

# OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY

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(113-54)

## HEARING

BEFORE THE  
SUBCOMMITTEE ON  
RAILROADS, PIPELINES, AND  
HAZARDOUS MATERIALS  
OF THE  
COMMITTEE ON  
TRANSPORTATION AND  
INFRASTRUCTURE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED THIRTEENTH CONGRESS  
SECOND SESSION

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FEBRUARY 26, 2014

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Printed for the use of the  
Committee on Transportation and Infrastructure



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<sup>2</sup> Hon. Kevin Cramer, a Representative in Congress from the State of North Dakota, did not submit a written statement for the record.

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**Committee on Transportation and Infrastructure**  
**U.S. House of Representatives**

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 Chairman

Washington, DC 20515

**Nick J. Rahall, III**  
 Ranking Member

Christopher P. Bertram, Staff Director

February 21, 2014

James H. Zoia, Deputy Staff Director

**SUMMARY OF SUBJECT MATTER**

**TO:** Members, Subcommittee on Railroads, Pipelines, and Hazardous Materials  
**FROM:** Staff, Subcommittee on Railroads, Pipelines, and Hazardous Materials  
**RE:** Subcommittee Hearing on “Oversight of Passenger and Freight Rail Safety”

**PURPOSE**

The Subcommittee on Railroads, Pipelines, and Hazardous Materials is scheduled to meet on Wednesday, February 26, 2014, at 2:00 p.m. in 2167 Rayburn House Office Building to receive testimony on issues related to passenger and freight rail safety. The Subcommittee will receive testimony from the government entities and stakeholders from industry and labor regarding their efforts to maintain safe railroad transportation.

**BACKGROUND**

The movement of people and product by railroad is generally safe. According to the Federal Railroad Administration (FRA), 2012 was the safest year on record.<sup>1</sup> Since 2003 total train accidents have declined by 43 percent, total derailments have declined by 41 percent, and total highway-rail grade crossing accidents have declined by 34 percent.<sup>2</sup> These statistics indicate that the safety of railroads is trending in the right direction, but several accidents over the past year have brought safety-related issues to the forefront. The industry and government are taking a number of steps to improve upon these statistics and make the industry safer.

Generally, FRA is the federal agency charged with ensuring the safe movement of people and goods by rail. In addition to its headquarters in Washington, D.C., FRA maintains eight regional offices throughout the country. The agency has jurisdiction over all freight, commuter, and passenger rail transportation, but not over the safety of urban mass transit rail systems. FRA promulgates regulations, notices safety advisories, and issues emergency orders to ensure, among

<sup>1</sup> *National Rail Policy: Examining Goals, Objectives, and Responsibilities: Hearing before the H. Comm. on Transp. and Infrastructure, Subcomm. on R.R.s, Pipelines, and Hazardous Materials*, 113<sup>th</sup> Cong. 2 (2013) (written statement of Hon. Joseph C. Szabo, Adm’r Fed. R.R. Adm.).

<sup>2</sup> *Id.*

other things, that railroads and equipment are operated and maintained in a safe manner. FRA closely monitors data and trends to identify, reduce, and eliminate risks.

To enforce these safety regulations, FRA employs approximately 470 inspectors, who specialize in one of five inspection disciplines: (1) operating practices; (2) track; (3) hazardous materials; (4) signal and train control; and (5) motive power. Moreover, some states, in partnership with FRA, employ approximately 170 state inspectors, while railroads employ, or contract for, their own safety inspectors to monitor compliance with equipment, track, and operational safety regulations. FRA inspectors monitor compliance with federal safety standards through routine inspections focusing on direct observations of train components, related equipment, and railroad property, including track and signal systems, and through examining railroads' own inspection and maintenance records. If railroads do not comply with safety regulations or when serious problems are identified, FRA may cite violations and take enforcement actions.

For example, after several incidents on the Metropolitan Transportation Authority (MTA) properties, FRA issued a letter to MTA supporting a safety stand-down and recommending implementation of a confidential close call reporting system. Then, on December 6, 2013, FRA issued an emergency order, requiring Metro-North Commuter Railroad (Metro-North) (one of the MTA properties) take certain actions to control passenger train speeds in specific locations and make staffing changes to ensure compliance with speed reductions in certain track locations.<sup>3</sup> By December 9, 2013, Metro-North had a plan to implement actions to ensure it complied with FRA's emergency order by the end of the year.<sup>4</sup>

When it comes to the safety of transporting hazardous materials, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is responsible for ensuring that, regardless of mode, hazardous materials are transported in a way that minimizes risks to life and property. Specifically, PHMSA administers nationwide safety programs designed to protect the public and the environment from the risks associated with the commercial transportation of hazardous materials by air, rail, vessel, highway, and pipeline. Under its hazardous materials safety program, PHMSA oversees the safe and secure shipment of nearly 1.4 million daily movements of hazardous materials, such as explosive, flammable, corrosive, and radioactive materials. These materials include such common products as paints, fuels, fertilizers, alcohols, chlorine, fireworks, crude oil, and batteries that are essential to the general public and local economies. In total, about 3 billion tons of hazardous material moves each year in the United States.

To carry out its mission, PHMSA promulgates the hazardous materials regulations (HMR).<sup>5</sup> By statute, a material or group or class of material is considered hazardous if the Secretary determines that transporting that material in commerce in a particular amount or form may pose an unreasonable risk to health and safety or property.<sup>6</sup> Unlike other agencies within the

<sup>3</sup> Emergency Order Establishing Requirements for Controlling Passenger Train Speeds and Staffing Locomotive Cabs on Metro-North Commuter R.R. Co., 78 Fed. Reg. 75442 (ordered Dec. 11, 2013).

<sup>4</sup> Letter from Robert C. Lauby, Assoc. Adm'r for R.R. Safety, Fed. R.R. Adm., to Howard Permut, President, Metro-North Commuter R.R. Co. (Dec. 9, 2013).

<sup>5</sup> See 49 C.F.R. parts 171-180.

<sup>6</sup> See 49 U.S.C. 5103(a).

the U.S. Department of Transportation (DOT) whose regulations apply to a specific transportation mode, such as rail, motor carrier, and aviation, the HMR apply to the product itself. The HMR categorize hazardous materials into nine classes, and set forth transportation requirements for packaging, marking and labeling, shipping papers, loading, placarding, and segregation. PHMSA shares its enforcement responsibility for the HMR with the other modal administrations within DOT, including FRA for the safety of transporting hazardous materials by rail.

Due to the increase in crude production in North America from formations like the Bakken and Canada's oil sands, the movement of crude by railroad has increased from 9,500 carloads a year in 2008 to approximately 400,000 carloads in 2013.<sup>7</sup> This increase in production has been a boon for the American economy and for the industries and workers involved; however, the more oil moved by rail, the more likely spills and accidents may occur. So, even though 99.9977 percent of hazardous material carloads reach their destination without release,<sup>8</sup> when accidents do occur they can be high profile.

In March 2013, FRA and PHMSA began planning *Operation Classification*, which was launched in August 2013 to investigate how shippers and carriers are classifying and testing crude oil. The joint effort is primarily targeted at shipments from the Bakken and consists of unannounced spot inspections, data collection, and sampling as well as verifying compliance with federal safety regulations. On November 20, 2013, FRA and PHMSA jointly issued a notice of safety advisory.<sup>9</sup> The notice reinforced the importance of the proper characterization, classification, and selection of a hazardous materials packing group and reminded offerors of hazardous materials by rail and rail carriers of the importance of updated safety and security plans for hazardous materials in packing groups I and II that conform to hazardous materials regulations.

Under its rulemaking authority, on September 6, 2013, PHMSA issued an advanced notice of proposed rulemaking (ANPRM) addressing several petitions for rulemaking and recommendations of the National Transportation Safety Board (NTSB) regarding the design of Department of Transportation Specification 111 tank cars (DOT-111) used for transporting crude oil and other hazardous and non-hazardous materials.<sup>10</sup> PHMSA extended the comment period for the ANPRM to December 5, 2013, and is currently considering the comments filed in the docket. Among the petitions addressed in the ANPRM was one filed by the Association of American Railroads (AAR) on behalf of the AAR's Tank Car Committee, which includes a number of stakeholders affected by changes to tank car standards. The AAR petition, filed March

<sup>7</sup> Edward R. Hamberger and Andrew J. Black, "Freight Rail and Pipelines Deliver Energy for America," The Hill, Congress Blog, November 5, 2013, <http://thehill.com/blogs/congress-blog/energy-environment/189187-freight-rail-and-pipelines-deliver-energy-for-america>.

<sup>8</sup> Association of American Railroads and American Shortline and Regional Railroad Association, Comment on Docket No. PHMSA—2012—0082: Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation, 2 (filed Nov. 14, 2013).

<sup>9</sup> Notice of Safety Advisory, Safety and Security Plans for Class 3 Hazardous Materials Transported by Rail, 78 Fed. Reg. 69745 (noticed Nov. 29, 2013).

<sup>10</sup> Hazardous Materials: Rail Petitions and Recommendations to Improve the Safety of Railroad Tank Car Transportation, 78 Fed. Reg. 54849 (proposed Sept. 6, 2013) (to be codified at 49 C.F.R. pts. 171-180).

9, 2011, proposed new standards for DOT-111s that AAR adopted as an industry-wide standard for all new-build DOT-111s (petition cars).<sup>11</sup>

More recently, in January 2014, Secretary Foxx and members of the railroad and oil industries met to discuss how they could work together to improve the safety of crude by rail. The industry and government entities are continuing to work on voluntary measures to improve operations and share information regarding the increase in crude oil transportation, including that from the Bakken.

#### Positive Train Control (PTC)

Affecting both passenger and freight rail is the PTC mandate required by Section 104 of the Railroad Safety Improvement Act,<sup>12</sup> which must be in place by December 31, 2015. In 2012, Class I railroads operated 60,000 miles of track, which potentially requires the installation of PTC under the law. The intercity passenger and commuter railroads account for an additional estimated 8,400 miles of track required to be equipped with PTC.

Most railroads have reported to the Committee that they will not be able to meet the 2015 deadline due to technological difficulties, lack of spectrum and radio, difficulties with FRA's interpretation of the law, and financial constraints. FRA estimates the total cost for implementation in excess of \$10 billion. A new challenge has also arisen with the permitting of towers by the Federal Communications Commission (FCC). This permitting process requires a comprehensive historic preservation review by FCC, including review by tribal nations, which could take well-beyond the 2015 implementation deadline. While FCC has proposed certain measures to review the PTC permits, stakeholders have expressed concern with the proposed process and their ability to comply with it and the 2015 deadline.

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<sup>11</sup> Assoc. of Am. R.R.s, Petition for Rulemaking: Tank Car Standards for DOT Class 111 Tank Cars used for Packing Group I and II Materials (filed Mar. 9, 2011).

<sup>12</sup> Pub. L. No. 110-432, Div. A.

**INVITED WITNESSES**

The Honorable Joseph Szabo  
Administrator  
Federal Railroad Administration

The Honorable Cynthia L. Quarterman  
Administrator  
Pipeline and Hazardous Materials Safety Administration

The Honorable Robert L. Sumwalt  
Member  
National Transportation Safety Board

Mr. Edward R. Hamberger  
President and Chief Executive Officer  
Association of American Railroads

Jack N. Gerard  
President and Chief Executive Officer  
American Petroleum Institute

Mr. Michael Melaniphy  
President  
American Public Transportation Association

Mr. John Tolman  
Vice President & National Legislative Representative  
Brotherhood of Locomotive Engineers and Trainmen

## OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY

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WEDNESDAY, FEBRUARY 26, 2014

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON RAILROADS, PIPELINES AND  
HAZARDOUS MATERIALS,  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 2:33 p.m. in Room 2167, Rayburn House Office Building, Hon. Jeff Denham (Chairman of the subcommittee) presiding.

Mr. DENHAM. The subcommittee will come to order. First, I would ask unanimous consent that Representative Rick Larsen be admitted to join the subcommittee for today's hearing, and ask any questions he feels are relevant.

[No response.]

Mr. DENHAM. Without objection, so ordered.

Now, let me welcome our distinguished witnesses and thank them for testifying here today. It is one of this subcommittee's charges to ensure the safe movement of goods and people on our Nation's railroad network, including the movement of hazardous materials.

The Federal Rail Administration, the FRA, is a data-driven organization that focuses on the safety of the railroad industry, including operations, track, and equipment. The Pipeline and Hazardous Materials Safety Administration is responsible for the safety and transportation of hazardous materials, regardless of mode. And both work together to ensure hazardous materials are transported safely by rail.

I think everyone here today agrees that safety is and should be a priority for each and every railroad. That focus on safety has worked quite well with 2012 as the safest year on record, and 2013 looking to match or exceed that record.

However, there have been some very high-profile incidents, some major tragedies. And we need to understand what happened to ensure we can take the necessary steps to prevent future accidents. As we have seen in the past, though, the answer isn't always to rush to judgment, but to work together to find solutions that are data-driven and make sense.

For example, after the commuter rail accident in New York, I visited the site of—with MTA. They explained how they were able to work with FRA to agree on safety measures to slow trains at certain points on the tracks, and ensure alertness of those operating the trains.

Similarly, I am pleased to hear that the industry and Government have been working as partners to find agreement on measures that enhance safety and can be reasonably implemented for the operation of crude trains.

I thank everyone here for coming to discuss their efforts on rail safety, and look forward to discussing these important issues with the witnesses.

I would now like to—well, I will recognize the ranking member when she comes in.

Let me just explain the ground rules of today's hearing. We have, obviously, a full set of VIPs in the front row here. We want to hear from everybody. We would ask you to keep your statements brief, because we want to spend as much time on questions as possible. And, obviously, due to our vote schedule, we are a little far behind. So I will be taking the aggressive gavel as the lighting system goes on.

I mean it is very simple. Green, you can still go. The yellow is a yield; start wrapping things up. And red is a firm stop. So we would ask you to adhere to those.

And, without further ado, we have got two panels today. Our first panel is Representative Kevin Cramer and Senator Richard Blumenthal.

After receiving testimony from our first panel, we will proceed to our second panel of testimony. I ask unanimous consent that our witnesses' full statements be ordered into the record.

[No response.]

Mr. DENHAM. Without objection, so ordered.

Since your written testimony has been made part of the record, the subcommittee would ask your oral testimony to be 5 minutes.

Senator Blumenthal, welcome to the committee. We look forward to working with you on rail and rail safety issues. Welcome, and you may proceed.

**TESTIMONY OF HON. RICHARD BLUMENTHAL, A U.S. SENATOR FROM THE STATE OF CONNECTICUT; AND HON. KEVIN CRAMER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH DAKOTA**

Senator BLUMENTHAL. Thank you very, very much, Chairman Denham. And let me just say personally how grateful I am to you for personally giving me this opportunity to be with you today. And for me it is not only an honor to be here, but an auspicious day, because the chairman of our Commerce Committee in the United States Senate has announced that I will be taking over the Surface Transportation Subcommittee.

My appearance here today is my first official act in that capacity, and I couldn't think of a more important way to mark that appointment than to indicate to you, Mr. Chairman, that I really look forward to working and cooperating with you. I know of your commitment to our Nation's roads, rails, all of our surface transportation modes. And this committee is one that I think will be a critical partner in that effort. And so I want to thank you and all the members of the committee for giving me this opportunity to be with you today.

You mentioned very pointedly some of the recent tragedies that we have seen. Clearly, the 47 deaths in Lac-Mégantic, the 4 deaths in the Bronx, dozens injured in Bridgeport, other mishaps and mistakes on the rails around the country, indicate the need for action.

And some of that action has to be investment in the kinds of mechanisms and tools that might have prevented some of those accidents and even deaths. In the Bronx we know that measures like automatic train control or alerters in the front and back of the train might well have prevented needless tragedy. We know in Bridgeport that more attention to the tracks and the ballast underlying those tracks, which was weakened and thereby contributed to the joints failing, might well have prevented those injuries and loss of property.

All around the country, as well as in our region in the Northeast, where we have the busiest railroad in the country, there is evidence that our infrastructure is aging and decaying. And so, investment is necessary. We must think big and act big with a sense of urgency. Daily commuters, intercity passengers, rail personnel, folks living near or in communities along the tracks are demanding action, as are the businesses whose expansion depends on the reliable movement of freight. We have to make sure that our rails are safe and reliable, not only in the Northeast, but all around the country.

And I am mindful that members of this committee represent geographic regions that depend on the rails. We know of it in Connecticut. My colleague, Congresswoman Esty, is here today, and has done, really, yeoman's work in leading the effort in our State. And I want to express my appreciation to her for what she has done in that regard.

But the President's announcement today of a \$302 billion infrastructure program, the possibility of additional investment, all are welcome. But more than money is necessary, there must be leadership and accountability. And it is necessary not only of the companies that run the railroads, but also of Government agencies that have responsibility for overseeing and scrutinizing them. That is why this hearing is so important, because you will be hearing from the Government officials, people whose lives are dedicated to public service and improving rail transportation, and have the opportunity to ask them the tough questions, which I hope you will, about rules that are necessary to impose greater safety and reliability on the rails.

Ultimately, we are responsible for that effort. We, in public service, have to protect the public. And I know that you are dedicated to accomplishing those ends. We will be having our own hearing next week, and we will learn from what you elicit from these witnesses. And so I think this hearing is tremendously important. My hope is that it will lead to greater investment and appreciation of the importance of new bridges that carry our rail transportation, new track, new equipment, new cars, and signal control.

Other measures, some of them highly capital intensive, but others much less expensive that can make the rails more safe and reliable. We not only have an obligation, but a tremendous opportunity because there is the potential for creating jobs, advancing economic growth through the jobs that are created, and making sure that

products—that is freight, as well as people—are delivered on time, safely, and reliably. That is the challenge ahead.

And, Mr. Chairman, I look forward to addressing that challenge, working with the President. America needs a 21st-century infrastructure plan. The systems and structure that we have in place right now are inadequate to this century. We won't revise and renew and rebuild them overnight. But taking serious steps, which I know you are committed to do, is critically important to the future of our Nation. And I am proud and honored to join you in that effort. And again, my thanks for having me today.

Mr. DENHAM. Thank you, Senator. Thanks for joining us.

Mr. Cramer?

Mr. CRAMER. Thank you, Chairman Denham, Ranking Member Brown, and members of the committee. Thank you for the opportunity you have afforded me to participate in today's important hearing on rail safety.

As a leading producer of many of our Nation's staple commodities and the beneficiaries of Amtrak's Empire Builder, the citizens of North Dakota have a particular interest in rail safety. While we have enjoyed a successful relationship for decades, really, partnerships between our carriers, our shippers, and our communities, the recent oil boom, as we all know, is providing some particular challenges, challenges I don't think we could have imagined, you know, 5 short years ago.

The recent derailment of an agricultural products train that led to derailment of a train full of Bakken crude oil that led to explosions near the city of Casselton, North Dakota, was a stark reminder of our new reality.

Later this year, North Dakota is expected to exceed 1 million barrels of oil production per day, compared to fewer than 200,000 per day just 5 years ago.

Prior to being elected to Congress, I spent about 10 years serving as an energy regulator on the North Dakota Public Service Commission, where we had jurisdiction over pipelines and, to some degree, railroads and associated facilities that moved that Bakken crude to market. And like most utility regulatory bodies, the North Dakota PSC has its roots as a railroad regulatory agency. And having a front-row seat at one of the world's hottest energy booms has been like watching the Gold Rush on a big screen TV. And it is technological advancements that have unlocked the oil from the rock, and that, combined with the high demand and high prices, has the Bakken rockin', as we like to say, but it has our transportation infrastructure lagging.

The lack of pipeline capacity and the regulatory lag that accompanies large-scale development leaves trucks and trains as the primary means of transporting Bakken crude to market. Well over 70 percent of the Bakken crude is transported by rail with projections that it will be 90 percent in the near future. So the safe and efficient shipment of petroleum products is a legacy issue for North Dakota and for the United States.

And as our rail pipeline and highway transportation infrastructure work to catch up to oil and gas production, it is important to remember no one in the supply chain benefits from accidents. A train derailment costs everybody. Property is damaged or lost, com-

merce is slowed, and public safety is compromised and confidence shaken. It ensures that stakeholders' interests are public, rather than parochial.

As our economy advances, some advocate slowing the growth. I believe it is vital that Government keep pace with the economy, not control it by either regulatory delays or overreach. The agreement reached last week between the Department of Transportation and the American Association of Railroads is a good example of how Government and industry can partner in safety. I have encouraged Secretary Foxx, and want to reiterate my strong support for the sharing of data gathered by the Pipeline and Hazardous Materials Safety Administration during Operation Classification with industry experts. We are all in this together, and trust among partners is critical if we are to be successful.

I hope the DOT can build upon this example, as industry and Government move forward with the next generation tank cars and other safety regulations. Two years and counting is too long for industry and communities to wait while the Federal bureaucracy sets rules for modifying and/or replacing the DOT-111 tankers. Five years and counting for the President to approve the Keystone XL pipeline is embarrassingly long, and every day that line is not built exacerbates the problem.

Mr. Chairman, time is of the essence. The trains run best when everyone pulls in the same direction. I sense goodwill on the part of all stakeholders, and I and my staff are willing to assist as we improve our energy transportation infrastructure.

I thank you for the time.

Mr. DENHAM. Representative Cramer, Senator Blumenthal, we thank both of you for joining us here today. I know that both of you have great interest and passion about solving some of the challenges that we have ahead of us, and working together on rail issues. So thank you for joining us today.

Senator BLUMENTHAL. Thank you.

Mr. DENHAM. At this time I would like to invite our second panel up. And as you are coming up, I would also—we are doing this in the sake of trying to speed things along.

Have your seats. And at this time I would like to welcome Ranking Member Brown for any opening statement she may have.

Ms. BROWN. Mr. Chairman, I am going to thank you for holding this hearing. And I would rather have my comments at the end. We have such a distinguished panel, and I understand we are on a tight timeline. So I would like for us to just get started, because we have such a distinguished group of panelists. I want to hear what they have to say.

Mr. DENHAM. Thank you. You can see in a bipartisan fashion, everybody is moving along pretty quickly here today. So our first witnesses all came in under their time, Ms. Brown has yielded her time back, and I want to welcome each of you here today.

