



4910-06-P

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Part 232

[Docket No. FRA-2014-0032, Notice No. 1]

RIN 2130-AC47

Securement of Unattended Equipment

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

ACTION: Notice of Proposed Rulemaking.

SUMMARY: FRA proposes amendments to 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 would codify 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 proposes to amend 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), Class 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 proposes additional communication requirements relating to job briefings and securement verification. Finally, FRA proposes to require all locomotives left unattended outside of a yard to be

equipped with an operative exterior locking mechanism. Attendance on trains would be required on equipment not capable of being secured in accordance with the proposed and existing requirements.

DATES: (1) Written comments must be received by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments received after that date will be considered to the extent possible without incurring additional expenses or delays. (2) FRA anticipates being able to resolve this rulemaking without a public hearing. However, if prior to [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], FRA receives a specific request for a public hearing, a hearing will be scheduled and FRA will publish a supplemental document in the Federal Register to inform interested parties of the date, time, and location of such hearing.

ADDRESSES: Comments: Comments related to this proceeding may be submitted by any of the following methods:

- Web Site: Comments should be filed at the Federal eRulemaking Portal, <http://www.regulations.gov>. Follow the online instructions for submitting comments.
- 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 comments 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:

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I. Executive Summary

Purpose of the Proposed Regulatory Action

While FRA's existing securement regulations have been successful in mitigating risks associated with the rolling of unattended equipment, FRA recognizes that—

particularly in light of certain accidents like the one last year in Lac-Mégantic, Quebec, Canada—additional requirements may be 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 is issuing this responsive notice of proposed rulemaking (NPRM). FRA is proposing this rulemaking 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 Proposed Regulatory Action

In this proceeding, FRA proposes requirements to ensure that each locomotive left unattended outside of a yard be 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 proposed rule would provide 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 proposed rule would also require 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%
Costs		
Attending Trains	\$36,685	\$49,909
Installing Locks	\$50,000	\$50,000
Total Costs	\$86,685	\$99,909
Benefits		
Reduced Vandalism	\$180,873	\$250,666
Reduced Recordkeeping	\$982,786	\$1,328,573
Total Benefits	\$1,163,669	\$1,579,240

Discounted Values Net Benefits	Discounted Value	
	Discount Factor	
	7%	3%
Total	\$1,076,984	\$1,479,331
Annualized	\$95,009	\$96,538

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 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 about a year ago 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. 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 Corporation (MMA), a company incorporated in the United States.

According to a report issued by the Transportation Safety Board (TSB) of Canada, the incident is summarized as follows.¹ 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, 1 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, and departed, 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 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. At this time, it is estimated that there

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

were 47 fatalities.² 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, 2013.³ 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 is 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

² 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>.

³ 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>.

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.⁴ 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.

⁴ 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 (CROR) that have been approved by Transport Canada.

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. Emergency Order 28 remains in effect today, as amended by FRA’s August 27, 2013, letter approving with conditions a joint petition for relief from the AAR and the American Short Line and Regional Railroad Association (ASLRRA). Railroads currently are required to comply with Emergency Order 28, as amended, in addition to 49 CFR 232.103(n). 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.⁵

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

⁵ AAR has voluntarily applied EO 28 to trains that have a single PIH tank car.

(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 ASLRRA, 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, ASLRRA, (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.⁶

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 DOT has taken, or is already taking, 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. This instant rulemaking proposes requirements that would enhance safety culture and oversight and that would address train securement. For instance, as further discussed below, FRA

⁶ 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.

proposes to mandate by regulation the implementation of operating rules and practices requiring that securement be part of all relevant job briefings. FRA also proposes rules requiring 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 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 proposed rule directly addresses this concern with requirements relating to the installation and use of locomotive 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.⁷ Freight railroads in the United States also transport a substantial amount and variety of hazardous materials, including materials poisonous by inhalation (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.⁸

The MMA train in the Lac-Mégantic incident was transporting 72 carloads of crude oil with five locomotives 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 often classified by an offeror as a flammable liquid; per PHMSA's Hazardous Materials Regulations (HMRs), however, its packing group can be I, II, or III depending on the blend of constituent crude oils. 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

⁷ 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.

