 years.

Discounted values	Discounted value	
	Discount factor	
	7%	3%
<b>Costs</b>		
Attending Trains .....	\$36,685	\$49,909
Installing Locks .....	50,000	50,000
<b>Total Costs</b> .....	<b>86,685</b>	<b>99,909</b>
<b>Benefits</b>		
Reduced Vandalism .....	180,873	250,666
Reduced Recordkeeping .....	982,786	1,328,573
<b>Total Benefits</b> .....	<b>1,163,669</b>	<b>1,579,240</b>

For further distillation, FRA calculated the net benefits over 20 years:

Discounted values net benefits	Discounted value	
	Discount factor	
	7%	3%
<b>Total</b> .....	<b>\$1,076,984</b>	<b>\$1,479,331</b>
<b>Annualized</b> .....	<b>95,009</b>	<b>96,538</b>

The costs that are not directly offset by a monetized benefit are the annual costs of either attending locomotives or expediting their repair. Above, FRA estimates the annualized cost beyond current business practices at \$3,236–\$3,257 per year.<sup>32</sup> These costs are balanced against an incident with costs of \$260 million to \$1.2 billion, but with extremely low probability. The incidents avoided by attendance provisions would only occur where the train was not equipped with functioning locking mechanisms under conditions where the railroad would have sent a repair team out to the location of the train to repair the locking mechanism or would have sent a qualified employee to attend the train, roughly ten events per year. As discussed above, these situations would involve a locomotive that is left running either to avoid cold weather starting or to avoid a brake test when the next crew takes charge of the train. The number of events estimated is based on professional judgment. If the event avoided is \$330 million,<sup>33</sup> and the annual cost is less than \$3,300 for ten events, then the rule costs about \$330 per event and would roughly break even if one in a million events of leaving a

locomotive consist for one of the regulated trains unattended with an unlocked cab and a reverser unsecured in the cab were to result in a higher-consequence incident. FRA believes the small but relatively predictable annual cost is justified by the hard to measure very small probability, very high consequence incident risk avoided. The portion of the rule requiring attendance of a train with inoperative locking mechanisms will not affect the likelihood of such an incident where the locking mechanism is functioning or where railroad does not comply with the rule.

The remainder of Emergency Order 28 and the final rule do not impose costs beyond expected business practices. FRA believes that the business benefits of installing locking mechanisms and locking locomotive cabs return net benefits to the railroads. FRA believes that locking the locomotive cab or removing the reverser will reduce the likelihood of a higher-consequence event. FRA believes the continuing requirements from Emergency Order 28 or the requirements of the final rule will provide more opportunities to sever the potential causal chain of a low-probability high-consequence event. Thus, FRA rejects the alternative of simply removing Emergency Order 28.

**Alternatives Considered**

FRA considered as an alternative requiring all trains subject to § 232.103(n)(6) to be attended if left stopped outside yards, without regard to the presence of a locking mechanism or reverser. FRA believes that railroads would work to enhance routing and crew scheduling so that of the 1,000 affected trains per day, only 50 would require unattended stops outside of yards. The cost per event to attend a train would be \$470 per incident. The daily cost would be 50 times \$470, or \$23,500. The annual cost would be \$8,577,500.

FRA believes the final rule is as effective as the alternative considered, at much lower cost. Thus, FRA rejected the more restrictive alternative. FRA further believes that given the tradeoff between the certainty of relatively low costs and the benefit of very low-probability yet very high-consequence incidents, the final rule is a reasonable approach. In the NPRM FRA requested comments on all aspects of this analysis. The comments FRA received are discussed above.

**Regulatory Flexibility Act and Executive Order 13272**

To ensure that the impact of this rulemaking on small entities is properly considered, FRA developed this final rule in accordance with Executive Order

<sup>32</sup> This cost is slightly increased by the increase in value of real wages over time.

<sup>33</sup> This estimate falls between the damages of Graniteville and Lac-Mégantic. It is selected only for illustrative purposes.

13272 (“Proper Consideration of Small Entities in Agency Rulemaking”) and DOT’s policies and procedures to promote compliance with the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

The Regulatory Flexibility Act requires an agency to review regulations to assess their impact on small entities. An agency must conduct a regulatory flexibility analysis unless it determines and certifies that a rule is not expected to have a significant economic impact on a substantial number of small entities.

As discussed in the preamble above, FRA is amending regulations affecting securement of certain trains carrying particular hazardous materials in particular quantities, and requiring that cabs of all locomotives left unattended, except for those left unattended on main tracks that are in or adjacent to yards, be equipped with locking mechanisms. FRA is certifying that this final rule will result in “no significant economic impact on a substantial number of small entities.” The following section explains the reasons for this certification.

1. Description of Regulated Entities and Impacts

The “universe” of the entities under consideration includes only those small entities that can reasonably be expected to be directly affected by the provisions of this rule. In this case, the “universe” will be Class III freight railroads that own locomotives or that have traffic including trains that would be subject to § 232.103(n)(6).