Again, we want to get down to a lot of the questions that Members have here today, and certainly get some answers on how we can always continue to have a safer railroad.

On our second panel here, I would like to welcome our witnesses: the Honorable Joseph Szabo, Administrator of the Federal Rail Administration; the Honorable Cynthia Quarterman, Administrator

for the Pipeline and the Hazardous Materials Safety Administration; the Honorable Robert Sumwalt, Board Member of the National Transportation Safety Board; Mr. Michael Melaniphy, president and CEO of the American Public Transportation Association; Jack Gerard, president and CEO of the American Petroleum Institute; John Tolman, vice president and national legislative representative of the Brotherhood of Locomotive Engineers and Trainmen. And last, Ed Hamberger, president and CEO of the Association of American Railroads.

I would like to, again, welcome each of you here today. I ask unanimous consent that our witnesses' full statements be included in the record.

[No response.]

Mr. DENHAM. Without objection, so ordered. Since your written testimony has been made part of the record, the subcommittee would request that your oral testimony be up to 5 minutes.

Mr. Szabo, you may proceed.

**TESTIMONY OF HON. JOSEPH C. SZABO, ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION; HON. CYNTHIA L. QUARTERMAN, ADMINISTRATOR, PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION; HON. ROBERT L. SUMWALT, BOARD MEMBER, NATIONAL TRANSPORTATION SAFETY BOARD; MICHAEL P. MELANIPHY, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN PUBLIC TRANSPORTATION ASSOCIATION; JACK N. GERARD, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN PETROLEUM INSTITUTE; JOHN TOLMAN, VICE PRESIDENT AND NATIONAL LEGISLATIVE REPRESENTATIVE, BROTHERHOOD OF LOCOMOTIVE ENGINEERS AND TRAINMEN; AND EDWARD R. HAMBERGER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, ASSOCIATION OF AMERICAN RAILROADS**

Mr. SZABO. Mr. Chairman, Ranking Member, and members of the subcommittee, thank you for this opportunity to testify.

Over the past decade, train accidents and derailments have declined 47 percent. Highway rail grade crossing accidents are down 35 percent. And employee fatalities have been reduced by 59 percent. Meanwhile, intermodal traffic surged towards a new record, Amtrak ridership reached all-time highs, while rail became the fastest-growing mode of public transportation.

New records in safety have been achieved 4 of the past 5 years, and preliminary data indicates a new all-time best for fiscal year 2013, better than fiscal year 2012, our safest year on record. But we owe it to the public to always do better. We expect it from ourselves at FRA, and we expect it from the industry we regulate.

So, let me share with you my vision for driving the next generation of safety. And it consists of three pillars. First is continuing strong oversight and enforcement that is data-driven. Second is advancing more proactive safety-based programs that identify and eliminate risk well in advance of an accident. And third is ensuring predictable and reliable Federal funding for rail in order to improve infrastructure through capital investments, and to develop new safety technologies through robust research and development.

Our enforcement program is based upon strategic use of data. By using statistical modeling, we allocate our resources and execute our national inspection plan. It is a disciplined approach that has been the foundation of the dramatic drop in accidents over the past decade. But we also learn from every accident, and identify root causation in order to eliminate risk or identify need for additional regulation. In December we launched Operation Deep Dive, a comprehensive look at Metro-North's entire operation, and we will share our report with Congress in March, after the information has been collected and analyzed.

FRA is also part of a comprehensive strategy for ensuring the safe transportation of Bakken crude. In partnership with PHMSA, we are examining the entire system for crude delivery, from making sure crude is properly classified and packaged, to supporting PHMSA's rulemaking, to taking steps to further eliminate risk through rail operations. And I would like to recognize the AAR for committing to a series of immediate voluntary steps that will significantly enhance safety.

A railroad safety advisory committee is currently engaged in three tasks regarding the safe movement of hazardous materials, train securement, and appropriate crew size, and they have a firm April 1st deadline to complete their work.

Last month we revised our track safety standards to require railroads to adopt a more performance-based approach of rail inspections to maintain higher levels of safety. And as we work with the industry to install positive train control, we continue to make strides addressing human factors by taking steps to ensure the competency of locomotive engineers and conductors.

But the next level of safety will come from advancing proactive safety-based programs like system safety for passenger railroads and risk reduction for freight railroads, including programs like Confidential Close Calls Reporting. While our data-based enforcement program has produced tremendous results, that data comes from accidents that have already happened. Close Calls allows us to gather data before an accident occurs, and develop risk mitigation strategies well in advance.

New regulations will require railroads to do thorough risk analysis to identify hazards, and put in place customized plans, including a fatigue management plan to reduce risk. This push, over and above our traditional oversight and enforcement framework, will help us drive continuous safety improvement. But the sooner we put rail on par with other forms of transportation with a source of dedicated and predictable funding, the sooner we will be able to achieve the next generation of safety.

Capital improvements and advancing next generation technology must be a part of the mix. And funding the National Cooperative Rail Research Program's workforce development efforts will ensure a pool of talent with the necessary skills and technical capacity.

The additional funding for safety personnel, rail policy and research and development that we requested in our fiscal year 2014 budget, and that Congress recently appropriated, was a great first step.

So I thank you, I look forward to working with you to drive the next generation of rail safety, and would be happy to answer any questions.

Mr. DENHAM. Thank you.

Ms. Quarterman, you may proceed.

Ms. QUARTERMAN. Good afternoon, Chairman Denham, Ranking Member Brown, and members of the subcommittee. Thank you for your leadership on advancing rail safety, and for the opportunity to appear here today to discuss PHMSA's comprehensive approach to ensure the safe transportation of crude by rail.

Safety is the top priority of Secretary Foxx, the Department of Transportation, PHMSA, and all its sister modes. We all work diligently to protect the American people and the environment from hazardous materials incidents.

As you know, energy production in the United States has increased dramatically. The use of rail to move crude has increased exponentially in the past few years, especially crude from the Bakken region. In fact, crude oil production in that area has elevated North Dakota to the second-largest oil-producing State in the Nation. As recently as November of 2013, more than 600,000 barrels per day of oil produced in North Dakota was transported by rail, going from less than 11,000 carloads in 2009 to more than 400,000 in 2013. This increase in crude shipments by rail and recent incidents underscore how important it is to be ever vigilant in protecting local communities and the environment.

To deal with this challenge, the Department has taken a comprehensive approach to address the risks associated with transporting crude by rail. Together, PHMSA and FRA are focusing on both regulatory and nonregulatory methods to, in the first instance, prevent accidents from occurring by putting in place necessary operational controls and improving track integrity to lessen the likelihood of an incident.

In the case an incident does occur, we are looking to mitigate the effects, and ensuring effective emergency response. PHMSA and FRA have been working together to issue guidance and rulemakings, participate in rail safety committees and public hearings, enhance inspection and enforcement, and coordinate with the industry and other agencies to improve public safety.

As one example this past summer, PHMSA, FRA, and FMCSA teamed together to implement Operation Classification. This was an unprecedented initiative that—with DOT inspectors performing unannounced inspections and testing crude oil samples to verify the materials were properly characterized and classified for transportation.

Last month, Secretary Foxx issued a Call to Action, asking crude oil and rail stakeholders to commit to taking immediate steps to improve the transportation of crude by rail. The Secretary identified some actions the Department was considering, and challenged those industries at the table to take preventive and mitigative actions themselves, immediately.

To date, the Call to Action has been a success for safety. It is a first step along the way. We have received firm commitments from the rail and crude oil industries to take immediate actions to improve safety. Those actions include increased track inspections to

prevent derailments, and a litany of mitigative steps to reduce speed, use alternative routes, improve braking, improve crude oil testing and classification, and improve emergency responder preparedness and training.

In addition to regulatory and nonregulatory efforts to improve rail safety, we have increased our efforts to improve the public awareness and understanding of hazardous materials regulatory requirements. Our efforts include enforcement and outreach activities focused on proper classification and characterization, safety and security planning, and ensuring emergency responders and the public are aware of hazardous materials transportation requirements.

As I have stated earlier, PHMSA is committed to improving transportation safety. And I believe our comprehensive approach to addressing safety is working. I truly believe that our aggressive efforts, first efforts, will help to prevent and mitigate accidents, and move us closer to our goal of zero deaths and injuries.

Thank you again for the opportunity to speak today. We look forward to continuing to work with Congress to address rail safety issues, specifically those dealing with the transportation of flammable liquids. I would be pleased to answer any questions the subcommittee may have.

Mr. DENHAM. Thank you, Ms. Quarterman.

Mr. Sumwalt.

Mr. SUMWALT. Good afternoon, Chairman Denham, Ranking Member Brown, and members of the subcommittee.

Rail safety has been in the spotlight for several months, especially since the July accident in Lac-Mégantic, Quebec. In that accident, a crude oil derailment resulted in the death of 47 people and the destruction of a town center. The Transportation Safety Board of Canada is leading that investigation, and the NTSB is assisting.

As Congressman Cramer mentioned, on December the 30th, just one-half mile outside of Casselton, North Dakota, 20 cars of a BNSF crude oil train derailed, spilling about one-half million gallons of crude oil and igniting a fire that burned for more than 24 hours. Fourteen hundred people were evacuated from their homes and businesses.

In cooperation with the TSB of Canada, we issued recommendations last month related to the Lac-Mégantic accident, calling for proper classification of hazardous materials, a review of routes for these trains, and development of comprehensive response plans for worst case scenario accidents. We believe these recommendations are necessary, as hazardous material transportation by rail continues to grow exponentially.

For example, crude oil and ethanol transport are both up over 400 percent since 2005. Many times these products are transported in unit trains, meaning that the trains have, on average, about 100 loaded tank cars of the same flammable product. That is over 3 million gallons of hazardous material per train. Along these lines, we are encouraged by the voluntary measures announced last week by the AAR and the DOT.

Let me turn now to discussing tank car safety. As it relates to crashworthiness, the NTSB has longstanding concerns about the current regulatory specifications for DOT-111 tank cars. Quite sim-

ply, continued use of current regulatory specifications for these tank cars to ship flammable liquids poses an unacceptable public risk. Following a 2009 ethanol train accident in Illinois, we called on PHMSA to improve tank car design to prevent breaches, or to mitigate a breach, if one occurs.

In response to these concerns, beginning in October 2011 DOT-111 tank cars have been built to a nonregulatory industry spec known as CPC-1232. This standard is meant to replace the so-called legacy DOT-111 cars, but the NTSB is not convinced that these modifications offer sufficient improvements. An improved Federal standard would provide the certainty needed on tank car design. Improvements like enhanced head shields, tank jackets, and increased tank shell thickness could all improve tank car crashworthiness.

I would like to now switch to discussing passenger rail safety. As mentioned by Senator Blumenthal, the NTSB is investigating four accidents involving the Metro-North commuter railroad in New York and Connecticut. Last week we issued three recommendations to Metro-North that we feel are immediately needed to improve the safety of their operations. As our work continues on these four investigations, we are paying close attention to Metro-North's safety culture, to the crashworthiness of passenger rail cars, to worker protection, and to track inspection and maintenance.

Lastly, we believe that positive train control, or PTC, which the NTSB has called for since the 1970s, is an important component in improving both passenger rail and freight rail safety. As you know, Congress has imposed a deadline for December 2015 for implementing PTC. Last year, the NTSB shone the spotlight on this issue at a forum on PTC. Many railroads indicated then that they would not meet the deadline.

We at the NTSB feel that there should be a transparent accounting for actions taken and for those not taken to meet the deadline, so that regulators and policymakers can make informed decisions. After all, the NTSB's files are filled with accidents that could have been prevented through PTC. For each and every day that PTC is delayed, the risk of an accident remains.

For PTC to reach the greatest safety potential, it must be implemented, subject to the requirements specified by the Rail Safety Improvement Act. After all, lives depend on it.

Thank you. This concludes my testimony.

Mr. DENHAM. Thank you, Mr. Sumwalt.

Mr. Melaniphy.

Mr. MELANIPHY. Thank you, Chairman Denham, Ranking Member Brown, members of the subcommittee. Thank you for the opportunity to testify today. My written comments have more detail than I will be presenting in the oral testimony.

APTA's commuter railroads are unequivocally committed to safety. Passenger and employee safety is the number one priority for this Nation's commuter railroads. Public transportation is one of the safest modes of transportation, and the commuter and passenger rail, specifically, are among the safest ways to travel. The FRA recently released statistics for the railroad industry, saying that since fiscal year 2004 train accidents and derailments have

each declined 47 percent, and highway rail grade crossing accidents have declined 35 percent.

Commuter rail ridership has grown 42 percent since 1990, going from about 328 million rides to more than 466 million rides taken on commuter rail in 2012. Over 10 years, fatalities have climbed by—declined by 44 percent. That said, we are always looking for ways to improve safety.

The growth of commuter rail ridership makes safety more important than ever. As we work to improve safety, we need comprehensive programs to address safety in all aspects of our operating environment. Any single technology or practice is just one part of an integrated approach to system safety. An effective safety culture is as important as any specific procedure or technology. It begins with a commitment to the organization's senior leadership, and working with the employees and labor to adopt common safety goals and expectations.

In the 1990s, APTA developed the Passenger Rail Equipment Safety Standards Program, commonly known as the PRESS Program, to develop safety standards for commuter rail cars. These standards led to the design of crumple zones that protect passengers in a crash, and have helped save lives.

APTA, working in cooperation with the FRA, FTA, and TSA, have developed more than 270 standards and recommended practices, 71 of which address particular safety needs for the main line rail equipment, and over 111 for rail transit alone. Standards define safe operating practices, inspection, and maintenance of equipment, and other areas, as well.

In 1989, APTA initiated the Rail Safety Audit Program. All of the Nation's commuter railroads had developed system safety management plans. Under the program, each agency develops comprehensive protocols for system safety. Agencies are then audited on a regular basis to review compliance with the practices and goals established by the plan.

Further, APTA provides peer review panels. An agency can request a team of industry professionals who will visit the agency, review the specific operating, security, or safety issues, and then make action recommendations. APTA also partners with the FRA, AAR, and labor to help design, build, and operate safe transportation systems. APTA works with the FRA Rail Safety Advisory Committee and our own standing committees, who meet regularly to discuss issues, effective practices, and lessons learned. These findings are then shared at our APTA conferences.

Finally, APTA's commuter railroads face big challenges on the implementation of positive train control, PTC. I want to emphasize that APTA's commuter rail agencies support and are fully committed to implementing PTC systems on all of their railroads.

Like the freight railroads at AAR, commuter railroads do not believe they can fully implement PTC on the entire commuter rail system by the 2015 deadline in the current law. We went to Congress in 2010 with this message, not wanting to wait until the deadline was imminent. We asked for Federal funding to help publicly fund commuter railroads—the publicly funded commuter railroads, to help them pay for some of the nearly \$3 billion in implementation costs. We sought help from the Federal Communications

Commission to obtain required radio spectrum, and we asked Congress to provide a way to extend the 2015 deadline on commuter railroads unable to implement PTC by that deadline despite good faith efforts, and due to systems out of their control. We continue to seek your help with these issues.

There is no ready-made off-the-shelf product for this new technology. And the Nation will not be well served by shutting down important commuter railroad operations if they are unable to implement PTC by the deadline. We support the use of PTC, but urge Congress to establish a more realistic timeline for implementation.

Thank you for the opportunity to testify. We are happy to take questions later on.

Mr. DENHAM. Thank you, Mr. Melaniphy.

Mr. Gerard, you may proceed.

Mr. GERARD. Thank you, Chairman Denham and Ranking Member Brown. Thank you for the opportunity to be here today to testify in regards to this most important issue of rail safety. As mentioned earlier, I am Jack Gerard, president and CEO of the American Petroleum Institute. We represent 590 companies that provide most of the energy that our Nation consumes.

The revolution in North American energy development has been made possible by technological breakthroughs and decades-old methods of energy development, which has set this Nation on a path to energy security, a concept unthinkable just a few short years ago. The energy policies we choose today will determine if our Nation will continue its march towards global energy leadership, a unique and once-in-a-generation opportunity.

America's dramatic increase in domestic energy production has fundamentally altered the global energy markets and, more broadly, the geopolitical landscape for decades to come, all while providing a much-needed boost to our economy. In order to achieve our Nation's full potential as a global energy leader, all of us have to work together to ensure that our energy infrastructure is capable of safely, reliably, and efficiently transporting ever-increasing amounts of domestically produced energy, whether by truck, barge, pipeline, or, the focus of today's hearing, by rail.

Meaningful and lasting improvement in rail safety will only come from a holistic and collaborative approach to accident prevention, mitigation, and response. And the oil and natural gas industry will continue to work with our colleagues in Government, the rail industry, and others in continual safety improvement.

The memorandum of understanding released last week between the railroad industry and the Department of Transportation, which outlines operational changes to improve rail safety, is an important step in our shared goal of improving the safety of America's freight rail system. While it is true that 99.997 percent of hazardous materials transported by rail reach their destinations without incident, the oil and natural gas industry is committed to getting to zero rail incidents because, when it comes to safety, the only number that matters is zero incidents.

Getting to zero will take the long-term commitment to working collaboratively with all stakeholders, and applying all of our best science, research, and real-world data in a thoughtful and deliberate manner. Being a safe steward of our Nation's energy re-

sources and providing leadership in raising the bar on industry performance isn't new to the oil and gas sector.

For 90 years, API has been the world leader in developing and improving equipment and operating standards—now 600 and counting—for the oil and natural gas industry through a collaborative process that involves all stakeholders, as well as Government regulators. This process is credited by the American National Standards Institute, or ANSI, which is the same organization that accredits the Government's national laboratories. We have already assembled the best experts from our industry, the railroads, scientists, and engineers, and others to tackle some of the tough issues raised by the recent rail incidents involving the transport of crude oil.

PHMSA also committed to join our effort to develop a comprehensive standard that addresses the classification of crude oil to ensure we are moving that product in the safest manner possible. This includes possible safety improvements from material characterization, transport classification, and quantity measurement of crude oil, based on the best available science and data. This is part of our industry's longstanding commitment to safety.

In 2011, the oil and natural gas industry helped lead the multi-industry effort that led to significant improvements in the design of our tank cars. And we move forward voluntarily with those improvements so that this year we are now approaching 40 percent of the crude tank cars in use by our industry will exceed the current Federal safety standard.

In the final analysis, the women and men of the rail and oil and natural gas industries, as well as the communities traversed by our Nation's freight rails, deserve our laser focus on this challenge. Our potential as a global energy leader is rooted in our ability to safely transport our game-changing energy resources safely every time, be it by truck, barge, pipeline, or rail.

We look forward to continuing to work with our colleagues in the Government, in the rail industry, and elsewhere, and look forward to working with the committee. Thank you, Mr. Chairman.

Mr. DENHAM. Thank you, Mr. Gerard.

Mr. Tolman.

Mr. TOLMAN. Good afternoon, Chairman Denham, Ranking Member Brown, members of the subcommittee. I want to sincerely thank you for the opportunity to speak about our views on rail safety.

Whenever there is a major rail accident, we often find ourselves sitting in front of the T&I Committee with all the stakeholders—labor, Government, and the railroads—trying to find out how we can best prevent these accidents and other accidents into the future. After listening to the previous witnesses, I want to begin by addressing the elephant in the room on the issue of rail safety, and that is fatigue.

Addressing the issue of fatigue could drastically improve safety in the railroad industry. The majority of our locomotive engineers and conductors in freight service work on call 24/7, 365 days a year, and receive as little as an hour-and-a-half notice before they have to go to work for a 12-hour shift.

The Rail Safety Improvement Act could have addressed this fear by providing operating employees with predictable schedules, calling windows, and train lineups that they could rely on, so they could plan to sleep accordingly. I continue to believe these similar ideas will help alleviate fatigue in the industry. But nearly 5½ years after the enactment of the Rail Safety Improvement Act, the industry has yet to engage labor in any serious discussion about fatigue.

On the issue of PTC, it is apparent that even numerous PTC-preventable fatal accidents and an Act of Congress cannot sway the railroads to install PTC. I often wonder, if we could turn back the clock, how many lives we could have saved. Those who have given their lives deserve to be honored by saying enough is enough with the delay and foot-dragging. The carriers have had ample time to prepare for the implementation of PTC since the passage of the Rail Safety Improvement Act. We believe that there should be no blanket delay of its implementation. PTC was suggested by the National Transportation Safety Board 46 years ago.

We also reject the notion that PTC provides a justification for reducing the crew size, as the railroads contend. PTC should not be a pretext to eliminating a member of the train crew. It is simply another safety overlay of operating systems. The BLET has spent significant time and resources countering these and other efforts to understaff train crew size. A one-member crew is not only unsafe, but it is also inefficient, and also can be deadly, as we found out in Quebec. This issue is before your subcommittee in the form of H.R. 3040, which was introduced by Congressman Michaud last summer, which would require two federally certified train crewmembers in every freight locomotive, and has 60 cosponsors.

Another simple and old, inexpensive technology is an alerter. It is a low-tech alarm that could automatically apply the train's brakes if an engineer is incapacitated. While the alerters are in most locomotive trains today, there are exceptions to their requirement within the existing regulations. This, to me, is inexcusable, not to be used in all locomotives and control cabs today.

Another issue we would like to touch upon is the installation of inward-facing cameras in the cabs of all locomotives. This will have absolutely no effect on safety. The proponents of these cameras suggest that video surveillance of locomotive engineers and conductors in the workplace will somehow abate fatigue and foster rule compliance. However, it is absurd to suggest that inward-facing cameras are a tool to reduce fatigue. In the absence of operational changes to reduce the likelihood that the locomotive engineer or conductor will be fatigued while operating a train, these cameras will do nothing but document that the crewmembers did not fall asleep.

Last, but certainly not least in our minds, locomotives on our Nation's railroads need to be secure and equipped with locking mechanisms that keep train crews safe, not only when a train is unattended, but also provides ready ingress and egress by crews who perform their jobs safely, and the ability to escape quickly in an emergency.

The men and women working on our Nation's railroads are professionals that are dedicated to safety, and would like to be partners on improvement.