⁸ 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 "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.

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 also 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.⁹

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.¹⁰ Rail shipments from the North Dakota region are forecast to increase over the next 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.

⁹ 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.

¹⁰ 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>.

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 350 individuals 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 are both investigating this accident to determine the cause.

On December 30, 2013, a westbound grain train derailed 13 cars near Casselton, North Dakota, fouling main track 2.¹¹ 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 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

¹¹ This derailment currently is being investigated by the National Transportation Safety Board (NTSB), and information regarding this incident can be found at the NTSB website. [See http://www.nts.gov/doclib/reports/2014/Casselton_ND_Preliminary.pdf](http://www.nts.gov/doclib/reports/2014/Casselton_ND_Preliminary.pdf).

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.¹²

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 four major mainline derailments resulting in the breach of tank cars containing ethanol. While FRA recognizes that none of these four derailments resulted from a roll-away situation, they are instructive on the destructive potential of a derailment involving tank cars containing flammable products:

¹² See id.

- 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, OH, a Norfolk Southern Railway Co. train derailed while operating on main track. Thirteen tank cars containing ethanol derailed resulting in a fire and 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 ½-mile radius of the derailment.

While these accidents were serious, their results had potential for more 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, derailing 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, TX, 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.

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.¹³ 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.¹⁴ 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 proposed rulemaking intend to address some of the human

¹³ 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.

¹⁴ 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.

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 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. 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 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 requires 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 provides guidance regarding alternative forms of securement in such instances. As an 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. While this proposal does not contain any specific proposed regulatory text referencing the content of TB 10-01, FRA is considering codifying TB 10-01 by amending the rule at the final rule stage of this proceeding. This would constitute a clarifying amendment to ensure that FRA's long-standing interpretation and application of the existing regulation is contained directly in the regulation. FRA seeks comments on clarifying the rule to address the provisions of TB 10-01 in the final rule.

Despite the demonstrated effectiveness of FRA's current securement regulations, FRA recognizes that due to increased shipments of hazardous materials such as crude oil and ethanol, combined with the potential for higher-consequences related to any accident that might occur due to improper securement, particularly on mainline track and mainline sidings outside of a yard or terminal, proper securement has become a serious and immediate safety concern. Therefore, FRA established additional securement measures in Emergency Order 28 in an effort to ensure the continued protection of the health and safety of railroad employees, the general public, and the environment. In this NPRM, FRA proposes establishing permanent rules that will strengthen the current regulations and ensure public safety by adopting the necessary and effective securement measures that FRA included in Emergency Order 28 as part of its immediate response to the Lac-Mégantic derailment.

Also notable is that over the past year, FRA and PHMSA have undertaken nearly two dozen actions to enhance the safe transport of crude oil. This comprehensive approach includes 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>.

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 ASLRRA. 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);
- American Short Line and Regional Railroad Association (ASLRRA);
- 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 Employees 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.

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);
- ASLRRA, 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, 2014, 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 include 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 includes amendments to 49 CFR 232.105 that would require equipping locomotives with exterior locking mechanisms.

III. 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. FRA seeks comments on all proposals made in this NPRM.

Before entering into specific analysis of each proposed section, it is important to make clear that this proposal, which provides more restrictive securement requirements for specific types of equipment, 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,¹⁵ and is free to leave the 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.

¹⁵ 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 and remaining sufficiently alert to respond to any unintended movement of the equipment 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 BLEET 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.

FRA also notes that this proposed 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. 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 proposed rule. FRA seeks comments on the exclusion of this Emergency Order 28 requirement here.