The U.S. Small Business Administration (SBA) stipulates in its “Size Standards” that the largest a railroad business firm that is “for-profit” may be, and still be classified as a “small entity,” is 1,500 employees for “Line Haul Operating Railroads” and

500 employees for “Switching and Terminal Establishments.” “Small entity” is defined in the Act as a small business that is independently owned and operated, and is not dominant in its field of operation. Additionally, section 601(5) defines “small entities” as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations less than 50,000.

Federal agencies may adopt their own size standards for small entities in consultation with SBA and in conjunction with public comment. Pursuant to that authority, FRA has published a final policy that formally establishes “small entities” as railroads which meet the line haulage revenue requirements of a Class III railroad.<sup>34</sup> The revenue requirements are currently \$20 million or less in annual operating revenue. The \$20 million limit (which is adjusted by applying the railroad revenue deflator adjustment)<sup>35</sup> is based on the Surface Transportation Board’s (STB) threshold for a Class III railroad carrier. FRA is using the STB’s threshold in its definition of “small entities” for this rule.

FRA believes that virtually all small railroads on the general system of rail transportation will be affected by this rule, as there are almost no railroads that do not own at least one locomotive. There are 671 small railroads on the general system of rail transportation.

As noted above, no small entities are expected to incur any costs under § 232.103. Small entities owning locomotives may incur a cost to install a locking mechanism under § 232.105, but as also noted above, the locking mechanisms will pay for themselves in reduced vandalism costs in less than three years. FRA believes that at least 90 percent of affected locomotives are already equipped with locking

mechanisms, and the cost to install a locking mechanism is \$100 for a mechanism that does not have to comply with AAR standards for interchange. Any small railroad’s locomotives operated in interchange service would have to have AAR compliant locks to remain in interchange service, but that is not a cost of the rule. Thus, the rule will impose a cost of \$100 on about ten percent of locomotives, but the investment will pay for itself in less than three years. FRA believes this is not a substantial impact on any small entity.

Further, small railroads will benefit from a reduction in recordkeeping requirements, as described above.

Pursuant to the Regulatory Flexibility Act, 5 U.S.C. 605(b), the FRA Administrator certifies that this final rule will not have a significant economic impact on a substantial number of small entities. In the NPRM, FRA requested comment on both this analysis and the certification, and its estimates of the impacts on small railroads. The only comment FRA received was that the unit cost of locks for small railroads would be more than \$100, exceeding even the AAR-estimated unit cost of \$210 per locomotive. For reasons discussed in the Regulatory Impact section above, FRA rejects that comment.

B. Paperwork Reduction Act

The information collection requirements in this final rule are being submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.* The sections that contain the new and current information collection requirements and the estimated time to fulfill each requirement are as follows:

CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
229.27—Annual tests	30,000 locomotives	120,000 tests	15 minutes	30,000 hours.
232.3—Applicability—Export, industrial, & other cars not owned by railroads—identification.	655 railroads	8 cards	10 minutes	1 hour.
232.7—Waivers	655 railroads	10 petitions	160 hours	1,600 hours.
232.15—Movement of Defective Equipment—Tags/Records.	1,620,000 cars	128,400 tags/records.	2.5 minutes	5,350 hours.
—Written Notification	1,620,000 cars	25,000 notices	3 minutes	1,250 hours.
232.17—Special Approval Procedure				
—Petitions for special approval of safety—critical revision.	655 railroads	1 petition	100 hours	100 hours.
—Petitions for special approval of pre-revenue service acceptance plan.	655 railroads	1 petition	100 hours	100 hours.
—Service of petitions	655 railroads	1 petition	20 hours	20 hours.
—Statement of interest	Public/railroads	4 statements	8 hours	32 hours.

<sup>34</sup> See 68 FR 24891, May 9, 2003; 49 CFR part 209, app. C.

<sup>35</sup> For further information on the calculation of the specific dollar limit, please see 49 CFR part 1201.



CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
—Comment .....	Public/railroads .....	13 comments .....	4 hours .....	52 hours.
232.103—Gen'l requirements—all train brake systems—Stickers.	114,000 cars .....	70,000 sticker .....	10 minutes .....	11,667 hours.
<i>Proposed Rule New Requirements</i> .....	Already Fulfilled under OMB No. 2130–0601.	Fulfilled under OMB No. 2130–0601.	Fulfilled under OMB No. 2130–0601.	Fulfilled under OMB No. 2130–0601.
232.103(n)(3)(iv)—RR Procedure for Securing Unattended Locomotive.	655 railroads .....	10 revised plans ...	10 hours .....	100 hours.
232.103(n)(7)—RR Plan Identifying Specific Locations or Circumstances where Equipment May Be Left Unattended.	655 railroads .....	10 notices .....	30 minutes .....	5 hours.
—Notification to FRA When RR Develops and Has Plan in Place or Modifies Existing Plan.				
232.103(n)(8)—Employee Verification with Another Qualified Employee of Securement of Freight Train or Freight Car Left Unattended.	Included under Sec. 232.103(n)(9).	Included Under Sec. 232.103(n)(9).	Included under Section 232.103(n)(9).	Included under Sec. 232.103(n)(9).
232.103(n)(9)—RR Implementation of Op. Rules/Practices Requiring Job Briefing for Securement of Unattended Equipment.	655 railroads .....	491 revised rules/practices.	2 hours .....	982 hours.
—Securement Job Briefings .....	100,000 Employees.	23,400,000 job briefings.	30 seconds .....	195,000 hours.
232.103(n)(10)—RR Adoption of Procedure for Verification of Securement of Equipment by Qualified Employee.	655 railroads .....	12 inspections/records.	4 hours .....	48 hours.
—Inspection of Equipment by Qualified Employee after Responder Visit.				
—Procedure for Alternative Securement ( <i>New Requirement</i> ).	655 railroads .....	655 procedures ...	1 hour .....	655 hours.
232.105—General requirements for locomotives—Inspection.	30,000 Locomotives.	30,000 forms .....	5 minutes .....	2,500 hours.
<i>Proposed Rule New Requirements</i> .....				
232.105(h)—RR Inspection of Locomotive Exterior Locking Mechanism/Records.	30,000 Locomotives.	30,000 insp./records.	30 seconds .....	250 hours.
—RR Repair, where necessary, of Locomotive Exterior Locking Mechanism.	30,000 Locomotives.	73 repairs/records	60.25 minutes .....	73 hours.
232.107—Air source requirements and cold weather operations—Monitoring Plan (Subsequent Years).	10 new railroads ...	1 plan .....	40 hours .....	40 hours.
—Amendments/Revisions to Plan .....	50 railroads/plans	10 revisions .....	20 hours .....	200 hours.
—Recordkeeping .....	50 railroads/plans	1,150 records .....	20 hours .....	23,000 hours.
232.109—Dynamic brake requirements—status/record .....	655 railroads .....	1,656,000 rec .....	4 minutes .....	110,400 hours.
—Inoperative dynamic brakes: repair record .....	30,000 locomotives	6,358 records .....	4 minutes .....	424 hours.
—Tag bearing words “inoperative dynamic brakes” ...	30,000 locomotives	6,358 tags .....	30 seconds .....	53 hours.
—Deactivated dynamic brakes (Sub. Yrs.) .....	8,000 locomotives	10 markings .....	5 minutes .....	1 hour.
—Operating rules (Subsequent Years) .....	5 new railroads .....	5 rules .....	4 hours .....	20 hours.
—Amendments/Revisions .....	655 railroads .....	15 revisions .....	1 hour .....	15 hours.
—Requests to increase 5 mph Overspeed restriction	655 railroads .....	5 requests .....	30 min. + 20 hours	103 hours.
—Knowledge criteria—locomotive engineers—Subsequent Years.	5 new railroads .....	5 amendments .....	16 hours .....	80 hours.
232.111—Train information handling—Sub. Yrs.—Amendments/Revisions.	5 new railroads .....	5 procedures .....	40 hours .....	200 hours
—R655 report requirements to train crew .....	100 railroads .....	100 revisions .....	20 hours .....	2,000 hours.
232.203—Training requirements—Tr. Prog.—Sub Yr. ....	655 railroads .....	2,112,000 reports	10 minutes .....	352,000 hours.
—Amendments to written program .....	15 railroads .....	5 programs .....	100 hours .....	500 hours.
—Training records .....	655 railroads .....	559 revisions .....	8 hours .....	4,472 hours.
—Training notifications .....	655 railroads .....	67,000 records .....	8 minutes .....	8,933 hours.
—Audit program .....	655 railroads .....	67,000 notices .....	3 minutes .....	3,350 hours.
—Amendments to validation/assessment program .....	655 railroads .....	1 plan + 559 copies.	40 hours/1 min. ....	49 hours.
232.205—Class 1 brake test—Notifications/Records .....	655 railroads .....	50 revisions .....	20 hours .....	1,000 hours.
	655 railroads .....	1,646,000 notices/records.	45 seconds .....	20,575 hours.
232.207—Class 1A brake tests—Designation Lists Where Performed.	655 railroads .....	5 lists .....	1 hour .....	5 hours.
Subsequent Years: Notice of Change to .....	655 railroads .....	250 notices .....	10 minutes .....	42 hours.
232.209—Class II brake tests—intermediate “Roll-by inspection”—Results to train driver.	655 railroads .....	1,597,400 comments.	3 seconds .....	1,331 hours.
232.213—Written Designation to FRA of Extended haul trains.	83,000 long dist. movements.	250 letters .....	15 minutes .....	63 hours.
232.303—General requirements—single car test: Tagging of Moved Equipment.	1,600,000 frgt. cars.	5,600 tags .....	5 minutes .....	467 hours.
—Last repair track brake test/single car test .....	1,600,000 frgt. cars.	320,000 markings	5 minutes .....	26,667 hours.
—Stenciled on Side of Equipment .....				
232.305—Single Car Tests—Performance and Records ...	1,600,000 frgt. cars.	320,000 tests/records.	60 minutes .....	320,000 hours.
232.307—Modification of single car air brake test procedures: Requests.	AAR .....	1 request + 3 copies.	100 hours + 5 minutes.	100 hours.