I would like to end by paraphrasing a quote from Oliver Wendell Holmes, when he was talking about progress. He said, "The great thing in this world is not so much where we stand as in what direction we are moving." I challenge the railroads and the Government to work aggressively to prevent the accidents of tomorrow by working with labor to make sure that the necessary changes in the industry on fatigue, PTC, securement, and alerters. Thank you.

Mr. DENHAM. Thank you, Mr. Tolman.

Mr. Hamberger.

Mr. HAMBERGER. Thank you, Mr. Chairman, Ranking Member Brown, members of the subcommittee. I agreed with a couple of things Mr. Tolman said, most importantly of which is our employee base is the most important part of our industry, and we thank them for their professionalism and dedication every day that they move freight around this country.

On behalf of the AAR, thank you for the opportunity to discuss rail safety. My comments this afternoon will focus on two issues: positive train control and moving energy by rail. But I would be delighted to engage in discussion on other issues that have been raised.

As Mr. Gerard pointed out, the development of new crude oil resources in the United States represents a tremendous opportunity for our Nation to move toward energy independence, something we have been talking about for decades, and it is within sight. This means less reliance on oil imports from unstable foreign sources, more economic development all over the country, thousands of jobs, tens of billions of dollars in savings in our Nation's trade deficit.

One thing I would like to emphasize: Our Nation cannot take full advantage of new crude oil resources without a safe, efficient, financially health freight rail system. And notice I started with safe because, unfortunately, with a few high-profile accidents starting last July in Quebec, there is some concern and doubt about whether or not we can move crude safely. Let me say for the record right here the answer to that question is yes, we can. We do move it safely. Mr. Gerard pointed out the statistic, 99.997 percent of the time, origin to destination, without an accidental release.

Having said that, we too believe that 100 percent safety is the goal. And that is why we were pleased to get together with Secretary Foxx, Administrator Quartermann and Szabo last Friday to announce even additional steps that we can take to try to make sure that the confidence of the public, your confidence, the confidence of State and local elected officials is not shaken by these high-profile accidents.

Under the agreement, tracks on which trains carry large amounts of crude oil will be subject to more frequent track inspections than required by statute or regulation. Speed restrictions, required use of advanced braking technologies, and the use of a sophisticated routing model, which we currently use for our most hazardous chemicals, will now be used for crude to assess the safest and most secure routes.

I would be remiss not to point out, as I have in the past, that railroads also prevent accidents by investing back into the infrastructure. This year will be \$26 billion. A well-maintained railroad is a safe railroad.

All of these steps are meant toward addressing prevention. The first way to reduce risk? You prevent the accident. But the second big bucket is mitigation. And there we believe that you address two issues.

One is the tank car itself, and then what goes into the tank car. We joined the NTSB in questioning and, in fact, saying that the CPC-1232, the tank car standard that was adopted voluntarily by our industry, API, and others in October of 2011, can itself be improved upon. We believe that it should have thicker steel shelves. It should have an outer jacket. It should have thermal wrapping. It should have protection for top fittings and bottom fittings. It should have full height head shields, among others. We believe that that is ready to go, and urge PHMSA to move quickly on its rule-making.

We also believe that the existing legacy cars need to either be outfitted—retrofitted, or phased out of service for flammable liquids as quickly as possible.

The third leg of dealing with risk is emergency response. Over the past years—last year, 22,000 emergency responders were trained by our industry: 20,000 in their home communities; 2,000 out at Pueblo. Some of you have had the opportunity to be there, Transportation Technology Center, 2,000 there. We are committed to doing more on that with our agreement with the Secretary.

Let me quickly turn to PTC. I hope to have an update for you. We believe again, with the NTSB, it needs to be very transparent. I will submit for the record our update through 2013. We have made great progress. We hope to have 24,000 miles in operation by 2015. But I must tell you about a disaster at the Federal Communication Commission.

We are being told not to install any communication poles since last May—22,000 poles. These are not on Native American property. These are on our rights of way, 97 percent of them, 18-inch diameter poles about 20, 40, maybe 50 feet high, 10 feet into the ground. Very minimal chance of any cultural or historic impact. We think that there should be an exemption for that. And, unfortunately, the FCC has placed adherence to bureaucratic process above enhancing public safety.

And I apologize for being 15 seconds over. Thank you, Mr. Chairman.

Mr. DENHAM. Thank you, Mr. Hamberger. And I would ask our witnesses' indulgence. Our vote schedule has moved up now, so we are looking at taking a break when—we will probably go a little after the buzzer goes, but we are planning on coming back after that vote series. It is a short vote series, so we would ask—if you can stay, we would ask you to stay, so—we have a number of very important questions.

Let me start by a frustration that I have. Mr. Szabo, I know that we are here to talk about a very important rail safety issue, an issue that you and I had started discussions on last November. But during that same discussion, we also had a discussion about high-

speed rail. And during that discussion you said Metro-North was a high priority, we had to address the situation, and you needed some time to work on that. So, at your request, I moved that high-speed rail meeting 6 weeks to facilitate your schedule.

Now, I got to tell you the frustration that I felt from my Democrat colleagues that wanted this hearing to happen. But we knew full well in November that, by moving that high-speed rail hearing, we were also moving the timeline of this hearing. You failed, after 6 weeks' notice, to attend that hearing. And you can obviously sense my frustration with that.

But going deeper than that, the bigger frustration that I have is that you also communicated with me on what the funding level would be for high-speed rail in California. Now, I believe very strong in credibility. I believe very strong that actions speak stronger than words. And if your actions are going to change from what you previously committed or told me, or what your staff had also committed to our staff, if there is going to be a change, I expect you to give me a phone call, not have a communication between press releases between the two of us.

So, as we move forward, if you have changes on something you have committed to me or to this committee, I would expect a phone call, rather than a press release.

Mr. SZABO. Do I have the opportunity to respond, Mr. Chairman? I mean is that a—

Mr. DENHAM. I am not looking for a response—

Mr. SZABO. I think it is only appropriate.

Mr. DENHAM. It is—

Mr. SZABO. Yes—no—

Mr. DENHAM. I will allow you a few seconds, yes.

Mr. SZABO. Please, if I may. I regret you are frustrated. But, as you know, when we talked, when that date was set, I said my schedule would allow me to be available on the 14th of January. When it moved to the 15th, we made very clear immediately to your staff that I would be on travel speaking to 550 shippers, including the crude rail industry.

Mr. DENHAM. I understand. You also had a commitment today—

Mr. SZABO. You and I—

Mr. DENHAM [continuing]. And I appreciate you canceling that commitment—

Mr. SZABO. You and I—

Mr. DENHAM [continuing]. For this hearing.

Mr. SZABO [continuing]. Had a conversation in advance of that hearing, where I let you know that I would not be available. So, you know, it wasn't like—

Mr. DENHAM. I am not going to go back and forth with you here.

Mr. SZABO [continuing]. There was a surprise.

Mr. DENHAM. The issue is not whether or not you committed to this hearing. The issue was we held this hearing up 6 weeks, which then forced us to move this hearing today. So you have held up our committee, based on your schedule that we moved it 6 weeks for you.

Again, the bigger issue here, though, is when you commit something to this committee, as you did on the high-speed rail funding

issue, that I at least get a phone call because you have now changed that funding formula for California and for——

Mr. SZABO. We didn't change the funding formula. But if that is what you want, I have no problem. You know, staff gave a personal briefing to your staff. We have continued to communicate almost daily with your staff. I don't know how much more communication we can do.

Mr. DENHAM. You have got my cell phone. You can give me a call any time if you have——

Mr. SZABO. I don't, but I will sure—I will—I would be happy to take it from you.

Mr. DENHAM. Thank you. Ms. Quarterman——

Mr. SZABO. Mr. Chairman, to say that you moved it at my request—now, you and I did have a conversation. But I also made it clear that because you were calling this hearing, scheduling it—2 days was when the notice came out, 2 days after the Metro-North tragedy—that it wasn't just me. My agency could not be available. And I also said that if you would just go to the 16th of December, 1 more week, 1 more week, I would be happy to be available.

Mr. DENHAM. Thank you. Again, my issue is on grant agreements. You have changed the grant agreement several times now.

Mr. SZABO. No, in fact——

Mr. DENHAM. You had made the commitment to me that it wasn't going to happen.

Mr. SZABO. The——

Mr. DENHAM. If you have to change something, I expect a phone call. That is it.

Mr. SZABO. We will keep talking.

Mr. DENHAM. Ms. Quarterman, I appreciate our conversation yesterday. And yesterday also DOT issued an emergency order regarding crude oil movement and classification. That order mandates the proper testing conducted with sufficient frequency and quality and classification of petroleum products prior to being offered into transportation.

Can you please clarify what is considered sufficient frequency, and what quality, sufficient quality, would be?

Ms. QUARTERMAN. Thank you, Mr. Chairman. We did talk about this Executive order, or emergency order, yesterday, when we met. And we specifically left those terms to be determined by the shippers based on their operations. We did not want to say, in each and every instance before a shipment occurs, that testing needed to occur. It may be that a shipper, if they are a producer, are producing from one play and that play is inconsistent, and over time the test results would be the same. And another shipper might have a different experience.

We are happy to talk further with those shippers who may have questions and needed clarification, but that was the intent.

Mr. DENHAM. Thank you. And can you also give us a rough time-frame for when you expect to issue the proposed rule for the DOT-111 tank car standards?

Ms. QUARTERMAN. Absolutely. I can tell you that the staff of PHMSA and FRA have been in sequestration over the past several weeks, drafting the terms of the notice of proposed rulemaking. As you know, we got comments at December 5th of last year; over

100,000 individuals sent us comments. We are very, very close in our drafting, but there are processes that follow our process within PHMSA and FRA.

Mr. DENHAM. When do you expect a final rule?

Ms. QUARTERMAN. I would like to see, well, a final rule. Are we talking about a—

Mr. DENHAM. Basic timeframe.

Ms. QUARTERMAN. A proposed rulemaking we want to see as soon as possible this year. A final rule will depend upon the comments that we get back.

Mr. DENHAM. Thank you. And one final question and then this is a question I have for others as well. You know. You and I talked yesterday about the manufacturing capacities and the current backlog of tank cars as somewhere between 50,000 and 60,000 tank cars.

That backlog is installed since, well, not having standards to build those. Could you explain from your standpoint what you think that manufacturing capacity could be as far as moving forward? I know we discussed it in detail yesterday some of those challenges we have and those 111 backlog and how we're going to move forward.

Ms. QUARTERMAN. I think that question is probably best answered by the railroads. I don't think we discussed that yesterday.

Mr. DENHAM. Let me come back to that question. How much crude is spilled on an average derailment?

Ms. QUARTERMAN. I don't know off the top of my head. We will have to get that information for you.

Mr. DENHAM. OK. In the sake of time, I know votes are going to get called here shortly. I yield the rest of my time or I yield back, and now recognize Ranking Member Brown.

Ms. BROWN. Thank you, Mr. Chairman, and let me just say, once again, thank you for holding this hearing. The Democrats on this committee sent a letter requesting this hearing. This is a very important hearing and we waited for a very long time to have this hearing. And this hearing is on safety of the rail industry; and, I asked so many questions, but I know my colleagues have a lot of questions. But I guess I want to start with Mr. Gerard.

You mentioned, and I am interested in, you know, we are all together as one team, one fight, and we have these stakeholders. And in talking to some of the stakeholders, they have indicated they could not get the information on the composition of the crude to inform the first responders so we'd know what's on the tank cars. Can you tell me what kind of sharing that you had with the other agencies, like, you know, the other stakeholders, whether we're talking about the Department of Transportation or PHMSA?

Mr. GERARD. Yeah. I think there's a couple of things there, Congresswoman. Thank you for the question.

The first is we believe we should approach his challenge of safety holistically. So we look at it for prevention to mitigation and then to response. The piece that you are talking about is the mitigation piece in terms of knowing exactly what the test results show, how we use those for classification to make sure we are hauling our product in the appropriately approved package.

The current regulatory regime requires us to seek a classification wherein Class III is flammable liquid is the way we classify today. And then we look at boiling point and flash point under the current regulatory regime to decide then which package it goes in, either packaging I, II, or III. And so we provide that testing as an industry.

And, back to Chairman Denham's question, the emergency order that was issued, yesterday, from our standpoint actually creates confusion, and part of it goes to the very question you asked. The current regulations requires to test and classify. What we have done as an industry is we have put together under our standard setting group the best minds to make and to set a standard, if you will. How often should we test? How do we make sure we are looking at the right issues?

Today, we are looking at the question of, like I say, flashpoint and boiling point. Are there other questions that should be considered? This is an improved process where we collaborate with the regulator. We collaborate under this accredited process with anybody who would like to participate. So we welcome all to come join us, because these are questions we need to find the answers to and decide are there other issues we need to look at.

The emergency order, unfortunately, says that we need to look at proper testing with sufficient frequency and quality. We don't know what that means, and yet in the same order it reminds us there are criminal penalties and \$175,000 in infraction attached to this. I guarantee there is an impact, a chilling effect, if you will, to our industry that's trying to collaborate to come up with the right answers to make sure we are testing and classifying this correctly.

Ms. BROWN. DOT is saying that they are not getting the information that they need from you. Do your members share that information with them?

Mr. GERARD. Yes, I believe they are. I know there has been some frustration there and I understand that frustration. As a trade association, we don't collect all that data. Our members do a lot of tests on a lot of different things. We, historically, have not collected it. So I can't show up and deliver that in one package, but we have encouraged the meetings that we have been part of where our members have come and given their information. And we encourage them, particularly, if it is proprietary information, to work with the regulator to share that information so they can answer their questions.

Ms. BROWN. DOT, Mr. Szabo, do you want to respond to that?  
[No response.]

Ms. BROWN. Ms. Quarterman?

Ms. QUARTERMAN. Sure. What would you like me to respond to?

Ms. BROWN. The information that you need from the petroleum industry.

Ms. QUARTERMAN. Yes, the reason for the Executive order or the emergency order yesterday was that we had heard concerns from industry that they were unsure how to respond to our regulations. And we wanted to be clear that we would identify those characteristics of crude that we would want them to test for that—clarify our existing rules. These are the things that you should be testing

for. And the reason why that is so important in this particular area is because ordinarily you have products on a railroad that are being shipped that are known commodities.

There may be anhydrous ammonia or liquified natural gas, or chlorine. And they are known commodities. When you talk about petroleum crude oil, you are talking about something that is an organic product that's being mined from the earth. When it comes from the earth, we don't know what we are getting. You know. Gas comes from the earth, normally occurring radioactive materials come from the earth. Oil comes from the earth, sulfur. So before you take something from production and immediately put it into a tank car, you need to know what you have there so you can look, characterize it so you can look at our table—you have nine classifications of materials—and determine which one of these nine is this.

Is it a petroleum product that is a flammable liquid? Is it a flammable gas? Is it a corrosive or poisonous product? And then you move on from there to determine does it have—maybe it has a multiple number of constituents, and you have to determine what the appropriate packaging is for that.

Mr. DENHAM. Thank you, Ms. Quarterman.

Ms. QUARTERMAN. Thank you.

Mr. DENHAM. Mr. Barletta?

Mr. BARLETTA. Thank you, Mr. Chairman. And first of all I just want to say I am very encouraged by the safety and best practices, both the railroads and the oil and gas industry have maintained their 99.9977 percent of all rail hazmat shipments reach their destination, as was noted, without a release caused by a train accident. That's a strong safety record and something that you should be proud of.

Even more, you have gone ahead and voluntarily agreed to additional limitations. So I want to say that to start. The safety alert issued by the Pipeline and Hazardous Materials Safety Administration on January 2nd regarding operation classification states that PHMSA will share the results of these tests with interested parties as they become available.

Ms. Quarterman, in the spirit of collaboration, have you shared the information from operation classification with interested parties? If you have not yet shared it, when do you plan on sharing it? And then could you therefore give any examples of how you are working in good faith with the private industry to improve safety?

Ms. QUARTERMAN. The short answer to that question is yes. We have had a series of meetings since our meeting with the rail and crude oil industries where we brought in API and some other organizations and individual shippers and asked them if they could tell us about the attributes of the crude as well as about what they were doing to test and characterize that crude.

During those conversations we did share with them on a gross level the kinds of information we were finding in terms of the attribute to the crude, and asked them for the same. We also—I have talked to several companies, CEOs of several companies that are shipping Bakken crude. Many of them have been willing to talk on an individual basis—not as part of a bigger group—about what

they are finding with respect to the characteristics of that crude, including those who are subject to current enforcement actions.

So I really appreciate those individual companies who have been willing to step up and provide information. So, yes, we have been providing that information.

Mr. BARLETTA. And through the course of carrying out operation classifications issued to-date, three notices of violation for misclassifying crude oil. In light of these finds, are you finding that companies are free to come forward and voluntarily share their testing and classification data?

Ms. QUARTERMAN. No. Actually not. As I mentioned, during the conversations I've had with some of those companies that were part of that enforcement push, they did come and share with us openly what the characteristics of their crude were. So, no.

Mr. BARLETTA. I think we can all agree that the proper classification of materials in these tank cars is critical to safety. I know the DOT recently issued new testing requirements for crude by rail.

Mr. Gerard, do your member companies have specific enough instructions to comply with Secretary Foxx's emergency restriction? And, if not, what areas require further classification?

Mr. GERARD. Well I think a couple things, Congressman, and I appreciate the question. Because the emergency order we saw last night, the response we have gotten in the last 20 hours or so, we have had a chance to look at it as one of confusion. And, let me clarify one thing that Ms. Quarterman said.

Our companies know what they have and have tested. I think, earlier, there may have been some doubt or some question left: Do we know what it is. We've been testing this for years. We understand what it is. We know how to test it consistent with the current guidelines. And, part of this working group we have is to look at other determinants, other characteristics, to see if there's other ways to test it. But I think in light of this we need to sit down with the Administrator and others now and seek clarification on exactly what it is they would like us to do in light of this order.

I think it is very important so we understand their expectation, so we can satisfy that expectation. And I would hope it would be much more collaborative as we move forward so that we can do that, because we need to keep our eye on the focus here, which is safety. That's what this is all about.

Mr. BARLETTA. Thank you.

I yield back the balance of my time, Mr. Chairman.

Mr. DENHAM. Thank you, Mr. Barletta.

Mr. Walz?

Mr. WALZ. Well thank you, Mr. Chairman. And I don't know how the two of you came to it. I'm just glad you have the hearing. So I'm glad you worked it out, but I am grateful. I want to thank all of you for being here, and I think Mr. Cramer was right. I certainly feel a sense of collaboration. We are all the same goal here. We want to keep our citizens safe and we want to move important products, and we have to figure out strike that balance. We need to listen to all the perspectives.

I was down on Monday in Winona, Minnesota, on the river down there on the Mississippi with fire chiefs, mayors and first responders from our side of the river and over in Wisconsin, and discussing

some of the things, looking at this from what do you do in those first minutes of a catastrophic incident that we all hope doesn't happen. How do you mitigate it and make it less catastrophic, if there is such a thing, and then how do you prevent it.

The thing I came out of that with, though, is the folks. They referred to these as incidents—not accidents. And it kind of changes the point of view on how we're getting after it, of let's look at it that way, and let's try to mitigate them. Let's try to see them as the incidents. And they welcomed some of the news that was coming out of there.

I think the thing to keep in mind for these, these are mid-sized communities out there. But as they pointed out—Chief Bittle pointed out to me—he doesn't believe there are three fire departments in America that could respond in an urban area to a Casselton type of incident, making the case that on these catastrophes the best they can do is triage for life and limb. So they brought up the suggestion—and this is one we are looking—does there need to be a broader response. Does their need to be some help in this. Because their point was they can't keep enough foam; nor does it make sense to do that in one of those places. And their concern—they are grateful they received training; from both our shippers and our railroads give their members training. But, they said, one of the things is the continuation and the institutionalized nature of it.

They said when chlorine was the big issue, folks came in, gave their firefighters chlorine training, gave them equipment, and then 5 or 6 years later after that had stopped, most of those firefighters were gone. The equipment was old and that ended. And their point was we want to do this; we want the help. We wanted to come in, but let's stay consistent with it. So I asked how do we do that. How do we institutionalize it and how do we prepare for something that there is no way that the city of La Crosse, Wisconsin, and Winona, Minnesota, can prepare in an urban setting like that?

Ms. QUARTERMAN. Thank you for asking that question. I am fortunate to have as my deputy a former fire chief. And over the past several weeks, he brought together a group of all of the fire organizations across the country: The International Association of Fire Fighters, the International Association of Fire Chiefs, the National Association of State Fire Marshals, the U.S. Firefighters Association, the API, the AAR; and sat them down at the table to say, OK, what is the readiness for response to this across the country. What kind of training do you need to have to be prepared for this?

And I think that was a good first step. You look at the agreement that the secretary has with AAR, you will see again that it is something that the railroads are willing to step up and talk about making sure there are no gaps along the routes that would be moving these key trains. And, finally, we just went out with our hazardous materials, emergency responder grants. We have HMEP grants that go to States and to local communities; ordinarily, they are going on a much more random basis.

One of the pieces that grant program we put into our request for proposal was request for grants that would address the crude oil issue in communities that had problems; and we are hoping to see a lot of—

Mr. WALZ. Ms. Quarterman, and I appreciate and this is that collaboration. They felt very good about it. The problem we have, sometimes, though is the city of La Crescent was there also, and they said I happen to know Winona's got a better grant writer, because we're smaller. So their concern was we can't just depend on that. And what do we do to our smaller communities that have the same issues?

Mr. SUMWALT. Congressman Walz, the NTSB agrees with what you are saying. One of the three recommendations we issued in conjunction with the Transportation Safety Board of Canada is exactly the issue you are referring to.

Many communities in the United States are not prepared to respond to something the size of Lac-Mégantic or Casselton, North Dakota. We want the railroads themselves—not just the communities, but the railroads themselves—to be prepared by pre-staging equipment, just like they do in the pipeline industry.

Mr. WALZ. That was my followup there. And, if I could, I'm going to yield back my time. But if Mr. Hamberger could, I would really appreciate it, Chairman, if you would indulge a bit of an answer on that side, because I appreciate that.

Mr. HAMBERGER. Thank you, Congressman. Just to clarify and emphasize that one of the things we have in our agreement with the Secretary is the first thing you have to do is do an inventory. Every one of our railroads does have an emergency response plan; but it is not in any way coordinated with other members of the industry and we ought to put that into inventory, see what's there, see what needs to be done.