Proposed Amendments to 49 CFR Part 232

Section 232.5

Definitions

In the 2001 rule, the definition of "unattended equipment" was included in § 232.103(n). As further discussed below, FRA is proposing a new paragraph (h) for § 232.105, which would also make use of the definition for "unattended equipment." Since the term would be used in multiple sections, FRA believes it would be prudent to move the definition to the more broadly applicable definitions in § 232.5. Doing so would also allow FRA to rephrase paragraph (n) for clarity purposes, as discussed further below. Proposed placement of the definition in § 232.5 would not change its meaning and would be solely for applicability and clarity purposes.

FRA proposes 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

also proposes to include 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 clarifies 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.

Section 232.103 General requirements for all train brake systems

As previously noted, FRA is proposing to move the definition of “unattended equipment” to § 232.5, creating an opportunity to rephrase and clarify the introductory language of paragraph (n). Part of this proposal is to move the opening sentence in 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 introductory language of paragraph (n) would remain more succinct and clear.

While it is not an RSAC recommendation, FRA also proposes to amend 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. While 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 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. .

As previously mentioned, proposed paragraph (n)(2) would be amended to include language from 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). FRA further proposes to remove the phrase "on a grade," as such a requirement is arguably superfluous and confusing. 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, FRA proposes that the language be modified to make clearer that the hand brake application requirement is universal, regardless of grade.

Proposed paragraphs (n)(6) through (n)(8) attempt to address the aforementioned heightened concerns relating to the securement of unattended equipment carrying certain hazardous materials. Proposed paragraph (n)(6) defines the type of cars 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) will apply to:

- (1) any loaded freight car containing PIH material, including anhydrous ammonia and ammonia solutions; or
- (2) twenty (20) or more loaded 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) proposes new securement requirements that would 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) proposes to cover situations where there are 20 or more carloads 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 seeks comment on this proposal and also seeks comment on whether a defined term should be used for equipment covered under paragraph (n)(6).

The proposed regulatory text exempts residue cars from consideration. Residue cars are defined by PHMSA under the HMRs. FRA will continue to rely on the HMRs for this definition, even if amended. Together, FRA and PHMSA are concurrently considering new regulations relating to the placement in trains of cars containing hazardous materials. In that effort, loaded and residue cars may be treated the same. FRA does not believe that any resulting train placement regulation would affect the securement regulations we are considering in the instant proceeding. Nevertheless, the parties have expressed concerns that such inconsistent use may foster confusion or be “pitted against one another.” FRA seeks further comment explaining how such confusion or conflict may manifest itself.

Proposed 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. Proposed paragraph (n)(8) includes specific requirements regarding the securement of such equipment.

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, and it continues to monitor such plans. 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 proposed paragraph (n)(7)(i), FRA intends to continue 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, proposed paragraph (n)(7)(i) includes a requirement 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.

Proposed paragraph (n)(7)(i), however, differs from Emergency Order 28 in one manner. It 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 proposed 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 safer places for leaving equipment unattended. In FRA's view, mainline tracks that run through yards share those characteristics with the yard tracks surrounding it and 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, FRA has proposed in this rulemaking to treat 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. In proposing this change, FRA 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. FRA seeks comments on its treatment of tracks adjacent to the yard.

Proposed paragraph (n)(7)(ii) would establish 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 would apply 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)).

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. The proposed 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, proposed paragraph (n)(8)(i) requires the employee responsible for the securement of the equipment to verify securement and proposed paragraph (n)(8)(ii) requires the train crew to lock the controlling locomotive cab or remove and secure the reverser from the control stand.¹⁶

Proposed 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 currently 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, proposed paragraph (n)(8)(i) does not contain a requirement that the railroad maintain a record of the verification of proper securement.

¹⁶ 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.

FRA believes that the type of verification requirement in proposed 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 proposed 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.

FRA has decided not to continue the recordation requirement based on experience in enforcing 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 over the last year that 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. Nevertheless, FRA seeks comment concerning enforcement of the verification requirement, absent recordation.

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, proposed 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 proposed 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 when a locomotive has been equipped with a lock but the lock has become inoperative. FRA also notes that under this proposal 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 seeks 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.