CFR section	Respondent universe	Total annual responses	Average time per response	Total annual burden hours
—Affirmation Statement on Mod. Req. To Employee Representatives.	AAR .....	1 statement + 4 copies.	30 minutes + 5 minutes.	1 hour.
—Comments on Modification Request .....	Railroad/Public .....	2 comments .....	8 hours .....	16 hours.
232.309—Repair track brake test .....	640 shops .....	5,000 tests .....	30 minutes .....	2,500 hours.
232.403—Unique Code .....	245 railroads .....	12 requests .....	5 minutes .....	1 hour.
232.407—EOT Operations requiring 2-way Voice Radio Communications.	245 railroads .....	50,000 verbal comments.	30 seconds .....	417 hours.
232.409—Inspection/Tests/Records EOTs .....	245 railroads .....	447,500 tests/notices/record.	30 seconds .....	3,729 hours.
—Telemetry Equipment—Testing and Calibration .....	245 railroads .....	32,708 units marked.	1 minute .....	545 hours.
232.503—Process to introduce new brake technology .....	655 railroads .....	1 letter .....	1 hour .....	1 hour.
—Special approval .....	655 railroads .....	1 request .....	3 hours .....	3 hours.
232.505—Pre-revenue svc accept. test plan .....	655 railroads .....	1 procedure .....	160 hours .....	160 hours.
—Submission of maintenance procedure				
—Amendments to maintenance procedure .....	655 railroads .....	1 revision .....	40 hours .....	40 hours.
—Design description .....	655 railroads .....	1 petition .....	67 hours .....	67 hours.
—Report to FRA Assoc. Admin. for Safety .....	655 railroads .....	1 report .....	13 hours .....	13 hours.
—Brake system technology testing .....	655 railroads .....	1 description .....	40 hours .....	40 hours.
232.603—Configuration Management—Configuration Management Plan (ECP).	4 railroads .....	1 plan .....	160 hours .....	160 hours.
—Subsequent Years—Configuration Management Plans.	4 railroads .....	1 plan .....	60 hours .....	60 hours.
—Request for Modification of Standards and Extra Copies to FRA.	4 railroads .....	1 request + 2 copies.	8 hours + 5 minutes.	8 hours.
—Affirmative Statements that RRs have served copies of Modification Request to Employee Representatives.	4 railroads .....	4 statements + 24 copies.	60 minutes + 5 minutes.	6 hours.
—Comments on requested modification .....	Public/Industry .....	4 comments .....	2 hours .....	8 hours.
232.605—ECP Brakes: Training—Adopt/Developing an ECP Training Program—First Year.	1 railroad .....	1 program .....	100 hours .....	100 hours.
—Subsequent Years—ECP Training Prog. ....	1 railroad .....	1 program .....	100 hours .....	100 hours.
—ECP Brakes Training of Employees—First Year .....	1 railroad .....	1,602 trained employees.	8 hours/24 hrs. ....	26,480 hours.
—ECP Brakes Training of Employees—Subsequent Years.	2 railroads .....	1,602 trained employees.	1 hour/8 hours .....	7,580 hours.
—ECP Training Records—Yr. One .....	2 railroads .....	1,602 records .....	8 minutes .....	214 hours.
—ECP Training Records—Subsequent Yrs. ....	2 railroads .....	1,602 records .....	4 minutes .....	107 hours.
—Assessment of ECP Training Plan .....	2 railroads .....	1 ECP plan .....	40 hours .....	40 hours.
—Adopt Operating Rules for ECP Brakes .....	2 railroads .....	1 Oper. Rule .....	24 hours .....	24 hours.
—Amended Locomotive Engineer Certification Program (ECP Brakes).	2 railroads .....	1 amended program.	40 hours .....	40 hours.
232.607—ECP Inspection and Testing—Initial Terminal—Inspections and Notification/Record of Class I Brake Tests.	1 railroad .....	2,500 insp.+ 2,500 notices.	90 min. + 45 seconds.	3,781 hours.
—Cars added or removed en route—Class I Brake Test and Notification.	1 railroad .....	250 inspection + 125 notices.	60 minutes + 45 seconds.	253 hours.
—Non-ECP cars added to ECP Trains—Inspections and Tags for Defective Cars.	200 Cars .....	50 insp. + 100 tags/records.	5 minutes + 2.5 minutes.	8 hours.
232.609—Handling of Defective Equipment with ECP Brake Systems—Freight Car w/defective conventional brakes moved in train operating in ECP brake mode.	25 Cars .....	50 tags/records .....	2.5 minutes .....	2 hours.
—Inspections/Tagging for ECP Train moving w/less than 85 percent operative/effective brakes.	20 Cars .....	20 insp. + 40 tags/records.	5 minutes + 2.5 minutes.	3 hours.
—Cars tagged in accordance with Section 232.15 .....	25 Cars .....	50 tags/records .....	2.5 minutes .....	2 hours.
232.609—Conventional Train with stand-alone ECP brake equipped cars—Tagging.	50 Cars .....	100 tags/records .....	2.5 minutes .....	4 hours.
—Procedures for handling ECP brake system repairs and designation of repair locations.	2 railroads .....	2 procedures .....	24 hours .....	48 hours.
—List of repair locations .....	2 railroads .....	2 lists .....	8 hours .....	16 hours.
—Notification to FRA Safety Administrator regarding change to repair location list.	2 railroads .....	1 notification .....	1 hour .....	1 hour.
232.611—Periodic Maintenance—Inspections before being released from repair Shop.	500 Freight Cars ..	500 insp./rcds .....	10 minutes .....	83 hours.
—Procedures/Petition for ECP Single Car Test .....	1 Railroad Rep. ....	1 petition + 2 copies.	24 hours + 5 minutes.	24 hours.
—Single Car Air Brake Tests—Records .....	50 Freight Cars .....	50 tests/records .....	45 minutes .....	38 hours.
—Modification of Single Car Test Standards .....	1 Railroad Rep. ....	1 mod. Proc. ....	40 hours .....	40 hours.