We cannot anticipate having pre-staged foam along 140,000 miles of right-of-way, but we do have to have some sort of a better and a coordinated plan, and we are committed to doing that. We also put up \$5 million. I say "we"—my members—put up \$5 million to pay for stipends to take up to 1,500 people, just this year, out to Pueblo, Colorado, Transportation Technology Center, which has an emergency response training center.

Working with the API, we're going to put together a very specific module, training module on crude. We have one on ethanol. We are going to do it on crude, and this is in addition to 2,000 we normally have each year. This will be another 1,500. We want to make that a long-term plan so it isn't something that runs out. We've talked FRA.

Mr. DENHAM. Time. Mr. Williams?

Mr. WILLIAMS. Thank you, Mr. Chairman.

I want to thank all of you for your testimony today. I am from Texas. We have got a lot of railroads in Texas. We appreciate you being here. My question would be to President Hamberger. The industry has stepped forward.

Mr. WALZ. He just gaveled me down.

Mr. WILLIAMS. Well he's got a quick one, so.

The industry has stepped forward, as we have talked about today, with proactive steps for crude training safety, especially after the Quebec accident and then again this month as the Secretary's announcement shows. These are efforts aimed at accident prevention, but there's also discussion about the accident mitigation and the tank car design, which we talked about also.

Burlington Northern Santa Fe Railway has made announcement last week that it was issuing an RFP for the next generation tank car. My question would be what can you tell us about that, and what does it mean for the transportation of crude by rail.

Mr. HAMBERGER. Well I think it says a number of things. It says Burlington Northern Santa Fe, which is the origin carrier of a vast majority of the crude being produced in the United States is as our entire industry does stepping forward and putting their money where their mouth and saying that we believe as the origin carrier there needs to be a safer tank car, even safer than the CPC-1232. And that's a commitment they have made and we have consensus to use that car for crude.

Mr. WILLIAMS. I think it shows the private sector can do the right thing. Can't they?

Mr. HAMBERGER. Yes, sir.

Mr. WILLIAMS. Another question, too; I'd like to go back on something you said earlier. Can you expand on what you talked about on the FCC's position of laying the BTC?

Mr. HAMBERGER. Yes, sir. Thank you. I was hurried there at the end, though. About a year ago, after we had installed 10,000 communication poles, the FCC told us that they did not believe we were complying with their regulations to implement Section 106 of the Historic Preservation Act. They have a very complex system set up, unlike any other agency, and they told us to stop installing these poles.

We have already lost one construction season and right now they have tried to come out with a way to streamline their process. I appreciate Chairman Wheeler's personal attention to this, but I can tell you it does not work. It is still a pole by pole analysis. We need to have an exemption for these poles, which are not on Native American property, they are on our right of way. And the worst thing is they have now made a requirement that we have to prove that there is no cultural or historic interest in the site where we want to put a communication pole. It seems to us that the clear reading of the Historic Preservation Act that if someone believes there is a cultural, historic value there, they come forward to show that there is; not that we have to prove the negative. It just flips everything on-side.

Mr. WILLIAMS. How do you prove that?

Mr. HAMBERGER. Exactly; you can't prove a negative.

Mr. WILLIAMS. Big Government. Mr. Chairman, I yield back.

Mr. DENHAM. Thank you. Mr. DeFazio?

Mr. DEFAZIO. Thank you, Mr. Chairman.

In 1991 NTSB identified the 111 car as inadequate. Then, after 20 years of inaction by regulators, first the Secretary's office and later by PHMSA, AAR, out of frustration, adopted their own standard. And, now, NTSB says that standard isn't adequate and you have a number of suggestions on how it should be improved.

So are the cars—are you familiar with the cars BNSF is ordering, because they do exceed that standard—do they address the concerns you've raised on the new AAR approved model?

Mr. SUMWALT. I understand that BNSF has said that they want to get the next generation cars, but there are no specifications for

those cars. You're right—the NTSB has had longstanding concerns about the current regulatory standards for the DOT-111 cars.

Mr. DEFAZIO. Right; but, I guess here's my concern. We are creating a great deal of uncertainty. We know we can make 111s a little safer with the head shields and other things we could do with modifications. We know the AAR-approved version is better than the 111s, even if they weren't improved.

BNSF, from what I understand, is going to go further with thermal shielding and double walls, and there's an argument over the thickness and all those things. But I guess my concern then turns to PHMSA. PHMSA was created in 2004 and it took them until 2013 to put out an advance notice of proposed rulemaking, which is the kind of stuff that drives you nuts around here.

What is the earliest date that that advance notice of proposed rulemaking could be translated into a final rule so that we have some certainty, so people know what to order and what the future is for safer cars? What's the earliest date? The chairman asked you a question about this, but you couldn't really give us what is the earliest date if everything went as quickly as you can move it. What is the earliest date at which we could have a standard, a new standard?

Mr. QUARTERMAN. Let me go back to—

Mr. DEFAZIO. No, just give me that. What is the earliest date? I mean advance notice and then proposed rule, and then revised proposed rule, and then more. You know. What is the earliest date, using whatever extraordinary or emergency procedures are out there, could we have a new approved design standard so people could start building them and be assured that what they're buying and building is going to be—you know—is going to be approved for the next 25 or 30 years, the life of the car?

Ms. QUARTERMAN. The DOT-111 tank car was designed back in the 19—

Mr. DEFAZIO. Ma'am, I am asking a specific question. Given your bureaucracy, what is the earliest date at which you could approve a new standard, since NTSB is very specific about what they want to see in that standard. It isn't like this is creating something new. They have said what needs to be approved over what AAR has, and when is the earliest date which you could have a final rule so people can start buying these things?

Ms. QUARTERMAN. I will get to answering your question, but the beginning—

Mr. DEFAZIO. OK. Thank you.

Ms. QUARTERMAN. Beginning in 2011, PHMSA, the FRA, the Department worked very closely with AAR in their Tank Car Committee, looking at a new generation tank car as well as other operational fixes for a highly flammable crude. As you have heard from the NTSB and also AAR itself, PHMSA, DOT and FRA at the time did not think that that standard was adequate, which is why we went forward with an advanced notice of proposed rulemaking.

Mr. DEFAZIO. OK.

Ms. QUARTERMAN. During the process of putting out the advanced notice of proposed rulemaking, we continued to get comments and petitions, and that continued to drag out the advanced notice of proposed rulemaking.

Mr. DEFAZIO. Hmm-hmm. OK. Fine.

Ms. QUARTERMAN. Even today you hear from—

Mr. DEFAZIO. OK. All right. I am going to just stop you there, ma'am. I am going to reclaim my time, because you are not going to answer my questions.

Ms. QUARTERMAN. I will answer your question.

Mr. DEFAZIO. Ma'am, just suspend, please.

Look. The problem is we could make the existing cars safer. We are not requiring that. We could, you know. We could condone the existing new design and say if you buy that you can use it for the next 30 years. We could look at what NTSB has proposed as a design and put that out there.

We could have some certainty. Right now, there is so much uncertainty, people are not going to make the investments in safer cars. Are we going to keep running these crummy 111s as they are and killing people? So the bottom line is how quickly can you have a new design, period. Answer, please. You get 30 seconds.

Ms. QUARTERMAN. The companies, as you heard, are making investments, and we appreciate the fact that they are making those investments. But we need to get this right, which means we need to hear the comments from all the parties involved and all the improvements.

Mr. DEFAZIO. OK. But if you would set the deadline, ma'am.

Ms. QUARTERMAN. And—

Mr. DEFAZIO. What is the earliest deadline you can set to get it done?

Ms. QUARTERMAN. I can tell you when I could get the rule done, but I cannot tell you when everybody else—

Mr. DEFAZIO. You don't. You close comments. You say we're done, done with comments. We are going to come up with a design. We are going to look at this.

Ms. QUARTERMAN. Well we are done with the comments. As I mentioned earlier, we are drafting the rule as we speak. The process for rulemaking, once it leaves my shop and FRA's shop is another 120 days at a minimum.

Mr. DEFAZIO. Thank you. Finally, thank you.

Mr. DENHAM. We have had votes called. I do have an agreement from the Republicans that we are going to go out of order so that we can facilitate some of the schedules over here. So, next, I would call on Mr. Michaud.

Mr. MICHAUD. Thank you very much.

Mr. Tolman, thank you for your prepared testimony and support for the Safe Freight Act. You mentioned that many tasks cannot be accomplished by one person. Can you go over some of those tasks for us and explain how multiple crewmembers improve safety?

Mr. TOLMAN. Sure. Thank you for the question.

First of all, let's take the accident in Quebec. There was an unattended train, but it was a single-person operation. They left the train on an incline, and if they had two people they could cut a crossing. In other words, you cannot possibly cut a crossing that had 72 cars, 3 locomotives alone. You had to pull up, to pull the train up at this incline and leave it. It was the only place they could leave a train of that size in that particular area.

If you had a two-person crew, somebody could drop back and open up a crossing, and split the train in several different ways on a public crossing. That is one particular thing. In the Casselton accident in North Dakota just recently, I don't know whether you know that most people don't know there was a locomotive engineer and a trainman that pulled cars and equipment away from the explosion that already happened that mitigated that particular accident.

The redundancy of two people in a train is vitally important. The communication about what the signal is, what the safety is, what's the rule we are running under, et cetera, et cetera, is absolutely vital. You don't get on a commercial airline today with a single person up there. You have two people for obvious reasons. Safety redundancy in having two people is absolutely necessity.

Mr. MICHAUD. Thank you.

Administrator Szabo, you have heard Mr. Tolman on the benefits of multiple-person crews. Is it your believe that multiple-person crews enhance safety?

Mr. SZABO. FRA is officially on the record stating that we believe a multiple-person crew enhances safety. Mr. Tolman is correct about the role that they played in Casselton that likely averted what could have been a much more serious situation. Effective crew resource management just dictates that you have to have this interaction amongst multiple crewmembers with good operating rules in ensuring safety redundancy. You never want a single point of failure.

Mr. MICHAUD. Thank you.

Mrs. Quarterman, AAR, NTSB safety advocates, and numerous lawmakers, including myself, have called for retrofit or phase-out of the older tank cars. Are you considering such a requirement? And I would like to get back to when will that be done.

Ms. QUARTERMAN. We are in the middle of a rulemaking process, and, yes, that is one of the things that is being considered. On the tank car, itself, I want to be sure that I am making this point about the importance of having a comprehensive solution here. The reason that I and almost every witness at this table talk about the different elements of a comprehensive plan is it is so important.

First, we need to prevent derailments. Getting a new tank car is not a silver bullet. Tank cars are designed for normal operating conditions. That means moving around in the yard, going from sidings. They are not built to withstand 40-, 50-, 60-mile-per-hour derailments. So this is just one piece of the mitigative puzzle that we have to put together to ensure the safety of these trains.

Mr. MICHAUD. OK. Thank you. This is both for you, Mrs. Quarterman, and actually Administrator Szabo. And then I know DOT's recent agreement with AAR did address some of the aspects of the NTSB recommendations, but that agreement only applies with Class I railroads, which do not operate in Maine. What are you doing to ensure that all railroads take the necessary safety precaution—not just Class I?

Mr. SZABO. A couple of things. I mean, first-off, we are in conversations with the short line industry also. They have made a separate set of commitments that we are continuing to refine; one that they would reduce operating speeds to 25 miles per hour or lower,

very different operations from the Class I. So it is much easier for them to achieve, as well as working with my agency on a pilot project where we are going to start teaching them risk-based analysis, getting out and doing a thorough risk-based analysis, safety analysis, on these routes. In addition, some of the small operators—I need to change that. Some of the larger short line railroads are interested in actually signing on to the AAR agreement.

Mr. DENHAM. We have a number of Members who still have questions, and certainly a number of Members who had requested this very important hearing. Votes have been called. We are planning on coming back after votes to make sure we get to everybody. Before we go, we are going to allow one, last question from Mr. Lipinski.

Mr. LIPINSKI. Thank you, Mr. Chairman.

I am very happy that we are becoming more self-sufficient on energy needs; and, hopefully, we are all here because we are concerned about the rail safety. One thing I wanted to talk about, last week's call to action was an important step forward, I think, in ensuring safety in several different ways. I was happy to see that risk-based train routing would be used beginning later this year. It would consider local emergency response capabilities, among other matters.

I know that was talked about earlier about the local emergency response capabilities. What I wanted to ask, and I wanted to ask Mr. Hamberger about this. One of the problems that it seems that we have seen is first responders—emergency response people—knowing the materials that they are dealing with in the case of an accident. Now, let's leave aside the issue of mislabeling, for a moment. The question that I have is is it possible, right now. Is there a way that first responders can readily access what is on a particular train?

I hear different stories. I hear that on some trains it is just a paper manifest. You know. My assumption, from what I am hearing, it varies by railroad. It would seem to me it would be very helpful if there was a readily accessible manifest that first responders could get to almost immediately—as quickly as possible—from the railroad, if there is an accident; that there could be an electronic manifest that is out there.

There is a phone number—or however you want to do it—that first responders could call and immediately they could be told what's on there. What is possible right now? Does it vary by railroad, and is there more that needs to be done in this matter?

Mr. DENHAM. Mr. Hamberger, before you answer, I need to recognize Mr. Barletta for a motion.

Mr. BARLETTA. Thank you. I request unanimous consent that the chairman be permitted to declare recess during today's hearing.

Mr. DENHAM. Without objection, so ordered.

Mr. Hamberger, you may proceed.

Mr. HAMBERGER. The answer, the short answer to your question, Congressman Lipinski, is right now there is a paper consist that the crew has in the head end of the locomotive. There is also a 1-800 number that emergency responders are provided to call the railroad; but, we are working on—to your point—an electronic con-

sist that an emergency responder could get right away over the Internet. And we hope to have that developed by midyear this year.

Mr. LIPINSKI. So that is in your plans right now. Will every railroad do this, then?

Mr. HAMBERGER. Yes, at least the members of the AAR, yes.

Mr. LIPINSKI. We will make sure that we follow up with that then. Thank you.

Mr. Tolman?

Mr. TOLMAN. Congressman Lipinski, I would be happy to announce that the National Firefighters Association and Brotherhood of Locomotive Engineers and Trainmen have applied for a grant to make sure that we know what to communicate, who to communicate with. And we are trying to get our hands around the same issue that everybody on this table is trying to do. The grant has not been approved, obviously, but it is in process, and we believe that it is a very important issue that needs to be pursued together. Thank you.

Mr. LIPINSKI. Thank you. I will finish up here. One thing I want to ask, but I will pass on it. I just want to bring up PTC. There is funding. And, maybe for the record, Mr. Szabo will want to ask you about what is going to be for the funding for PTC, the money that was—what was in the omnibus bill. And it is something that I have certainly pushed for. We certainly need to do more to help, especially, commuter rail to implement PTC, but we don't have much time.

So I will leave that question for the record. I just wanted to put that out there right now, and would like to have a discussion with you about what is going to be done with the funding made available beyond this week.

With that, I will yield back. So we can all go vote.

Mr. DENHAM. Mr. Lipinski yielding back. Thank you.

We do have votes. We plan on reconvening at 4:30. And, again, we would ask all of our witnesses to stay here until we get back.

[Recess.]

Mr. DENHAM. The committee will come to order.

I would like to first thank our witnesses for indulging our vote schedule here. And, at this time, I now recognize Ms. Esty for 5 minutes.

Ms. ESTY. Thank you, Mr. Chairman. And particularly want to thank our witnesses and our guests here for their patience with our ever changing vote schedule. I want to thank and I know ranking member not here, but thank them for holding this hearing.

I indeed was one of those Members, as a Representative, living in Connecticut who was extremely eager, shall we say, to have you here today. I want to thank my colleague, Sen. Blumenthal, for testifying and for his commitment and being such a strong leader on this issue and partnered for us. This is a matter of incredible importance for the people of Connecticut, and I appreciate the chairman's willingness to work with those of us who have been calling for a hearing.

Concern for passenger rail safety has been heightened since two, major accidents occurred on the Metro-North Railroad in Connecticut last May. A train derailment in Bridgeport injured more than 50 people. And a Metro-North employee was killed, less than

2 weeks later, while conducting a railroad maintenance and construction project. Since then, Metro-North has experienced power outages, they had interrupted services as well as the tragic derailment in New York that killed four passengers.

Now, for Administrator Szabo, FRA launched a voluntary Confidential Close Call program, allowing railroad carriers and their employees to report near-miss accidents to the FRA. The program provides a safe environment for employees to report unsafe events and conditions, and shields railroads from FRA enforcement for events reported within the program. It has helped railroads, like Union Pacific, substantially improve safety on their system. FRA has urged all 28 commuter railroads to participate in the Close Call program. Out of the 28 commuter railroads operating in the United States, which ones currently participate in the program?

Mr. SZABO. Well thank you, Congresswoman, for the question. We consider Confidential Close Calls so critically important. As you saw my testimony, I talk about the three pillars; good database enforcement and then these proactive safety efforts. Close Call is just an absolute, imperative part of that, because it informs us in advance, in advance of an accident.

To date, there is only one, current commuter railroad participating in Confidential Close Calls Reporting. That would be New Jersey Transit, although both—now Long Island Rail Road and Metro-North—are in the “formatory” stages, and we are working with them very closely on that. And we have had some decent conversations with a couple of others, but we still have a lot of work to do to cultivate interest with other carriers.

Ms. ESTY. Yes. And if you could expand a little bit, what was Metro-North’s reaction to participating in this program, both before and after the accident that’s occurred?

Mr. SZABO. You know, I was actually pretty frustrated back in May after the first series of accidents, and approached the president, Howard Permut, at that time to talk about Confidential Close Calls. And, I was a little disappointed in the fact they just didn’t seem to get it. And, even later when I talked to him, there was a frustration.

The bottom line with this program, it’s not something you can force upon somebody. You have got to believe in it. You have got to believe in its value and you have got to be committed to making it work. And on Union Pacific, with the original pilot project in North Platte, Nebraska, they get it, and it helped them generate a 70-percent reduction in certain accidents and injuries.

Ms. ESTY. Well thank you very much. As I’m sure you and Mr. Sumwalt know, Metro-North has now undertaken a number of initiatives to approve the safety culture, which many of you discussed earlier today, and practices throughout the railroad, including a change in leadership and a commitment to implement a Close Call Reporting System. And we want to work with you in whatever way possible to expedite that.

Mr. SZABO. And, Congresswoman, if I could add, I am very, very encouraged by the commitment to this from both Chairman Tom Prendergast as well as the new president there, Joe Giulietti. I have had a conversation with him. He gets it. He is a forward thinker.

Ms. ESTY. Well thank you. We are very eager to move forward and get this resolved as quickly as possible. But I did also want to flag—so one of my concerns as we move forward is we do so in a way that guarantees passenger safety while also promoting reliable service. Passenger rail has to be safe and reliable, because if a railroad isn't reliable, it will be safe, only because nobody is riding on it anymore. And if you look at what has happened with the numbers recently in Connecticut, we are having a drop of on-time performance and a reduction of people taking the rails. And that has implications too for our ability to maintain with the revenue flow.

I know that the FRA has concluded its Operation Deep Dive and plans to release that report in March. I also note that the NTSB investigations are ongoing and plan to release those reports later this year. And I want to know from both of you, if I have your commitments to work directly with the State of Connecticut and with Metro-North so that we can restore serviceable liability as quickly as possible and any prior information you can share with us to expedite.

We are in the middle of a legislative session that is 3 months long in Connecticut. They need to know budget priorities. They need to have direction, right now, or they will have to come back in special session. It will delay safety and delay reliability.

Mr. DENHAM. Quick, all, a quick response.

Mr. SZABO. Definitely, yes, already been in conversation with Commissioner Redeker up there in Connecticut and have promised him a briefing on this. So both commissioners' offices in New York and Connecticut, as well as the Governor's office, will be a part of our—

Mr. SUMWALT. Thank you.

Mr. SZABO. Absolutely. That's the short answer, and I would be glad to provide more for the record, if you like.

Ms. ESTY. Thank you and we will follow up. I appreciate it. Thank you, Mr. Chairman.

Mr. DENHAM. Mr. Larsen?

Mr. LARSEN. Thank you, Mr. Chairman.

About 2 years ago, there was approximately zero gallons of Bakken crude running up the BNSF line north of Seattle to the four refineries, four of the five refineries located north of central California on the west coast. When all the reception facilities are built out, there will be about 12 million gallons per day traveling through the North. So this issue has really come on strong; and, as Representative Cramer said earlier, the technological ability to pull stuff out of the ground is kind of ahead of our ability to plan ahead for it, for its transportation.

And so a lot of communities are playing catchup. So I have some questions, really, about that. A lot of great questions have been asked, but just some generated out of the committee meetings I had, first for FRA. What is the current inspection requirement before the agreement—for rail line inspection before the agreement came out?

Mr. SZABO. Are you talking about for track inspection?

Mr. LARSEN. Track inspection.

Mr. SZABO. It would depend on class of track and tonnage; but, in many cases, what that agreement does is take it from what was a foundation of two and up it to five.

Mr. LARSEN. Two inspections?

Mr. SZABO. Yeah. It does depend. There is not a simple answer to that. It is more kind of a—

Mr. LARSEN. Right. It is a formula base. Does the formula take into account the classification of the material being hauled, or is it strictly tonnage?

Mr. SZABO. At this point the current reg I don't believe addresses that. But, you know, that's essentially where we are getting at with the agreement, where we get some immediate improvements. And, of course, everything will be continued to be reviewed as we look at our additional next steps.

Mr. LARSEN. And we will do a followup with you on that. What is the oversight from the DOT to ensure that the signatories of the agreement maintain their commitment to the agreement?

Mr. SZABO. We consider it, or plan to treat it as an enforceable agreement. You know. Even though it does not have the power of regulation and does not give us the ability to fine, we fully intend to inspect and audit in accord with that agreement. And should there be any slippage from the commitments, we are prepared to engage with those properties or call them out on it.

Mr. LARSEN. Right. So, again, as I understand the formula depends upon tonnage. It's also what?

Mr. SZABO. Class of track.

Mr. LARSEN. Class of track.

Mr. SZABO. For the record, we will get you full details.