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 proposal 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 times when 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, FRA proposes 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). FRA seeks comments on the intent, application, and language of this proposed exception.

FRA believes that the job briefing requirement in Emergency Order 28 should be codified in regulation. Accordingly, proposed paragraph (n)(9) would require 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 proposed 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 proposed 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 proposal, 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 seeks comments on whether these expectations are reasonable, accurate, and either sufficiently comprehensive or somehow lacking.

FRA recognizes that in some instances, there may be only one crew member performing a switch or operation and that would have to secure equipment alone at the end of the activity. FRA believes that the issue of self-satisfying a job briefing is best left to the railroad when complying with part 218. Nevertheless, FRA seeks comments on

how to apply this requirement in a situation involving a single person crew and how it interrelates with part 218.

Under paragraph (n)(10), FRA is proposing to require 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 proposed rule requires railroads to establish a process to ensure that a qualified railroad employee inspects all equipment that any emergency responder (e.g., fireman 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. The railroad's process can take that type of situation into account; however, FRA will expect that a qualified railroad employee will 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 proposed rule requires that these procedures are followed as soon as safely practicable after learning that an emergency responder has interfaced with the equipment. FRA seeks comments on what should be considered "as soon as safely practicable."

FRA proposes a new paragraph (h) to § 232.105 to provide further requirements concerning locking mechanisms on locomotive doors. While proposed § 232.103(n)(8)(ii) provides securement controls 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 requirement should apply to all locomotives left outside a yard. Accordingly, FRA proposes including 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 these proposed rules. 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) proposes 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 also proposes to include this requirement in § 232.105 so that it applies to all locomotives left unattended outside of a yard or on a track immediately adjacent to a yard, not just those locomotives defined under § 232.103(n)(6). FRA seeks comment on this requirement.

Proposed 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, proposed paragraph (h)(3) would require 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 will 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. FRA seeks comments on this understanding. FRA also seeks information and comments on the possibility of a qualified person finding difficulty accessing the locomotive cab in the event of an unintentional movement of the equipment.

Under proposed paragraph (h)(4), if a locking mechanism becomes inoperative in the interval between a locomotive's periodic inspection dates, this provision does not require that a locomotive be removed from service upon the discovery of an inoperative locking mechanism. Railroads may continue to use the locomotive without an operative lock. However, if such equipment covered by proposed § 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).

IV. Regulatory Impact and Notices

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

This proposed 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. This analysis also does not include sunk costs.

FRA was able to quantify the costs of the proposed 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 proposal 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 2014,¹⁷ 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

¹⁷ Information regarding oil and gas production is available at the following URL: <http://www.eia.gov/petroleum/drilling/#tabs-summary-2>

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.¹⁸ 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.

¹⁸ 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>.

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 proposed requirement.

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

Proposed 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 being

proposed to this paragraph merely clarify FRA's longstanding interpretation, application, and enforcement of the existing regulation.

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

Proposed § 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.

Proposed § 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 proposed requirement is part of long-standing railroad business practices, and will add no costs or benefits.

In proposed paragraph (n)(8)(i), there is a new proposed 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 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 proposed 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 requests comments on the current and future levels of train operations impacted and the labor estimates associated with compliance.

Proposed § 232.103(n)(8)(i) requires that where a freight train or standing freight car or cars as described in proposed 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 proposed changes to § 232.103(n) would create no new benefits or costs, compared to the base case.

Proposed § 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 proposed rule codifies current business practices, and creates no new benefits or costs. Under proposed § 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 little cost;
- 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 proposed § 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 day¹⁹ will be subject to the proposed requirements of § 232.103(n)(8)(ii), but that 90 percent of them will be excepted under proposed § 232.103(n)(8)(iii), because

¹⁹ 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.

they will have routing that calls for unattended stops only in or adjacent to yards.²⁰ 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 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.²¹

Trains per year:

Affected by the proposed 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

²⁰ FRA assumes that railroads will fix locks in or adjacent to the first yard available, as a business practice, and will leave any unattended trains in yards locked.