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. For information or a copy of the paperwork package submitted to OMB, contact Mr. Robert Brogan, Information Clearance Officer, at 202-493-6292, or Ms. Nakia Poston, Information Clearance Officer, at 202-493-6073.

OMB is required to make a decision concerning the collection of information requirements contained in this final rule between 30 and 60 days after publication of this document in the **Federal Register**. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication.

FRA is not authorized to impose a penalty on persons for violating information collection requirements which do not display a current OMB control number, if required. FRA intends to obtain current OMB control numbers for any new information collection requirements resulting from this rulemaking action prior to the effective date of the final rule. The OMB control number, when assigned, will be announced by separate notice in the **Federal Register**.

#### C. Federalism

Executive Order 13132, "Federalism" (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Under Executive Order 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation.

This final rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. FRA has determined that the final rule does not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. In addition, FRA has determined that this final rule does not impose substantial direct compliance costs on State and local governments. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply.

This rule adds requirements to part 232. FRA is not aware of any State having regulations similar to these proposals. However, FRA notes that this part could have preemptive effect by the operation of law under a provision of the former Federal Railroad Safety Act of 1970, repealed, revised, reenacted, and codified at 49 U.S.C. 20106 (Sec. 20106). Sec. 20106 provides that States may not adopt or continue in effect any law, regulation, or order related to railroad safety or security that covers the subject matter of a regulation prescribed or order issued by the Secretary of Transportation (with respect to railroad safety matters) or the Secretary of Homeland Security (with respect to railroad security matters), except when the State law, regulation, or order qualifies under the "essentially local safety or security hazard" exception to Sec. 20106. In addition, section 20119(b) authorizes FRA to issue a rule governing the discovery and use of risk analysis information in litigation.

In sum, FRA has analyzed this final rule in accordance with the principles and criteria contained in Executive Order 13132. As explained above, FRA has determined that this final rule has no federalism implications, other than the possible preemption of State laws under 49 U.S.C. 20106 and 20119. Accordingly, FRA has determined that preparation of a federalism summary impact statement for this final rule is not required.

#### D. International Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and where

appropriate, that they be the basis for U.S. standards. This rulemaking is purely domestic in nature and is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

#### E. Environmental Assessment

FRA has evaluated this rule in accordance with its "Procedures for Considering Environmental Impacts" (FRA's Procedures) (64 FR 28545, May 26, 1999) as required by the National Environmental Policy Act (42 U.S.C. 4321 *et seq.*), other environmental statutes, Executive Orders, and requirements covered under FRA NEPA reviews. FRA has determined that this rule is not a major FRA action as defined in FRA's Procedures (requiring the preparation of an environmental assessment or environmental impact statement) because it is categorically excluded from further environmental review pursuant to section 4(c)(20) of FRA's Procedures. See 64 FR 28547, May 26, 1999. Section 4(c)(20) reads as follows:

(c) Actions categorically excluded. Certain classes of FRA actions have been determined to be categorically excluded from the requirements of these Procedures as they do not individually or cumulatively have a significant effect on the human environment. \* \* \* The following classes of FRA actions are categorically excluded:

\* \* \* (20) Promulgation of railroad safety rules and policy statements that do not result in significantly increased emissions or air or water pollutants or noise or increased traffic congestion in any mode of transportation.