Mr. LARSEN. Great. That would be a great help for the folks that I represent. In the category we really can't predict when the next incident will occur. Obviously, the committees that tackle Tim Walz's comments, they really don't believe they are prepared to respond to derailment of crude oil where there is an explosion. And pre-staging of equipment kind of gets—the only way to really be ready is to have equipment every half a mile, or whatever—just way too much equipment.

So for Mr. Hamberger, one question we got out of the meetings I had is what does \$5 million of additional training buy, exactly?

Mr. HAMBERGER. Thank you. And, if I can just for the record also indicate from the standpoint of enforcement of this voluntary agreement, this is something that CEOs or chief operating officers have put their personal name on and their companies' names behind. We stepped up in 35 days and said that we would take these actions. And so I think that there is no doubt in my mind that there will be a great deal of commitment within the companies to make sure we live up to those.

The \$5 million is designed in the short term to develop this module of focused on crude rail transport and to prepare at Pueblo, where we have the emergency response training center; to go out and get 20 tank cars, array them as if there had been an accident. Outfit them so in fact they will burn; buy foam; buy equipment for people to wear to go out at 2 o'clock in the morning to deal with the emergency; and, then also pay—help pay—for about 1500 local

emergency responders to go out there for a three or four—I guess it would be a three-day, very intense hands-on. We hope that—

Mr. LARSEN. I can send you 1500 tomorrow.

Mr. HAMBERGER. Understood. And to also pay for development of—granted it will be a 101 level, but to go into the communities.

Mr. LARSEN. Sure. OK. All right.

Ms. Quarterman, Administrator Quarterman, on the grants you announced, is this a 1-year deal? Is this a multiyear deal? Because I don't know that our folks are ready to do it, but we have a history of doing, sort of, multijurisdiction grants. But I don't know that we're ready to do it this year.

Ms. QUARTERMAN. It is every year these grants come forward, and if you need help or the folks in your community need help in filling out grant applications, please contact our office and we will help them.

Mr. LARSEN. We will put it together. This has been a 2½-month education for me, and I think we are going to be in this for a while. So I appreciate it.

Thank you, Mr. Chairman.

Mr. DENHAM. Ms. Brown?

Ms. BROWN. Thank you.

My friend, Mr. Hamberger, I thought you was going to build the car right here, the new car. But I want to commit that I am sure that the committee will work with you to help solve your positive train control problem with the poles. And so anything that we can do, whether it's legislation, calling in the agency, we are willing to work with you, because we want to move forward.

Mr. HAMBERGER. Thank you.

Ms. BROWN. OK. My question, really, a lot of discussion has been that it is not just one answer. You know, the new car; it is comprehensive. It is the tracks. It is the people that are driving the train. It is comprehensive. Can you expound on that for me, starting with—and resources? Because, basically, I understand that PHMSA—you only have how many employees? What, 704?

Ms. QUARTERMAN. I wish we had 700. We have less than 500 in the Pipeline and Hazardous Materials Safety Administration of which 200 work on pipeline issues, on the hazardous material issues for every mode, including air, rail, truck and ship. We have less than—about 175 people, about \$45 million. There are approximately 50 inspectors that handle the movements of approximately 1 million shipments of hazardous materials every day in this country to address this ongoing issue.

We have had to pull resources from across not just the Department of Transportation, but also other agencies in Government to help us with testing, to help us get on top of this issue as quickly as possible. We have been doing these testings. So far we have spent, I would say, about one-half million dollars for budget of \$45 million. It is a lot of money, especially since we were in a hiring freeze last year.

We have plans to do further testing this year that will cost another \$400,000. Thankfully, we have—when our sister agency, FRA, is going to help us on some of the testing and research that needs to be done, but it is a mountainous challenge. You know. We

like to say we are small, but effective—mighty. There you go. But, certainly, it is a big resource challenge for us.

Ms. BROWN. Yes, sir?

Mr. SZABO. Well you are talking about what does comprehensive mean, and it means, actually, from the moment it comes out of the ground through the delivery to the refinery, and we need to be taking a look at every, single step in that process, every single stakeholder in that process and understanding everything that everybody must be doing to ensure the safe delivery.

First and foremost, it is about preventing an accident; but then the next steps are in what better become those rarer and rarer occasions—occurrences—how we mitigate the impact and then lastly the emergency response piece. And so we think we have had a very good start with what we have put together with the industry here over the past week, but there is more to come. We have got more work to do, and so this is just—you know—a continuation of ongoing efforts.

Ms. BROWN. And NTSB, I met with you all in—I want to say—New York. And I understand you all have had to turn down some responses because of lack of funds.

Mr. SUMWALT. We also are a very lean organization. We are trying to do as much as we can with what we have. As you know, we have four current investigations with Metro-North. The same day that we launched in Casselton, North Dakota, we sent an investigative team to Louisiana on a different rail accident. We have a lot going on, and we make sure that the products we come out with are thorough, accurate and complete. However, with more funding we could reduce our backlog and produce more products on a timely basis.

Ms. BROWN. I would.

Mr. SZABO. And, Chairwoman, if I could add on the resource piece, I didn't touch on that.

Ms. BROWN. Yes, yes, sir.

Mr. SZABO. You know, the Rail Safety Improvement Act did pledge 200 additional employees to FRA, and we have not received all of those. I would like to thank, obviously, Congress for the 45 that were a part of the fiscal year 2014 appropriation. But we have not yet received all that we were promised almost 6 years ago.

Ms. BROWN. But the last—do you want to say something about the employees? We constantly discuss the work hours.

Mr. DENHAM. Quickly, Mr. Tolman.

Mr. TOLMAN. Yeah, sure. As I mentioned in my testimony Congresswoman Brown, we need to work together with the carriers Rail Safety Improvement Act. There is a means for management to meet with labor and come up with risk assessment and reducing fatigue in the industry; that hasn't happened in 5½ years. It has to happen sooner than later.

Ms. BROWN. Does it come up during contractual discussions?

Mr. TOLMAN. No. It can come up in contractual. We have had great programs prior to the Rail Safety Improvement Act. We have had 7 and 3, 6 and 2. What's happened in industry is really harmful to some of the members. They are leaving them over in their layover facilities. They operate away from home and stay over there 24, 36 hours, reset their clock, and now they get back home

after a 12-hour run. They haven't been with their family for the last 36, 24 hours. They want to spend a little time with their family. Before they know it, they are back out, and that is no way to treat people, to make a living, or to have any quality of life. And it's fatigue.

Mr. DENHAM. Thank you, Mr. Tolman.

Ms. BROWN. Thank you.

Mr. TOLMAN. Thanks.

Mr. DENHAM. Mr. Szabo, I wanted to follow up on PTC. First of all, are any of the Class I freights going to meet the PTC deadline?

Mr. SZABO. No. Certainly, most of them will reach some portion of deployment. BNSF is probably the furthest along, but I am not aware of any Class I that will meet full deployment.

Mr. DENHAM. Why not? What are the major obstacles that are delaying them?

Mr. SZABO. There is, basically, our report to Congress, almost 2 years ago now, clearly articulated the technological, programmatic challenges that the industry faces in full deployment, and that is the point I want to make. The industry can and should continue to be both pressed and encouraged to deploy as far as possible, as quickly as possible.

And I really think that it is important that Congress do give my agency the tools that we need for provisional certification of these implementation plans. Because right now, all we are authorized to do under the law that is given to us is to say yes or no on that implementation plan. And we are required, essentially, to say no if it doesn't adhere to full deployment on that 2015 deadline. So we need some additional tools.

Mr. DENHAM. Now, what obstacles are the FCC presenting?

Mr. SZABO. It is significant and very concerning. We engaged with them again last month, you know. So we are certainly doing our job in making them understand how important this is to the public. This is about public safety—how important it is to the industry, how important it is to my agency; and, you know, continue to file comments with them to again heighten the importance of timely deployment. So that's one additional obstacle over and above the list that was in our report to Congress.

Mr. DENHAM. Thank you.

Mr. Tolman, on PTC?

Mr. TOLMAN. Yes.

Mr. DENHAM. Important necessity?

Mr. TOLMAN. Extremely important. We do understand that there are obstacles. We clearly do, and I think it was echoed very loud and clear about transparency. I mean we need not delay this any further, and I know it has to be delayed because of the obstacles that are put in front of us. We are realists, but it needs to make sure that we have different benchmarks to say, OK, where are we in this process? I mean it's extremely important. Otherwise, it is never going to get done.

Mr. DENHAM. Thank you.

Mr. Gerard, on PTC, is that something that can be helpful to you guys?

Mr. GERARD. Well I'm not a rail expert, but I will tell you that is one of those things we should consider as we look at this holistically to work on the prevention side.

Mr. DENHAM. And Mr. Melaniphy, your testimony, you talked about the disconnect when the FCC says delays to PTC towers and construction approvals do not impact commuter railroads. Can you further explain that?

Mr. MELANIPHY. There is some confusion as to what they can deploy and when they can deploy it; and if they want to put this equipment in place and they can't do that, whether it is a dozen towers or hundreds of towers have got to put into place. They need to know what they can put in an application, when they can apply and how they can do that. Without that, they are left hanging and we can't complete our systems if we don't have that information.

Mr. DENHAM. Thank you.

Mr. Hamberger?

Mr. HAMBERGER. Yeah, thank you, Mr. Chairman. As I mentioned in my opening statement we will hopefully have by next week an update through December 31, 2013, railroad by railroad, and where we are each of these steps. The last, big stumbling block is backup of server technology, the software that does enable the actual communication inter operability between and among the railroads. So we will have that up here for you right now. We are projecting there are about 24,000 miles would be operable by the end of 2015, but not 60,000. But we will have made, I think, a very good progress by that time.

Mr. DENHAM. Thank you.

Mr. Walz?

Mr. WALZ. Well thank you. I am going to move to the other end of that spectrum from the catastrophic and then move to the prevention side of things. And Mayor Cabot in La Crescent, Minnesota, pointed out to me on that Mississippi River crossing, which is not unique. And I understand everyone's going to line up. Everybody has their unique challenges, but that swing bridge there is one of the oldest in the country, one of the oldest crossing the Mississippi. Its companion road traffic bridge, highway bridge, was closed down for several months. It had catastrophic economic damage, because it was the same design as the one in Minnesota. We were very nervous after the I-35W bridge collapsed. The mayor told me that bridge has been struck five times in the last 10 years in accidents at the crossing.

There is no other option, because that is how you get across the river. And my question to all of you is I understand you have a lot of these, and each Member could bring up one of these things, but my mayor is saying, you know, we're going to prepare for things. We want to do this. But, really, the thing you could do is make sure this bridge is not 90 years old and gets there. How does that play out?

What is the role of rail infrastructure investments that are being made? What's the role of our State rail plan, which it's on there? But, as they tell me, so are some other things. How do we address and how are those being laid out in terms of priorities for what they are? Because my fear is, down there, the life and limb and all that; but, if you get a catastrophic derailment on that bridge, you

shut down the Mississippi River. You will find out how quickly the economic numbers will go out the roof, because that's the major—very important things being shipped. So I will leave it to the experts. How does it work in terms of coming together and how do we address that piece of it, that this is an infrastructure deficiency that is just waiting for an accident to happen, as my mayor said? So whoever wants it.

Mr. SZABO. I guess I'll go first. I mean I think two things. One, shortly after I came here as Administrator, we passed an out of regulation that sets up a rather rigorous bridge inspection protocol that all railroads are required to follow. And then we, in turn, audit their plan to make sure they are complying with all aspects of the regulation as well as their own bridge inspection protocol.

On the capital investment side, if it is a short line, in particular, this is a drumbeat that I have been beating inside a lot of TIGER deliberations, particularly for capitally starved short line railroads. You know, track upgrades and bridge upgrades are very, very difficult improvements for the short lines, and yet they are critically necessary for this last mile delivery. And so continued support of the TIGER program, and if you are talking about a small railroad, identifying those things and supporting them through a TIGER application is one, potential way of helping generate some improvements.

Mr. HAMBERGER. Congressman, you raised exactly the two points that Mr. Szabo said was going to be my answer. There is on the safety side the requirement that these are inspected and that indeed they will continue to be able to operate safely. And then on the capital investment side, each railroad does make its own decisions as to where the investment is needed, based on traffic patterns and other needs. And so I don't know the specifics of that particular bridge, but with that—

Mr. WALZ. What's our responsibility, Mr. Melaniphy? I mean what is the State's responsibility? The Federal Government's responsibility? The short line railroad, itself, as Mr. Szabo kind of laid that out with the TIGER grants and all that? Because I certainly understand that it is critically important?

Again, everybody's deficient bridge is the most deficient in their mind. I understand that part. I'm not trying to say that, but what is our role to get these things upgraded and get it fixed? It is in our best interest to do that.

Mr. MELANIPHY. From the public sector side, we must invest in a service transportation bill. Public sector entities were investing \$3 billion in PTCs. Something has to give. And so we are taking dollars from one place and putting them in another. We have to invest in all the infrastructure. It all has to work together, whether it's the switches, the rail bed, the bridges. All those things have to work together. We need a good service transportation bill so we can fund that infrastructure and make sure the entire system functions well.

Mr. SZABO. Then I would say that we continue to urge a robust, sustained and predictable source of funding for rail to allow us to make capital grants. And to the extent that these are for short lines or for passenger rail improvements, safety improvements, it

is something that would be eligible under the program that we have proposed in the last couple of rounds of budgets.

Mr. WALZ. Right.

Mr. Gerard?

Mr. GERARD. Mr. Walz, I was just going to add perhaps a different component or dimension to this, which is very important to the committee's jurisdiction. We just recently conducted a study that over the next 12 years, when we look at infrastructure generally in the United States from an energy standpoint, we are projected to expand \$1 trillion in the next 12 years in the United States building energy infrastructure. It is estimated that will generate 1.1 million new jobs, just building this infrastructure.

Mr. WALZ. And that infrastructure can't be separate from the mobile infrastructure that we are going to need to move.

Mr. GERARD. Precisely, and it all brings us back to the safety question, to make sure we are safe. The other thing, though, that we keep emphasizing policy matters, not only from a safety standpoint, but our ability to move permitting operations. To be able to invest this capital is a great opportunity for the country as we move to energy security, but those are real dollars, and they are all private sector dollars that assist a broader economy.

Mr. HAMBERGER. I would be remiss if I didn't answer that question as well, if I can, Mr. Chairman.

Mr. DENHAM. Very quickly, quickly.

Mr. HAMBERGER. That our ability to reinvest does depend upon this committee continuing to support the balanced economic-regulatory system that governs our industry. So, thank you.

Mr. DENHAM. Thank you.

Mr. Larsen?

Mr. LARSEN. Thank you, Mr. Chairman.

So back to my community meetings. There is some question, Mr. Gerard, about the vapor pressure of Bakken. And you've also mentioned on page 2 of your testimony regarding the 600 accounting standards, and I understand you are working on your 601st with regard to classification crude. Could you explain to me, one, what the project is? And, second, could you talk about what you all know about Bakken regarding vapor pressure and if it's—at least from your perspective is it any different? Is it the same? How should the communities be thinking about this?

Mr. GERARD. Let me take the second one first, if I can, Congressman.

Mr. LARSEN. Sure.

Mr. GERARD. Bakken oil is comparable to other light crude oils. Now, I know in the media there's been speculation. There's been talk about volatility and other things, but it falls within that range when you test it, and this is what we are hearing back from our members, that it falls within that range of typically what you see from light crudes, same or see in Texas and elsewhere.

The vapor pressure issue is an important one, because that's one currently that's not required by the regs to test for purposes of classification. However, the boiling point and the flash point, which we do test for today under regulation, we believe was an indication of volatility. Because up until about 1990, I believe, the regulator used to require a vapor pressure test.

So when you look at it today, there has been some news reports that we believe are unfounded that are not based on good data. If you look at the data today, once again, it shows that that Bakken oil is in that range of vapor pressures that you typically find in a light crude. So, again, it's so important we get to the data. We get to the facts and away from the speculation to make sure we are treating these commodities, these products just to——

Mr. LARSEN. Well, I understand you have some work to do.

Mr. GERARD. Absolutely.

Mr. LARSEN. Because you could also say that the Seattle Seahawks are comparable to a Boy's Club team and that they are both football teams.

Mr. GERARD. I would never say that.

Mr. LARSEN. Neither would I, and I think that's what folks had the impression that, yes, they are both crude. They are comparable and they are crude, but there's a wide difference between that crude and this crude.

Mr. GERARD. Well, no. There is not a wide difference, and that's the point.

Mr. LARSEN. I'm telling you what people in my community think.

Mr. GERARD. Oh, I understand. I understand.

Mr. LARSEN. Yeah. That is what I am talking about.

Mr. GERARD. I understand.

Mr. LARSEN. All right.

Mr. GERARD. Now, to the standard setting part, and this is what's most important about where we are today, because we are looking at things like vapor pressure. We were looking holistically at the entire regulatory regime from a standard setting process. The 600-plus standards we've developed, the API was originally established as a standard setting organization. So we have to get accredited. We get audited every 5 years by the American National Standards Institute.

Mr. LARSEN. Yes.

Mr. GERARD. Which comes in and makes sure that we are transparent in our operations, that we are all inclusive, and that we bring the best minds together to look at these issues. These go well beyond the industry. We have got FIMs that participate in this process. We have academics. We have the railroads and others. So, really, what we are trying to do is look holistically.

We know that we can move 99.99 percent of the products safely. Our challenge is to move that last piece of risk out of the system, so we get to zero incidents, so you can have confidence. Your constituents can have confidence. We have done everything we can to have zero incident system here. So in that process we go through, we bring in the experts. We look at vapor pressure. We are looking at coercivity.

We are looking at a lot of issues well beyond this. And we expect to come back with a best practice, with a standard that oft-times is well above what the law requires. And many times, at least in the oil and gas base, we are the most heavily highly quoted, standard setting group on a global scale in the oil and gas space.

That's our hope. That's our expectation with a single focus: safety and improvement in the performance that we are trying to achieve.

Mr. LARSEN. And a timeline?

Mr. GERARD. We expect to have that done in 6 months or less. It's on a fast track. Most of these under the accreditation processes take about 2 years to develop.

Mr. LARSEN. Right.

Mr. GERARD. We are expediting this. We are moving it forward quickly, and expect to have an earlier outcome.

Mr. LARSEN. All right. Thank you, Mr. Gerard.

Mr. Hamberger, could you explain again about the information available, you mentioned online information put online about—well, I thought I heard you say about the material coming through our communities.

Mr. HAMBERGER. Right now, any community can request and will be given exactly what is coming through that community on a look-back basis. We try to gauge the training of the emergency responders in that community to what is going through. The paper consist is on the head end of the train with the crew if there is an accident.

There is also, of course, a 1-800 number that the emergency responders are given to call into the dispatch center to find out what's on that train, and we are developing an Internet base that you could get electronic consist immediately. We hope to have that by the third quarter of this year.

Mr. LARSEN. Third quarter of this year. Thank you very much.

Mr. HAMBERGER. Thank you.

Mr. DENHAM. Ms. Brown?

Ms. BROWN. Thank you, and thank you for the safety hearing. And I think the next hearing should be in what—North Dakota, wherever it is?

Mr. HAMBERGER. When it warms up.

Mr. GERARD. We'll invite you out in the spring.

Ms. BROWN. They said in the spring, but I think that that would be the next step, because I think the industry has just grown so much in the past. You said every 5 years, I mean, but it seems like in the last 6 months to a year it has totally changed.

Mr. GERARD. Yes, it is really remarkable when you look at what's happened; and, 5 years ago, no one would have predicted it, but it is a very unique American opportunity for us today. So we are hopeful to be able to deal with the challenges, like safety and others, to really seize this moment. We are seeing it not only in job creation, but most recently, we are the single largest sector that is reducing our trade imbalance today.

Foreign imports today are down in the small 30-plus percent range, down from over 50 just a few years ago. So it is really making a big difference. We got a lot of manufacturing coming back to the country, because of this affordable, reliable energy. So we think this is an issue that transcends political parties and everybody else, and we want to go to work collectively together to make sure we achieve it.

Ms. BROWN. Well we are really excited about it, but I guess I hear a lot of talk, so I need to go see it. There is a difference in the crude and that you may need a different kind of pipeline or a different kind of car. So I think, you know, we are talking about it and we are discussing it. But it is nothing like us going on an actual field trip. So I am recommending that we take that.

Mr. GERARD. We would love to help facilitate that, Mr. Chairman, and Ranking Member Brown.

Mr. DENHAM. Thank you. And it is on our plans. It is something very important to this committee, something very important to the Nation. We want to be able to see, first-hand, the tank cars, the pipes, the full transportation and production up there.

I want to thank all the Members today. This, again, was such an important hearing. I heard from a lot of Members on both sides of the aisle on how important this was; and, certainly, there's not enough time in one of these hearings to get through all questions. So we will be submitting a number of others with you. But let me close in saying we have got a lot of hurdles, you know, especially with—well, we have a very, very safe record. In all of our discussions and all of our meetings we have continued to say there are more things that we can do. And so we need to continue these discussions on; but, especially, where we are awaiting action from the Administration—PTC, for example—still continue to have big hurdles with FCC.

I know that there are certain areas of the Nation where we can move forward and should move forward, and can prevent other safety issues. With tank cars, we know that there are newer opportunities, newer tank cars, newer developments, but we certainly before any private company—before any industry is going to commit to a huge capital expenditure—they need standards. And so we are going to be working with each of the different agencies to make sure that we are getting this information back out to you, so that we can continue to improve upon safety across the board.

If there are no further questions, I would ask unanimous consent that the record of today's hearing remain open until such time as witnesses have provided answers to our questions that may be submitted to them in writing, and unanimous consent that the record remain open for 15 days for additional comments and information submitted by Members or witnesses to be included in today's record.

Without objection, so ordered.

Again, I would like to thank our witnesses for the testimony today and your patience with our voting schedule.

The committee is now adjourned.

[Whereupon, at 5:19 p.m., the subcommittee was adjourned.]