²¹ 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.

Remedial action must be taken: 10²²

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,²³ 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

²² FRA requests comment on the number of cases per year where remedial action would be required, and on the assumptions relied upon to estimate that number.

²³ 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.

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,²⁴ or a total of \$2,350 per year for 5 incidents, which assumes a burdened rate for labor of \$51.04 per hour.

²⁴ 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.

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			\$3,083.60 ²⁵

The total cost imposed by proposed section 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.²⁶

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

²⁵ Rounds to \$3,100.

²⁶ 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).

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

Proposed § 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.

Proposed § 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 proposed § 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. Proposed § 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 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 proposed 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 proposed 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 proposed 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.

Proposed § 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 proposed § 232.105(h). FRA believes that for Class I and Class II railroads, all costs and benefits of proposed § 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, 2013.²⁷ 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 proposed § 232.105(h) with a simpler lock and hasp system, for a unit cost of \$100. FRA requests comment regarding

²⁷ Adirondack Scenic Railroad Locomotive Vandalized, North County Public Radio Website, October 15, 2013.

this estimate. Given the smaller number of locomotives, personnel, territory, and facilities, use of this type of system would not be problematic.

FRA believes that no more than 500 locomotives belonging to Class III railroads lack locking mechanisms that comply with proposed § 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 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.²⁸ 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 zero because the installation cost is offset by the business benefits.

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%

²⁸ PHMSA's proposed rule "Hazardous Materials: Enhanced Rail Tank Car Standards and Operational Controls for High-Hazard Flammable Trains" applies a \$500 per hour estimate of the cost of delay for the rail network overall. 79 FR 45015 (Aug. 1, 2014).

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.²⁹ 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 proposed § 232.103(n)(6) was 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,

²⁹ Pierce Haviland, The Putnam Division, last updated November 10, 2010, [available at http://piercehaviland.com/rail/putnam.html](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.

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.

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 proposed 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 proposed 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
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%
Costs		
Attending Trains	\$36,685	\$49,909
Installing Locks	\$50,000	\$50,000
Total Costs	\$86,685	\$99,909

Benefits		
Reduced Vandalism	\$180,873	\$250,666
Reduced Recordkeeping	\$982,786	\$1,328,573
Total Benefits	\$1,163,669	\$1,579,240

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

Discounted Values Net Benefits	Discounted Value	
	Discount Factor	
	7%	3%
Total	\$1,076,984	\$1,479,331
Annualized	\$95,009	\$96,538

FRA could eliminate Emergency Order 28, but most of the requirements of Emergency Order 28 conform to business practices of the railroads.

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.³⁰ 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

³⁰ This cost is slightly increased by the increase in value of real wages over time.

based on professional judgment. If the event avoided is \$330 million,³¹ 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 proposed rule.

The remainder of Emergency Order 28 and the proposed 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 proposed rule will 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 proposed § 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

³¹ This estimate falls between the damages of Graniteville and Lac-Megantic. It is selected only for illustrative purposes.

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 proposed 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 proposed rule is a reasonable approach. FRA requests comments on all aspects of this analysis.

B. Regulatory Flexibility Act and Executive Order 13272

To ensure that the impact of this rulemaking on small entities is properly considered, FRA developed this proposed rule in accordance with Executive Order 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 proposing to amend 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 proposed 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 proposed § 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.³² 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

³² See 68 FR 24891 (May 9, 2003); 49 CFR Part 209, app. C.

adjustment)³³ 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 proposed § 232.103. Small entities owning locomotives may incur a cost to install a locking mechanism under proposed § 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 proposed rule would not have a significant economic

³³ For further information on the calculation of the specific dollar limit, please see 49 CFR Part 1201.

impact on a substantial number of small entities. FRA requests comment on both this analysis and this certification, and its estimates of the impacts on small railroads.