This rule amends existing FRA regulations and strengthens the requirements relating to securement and unattended equipment. Compliance with these requirements would not result in actions that would adversely affect the environment. To the extent that a reduction in safety incidents, in particular hazardous materials releases, prevents adverse environmental impacts, this rule will have the potential for minor environmental benefits. The rule does not require any new infrastructure improvements or changes in railroad operating practices that would result in adverse environmental consequences. As such, FRA does not expect any significant increases in air emissions, water pollution, noise, or traffic congestion. Thus, in accordance with section 4(c) and (e) of FRA's Procedures, the agency concludes that no extraordinary circumstances exist with respect to this proposed regulation that might trigger the need for a more detailed environmental review. As a result, FRA finds that this rule will not

significantly affect the quality of the human environment and is categorically excluded from further review.

*F. Unfunded Mandates Reform Act of 1995*

Pursuant to section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 2 U.S.C. 1531), each Federal agency “shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law).” Section 202 of the Act (2 U.S.C. 1532) further requires that the agency prepare a written statement detailing the effect of this rule on State, local, and tribal governments and the private sector:

[B]efore promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100,000,000 or more (adjusted annually for inflation) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published.

For the year 2013, this monetary amount of \$100,000,000 has been adjusted to \$151,000,000 to account for inflation. This final rule will not result in the expenditure of more than \$151,000,000 by the public sector in any one year, and thus preparation of such a statement is not required.

*G. Energy Impact*

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” 66 FR 28355, May 22, 2001. Under the Executive Order, a “significant energy action” is defined as any action by an agency (normally published in the **Federal Register**) that promulgates, or is expected to lead to the promulgation of, a final rule or regulation (including a notice of inquiry, advance NPRM, and NPRM) that (1)(i) is a significant regulatory action under Executive Order 12866 or any successor order and (ii) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (2) is designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action. FRA has evaluated this final rule in accordance with Executive Order 13211. FRA has determined that this final rule will not have a significant adverse effect on the supply, distribution, or use of energy. Consequently, FRA has

determined that this regulatory action is not a “significant energy action” within the meaning of Executive Order 13211.

*H. Privacy Act*

Interested parties should be aware that anyone is able to search the electronic form of all comments received into any agency docket by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT’s complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477), or you may visit <http://www.dot.gov/privacy.html>.

*I. Executive Order 12898 (Environmental Justice)*

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, and DOT Order 5610.2(a) (91 FR 27534 May 10, 2012) require DOT agencies to achieve environmental justice (EJ) as part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of their programs, policies, and activities on minority populations and low-income populations. The DOT Order instructs DOT agencies to address compliance with Executive Order 12898 and the DOT Order in rulemaking activities, as appropriate. FRA has evaluated this proposed rule under Executive Order 12898 and the DOT Order and has determined that it would not cause disproportionately high and adverse human health and environmental effects on minority or low-income populations.

*J. Executive Order 13175 (Tribal Consultation)*

FRA has evaluated this proposed rule in accordance with the principles and criteria contained in Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, dated November 6, 2000. The proposed rule would not have a substantial direct effect on one or more Indian tribes, would not impose substantial direct compliance costs on Indian tribal governments, and would not preempt tribal laws. Therefore, the funding and consultation requirements of Executive Order 13175 do not apply, and a tribal summary impact statement is not required.

**List of Subjects in 49 CFR Part 232**

Hazardous material, Power brakes, Railroad safety, Securement.

**The Rule**

In consideration of the foregoing, FRA is amending part 232 of chapter II, subtitle B of title 49, Code of Federal Regulations as follows:

**PART 232—[AMENDED]**

■ 1. The authority citation for part 232 is revised to read as follows:

**Authority:** 49 U.S.C. 20102–20103, 20107, 20133, 20141, 20301–20303, 20306, 21301–21302, 21304; 28 U.S.C. 2461, note; and 49 CFR 1.89.

■ 2. Section 232.5 is amended by adding in alphabetical order the definitions of “Mechanical securement device” and “Unattended equipment”, and by removing the word “limits” from the defined term “Yard limits”.

The revisions read as follows:

**§ 232.5 Definitions.**

\* \* \* \* \*

*Mechanical securement device* means a device, other than the air brake, that provides at least the equivalent securement that a sufficient number of hand brakes would provide in the same situation. Current examples include skates, retarders, and inert retarders.

\* \* \* \* \*

*Unattended equipment* means equipment left standing and unmanned in such a manner that the brake system of the equipment cannot be readily controlled by a qualified person.