*Corrine Brown*  
*M.C. (FL-05)*

STATEMENT OF THE HONORABLE CORRINE BROWN, RANKING MEMBER  
 SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
 HEARING ON  
 "OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY"  
 FEBRUARY 26, 2014

Good morning. I want to begin by thanking the Chairman for accommodating the Subcommittee Democrats' request to hold this important hearing. Your leadership on this issue is crucial, especially as we look toward reauthorization of our nation's rail safety program, which expired at the end of Fiscal Year 2013. Providing federal oversight of rail safety is one of the most important responsibilities of this Subcommittee.

According to the Federal Railroad Administration (FRA), railroads have had one of the safest decades ever. Since 2004, the number of train accidents has declined by 47 percent. Grade crossing accidents are down 35 percent, and we are seeing, overall, fewer fatalities and injuries. There is no doubt in my mind that the combined efforts of this Administration, the rail industry, rail labor, and Congress in the enactment of the Rail Safety Improvement Act of 2008, have brought about these accomplishments.

While rail safety statistics are trending in the right direction, our job is far from done. Nearly 11,000 rail-related accidents and incidents occurred in 2012, resulting in about 8,300 injuries and 700 fatalities.

Human error and track defects remain the top causes of all rail accidents. This was evident in the Metro-North passenger train accidents and several, recent freight rail accidents involving the transportation of crude oil, all of which have prompted the National Transportation Safety Board, the FRA, and the Pipeline and Hazardous Materials Safety Administration to take immediate action.

Since those accidents occurred, a lot of attention has focused on the Administration issuing new rail car standards. I believe the right standards are important. We need to make sure we have the safest cars transporting crude oil on our railways; however, I also believe we need to

make sure we are taking a good, hard look at how we can prevent these accidents from happening in the first place.

I recall our hearings in 2007 and 2008 as we were crafting the Rail Safety Improvement Act. A tragic accident occurred in South Carolina. The cause of the accident was human error, but a tank car was damaged and leaked hazardous material, which ended up killing the rail workers and others. That tank car is designed to be much stronger than the tank cars transporting crude oil.

My point is: rail cars have and will continue to rupture in accidents, given the right conditions, even after new design standards are issued. I am not saying we should not have a safer car: we should and we must, especially because of the dramatic increase in the transportation of crude oil by rail in just the last five years. **But we cannot neglect the importance of adopting measures that prevent these accidents from occurring.**

With that, I look forward to hearing from our witnesses on these important safety matters.

**LARSEN STATEMENT FOR THE RECORD  
OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY HEARING  
2/26/2014**

Thank you Chairman Denham and Ranking Member Brown for inviting me to be a part of today's hearing.

There are four refineries in and around my district, and my constituents are seeing big increases in the amount of crude oil that is coming through their communities by rail.

During the last district work period, I held three community meetings with local and state elected officials and first responders in my district to compare notes and develop a plan to make sure this increased traffic is safe. I've also met with leaders from labor, industry, and federal government on this issue.

There is a consensus among all these groups that there are concrete steps we can take to improve safety. The recent announcements about increased safety from the administration and industry are positive steps forward.

But there is still work that needs to be done to inform local leaders and first responders about what's coming through their community. I appreciate the committee holding this hearing, and hope that it will help us address this important safety issue.



Rick Larsen  
U.S. Representative  
Washington, 2<sup>nd</sup> District

**WRITTEN STATEMENT OF  
THE HONORABLE JOSEPH C. SZABO,  
ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION,  
U.S. DEPARTMENT OF TRANSPORTATION**

**BEFORE THE  
SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS**

**COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
U.S. HOUSE OF REPRESENTATIVES**

**“OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY”**

February 26, 2014

Mr. Chairman, Ranking Member, and Members of the Subcommittee, thank you for the opportunity to appear before you today, on behalf of Secretary Foxx, to discuss the safety of our Nation's railroads. Rail is a particularly safe mode of transportation, and one that American passengers and shippers are choosing more than ever before. Today, I will first give an overview of the railroad industry's safety record and the Federal Railroad Administration's (FRA) safety program, including our implementation of the Rail Safety Improvement Act of 2008. Then, I will discuss the U.S. Department of Transportation's (DOT) actions in response to recent accidents and present FRA's vision to drive the next generation of rail safety.

FRA's mission is to enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future. We are a data-driven agency. Every regulation, safety advisory and emergency order we issue is based on facts and sound research using advanced statistical methods and modeling. We closely monitor data and trends to identify, reduce, and eliminate risks.

Two straight years of record-breaking safety performance, along with significant reductions in all types of accidents since 2008, are strong evidence that FRA's approach to oversight and enforcement is effective.

**THE RAILROAD INDUSTRY'S SAFETY RECORD AND FRA'S SAFETY PROGRAM**

FRA's top priority is safety, and fiscal year (FY) 2012 was the safest year on record, with preliminary data from FY2013 indicating it will be even better than FY2012's record.

Since FY2004:

- Total train accidents have declined by 47 percent.
- Total derailments have declined by 47 percent.
- Total highway-rail grade crossing accidents have declined by 35 percent.

These safety improvements resulted in 13-percent fewer fatalities overall (895 fatalities to 779 fatalities – 95 percent of which are trespassing or grade crossing related), 59-percent fewer employee fatalities,

and 9-percent fewer injuries (9,367 injuries to 8,534 injuries) over 10 years. These improvements are impressive in their own right, but especially if you consider the regulatory workload that FRA received from the Rail Safety Improvement Act of 2008 (RSIA) *and* passenger and freight rail's growth during this same time.

- Amtrak set new ridership records in 10 of the last 11 years,
- Rail was the fastest-growing mode of public transportation, and
- Intermodal freight traffic surged toward a new record.

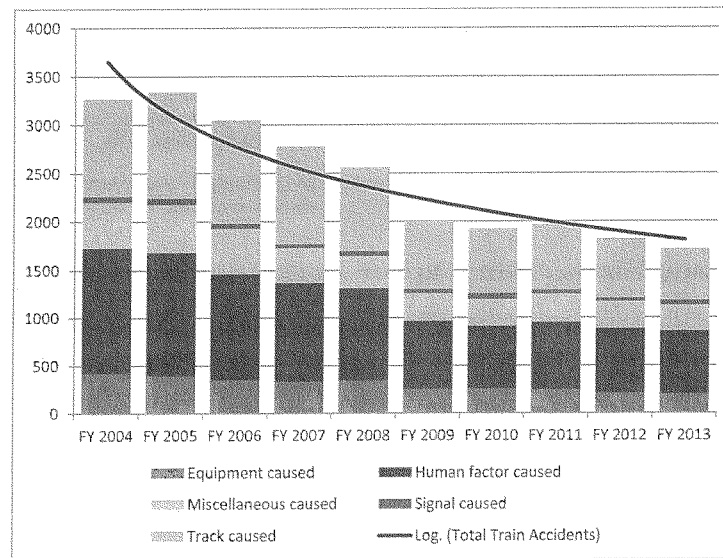
RSIA mandated that FRA, as the Secretary's designee, complete an unprecedented 42 tasks, including final rules, guidance documents, model State laws, studies, and reports as well three types of annual reports and hundreds of periodic accident reporting audits.

Thirty of the 42 tasks are complete, and the rest are in the pipeline progressing towards completion. Appendix 1 lists the rulemakings, non-periodic reports and studies, guidance, and model State laws that FRA has completed as of February 26, 2014.

The chart and table below illustrate a decade of safety improvement.

**Ten-year Downward Trend for Train Accident Reductions (FY04-FY13)**

\*Fiscal Year Representing Absolute Numbers



### Ten-year Railroad Safety Trends by Accident/Incident Cause

\* Accident/Incident, Train Accident, and Highway-Rail Incident Numbers Normalized by Million Train-Miles for Fiscal Year, Non-Accident Hazmat Releases Normalized by 200 Million Hazmat Ton-Miles for Fiscal Year

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total Accidents/Incidents	19.039	18.093	17.525	17.298	16.907	16.873	16.696	16.063	15.167	14.852
Human-Factor-Caused Train Accidents	1.721	1.648	1.380	1.297	1.230	1.041	0.948	0.995	0.919	0.888
Track-Caused Train Accidents	1.314	1.398	1.318	1.258	1.094	1.036	0.972	0.954	0.843	0.727
Equipment-Caused Train Accidents	0.548	0.499	0.433	0.418	0.435	0.366	0.370	0.342	0.286	0.271
Total Signal/Misc.-Caused Train Accidents	0.692	0.707	0.641	0.506	0.497	0.484	0.494	0.469	0.438	0.430
Highway-Rail Incidents	4.024	3.800	3.797	3.523	3.240	2.986	2.900	2.881	2.773	2.685
Non-Accident Hazmat Releases	1.387	1.398	1.147	1.221	1.227	1.149	1.063	1.079	0.933	0.932

### Response to Accidents

As we use data and research to drive continuous safety improvement, we learn from every accident. FRA investigators focus on identifying an accident's root causes so we can further eliminate risk and take appropriate enforcement action. This is one more facet of our comprehensive approach to rail safety.

The Department, including FRA, has responded aggressively to recent accidents that have received widespread attention.

#### *Metro-North Commuter Railroad Company<sup>1</sup>*

As a result of several accidents on Metro-North Commuter Railroad Company (Metro-North), FRA issued Emergency Order 29 and Safety Advisory 2013-08 on December 11, 2013.

- Emergency Order 29 required Metro-North to take immediate action to prevent excessive train speeds by identifying and prioritizing high-risk areas, modifying its existing signal system to ensure speed limits are obeyed, and ensuring a higher level of engagement and communication among operating crewmembers in higher risk locations. To date, FRA has not identified any instances of noncompliance with Emergency Order 29.

<sup>1</sup> A description of Metro-North Railroad is in Appendix 2 to this testimony.

- Safety Advisory 2013-08 helps ensure that all railroads adhere to Federal regulations regarding maximum authorized train speed limits through training, operational testing, and train crewmember communication.

On December 16, 15 days after a fatal accident in New York, FRA commenced Operation Deep Dive, a comprehensive, multi-disciplinary safety assessment of Metro-North where technical and human factors experts are reviewing safety-critical procedures and processes, including operations, mechanical and engineering. The Federal Transit Administration is participating with FRA to ensure investments in Metro-North are properly prioritized to improve safety.

*The rail safety team is assessing the following:*

- Track, signal and rolling stock maintenance, inspection and repair practices;
- Protection for employees working on rail infrastructure, locomotives and rail cars;
- Communication between mechanical and transportation departments at maintenance facilities;
- Operation control center procedures and rail traffic controller training;
- Compliance with Federal hours of service regulations, including fatigue management programs;
- Evaluating results of operational data to measure efficiency of employees' execution and comprehension of all applicable Federal rail safety regulations;
- Locomotive engineer oversight;
- Engineer and conductor certification; and
- Operating crew medical requirements.

Operation Deep Dive ended February 14, 2014 and FRA will present a report of its findings within 30 days afterwards. FRA will meet with Metro-North to discuss the findings and appropriate remedial actions. Additionally, FRA will discuss best practices and lessons learned from Operation Deep Dive with other commuter rail chief executive officers (CEOs) through the American Public Transportation Association.

#### *Rail Accidents Involving Crude Oil*

Crude oil transportation by rail rose quickly because of increasing production in the Bakken region of North Dakota. FRA is paying close attention to that region, and accident rates in North Dakota have fallen over the past three years, even with increased traffic.

In response to recent train accidents in the United States and Canada involving tank cars carrying crude oil, DOT, including FRA and the Pipeline and Hazardous Materials Safety Administration (PHMSA), has taken action on multiple fronts to mitigate risks and ensure the safe transportation of crude oil, ethanol, and other hazardous materials by rail. FRA and PHMSA have related but distinct responsibilities in managing the risk from the transportation of hazardous materials. PHMSA produces regulations pertaining to the transportation of hazardous materials by rail, which are primarily enforced by FRA's safety staff, while FRA's staff also acts to enforce comprehensive safety regulations for rail transportation.

On January 16<sup>th</sup>, oil industry representatives and rail industry CEOs met with the Secretary and heads of PHMSA, the Federal Motor Carrier Safety Administration, and FRA in a "Call to Action." The CEOs were asked to develop specific plans to immediately improve the safety of crude oil shipments, and recommendations on how to improve safety over the long term. Any agreements on such

recommendations will be available to the public. FRA will analyze the benefits and costs of those recommendations and consider alternatives prior to regulatory action.

Here is a summary of other DOT actions in response to accidents involving crude oil and other hazardous materials.

#### *Order and Advisories*

FRA issued Emergency Order 28, and both FRA and PHMSA issued safety advisories, held public hearings, and notified shippers and carriers of the critical importance of public safety when transporting hazardous materials.

- FRA's emergency order addresses unattended trains, train securement, the use of locks, communication between train crews and dispatchers, and daily safety briefings for railroad employees and was published August 7, 2013.
- A joint FRA-PHMSA safety advisory on related issues was also published August 7, 2013.
- A joint FRA-PHMSA follow-up safety advisory was published November 20, 2013.

#### *Rulemakings*

In addition to the emergency order and safety advisories, FRA is updating applicable rail safety regulations, and as PHMSA will describe in more detail, FRA is collaborating with PHMSA on a rulemaking that addresses DOT Specification 111 tank cars. All rulemakings are subject to extensive study and analysis.

But tank cars are only one part of the chain of delivery, and we must identify and evaluate *all* of the risks associated with bulk movements of hazardous material, such as ethanol and crude oil, and then work to eliminate those risks.

- On August 28, 2013, FRA and PHMSA held a public meeting with industry stakeholders to solicit input for a comprehensive review of the Hazardous Materials Regulations applicable to rail. PHMSA and FRA are collaborating to address comments received at the public meeting.
- On August 29, 2013, FRA convened an emergency session of the RSAC. During the emergency RSAC meeting, participants established three collaborative working groups to formulate new rulemaking recommendations regarding (1) transportation of hazardous materials by rail, (2) appropriate train crew sizes, and (3) train securement procedures. These working groups are meeting on a regular basis and we expect formal recommendations for consideration by April 1, 2014.

#### *Operation Classification (the "Bakken Blitz")*

In August 2013, PHMSA, supported by FRA, launched Operation Classification, which involves joint activities at all transportation phases to investigate how shippers and carriers are classifying crude oil and what actions they are taking to understand the characteristics of the material. The operations have primarily targeted shipments from the Bakken region and consisted of unannounced spot inspections,

data collection, and sampling as well as verifying compliance with Federal safety regulations. Operation Classification is nearing completion.

As I have described, rail safety is at an all-time best. Yet, these accidents illustrate why we can never be complacent.

### **Our Vision for the Next Generation of Rail Safety**

Continuous safety improvement requires a comprehensive strategy designed to eliminate risk. Here is FRA's strategy, founded on three pillars:

1. Continuing a rigorous regulatory and inspection program based on strategic use of data;
2. Advancing proactive approaches for early identification and reduction of risk; and
3. Capital investments, and robust research and development.

### **PILLAR I. CONTINUING A RIGOROUS REGULATORY AND INSPECTION PROGRAM**

As stated previously, FRA's approach to rail safety has led to unprecedented safety improvements. We will continue this framework for safety oversight and enforcement and improve it. Data driven analysis will continue to guide workforce planning and inspection activities.

FRA's regulatory program improves safety by developing rules based on facts, incident and accident causation analysis, comparison of alternative mitigation measures, and cost-beneficial solutions. FRA rulemaking considers current and future industry capabilities, compliance burden and cost, and other economic and social realities. Within this context, FRA will continue to attempt to meet statutory milestones with its available resources.

State rail inspectors are a force multiplier for FRA's compliance and enforcement efforts. The State Rail Safety Participation Program consists of States employing safety inspectors in the five rail safety inspection disciplines. State programs conduct planned, routine compliance inspections; and may undertake additional investigative and surveillance activities consistent with overall program needs and individual State capabilities. FRA provides on-the-job training to State inspectors. We invite additional state participation in this important program and view it as an opportunity to improve oversight in key states and regions.

### **Focus Areas**

Safety overall has improved; however, accidents related to human error and track defects account for more than two-thirds of all train accidents, and trespassing and highway-rail grade crossing incidents account for approximately 95 percent of all rail-related fatalities. We will allocate resources and work with partners, such as Operation Lifesaver, to make improvements in these challenging areas. The following rulemakings, reports, guidance documents, and other actions are important milestones that will guide our work in these areas:

*Human Factors*

- Final rule to advance nationwide implementation of positive train control (PTC) systems (which prevent overspeed derailments, train-to-train collisions, and other types of accidents often caused by human error) by defining statutory terms and the essential functionalities of PTC systems. FRA also issued two other rules designed to reduce some of the costs of PTC implementation. PTC systems are a technology that promotes safety improvement through the reduction of certain human-factor-related incidents and will complement FRA's other safety efforts, such as implementation of safety Risk Reduction Programs (RRP) and crash energy management.
- Final rule requiring a railroad to have a formal program for certifying train conductors. This will raise the bar of professionalism and ensure that only those persons who meet minimum Federal safety standards serve as conductors.
- Proposed rule that would enhance safety by mandating that certain railroads (each Class I railroad, intercity passenger railroad, and commuter railroad) have a Critical Incident Stress Plan that may help mitigate the long-term negative effects of critical incidents upon railroad employees and the impact of performing safety-sensitive duties in the days following such incidents when the associated stress may hinder their ability to perform such duties safely.
- Final rule on the hours of service of passenger train employees. This rule draws on detailed research into the causes of train operator fatigue and analysis of thousands of operator work patterns. FRA also published in the Federal Register three lengthy, detailed statements of agency policy and interpretation to clarify the hours of service laws as amended by RSIA.
- An FRA-led industry-wide initiative to combat the dangers of electronic device distraction in the railroad workplace as well as an emergency order and then a final rule prohibiting distracted operation of trains.
- A proposed rule that would establish minimum training standards for each class or craft of safety-related employee and contractor. The rule would require the qualification and documentation of the proficiency of such employees on their knowledge and ability to comply with Federal railroad safety laws and regulations and the employing railroad company's rules and procedures implementing those laws and regulations. A final rule on minimum training standards and plans is under development.

*Track Safety*

- Final rule to Improve Rail Inspections. Requires the use of performance-based rail inspection methods that focus on maintaining low rail failure rates per mile of track and generally results in more frequent testing; provides a four-hour period to verify that certain less serious suspected defects exist in a rail section once track owners learn that the rail contains an indication of those defects; requires that rail inspectors are properly qualified to operate rail flaw detection equipment and interpret test results; and establishes an annual maximum allowable rate of rail defects and rail failures between inspections for each designated inspection segment of track. These changes are intended to reduce the risk of derailments caused by rail failures by improving the accuracy of rail inspections and shortening the time that latent, undetected rail flaws remain in track.
- Vehicle/Track Interaction Safety Standards. The final rule was based on research into vehicle/track interaction, and it promotes the safe interaction of rail vehicles with the track over which they operate under a variety of conditions at speeds up to 220 mph. The rule also adds

flexibility for safely permitting high cant deficiency train operations<sup>2</sup> through curves at more conventional speeds so that both freight and passenger trains may better sustain maximum allowable speeds through curved track.

- **New Technology to Improve Track Safety.** Through our research and development program we are about to bring to market new technology for avoiding track buckles (sun-kinks). The device measures the neutral temperature of rail and warns the railroad when track maintenance is required to avoid track buckling. We are also developing technology to predict rail temperature variations. This provides railroads information needed to decide the extent and duration of slow orders to reduce safety risk on hot days.

#### *Grade Crossing Safety and Trespass Prevention*

- Standards requiring railroads to establish and maintain toll-free “1-800” emergency notification systems by which the public can telephone the proper railroad about a stalled vehicle or other safety problem at a specifically identified grade crossing.
- Regulations requiring 10 States to issue State-specific action plans to improve safety at highway-rail grade crossings.
- Model State laws on highway users’ sight distance at passively signed crossings and on highway motorists’ violations of grade crossing warning devices.
- A proposed rule specifying the types of information that railroads would have to report to the Department’s National Crossing Inventory.
- A five-year strategy to improve highway-rail grade crossing safety, including an audit every two years of Class I railroads’ highway-rail grade crossing accident reports to ensure that these railroads are accurately reporting these incidents. Resources permitting, FRA will conduct such audits every five years on other railroads.
- Guidance addressing pedestrian safety at or near passenger rail stations,
- An FRA-released smartphone application with grade crossing information.

## **PILLAR II. ADVANCING PROACTIVE APPROACHES TO REDUCE RISK**

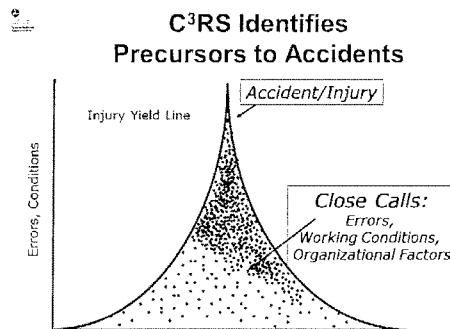
Continuous safety improvement requires a multi-faceted approach. The next level of safety will come from advancing proactive safety-based programs that analyze risks, identify hazards, and put in place customized plans to eliminate those risks.

- **Risk Reduction Programs (RRP) and System Safety Programs (SSP)** that help identify accident precursors so that corrective action can be taken in advance. We will issue a final rule before the end of 2014 to require passenger railroads to develop and implement SSPs. A notice of proposed rulemaking that would require freight railroads to establish RRP is currently under

<sup>2</sup> Cant deficiency involves traveling through a curve faster than the balance speed and produces a net lateral force to the outside of the curve. <http://www.highspeed-rail.org/Documents/PRHA%20305%20DocSpec%20and%20other%20NGEC%20Documents/305%20PRHA%20Tilt%20presentation.pdf>

development. Both are designed to require railroads to develop and implement systematic risk-based approaches to ensuring continuous safety improvement.

- Confidential Close Call Reporting System (C<sup>3</sup>RS), a voluntary and non-punitive program for railroads and their employees to report close calls. Results from one C<sup>3</sup>RS pilot site indicate nearly a 70-percent reduction in certain accidents. C<sup>3</sup>RS helps develop a positive and proactive safety culture, using detailed data far beyond what is obtained during accident investigations. The magnitude of the information provided from proactive programs like C<sup>3</sup>RS in comparison to traditional data from accidents and injuries is illustrated below:



Programs like Confidential Close Calls Reporting allow us to gather data *before* an accident occurs and to develop risk mitigation strategies well in advance.