C. Paperwork Reduction Act

The new information collection requirements in this proposed 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	655 railroads	1 petition	100 hours	100 hours
- 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	20 hours	20 hours
- Service of petitions	Public/railroads	4 statements	8 hours	32 hours
- Statement of interest	Public/railroads	13 comments	4 hours	52 hours
- Comment				

232.103-Gen'l requirements - all train brake systems - Stickers <u>Proposed Rule New Requirements</u> 232.103(n)(3)(iv) – RR Procedure for Securing Unattended Locomotive	114,000 cars Already Fulfilled under OMB No. 210-0601	70,000 sticker Fulfilled under OMB No. 210-0601	10 minutes Fulfilled under OMB No. 210-0601	11,667 hours Fulfilled under OMB No. 210-0601
232.103(n)(7) – RR Plan Identifying Specific Locations or Circumstances where Equipment May Be Left Unattended - Notification to FRA When RR Develops and Has Plan in Place or Modifies Existing Plan	655 railroads 655 railroads	10 revised plans 10 notices	10 hours 30 minutes	100 hours 5 hours
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 - Securement Job Briefings	655 railroads 100,000 Employees	491 revised rules/practices 23,400,000 job briefings	2 hours 30 seconds	982 hours 195,000 hours
232.103(n)(10) – RR Adoption of Procedure for Verification of Securement of Equipment by Qualified Employee - Inspection of Equipment by Qualified Employee after Responder Visit	655 railroads	100 inspections/records	4 hours	400 hours
232.105 – General requirements for locomotives-Inspection <u>Proposed Rule New Requirements</u> 232.105(h) – RR Inspection of Locomotive Exterior Locking Mechanism /Records -- RR Repair, where necessary, of Locomotive Exterior Locking Mechanism	30,000 Locomotives 30,000 Locomotives 30,000 Locomotives	30,000 forms 30,000 insp./records 73 repairs/records	5 minutes 30 seconds 60.25 minutes	2,500 hours 250 hours 73 hours
232.107 - Air source requirements and cold weather operations – Monitoring Plan (Subsequent Years) - Amendments/Revisions to Plan -Recordkeeping	10 new railroads 50 railroads/plans 50 railroads/plans	1 plan 10 revisions 1,150 records	40 hours 20 hours 20 hours	40 hours 200 hours 23,000 hours
232.109 - Dynamic brake requirements – status/record - Inoperative dynamic brakes: repair record - Tag bearing words “inoperative dynamic brakes” - Deactivated dynamic brakes (Sub. Yrs.) - Operating rules (Subsequent Years) - Amendments/Revisions - Requests to increase 5 mph Overspeed restriction - Knowledge criteria - locomotive engineers –Subsequent Years	655 railroads 30,000 locomotives 30,000 locomotives 8,000 locomotives 5 new railroads 655 railroads 655 railroads 5 new railroads	1,656,000 rec 6,358 records 6,358 tags 10 markings 5 rules 15 revisions 5 requests 5 amendments	4 minutes 4 minutes 30 seconds 5 minutes 4 hours 1 hour 30 min. + 20 hours 16 hours	110,400 hours 424 hours 53 hours 1 hour 20 hours 15 hours 103 hours 80 hours
232.111 - Train information handling - Sub. Yrs.- Amendments/Revisions - R655eport requirements to train crew	5 new railroads 100 railroads 655 railroads	5 procedures 100 revisions 2,112,000 reports	40 hours 20 hours 10 minutes	200 hours 2,000 hours 352,000 hours