\* \* \* \* \*

■ 3. In § 232.103, revise paragraphs (n) introductory text and (n)(1) through (3) and add paragraphs (n)(6) through (11)” to read as follows:

**§ 232.103 General requirements for all train brake systems.**

\* \* \* \* \*

(n) *Securement of unattended equipment.* Unattended equipment shall be secured in accordance with the following requirements:

(1) A sufficient number of hand brakes, to be not fewer than one, shall be applied to hold the equipment unless an acceptable alternative method of securement is provided pursuant to paragraph (n)(11)(i) of this section. Railroads shall develop and implement a process or procedure to verify that the applied hand brakes will sufficiently hold the equipment with the air brakes released.

(2) Except for equipment connected to a source of compressed air (e.g., locomotive or ground air source), or as

provided under paragraph (n)(11)(ii) of this section, prior to leaving equipment unattended, the brake pipe shall be reduced to zero at a rate that is no less than a service rate reduction, and the brake pipe vented to atmosphere by leaving the angle cock in the open position on the first unit of the equipment left unattended. A train's air brake shall not be depended upon to hold equipment standing unattended (including a locomotive, a car, or a train whether or not locomotive is attached).

(3) Except for distributed power units, the following requirements apply to unattended locomotives:

(i) All hand brakes shall be fully applied on all locomotives in the lead consist of an unattended train.

(ii) All hand brakes shall be fully applied on all locomotives in an unattended locomotive consist outside of a yard.

(iii) At a minimum, the hand brake shall be fully applied on the lead locomotive in an unattended locomotive consist within a yard.

(iv) A railroad shall develop, adopt, and comply with procedures for securing any unattended locomotive required to have a hand brake applied pursuant to paragraph (n)(3)(i) through (iii) of this section when the locomotive is not equipped with an operative hand brake.

\* \* \* \* \*

(6)(i) The requirements in paragraph (n)(7) through (8) of this section apply to any freight train or standing freight car or cars that contain:

(A) Any loaded tank car containing a material poisonous by inhalation as defined in § 171.8 of this title, including anhydrous ammonia (UN 1005) and ammonia solutions (UN 3318); or

(B) Twenty (20) or more loaded tank cars or loaded intermodal portable tanks of any one or any combination of a hazardous material listed in paragraph (n)(6)(i)(A) of this section, or any Division 2.1 (flammable gas), Class 3 (flammable or combustible liquid), Division 1.1 or 1.2 (explosive), or a hazardous substance listed at § 173.31(f)(2) of this title.

(ii) For the purposes of this paragraph, a tank car containing a residue of a hazardous material as defined in § 171.8 of this title is not considered a loaded car.

(7)(i) No equipment described in paragraph (n)(6) of this section shall be left unattended on a main track or siding (except when that main track or siding runs through, or is directly adjacent to a yard) until the railroad has adopted and is complying with a plan identifying specific locations or

circumstances when the equipment may be left unattended. The plan shall contain sufficient safety justification for determining when equipment may be left unattended. The railroad must notify FRA when the railroad develops and has in place a plan, or modifies an existing plan, under this provision prior to operating pursuant to the plan. The plan shall be made available to FRA upon request. FRA reserves the right to require modifications to any plan should it determine the plan is not sufficient.

(ii) Except as provided in paragraph (n)(8)(iii) of this section, any freight train described in paragraph (n)(6) of this section that is left unattended on a main track or siding that runs through, or is directly adjacent to, a yard shall comply with the requirements contained in paragraphs (n)(8)(i) and (n)(8)(ii) of this section.

(8)(i) Where a freight train or standing freight car or cars as described in paragraph (n)(6) of this section is left unattended on a main track or siding outside of a yard, and not directly adjacent to a yard, an employee responsible for securing the equipment shall verify with another person qualified to make the determination that the equipment is secured in accordance with the railroad's processes and procedures.

(ii) The controlling locomotive cab of a freight train described in paragraph (n)(6) of this section shall be locked on locomotives capable of being locked. If the controlling cab is not capable of being locked, the reverser on the controlling locomotive shall be removed from the control stand and placed in a secured location.

(iii) A locomotive that is left unattended on a main track or siding that runs through, or is directly adjacent to, a yard is excepted from the requirements in (n)(8)(ii) of this section where the locomotive is not equipped with an operative lock and the locomotive has a reverser that cannot be removed from its control stand or has a reverser that is necessary for cold weather operations.

(9) Each railroad shall implement operating rules and practices requiring the job briefing of securement for any activity that will impact or require the securement of any unattended equipment in the course of the work being performed.

(10) Each railroad shall adopt and comply with procedures to ensure that, as soon as safely practicable, a qualified employee verifies the proper securement of any unattended equipment when the railroad has knowledge that a non-railroad

emergency responder has been on, under, or between the equipment.

(11) A railroad may adopt and then must comply with alternative securement procedures to do the following:

(i) In lieu of applying hand brakes as required under paragraph (n) of this section, properly maintain and use mechanical securement devices, within their design criteria and as intended within a classification yard or on a repair track.