### **PILLAR III. CAPITAL INVESTMENTS, INCLUDING ROBUST RESEARCH AND DEVELOPMENT**

As you know, portions of two important rail laws expired at the end of FY 2013: RSIA and the Passenger Rail Investment and Improvement Act of 2008 (PRIIA). The President's FY 2014 budget for FRA laid out a comprehensive, multi-year reauthorization blueprint for moving forward. The fundamental goal of this proposal is to develop a coordinated approach to enhancing the Nation's rail system—an integrated strategy that addresses safety and passenger and freight service improvements. This new approach reflects the complex reality of how rail works in the United States—most track is privately-owned and carries a mix of passenger and freight trains. Safety is improved not just through regulations and inspections but also through capital investments and research and development.

For example, chokepoints often hinder the efficient movement of intercity passenger, commuter, and freight trains, while the elimination of grade crossings with strategic placement of overpasses and underpasses enhances rail, vehicular, and pedestrian safety.

FRA's reauthorization proposal's key priorities include the following:

- **Modernizing our rail infrastructure.** Past generations of Americans invested heavily in building the infrastructure we rely on today. Most segments of the Northeast Corridor were built more than a century ago. Maintaining and modernizing these assets will lower long-term costs and result in a safer, more efficient and reliable rail system.
- **Meeting the growing market demand.** With 100 million more Americans expected by 2050, the national transportation system must be prepared to handle substantial increases in the movement of people and goods. Given the existing capacity constraints on other modes, rail will play an increasingly vital role in balancing America's transportation system by accommodating this growth, resulting in public benefits such as reduced reliance on foreign oil, reduced air pollution, increased safety, and more travel options. The budget incorporates market-based investments in building or improving passenger rail corridors, eliminating rail chokepoints, adding freight capacity, and conducting comprehensive planning.
- **Successfully implementing PTC.** The mandated deadline of December 2015 will likely not be reached by many railroads. Commuter rail operations are cash-strapped and unable to attain certain necessities for implementation, such as communications spectrum. FRA's budget proposes grants for those commuter railroads and research and development for new technologies to improve rail safety. FRA's August 2012 Report to Congress "Positive Train Control: Implementation Status, Issues, and Impacts" summarized the major technical and programmatic challenges and obstacles associated with PTC implementation that FRA had identified so far.<sup>3</sup> Subsequent to the report's submission, a new issue regarding PTC communications towers deployment arose under the jurisdiction of the Federal Communications Commission.
- **Promoting innovation.** FRA's vision is for the domestic rail industry to be again world-leading. We want U.S. companies to develop patents for state-of-the-art rail technology, to supply rail operators throughout the world, and to employ the best engineers and railway workers. The United States should be exporting intellectual capital and rail products, not importing them.
- **Mitigating rail's impacts on communities.** Improving quality of life by eliminating grade crossings, sealing corridors, reducing noise impacts, and including safety enhancements that allow for service improvements and economic growth.
- **Research and Development.** Implementing new technology will be a key driver for future safety improvement. Here are a few examples of important research:
  - Track inspection technologies that detect defects before they become failures in service.
  - Computer modeling capabilities to improve understanding of vehicle/track interaction, wheel and rail profiles, and contact conditions.
  - Autonomous recording methods to provide more frequent and cost-effective measurements of track condition.

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<sup>3</sup>"Positive Train Control: Implementation Status, Issues, and Impacts" - [http://www.fra.dot.gov/Elig\\_Details\\_103718](http://www.fra.dot.gov/Elig_Details_103718)

- Research to develop new methods for monitoring difficult-to-detect safety issues such as longitudinal rail force, ballast lateral restraint, and ballast condition.
- High-speed rail research and development, which has identified several key risk factors for corridors shared by passenger and freight operations. Research to understand these risks and mitigate them is ongoing.
- Research on new technologies for improving grade crossing safety. One project that has significant potential is implementation of Intelligent Transportation Systems at grade crossings. FRA is also conducting human-factors research to understand the behavior of highway users when they approach grade crossings. This research is expected to lead to recommendations for improved signage and warning systems. FRA will consider the benefits and costs, and feasible alternatives, for any recommendation.
- A research and development program to achieve reliable, long life from concrete ties. The program involves freight railroads, Amtrak, manufacturers, and universities.
- The National Cooperative Rail Research Program, which enhances the development of technical skills for a capable workforce to design and operate the next generation of safe railroads.

#### **The Need for Predictable Funding**

An overarching issue that runs across all of these priorities is the need for sustained and predictable Federal funding for rail programs, similar to the treatment of other modes of transportation. Congress has for decades funded highway infrastructure and safety, transit, and aviation programs through multi-year authorizations that provide guaranteed funding. This enables States, local governments, and other stakeholders to plan and make large-scale infrastructure investments on a year-to-year basis. Likewise, internationally, other major rail systems have been planned and developed through a predictable multi-year funding program.

#### **CONCLUSION**

Thank you for the opportunity to testify and answer your questions today. Safety is FRA's number one priority, and we appreciate your attention and focus on such an important issue for the American public. Our vision for the next generation of rail safety balances a comprehensive and effective regulatory framework with innovative, proactive ideas and capital investment, including critical research and development. We look forward to working with this Committee to improve our programs and make the American rail network as safe, reliable, and efficient as possible. I will be happy to respond to your questions.

# # #

## Appendix 1

**FRA Rulemakings Completed as of February 3, 2014, that Were Mandated, Explicitly or Implicitly, by RSIA<sup>4</sup>**

1. To specify the essential functionalities of mandated PTC systems, define related statutory terms, and identify additional lines for implementation. (*Sec. 104*).<sup>5</sup>
2. To establish substantive hours of service requirements for passenger train employees. (*Sec. 108(d)*).
3. To update existing hours of service recordkeeping regulations. (*Sec. 108(f)*).
4. To require State-specific action plans from certain States to improve safety at highway-rail grade crossings. (*Sec. 202*).
5. To require toll-free telephone emergency notification numbers for reporting problems at public and private highway-rail grade crossings. (*Sec. 205*).
6. Increase the ordinary maximum and aggravated maximum civil penalties per violation for rail safety violations to \$25,000 and \$100,000, respectively. (*Sec. 302*).
7. On prohibition of individuals from performing safety-sensitive functions in the railroad industry for a violation of hazardous materials transportation law. (*Sec. 305*).
8. On procedures for emergency waivers. (*Sec. 308*).
9. To require the certification of conductors. (*Sec. 402*).
10. On the results of FRA's study of track inspection intervals and other track issues. (*Sec. 403(c)*).
11. On concrete ties. (*Sec. 403(d)*).
12. To require owners of railroad bridges to implement programs for inspection, maintenance, and management of those structures. (*Sec. 417*).
13. On camp cars used as railroad employee sleeping quarters. (*Sec. 420*).
14. Amending regulations of the Office of the Secretary of Transportation to provide that the Secretary delegates to the Administrator of FRA the responsibility to carry out the Secretary's responsibilities under RSIA.

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<sup>4</sup> In addition, FRA commenced a rulemaking to define "critical incident" for purposes of the mandated rulemaking on critical incident stress plans as specifically required by Sec. 410(c).

<sup>5</sup> In addition, FRA has issued two final rules on PTC, and another final rule on PTC is in clearance in the Executive Branch.

### Completed RSIA-Mandated Guidance and Model State Laws<sup>6</sup>

1. Guidance on pedestrian safety at or near rail passenger stations. (*Sec. 201*).
2. Guidance for the administration of the authority to buy items of nominal value and distribute them to the public as part of a crossing safety or railroad trespass prevention program. (*Sec. 208(c)*).
3. Model State law on highway users' sight distances at passively signed highway-rail grade crossings. (*Sec. 203*).
4. Model State law on motorists' violations of grade crossing warning devices. (*Sec. 208*).

### Completed RSIA-Mandated Non-periodic Reports or Studies

1. Report to Congress on DOT's long-term (minimum 5-year) strategy for improving rail safety, including annual plans and schedules for achieving specified statutory goals, to be submitted with the President's annual budget. (*Sec. 102*).
2. Report to Congress on the progress of railroads' implementation of PTC. (*Sec. 104*).
3. Conduct study to evaluate whether it is in the public interest to withhold from discovery or admission, in certain judicial proceedings for damages, the reports and data compiled to implement, etc., a required risk reduction program. (*Sec. 109*).
4. Evaluate and review current local, State, and Federal laws regarding trespassing on railroad property, vandalism affecting railroad safety, and violations of highway-rail grade crossing warning devices. (*Sec. 208(a)*).
5. Report to Congress on the results of DOT research about track inspection intervals, etc. (*Sec. 403(a)-(b)*).
6. Conduct study of methods to improve or correct passenger station platform gaps (*Sec. 404*).
7. Report to Congress detailing the results of DOT research about use of personal electronic devices in the locomotive cab by safety-related railroad employees. (*Sec. 405*).
8. Report to Congress on DOT research about the effects of repealing a provision exempting Consolidated Rail Corporation, etc., from certain labor-related laws (45 U.S.C. § 797j). (*Sec. 408*).
9. Report to Congress on the results of DOT research about exposure of railroad employees and others to radiation. (*Sec. 411*).
10. Report to Congress on DOT study on the expected safety effects of reducing inspection frequency of diesel-electric locomotives in limited service by railroad museums. (*Sec. 415*).

<sup>6</sup> In addition, FRA has published three guidance documents on the hours of service laws as amended by RSIA in the [Federal Register](#).

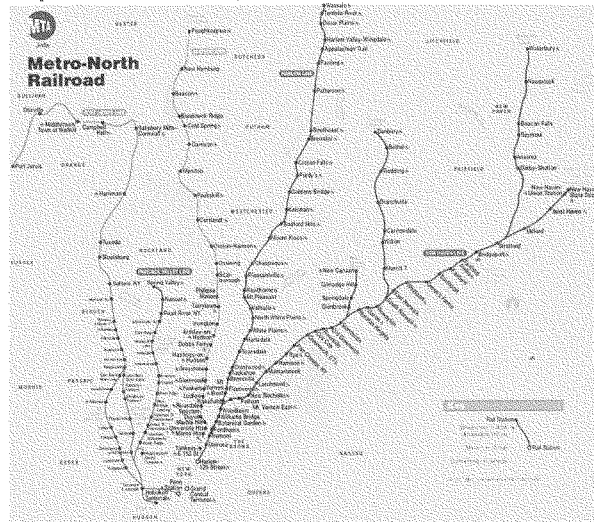
11. Report to Congress on model plans and recommendations, to be developed through a task force to be established by DOT, to help railroads respond to passenger rail accidents. (*Sec. 503*).

## Appendix 2

Metro-North Commuter Railroad Company (Metro-North) is the second largest commuter railroad in the nation, with an annual ridership of 82,953,628.<sup>7</sup> It is a subsidiary agency of the Metropolitan Transportation Authority, a New York State Authority.

- Three main lines, the Hudson, Harlem, and New Haven Lines, branch northward out of Grand Central Terminal, located in mid-town Manhattan, into suburban New York and Connecticut. Metro-North maintains the equipment and infrastructure and operates and controls the trains on these lines.
- Amtrak operates on the Hudson Line, between Spuyten Duyvil and Poughkeepsie, and on the New Haven Line, between New Rochelle and New Haven.
- The West of Hudson Service, the Port Jervis and the Pascack Valley Lines, operates from New Jersey Transit Rail Operations' (NJ Transit) Hoboken terminal, providing service to Rockland and Orange counties. NJ Transit maintains the equipment and operates and controls the trains. Metro-North maintains the infrastructure.

Map of the Metro-North System



<sup>7</sup> <http://web.mta.info/mta/network.htm#statsmmr>

**Committee on Transportation and Infrastructure  
Subcommittee on Railroads, Pipelines, and Hazardous Materials  
Hearing on “Oversight of Passenger and Freight Rail Safety”**

**February 26, 2014  
FRA Administrator Joseph C. Szabo  
Questions for the Record**

Questions from Representative Jeff Denham:

**1. Do you believe any of the Class I freight railroads are going to meet the PTC deadline?**

No. Based on the technical challenges that Southern California Regional Rail Authority (Metrolink), Union Pacific Railroad Company (UP), and BNSF Railway Company (BNSF) have experienced, and the other railroads’ state of progress, the Federal Railroad Administration (FRA) believes it unlikely that any Class I freight railroad will be able to fully complete Positive Train Control (PTC) system development and approval by the December 31, 2015 deadline. Many will, however, be able to accomplish partial to substantial deployment. FRA believes that BNSF will most likely be the furthest along in the deployment process, with the other railroads following behind them.

**a. What factors do you see as the major obstacles in fully implementing PTC?**

The obstacles to completion basically remain unchanged from those identified in the FRA August 2012 Report to Congress: “Positive Train Control Implementation Status, Issues, and Impacts” (<http://www.fra.dot.gov/eLib/details/L03718>) and later in the Government Accountability Office’s (GAO) June 2013 report (<http://www.gao.gov/assets/660/655298.pdf>). After publication of the FRA report, a new issue was identified and discussed in the GAO report: the deployment of PTC communications towers (antennas).

FRA’s report listed the following technical obstacles to completing PTC implementation that had been identified so far:

1. Lack of necessary radio frequency spectrum.
2. Lack of necessary radios.
3. Lack of necessary design specifications.
4. Lack of necessary back-office servers.
5. Lack of necessary dispatch systems.
6. Need for verification of track databases with accuracy more precise than that needed in a non-PTC environment.
7. Need for engineering related to the installation of PTC system components.

8. Need for proof of the reliability and availability of installed PTC systems in order both to provide the desired level of safety and to minimize any adverse impact on the railroad's operations.

In addition, FRA's report noted two types of programmatic issues: (1) issues related to budgeting and contracting (e.g., the tightening of public-sector budgets and the need to comply with procurement regulations); and (2) issues related to an insufficient supply of qualified personnel and essential PTC system components, since railroads subject to the PTC mandate are all competing for a limited set of these resources.

Along the same vein, the GAO report cited "the numerous, interrelated challenges caused by the breadth and complexity of PTC." First, GAO highlighted that some key PTC components are still in development and that the installation of PTC components "is a time- and resource-consuming process." Regarding the installation phase of PTC implementation, GAO gave the example of the Federal Communications Commission's (FCC) request that railroads stop their construction of PTC-related antennas "to ensure proper installation procedures were being followed including consulting with either the tribal or state historical authorities prior to...installation." Second, GAO pointed to the need for system integration and field testing of PTC components, "many of which are first-generation technologies being designed and developed."

As previously indicated in both the FRA August 2012 Report to Congress and the GAO report, there is a limited pool of qualified personnel with PTC implementation experience. Many of these people have been diverted to support Metrolink and southern California PTC deployment efforts, which have left a shortage of qualified personnel to carry out PTC deployment in other locations.

In addition to personnel shortages, there are component development, supply, installation, and integration and testing issues. Any development must include sufficient testing to make sure that the systems work as intended. The current deadline, at a minimum, makes sufficient testing very difficult.

Regarding the development of PTC components and the installation of PTC systems, the GAO reported in its August 2013 PTC report that—

some PTC components are still in development—most notably the [PTC] back office server. One or more of these servers will be installed in over a dozen railroads' back offices and are needed to communicate vital information between the back office, locomotives, and waysides. According to the [Association of American Railroads (AAR)] and the railroads, back office system delays are due to system complexity, interfaces to other systems, and lack of supplier resources. Nearly all of the freight railroads included in our review anticipate they will not have a final version

of the back office system until 2014 and have identified it as one of the significant factors preventing them from meeting the deadline. In addition, PTC installation is a time- and resource-consuming process. For example, railroads collectively will have to install approximately 38,000 wayside interface units. According to AAR and freight railroads, the volume and complexity of installing these units is another significant reason most railroads cannot meet the 2015 deadline.

All components must properly function when integrated or else the PTC system could fail. To ensure successful integration, railroads must conduct multiple phases of testing—first in a laboratory environment, then in the field—before installation across the network. Representatives from all of the freight railroads express concern about the reliability of PTC and emphasize the importance of field testing to ensure that the system performs the way it is intended and that potential defects are identified, corrected, and retested. With some field tests, the PTC system components behaved differently than in the laboratory tests, because labs do not reflect field conditions completely. Identifying the source of these types of problems is an iterative process; consequently, correcting the problems and retesting can be time-consuming and potentially further contribute to railroads not meeting the 2015 deadline.

**b. What is the FCC's role in the implementation?**

The FCC shares spectrum management responsibilities and functions with the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. Although the FCC has authority over commercial spectrum usage, as well as that of local and State governments, NTIA manages the Federal Government's use of spectrum for defense and other Federal purposes.

The FCC is also responsible for compliance with the National Historic Preservation Act (NHPA) and National Environmental Policy Act (NEPA) as they relate to communication system towers and stations.

FRA has no statutory or regulatory authority over spectrum allocation and availability or communication systems tower deployment.

**c. What obstacles has the FCC presented?**

FCC-associated challenges have arisen only from their congressional mandates. For example, the FCC, in compliance with the Balanced Budget Act of 1997, must use auctions to resolve mutually exclusive applications for initial licenses unless certain exemptions apply, including exemptions for public safety radio services, digital television licenses to replace analog licenses, and noncommercial educational and public broadcast stations. As a consequence, the FCC appears to be limited in its ability to carve out no-cost licenses for PTC spectrum, which requires the railroads to resort to the secondary market for spectrum.

In addition, the FCC has specific responsibilities pursuant to NEPA, NHPA, and other related statutes to evaluate the impact of its actions on the quality of the human environment. The Commission determined that these requirements apply to a wide range of communications facilities, including broadcast and cellular antenna structures, fiber optic lines, and undersea cables as well as antennas required to implement PTC. Compliance with these statutory requirements will likely add time to the PTC implementation schedule.

To facilitate the efficient review of PTC wayside facilities under Section 106 of the NHPA, the FCC is developing a Program Comment for consideration by the Advisory Council on Historical Preservation (ACHP). Once the Program Comment is submitted to the ACHP, pursuant to its regulations, unless an extension is granted, it will have 45 days to determine whether to adopt the proposal.

**d. How has the FCC's Program Comment helped or hurt the process?**

Although the FCC has not yet completed its proposed Program Comment or sent it to the ACHP for a decision, FRA supports the FCC in pursuing one of the program alternatives permitted by the regulations implementing Section 106 of the NHPA. The FCC's standard Section 106 review and approval method was not designed for the volume of reviews required to implement PTC, and an alternative solution is necessary. Section 106 program alternatives are intended to provide Federal agencies flexibility in implementing historic preservation reviews and creating efficiencies in the process. A Program Comment is one such program alternative and allows ACHP to establish an alternative process for a category of undertakings rather than conducting the individualized reviews under the normal Section 106 process. The FCC has collaborated with the railroad industry, Tribal Nations, and the historic preservation community throughout the process of developing the proposed Program Comment. FRA has also been consulting with the FCC in the role as the regulator of railroad safety, including PTC.

2. **DOT's comments on the FCC's recent draft Program Comment indicate that most of the 22,000 antennas needed for PTC "will be installed on railroad rights-of-way on ground that has been thoroughly disturbed by railroad construction and ongoing maintenance." Last year, the FRA adopted a categorical exclusion for "[i]nstallation, repair and replacement of equipment and small structures designed to promote transportation safety, security, accessibility, communication or operational efficiency that take place predominantly within the existing right-of-way." That exclusion specifically includes "train control systems, signalization, electric traction equipment and structures, electronics, photonics, and communications systems and equipment, equipment mounts, towers and structures, information processing equipment, and security equipment . . ." If FRA were the lead agency on the PTC antenna issue, how would that exclusion apply?**

When appropriate, FRA may apply a categorical exclusion to an FRA action requiring review under the National Environmental Policy Act of 1969 (NEPA). A railroad would

not typically need an individual approval from FRA to install an antenna. As a result, in most cases, FRA does not conduct a NEPA or Section 106 review of the railroad's installation of this infrastructure. Even if FRA did conduct a NEPA and Section 106 review of antenna installation, because of the massive scale of the PTC implementation (i.e., up to 20,000 new antennas over thousands of track-miles), it is unlikely that FRA would be able to uniformly apply the NEPA categorical exclusion to all of the antennas necessary for the implementation of PTC. In addition, a NEPA categorical exclusion does not release FRA from its obligations under Section 106 and from its responsibility to consult with Tribal Nations on a government-to-government basis.

**a. Can other agencies use FRA's exclusions to help speed up the process?**

In general, without specific legal authority, Federal agencies may not adopt categorical exclusions developed by other Federal agencies. Please refer to the FCC for more information about its procedures under the National Environmental Policy Act.

**3. DOT's comments to the FCC further state that activities in already disturbed industrialized locations that are unlikely to result in significant risk to historic properties should be exempted from Section 106 review in order to facilitate the timely installation of PTC. Would you agree that the FCC's proposed approach introduces additional delay and gives greater weight to this very small risk than to potentially significant improvements in rail safety?**

PTC is a critical piece of DOT's comprehensive vision to lead the next generation of rail safety. However, FRA fully understands and supports the FCC's legal obligations and responsibilities to engage State Historic Preservation Officers and to conduct meaningful government-to-government consultations with Tribal Nations. FRA also respects the railroads' very difficult task of implementing a nation-wide system in a relatively short amount of time. FRA will continue providing the FCC with all possible assistance as it seeks efficiencies to approve the antennas necessary for PTC implementation so that the American people realize the safety benefits of this technology as soon as possible.

**4. The FCC continues to assert that commuter railroads have no issues with regards to spectrum or its acquisition on the secondary market. But, so far, only a few commuter railroads have actually been able to acquire the spectrum they require. What is the Administration doing to assist commuter railroads with acquiring spectrum and do you support a set aside for PTC purposes?**

FRA has no statutory or regulatory authority over spectrum allocation or availability. FRA is providing the FCC technical advice on the communications requirements of PTC. Ultimately, however, spectrum allocation is under the purview of the FCC.