232.203 - Training requirements - Tr. Prog. - Sub Yr. - Amendments to written program - Training records - Training notifications - Audit program - Amendments to validation/assessment program	15 railroads 655 railroads 655 railroads 655 railroads 655 railroads 655 railroads	5 programs 559 revisions 67,000 record 67,000 notices 1 plan + 559 copies 50 revisions	100 hours 8 hours 8 minutes 3 minutes 40 hours/1 min. 20 hours	500 hours 4,472 hours 8,933 hours 3,350 hours 49 hours 1,000 hours
232.205 - Class 1 brake test - Notifications/Records	655 railroads	1,646,000 notices/record	45 seconds	20,575 hours
232.207 - Class 1A brake tests – Designation Lists Where Performed Subsequent Years: Notice of Change to	655 railroads 655 railroads	5 lists 250 notices	1 hour 10 minutes	5 hours 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 - Last repair track brake test/single car test – Stenciled on Side of Equipment	1,600,000 frgt. cars 1,600,000 frgt. cars	5,600 tags 320,000 markings	5 minutes 5 minutes	467 hours 26,667 hours
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 - Affirmation Statement on Mod. Req. To Employee Representatives - Comments on Modification Request	AAR AAR Railroad/Public	1 request + 3 copies 1 statement + 4 copies 2 comments	100 hours + 5 minutes 30 minutes + 5 minutes 8 hours	100 hours 1 hour 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 - Telemetry Equipment – Testing and Calibration	245 railroads 245 railroads	447,500 tests/ notices/record 32,708 units marked	30 seconds 1 minute	3,729 hours 545 hours
232.503- Process to introduce new brake technology - Special approval	655 railroads 655 railroads	1 letter 1 request	1 hour 3 hours	1 hour 3 hours
232.505 - Pre-revenue svc accept. test plan - Submission of maintenance procedure - Amendments to maintenance procedure - Design description - Report to FRA Assoc. Admin. for Railroad Safety - Brake system technology testing	655 railroads 655 railroads 655 railroads 655 railroads 655 railroads	1 procedure 1 revision 1 petition 1 report 1 description	160 hours 40 hours 67 hours 13 hours 40 hours	160 hours 40 hours 67 hours 13 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 hour	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 programs	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./reds	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

The new requirements of the proposed rule essentially duplicate those already approved by OMB for Emergency Order No. 28 (under OMB No. 2130-0601). When this instant rule becomes final (assuming no changes from proposed to final rule) and the information collection associated with it is approved by OMB (under OMB No. 2130-0008), FRA will discontinue OMB No. 2130-0601 and eliminate the 205,404 hour burden associated with it from the OMB inventory. Thus, the FRA total burden in OMB's inventory then will actually show a net reduction of 24,520 hours from the present inventory.

As reflected in the below table, program changes will have increased the number of burden hours by 196,810 hours, and increased the number of responses by 23,430,684. The current inventory shows a burden total of 991,451 hours, while the present submission exhibits a burden total of 1,172,335 hours. Hence, there is a total burden increase of 180,884 hours for this information collection request.

Accordingly here is the table for program changes:

CFR Section	Responses & Avg. Time (Previous Submission)	Responses & Avg. Time (This Submission)	Burden Hours (Previous Submission)	FRA Burden Hours (This Submission)	Difference (plus/minus)
232.103 (n)(7) – RR Plan identifying specific locations where equipment may be left unattended	0 revised plans 0 hours	10 revised plans 10 hours	0 hours	100 hours	+ 100 hours + 10 responses
- Notification to FRA	0 notices	10 notices	0 hours	5 hours	+ 5 hours

when RR develops & has plan in place or modifies existing plan - (n)(9) - Railroad Implementation of operating rules requiring job briefing for securing unattended trains	0 minutes 0 revised rules/ practices 0 hours	30 minutes 491 revised rules/ practices 2 hours			+ 10 responses + 982 hours + 491 resp.
232.103(n)(9) – Securement Job Briefings - (n)(10) – Inspection of equipment after emergency responder visit	0 job briefings 0 seconds 0 inspections 0 hours	23,400,000 job briefings 30 seconds 100 inspections 4 hours	0 hours 0 hours	195,000 hours 400 hours	+ 195,000 hrs. + 23,400,000 responses + 400 hours + 100 resp.
232.105(h) –RR inspection of exterior locking mechanism on locomotive left unattended outside a yard - RR repair, where necessary, of locomotive exterior locking mechanism	0 inspections 0 seconds 0 repairs/record 0 minutes	30,000 inspections /records 30 seconds 73 repairs/records 60.25 minutes	0 hours 0 hours	250 hours 73 hours	+ 250 hours + 30,000 resp. + 73 hours + 73 responses

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information.