(ii) In lieu of compliance with the associated requirement in paragraph (n)(2) of this section—and in lieu of applying hand brakes as required under paragraph (n) of this section— isolate the brake pipe of standing equipment from atmosphere if it:

(A) Initiates an emergency brake application on the equipment;

(B) Closes the angle cock; and

(C) Operates the locomotive or otherwise proceeds directly to the opposite end of the equipment for the sole purpose to either open the angle cock to vent to atmosphere or provide an air source.

(iii) Upon completion of the procedure described in paragraph (n)(11)(ii) of this section, the securement requirements of paragraph (n) of this section shall apply.

\* \* \* \* \*

■ 4. In § 232.105, add paragraph (h) to read as follows:

**§ 232.105 General requirements for locomotives.**

\* \* \* \* \*

(h)(1) After March 1, 2017, each locomotive left unattended outside of a yard, but not on a track directly adjacent to the yard, shall be equipped with an operative exterior locking mechanism.

(2) The railroad shall inspect and, where necessary, repair the locking mechanism during a locomotive's periodic inspection required in § 229.23 of this chapter.

(3) In the event that a locking mechanism becomes inoperative during the time interval between periodic inspections, the railroad must repair the locking mechanism within 30 days of finding the inoperative lock.

(4) A railroad may continue the use of a locomotive without an operative locking mechanism; however, if the controlling locomotive of a train meeting the requirements of § 232.103(n)(6)(i) does not have an operative locking mechanism for the locomotive, the train must not be left unattended on main track or a siding unless the reverser is removed from the control stand as required in § 232.103(n)(8)(ii) or the locomotive

otherwise meets one of the exceptions described in § 232.103(n)(8)(iii).

■ 5. In appendix A to part 232, revise the entry for § 232.103(n) and add an entry for § 232.105(h) to read as follows:

**Appendix A to Part 232—Schedule of Civil Penalties <sup>(1)</sup>**

Section	Violation	Willful Violation
232.103 General requirements for all train brake systems:		
(n) Securement of unattended equipment.		
(1) Failure to apply sufficient number of hand brakes; failure to develop or implement procedure to verify number applied .....	5,000	7,500
(2) Failure to initiate emergency or depend upon air brake .....	2,500	5,000
(3) Failure to apply hand brakes on locomotives .....	2,500	5,000
(4) Failure to adopt or comply with procedures for securing unattended locomotive .....	5,000	7,500
(5) Release of hand brakes before brake system is properly charged .....	5,000	7,500
(7)(i) Failure to adopt or comply with unattended location plan .....	2,500	5,000
(8)(i) Failure to verify securement .....	2,500	5,000
(8)(ii) Failure to apply lock or remove and secure reverser .....	2,500	5,000
(9) Failure implement operating rule for securement job briefing .....	2,500	2,500
(10) Failure to adopt and comply with securement procedures for after emergency response .....	2,500	5,000
232.105 General requirements for locomotives:		
(h)(1) Failure to equip with operative locomotive lock .....	2,500	5,000
(h)(2)–(h)(3) Failure to inspect or timely repair locomotive lock .....	2,500	5,000

Issued in Washington, DC, on July 27, 2015.

**Sarah Feinberg,**  
*Acting Administrator.*

[FR Doc. 2015–19002 Filed 8–5–15; 8:45 am]

**BILLING CODE 4910–06–P**

<sup>1</sup> A penalty may be assessed against an individual only for a willful violation. Generally when two or more violations of these regulations are discovered with respect to a single unit of equipment that is placed or continued in service by a railroad, the appropriate penalties set forth above are aggregated up to a maximum of \$25,000 per day. An exception to this rule is the \$15,000 penalty for willful violation of § 232.503 (failure to get FRA approval before introducing new technology) with respect to a single unit of equipment; if the unit has additional violative conditions, the penalty may routinely be aggregated to \$15,000. Although the penalties listed for failure to perform the brake inspections and tests under § 232.205 through § 232.209 may be assessed for each train that is not properly

inspected, failure to perform any of the inspections and tests required under those sections will be treated as a violation separate and distinct from, and in addition to, any substantive violative conditions found on the equipment contained in the train consist. Moreover, the Administrator reserves the right to assess a penalty of up to \$105,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

Failure to observe any condition for movement of defective equipment set forth in § 232.15(a) will deprive the railroad of the benefit of the movement-for-repair provision and make the railroad and any responsible individuals liable for penalty under the particular regulatory section(s) concerning the

substantive defect(s) present on the equipment at the time of movement.

Failure to provide any of the records or plans required by this part pursuant to § 232.19 will be considered a failure to maintain or develop the record or plan and will make the railroad liable for penalty under the particular regulatory section(s) concerning the retention or creation of the document involved.

Failure to properly perform any of the inspections specifically referenced in § 232.209, § 232.213, § 232.217, and subpart G may be assessed under each section of this part or this chapter, or both, that contains the requirements for performing the referenced inspection.