Pursuant to 44 U.S.C. 3506(c)(2)(B), FRA solicits comments concerning: whether these information collection requirements are necessary for the proper performance of the functions of FRA, including whether the information has practical utility; the accuracy of FRA's estimates of the burden of the information collection requirements; the quality, utility, and clarity of the information to be collected; and whether the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology, may be minimized. 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. Kimberly Toone at 202-493-6132.

Organizations and individuals desiring to submit comments on the collection of information requirements should direct them to Mr. Robert Brogan or Ms. Kimberly Toone, Federal Railroad Administration, 1200 New Jersey Avenue, SE., 3rd Floor, Washington, D.C. 20590. Comments may also be submitted via e-mail to Mr. Brogan or Ms. Toone at the following address: Robert.Brogan@dot.gov; Kimberly.Toone@dot.gov

OMB is required to make a decision concerning the collection of information requirements contained in this proposed 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. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

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.

D. 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 proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. FRA has determined that the proposed 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 proposed 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 proposed rule in accordance with the principles and criteria contained in Executive Order 13132. As explained above, FRA has determined that this proposed 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 proposed rule is not required.

E. 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.

F. 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 related regulatory requirements. FRA has determined that this rule is not a major FRA action (requiring the preparation of an environmental impact statement or environmental assessment) because it is categorically excluded from detailed 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.”

In accordance with section 4(c) and (e) of FRA’s Procedures, the agency has further concluded 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 is not a major Federal action significantly affecting the quality of the human environment.

G. Unfunded Mandates Reform Act of 1995

Pursuant to section 201 of the Unfunded Mandates Reform Act of 1995 (Public Law 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 “before 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, the agency shall prepare a written statement” detailing the effect on State, local, and tribal governments and the private sector. For the year 2013, this monetary amount of \$100,000,000 has been adjusted to \$151,000,000 to account for inflation. This proposed 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.

H. 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 proposed rule in accordance with Executive Order 13211. FRA has determined that this proposed rule will not have a significant adverse effect on the supply, distribution, or use of energy. Consequently, FRA has determined that this proposed regulatory action is not a “significant energy action” within the meaning of Executive Order 13211.

I. 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 19477-19478), or you may visit <http://www.dot.gov/privacy.html>.

List of Subjects in 49 CFR Part 232

Hazardous material, Power brakes, Railroad safety, Securement.

The Proposed Rule

In consideration of the foregoing, FRA is proposing to amend 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, 21301-20302, 21304; 28 U.S.C. 2461, note; and 49 CFR 1.89.

2. Section 232.5 is amended by adding in alphabetical order the definition of “Unattended equipment”, by removing the word “limits” from the term “Yard limits”, and by moving the newly designated definition of “Yard” before the definition of “Yard air” to read as follows:

§ 232.5 Definitions.

* * * * *

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.

* * * * *

Yard * * *

3. Amend § 232.103 by:

- a. Revising paragraphs (n) introductory text and (n)(1) through (3).
- b. Adding paragraphs (n)(6) through (10).

The revisions and additions 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.

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), 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 (n)(3)(iii) of this section when the locomotive is not equipped with an operative hand brake.

* * * * *

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

(A) Any loaded freight 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 cars or loaded intermodal portable tanks of any one or any combination of a hazardous material listed in paragraph (n)(6)(i)(A), or any Division 2.1 (flammable gas), Class 3 (flammable or combustible liquid), Class 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.

* * * * *

4. Add paragraph (h) to § 232.105 to read as follows:

§ 232.105 General requirements for locomotives.

* * * * *

(h)(1) After March 1, 2017, each locomotive left unattended outside of a yard or 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).

* * * * *

Joseph C. Szabo,

Administrator.

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