**5. FCC has stated that some commuter railroads can proceed with application for FCC approval of communication towers and antennas, based on the number they need to install--yet there are no formal guidelines and it's more of a let's figure this**

**out as we go along process. What can be done to provide greater clarity as commuter agencies attempt to proceed with tower and antenna installation?**

FRA is encouraged to hear that the FCC will permit commuter railroads to proceed with the FCC approvals for communications towers and antennas. Clear communication and consistent direction from the FCC are essential for the commuter railroads to understand the FCC's environmental and historic preservation review process. FRA is willing to help the FCC with this outreach effort and to help educate commuter railroads.

- 6. If we reach the December 31, 2015 deadline for PTC implementation, and Congress has not provided an extension, what action will the FRA take for those railroads that have not fully implemented by the deadline? The regulations say that you can shut down the railroad, or impose fines and civil penalties.**

**Will you shut the railroads down?**

Even though FRA has the statutory authority to assess civil penalties or take other enforcement action for each day that a railroad does not implement PTC after the required deadline, the agency has considerable discretion to decide whether to take enforcement action, depending on the specific circumstances of the noncompliance and other factors.

- 7. In your testimony you explained that FRA is a data-driven agency and safety regulations are supported by data. Please outline for us the data you have in hand proving two-man crews are safer.**

On August 29, 2013, FRA's Railroad Safety Advisory Committee (RSAC) agreed to create a working group to discuss train crew size issues arising from the July 6, 2013 catastrophic accident at Lac-Mégantic, Quebec, Canada, only 22 miles from the U.S. border. FRA established the RSAC in March 1996 to provide a forum for collaborative rulemaking and program development. The RSAC includes representatives from all of the agency's major stakeholder groups, including railroads, labor organizations, suppliers and manufacturers, and other interested parties. I provided RSAC with 6 months to make recommendations.

So far, the RSAC Crew Size Working Group has held three meetings. Each meeting permitted working group members an entire day to present information on the subject and to identify any operational safeguards or concerns with existing operations where railroads have chosen to staff trains with less than the traditional two-person crew consisting of a locomotive engineer and conductor. FRA learned a great deal from these discussions that should lead to an improved rulemaking product. The working group has been able to provide FRA with significant information regarding the crew size issue.

In the course of developing the rule, FRA will examine data from train accidents to determine to what extent the causes of these accidents could have been avoided or the severity of the accidents could have been reduced with the use of two-person crews. In addition, there is significant research to support the idea that a two-person train crew is

safer than a one-person crew. Before FRA asked RSAC to consider accepting a crew size task, FRA was aware that some research revealed significant safety concerns with one-person crew operations. To aid the working group in its development of recommendations for appropriate crew size minimum standards, FRA provided five FRA-sponsored research reports, as well as one Transportation Research Board (TRB) conference report that contains presentations from multiple research reports, prior to the first meeting.

These research reports—

- Identify all of the cognitive and collaborative demands on freight conductors, passenger conductors, and locomotive engineers.<sup>1</sup>
- Raise issues of fatigue that could impact one-person train crew operations.<sup>2</sup>
- Raise concerns regarding how new technology, such as PTC, does not necessarily reduce the number of tasks for a train crew and can force crews to operate differently than before PTC implementation, thereby creating risks of cognitive errors.<sup>3</sup>
- Discuss the key aspects of successful teamwork, which implicitly would be lost by using a one-person train crew.<sup>4</sup>

In addition to using this research, FRA plans to rely on analysis of data from investigations of train accidents. After the disastrous train accident at Lac-Mégantic, there have been several other train accidents in the United States and Canada that suggest the need for greater Federal oversight of crew size issues. FRA intends to detail the facts of some of these accidents when it initiates a rulemaking, to explain how well-trained train crew teams can improve safety. For example, the actions of multiple train crewmembers, following an accident in which the crewmembers were not the cause, are

<sup>1</sup> *Cognitive and Collaborative Demands of Freight Conductor Activities: Results and Implications of a Cognitive Task Analysis—Human Factors in Railroad Operations*. Final Report, dated July 2012, DOT/FRA/ORD-12/13. DOT's John A. Volpe National Transportation Systems Center (Volpe Center), Cambridge, Massachusetts, performed the research and prepared the report. See <http://www.fra.dot.gov/elib/details/L04331>. *Rail Industry Job Analysis: Passenger Conductor*, Final Report, dated February 2013, DOT/FRA/ORD-13/07. The Volpe Center performed the research and prepared the report. The report regarding the demands on locomotive engineers is cited in footnote 3, below.

<sup>2</sup> *Fatigue Status in the U.S. Railroad Industry*. Final Report, dated February 2013, DOT/FRA/ORD-13/06. [www.fra.dot.gov/elib/Document/2929](http://www.fra.dot.gov/elib/Document/2929). QinetiQ North America and an Engineering Psychologist within FRA's Office of Research and Development performed the research and prepared the report.

<sup>3</sup> *Technology Implications of a Cognitive Task Analysis for Locomotive Engineers—Human Factors in Railroad Operations*. Final Report, dated January 2009, DOT/FRA/ORD-09/03. The Volpe Center performed the research and prepared the report. See [www.fra.dot.gov/elib/Document/381](http://www.fra.dot.gov/elib/Document/381). *Using Cognitive Task Analysis to Inform Issues in Human Systems Integration in Railroad Operations—Human Factors in Railroad Operations*, Final Report, dated May 2013, DOT/FRA/ORD-13/31. The Volpe Center performed the research and prepared the report. See <http://www.fra.dot.gov/elib/details/L04589>.

<sup>4</sup> *Teamwork in U.S. Railroad Operations*, A Conference, April 23-24, 2009, Irvine, California, Transportation Research Board, Number F-C159, dated December 2011. The many authors of the research and reports are listed in the publication. See <http://onlinepubs.trb.org/onlinepubs/circulars/cc159.pdf>.

indicative of how the general public can be more safely protected than when a train has only a one-person crew. Another major accident FRA intends to detail shows the inadequacy of relying on technology without considering the gaps in the technology. It is possible to fill in the technological gaps that permit accidents to happen by having an engaged, properly trained, second crewmember.

FRA will provide a sufficient explanation of the basis for any new proposed requirements in the preamble of the rule. Data and information supplied by the railroad associations suggest that there are few one-person operations in the United States. AAR reported to FRA that Class I railroads currently use two-person crews for over-the-road mainline operations. Railroads achieved an improving safety record during a period in which the industry largely employed two-person train crews.

**8. How many FTE staff vacancies does FRA currently have in the Washington, DC headquarters?**

As of April 5, FRA's salaries and operations onboard count was 839. FRA has set a goal of having 915 people on board by the end of the year funded from our safety and operations account. This will be accomplished through a combination of backfilling current vacant jobs and adding new positions. As soon as FRA received its FY 2014 appropriation, it advertised for new rail safety inspectors—FRA's current top staffing priority. Those positions are being filled now.

**a. In which offices are these vacancies and how many from each office are there?**

Going forward, FRA will fill open positions across the agency and add new positions in its Office of Railroad Safety and its Office of Railroad Policy and Development, as described in our FY 2014 budget.

**b. Is it accurate that FRA engaged in "workforce balancing" that is eliminating Office of Safety Positions in Washington, DC and the Region field offices for other departments in FRA?**

No. FRA's Office of Railroad Safety had an actual full-time employee (FTE) count of 670 in FY 2013, or 76 percent of FRA's total. As presented in our latest budget request to Congress, FRA aims for the Office of Railroad Safety's FTE count to increase to 678.5 and for the percentage of FRA overall FTE to remain at 76 percent.

**c. Are the FRA's cutbacks on Safety Inspector positions, Chief Inspectors positions and administrative personnel viewed as productive?**

FRA is not reducing the number of FRA safety field inspectors, but rather increasing its cadre of safety inspectors. Via attrition, FRA has also converted other positions to inspector positions. Some administrative positions were converted to field inspector positions by leveraging technology to reduce the need for administrative personnel. Additionally, in some cases, FRA converted chief inspector positions to field inspector

positions. Since inspector positions have lower grades than chief inspector positions and inspector positions are dedicated to field inspections, there is an overall increase in inspections at a lower cost to the agency.

**9. The FRA website lists 400 Federal safety inspectors who operate out of eight regional offices. How many inspectors do you actually have on payroll? How many Inspector vacancies do you currently have?**

FRA has 325 rail safety inspectors as of April 5, 2014. FRA's FY 2014 hiring goal is 350.

**a. What is your plan for filling these vacancies?**

As mentioned above, FRA advertised for new inspector positions following the enactment of the FY 2014 appropriation, and FRA is in the process of bringing these people on board now. FRA expects to be able to meet its goal by adding new inspector trainees and by hiring experienced career professionals who often join FRA from the railroads.

**b. How does FRA ensure that all inspections are made in regions with a less than full Inspector force?**

When filling inspector positions, FRA relies on a Staffing Allocation Model, which is maintained by the Office of Railroad Safety. The computer model analyzes data on the types and locations of rail accidents, and produces an output allocating inspectors across FRA's eight regions and across its five safety disciplines. Office of Railroad Safety senior management reviews the output and makes final determinations about how to assign staff. This year, FRA placed an emphasis on ensuring the safe transportation of oil and hazardous materials. Of the new hires this year, FRA allocated five to the Hazardous Materials Discipline off the top.

**c. Have inspections been missed due to an insufficient Inspector workforce?**

No, FRA's railroad safety inspector workforce naturally rises and falls as people retire and new hires are added. Under the sequester, when FRA had to make difficult choices about staffing and other budget items, the agency chose to maintain its inspector workforce. As a result, FRA's inspector workforce has not fallen to levels that have diminished FRA's ability to provide sufficient oversight of railroad compliance with safety regulations.

**10. Did FRA conduct an Office of Safety workforce survey in 2013, utilizing two consultants? What were the results?**

No, a survey of the Office of Railroad Safety workforce was not conducted. However, FRA hired two contractors to audit the FRA inspection and enforcement program for compliance with statutes and regulations related to railroad safety. The contractors interviewed regional supervisors and grade crossing managers, American Federation of

Government Employees representatives from each region, and State participation program managers. When final, the results of the audit will be used to respond to the National Transportation Safety Board recommendation.

**11. What were the Canadian securement rules at the time of the July 6, 2013 Lac-Mégantic derailment?**

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 (the Canadian equivalent of the U.S. Department of Transportation). CROR 112 specifically addresses “Securing Equipment.” At the time of the Lac-Mégantic derailment on July 6, 2013, CROR 112 provided as follows:

- (a) When equipment is left at any point a sufficient number of hand brakes must be applied to prevent it from moving. Special instructions will indicate the minimum hand brake requirements for all locations where equipment is left. If equipment is left on a siding, it must be coupled to other equipment if any on such track unless it is necessary to provide separation at a public crossing at grade or elsewhere.
- (b) Before relying on the retarding force of the hand brake(s), whether leaving equipment or riding equipment to rest, the effectiveness of the hand brake(s) must be tested by fully applying the hand brake(s) and moving the cut of cars slightly to ensure sufficient retarding force is present to prevent the equipment from moving. When leaving a cut of cars secured, and after completion of this test, the cut should be observed while pulling away to ensure slack action has settled and that the cars remain in place.
- (c) Application of hand brakes must not be made while equipment is being pulled or shoved.

See CROR 112 (TC O 0-93).

**a. What were the securement rules in the United States at that time?**

FRA’s regulations covering the securement of unattended freight equipment are at 49 C.F.R. 232.103(n).<sup>5</sup> These regulations were in effect at the time of the Lac-Mégantic incident, and they remain in effect today. The regulations essentially

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<sup>5</sup> FRA has separate regulations for securement of unattended passenger equipment. See 49 C.F.R. 238.231(h)(4). The securement regulations for passenger equipment borrow from the securement regulations for freight equipment found in 49 C.F.R. 232.103(n). FRA allowed the use of skates or retarders as an alternative means of compliance with 49 C.F.R. 232.103(n). Additionally, FRA stated that a hand brake need not be applied to equipment that is cut away from a locomotive when a crew is actively engaged in switching provided that an emergency brake application is initiated on the equipment that is cut away from the locomotive and then the angle cock is closed. However, the locomotive must go directly to the other end of the equipment, either to open the angle cock at the other end or to couple to the equipment. See FRA Motive Power & Equipment Technical Bulletin 2010-01 (March 24, 2010).

require that hand brakes be set on virtually any occasion where equipment is left unattended.

Section 232.103(n) provides that “[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).” “Unattended equipment” is defined as equipment that is left standing and unmanned in a way that the brake system of the equipment cannot be readily controlled by a qualified person.

Section 232.103(n)(1) establishes that “[a] sufficient number of hand brakes shall be applied to hold the equipment.” It further states that each railroad must develop and implement a verification process or procedure to ensure that the hand brakes applied to the equipment will sufficiently hold it in place once the train’s air brakes are released.

Section 232.103(n)(2) addresses unattended equipment that is not connected to a source of compressed air (i.e., coupled to a locomotive or a ground source of air). This provision requires the air pressure in the brake pipe be reduced to zero with the reduction being at a rate that is not less than service rate reduction. Such equipment also must have the brake pipe vented to the atmosphere. This is accomplished by requiring that angle cock be left open on the first unit of unattended equipment.

Section 232.103(n)(3) specifically addresses unattended locomotives, except for distributed power units (commonly referred to as “DPUs”). Paragraph (n)(3)(i) requires the full application of all hand brakes “on all locomotives in the lead consist of an unattended train.” Paragraph (n)(3)(ii) requires the full application of all hand brakes “on all locomotives in an unattended locomotive consist outside of yard limits.” Paragraph (n)(3)(iii) requires, at a minimum, the full application of the hand brake “on the lead locomotive in an unattended locomotive consist within yard limits.” Paragraph (n)(3)(iv) requires a railroad to develop, adopt, and comply with a process or procedure for securing an unattended locomotive that is required to have a hand brake applied pursuant to paragraph (n)(3)(i)-(iii) when the locomotive is not equipped with an operative hand brake.

Section 232.103(n)(4) also applies to unattended locomotives and locomotive consists. It establishes a performance standard whereby each railroad must adopt and comply with a process or procedure for “verify[ing] that the applied hand brakes will sufficiently hold an unattended locomotive consist.” This provision further requires railroads to put in place and follow instructions that address controls of unattended locomotives (i.e., position of the throttle, status of the reverse lever, position of the generator field switch, status of the independent brakes, position of the isolation switch, and position of the automatic brake valve). However, in developing these instructions, a railroad must take into account winter conditions in determining the appropriate throttle position and whether application of the reverser handle is necessary to ensure that the locomotive remains operative.

Finally, 49 C.F.R. 232.103(n)(5) addresses situations where unattended equipment becomes attended. In those circumstances, FRA regulations require that “[a]ny hand brakes applied to hold unattended equipment shall not be released until it is known that the air brake system is properly charged.”

**b. What are the current securement rules in both Canada and the United States?**

First, I’ll discuss current securement rules in the United States. FRA believes that its current securement regulations—if followed by railroads and their employees—provide additional layers of safety compared to Canada for equipment that is left unattended in this country. However, after reviewing the circumstances of the Lac-Mégantic derailment, FRA did see a need for emergency action to improve securement requirements in the United States. As a result, it issued Emergency Order (EO) 28 to ensure that certain types of trains transporting dangerous hazardous materials are safely and properly secured when they are left unattended. See 78 Fed. Reg. 48218 (Aug. 7, 2013). Further, FRA currently is working through the RSAC, to ensure that safe and effective procedures for securing unattended equipment are implemented within the United States. The Administrator has requested recommendations by April 1.

EO 28 does not contain an automatic sunset provision. It remains in effect today, as amended by FRA’s August 27, 2013 letter approving with conditions a joint petition for relief from the Association of American Railroads and the American Short Line and Regional Railroad Association. Railroads currently are required to comply with EO 28, as amended, in addition to 49 C.F.R. 232.103(n). EO 28, as amended, contains six securement-related 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” (e.g., crude oil, ethanol, anhydrous ammonia, chlorine, or any other type of material poisonous by inhalation (PIH)),<sup>6</sup> until the railroad develops, adopts, and complies with a plan that identifies specific locations and circumstances when such equipment may be left unattended. The plan must contain a sufficient safety justification to support a railroad’s determination that allows such equipment to be

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<sup>6</sup> Appendix A identifies the types of hazardous materials and the quantities of those hazardous materials that trigger the requirements of EO 28. A railroad must comply with EO 28 whenever it is transporting Appendix A Materials, which are defined as:

- (1) Five or more tank car loads of materials poisonous by inhalation as defined in 49 CFR 171.8, and including anhydrous ammonia (UN 1005) and ammonia solutions (UN 3318).
- (2) 20 railcar loads or intermodal portable tank loads of any combination of materials listed in (1) above, or, Division 2.1 flammable gases, Class 3 flammable liquids and combustible liquids, Class [i.e., Division] 1.1 or 1.2 explosives, or hazardous substances listed in 49 CFR 173.31(f)(2).

The definition of Division 2.1 flammable gas is found at 49 C.F.R. 173.115, the definition of Class 3 flammable liquid is found at 49 C.F.R. 173.120, and the definition of the various types of explosives is found at 49 C.F.R. 173.50.

left unattended on the mainline. Each railroad is required to notify FRA of its plan, and FRA monitors the railroads' plans to determine if adequate justification has been provided.

(2) The process for securing unattended equipment transporting Appendix A Materials on the mainline outside of a yard or terminal, if permitted by a railroad's plan, must include the following:

- (a) Locking the controlling locomotive cab or removing and securing the reverser on the controlling locomotive.
- (b) Communications from the employee(s) responsible for securing equipment containing Appendix A Materials to the train dispatcher that relays 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). The train dispatcher must record the information provided and then the train dispatcher or another qualified railroad employee must verify and confirm with the train crew that the securement meets the railroad's requirements. However, the dispatcher communication requirement is not applicable in limited situations. 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 C.F.R. 232.103(n), and the employee has demonstrated knowledge of FRA and railroad securement requirements.
- (3) Railroads 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. Railroads must ensure that there exists a means of verifying that the number of hand brakes is appropriate.
- (4) Railroads must require that a train crew conduct a job briefing that addresses securement whenever the train crew's job will impact or require the securement of any equipment in the course of the work being performed.
- (5) Railroads must ensure that a qualified railroad employee inspects all equipment that any emergency responder has been on, under, or between for proper securement before the train or vehicle is left unattended.
- (6) Railroads must provide notice of EO 28 to all employees affected by the EO.

Now I'll turn to current Canadian securement rules. Transport Canada issued an order to railroads operating in Canada that directed them to formulate new rules or revise existing rules to address the safety and security of unattended equipment on July 23, 2013. See Transport Canada Order Pursuant to Section 19 of the Canadian

Railway Safety Act. The Railway Association of Canada submitted proposed rules to Transport Canada on November 20, 2013. Transport Canada accepted the proposed rules submitted on December 26, 2013. See TC O 0-167. As a result, railroads operating in Canada are now required to comply with CROR 62 and CROR 112, as amended.

CROR 62 pertains to “unattended engines.” The term “unattended” is now defined in the CROR as “when an employee is not in close enough proximity to take effective action.” The new Canadian requirements for unattended engines are as follows:

When an engine is left unattended outside of an attended yard or terminal:

- (a) The cab of the engine must be secured to prevent unauthorized entry; and
- (b) Subject to (c), the reverser must be removed from the engine;
- (c) During sub-zero temperatures, an engine that does not have a high idle feature is exempt from (b)[.]

See CROR 62 (TC O 0-167).

Transport Canada approved expansive revisions to CROR 112, which now reads as follows:

- (a) Equipment must be secured if it is left unattended. The following are acceptable methods of ensuring securement:
  - (i) Sufficient number of hand brakes;
  - (ii) A mechanical device approved for use by a professional engineer;
  - (iii) Equipment is left on a track designed to prevent the equipment from moving unintentionally (e.g., switching bowl or where grade does not allow) and that design is approved by a qualified employee;
  - (iv) Equipment is derailed or coupled to derailed equipment;
  - (v) A movement secured as per paragraph (c) in this rule.
- (b) While switching en route, the standing portion must be protected as per paragraph (a) unless:
  - (i) There are at least 15 cars;
  - (ii) Not on a grade in excess of 1.25%;
  - (iii) The equipment will not be left in *excess* of 2 hours;
  - (iv) The air brake system is sufficiently charged to *ensure* proper air brake application; and
  - (v) The brake pipe is fully vented at a service rate or an emergency application of the air brakes has been made, and the angle cock is left fully open.

Whenever it is possible that the portion left standing cannot be secured within the applicable time limit, the standing portion must be secured as per paragraph (a).

- (c) A movement may be left unattended if:
  - (i) Secured as per paragraph (a); or

(ii) Left at a location where a derail protects the movement from unintentionally obstructing main track and

- The air brake system is sufficiently charged to ensure proper brake application;
- The locomotive controlling the air brake system maintains air pressure.
- A full service or emergency air brake application is made; and
- Independent brake is fully applied; or

(iii) Air brake system is sufficiently charged to ensure a proper brake application and

- The locomotive controlling the air brake system maintains air pressure;
- A full service or emergency air brake application is made;
- Independent brake is fully applied;
- Hand brakes are applied on 10 percent of the equipment to a maximum of 5;
- It is not on a grade exceeding 1.25%; and
- Is not left in excess of 2 hours.

(d) Exceptional weather situations, such as high winds or other unusual conditions, must be considered and factored into securement decisions. Special instructions may contain location specific instructions where extreme weather events are prevalent.

(e) Instructions governing testing the effectiveness of hand brakes will be carried in special instructions.

(f) Application of hand brakes must not be made while equipment is being pulled or shoved.

(g) Before leaving equipment at any location, the employee securing such equipment must confirm with another employee the manner in which the equipment has been secured.

See CROR 112 (TC O 0-167).

## **12. What is the significance of the April 1, 2014 deadline for the RSAC Hazardous Materials Working Group?**

April 1, 2014, is an internal, FRA-set deadline for the RSAC Hazardous Materials Working Group to make its recommendations related to the safe railroad transportation of hazardous materials, including the working group's regulatory language related to its recommended changes to the Pipeline and Hazardous Materials Administration's (PHMSA) Hazardous Materials Regulations, to the entire RSAC. The working group met on October 28, 2013; December 16, 2013; and January 27, 2014; and it will meet again on March 26, 2014. If it reaches consensus on any recommendations, it will present them to the full RSAC by April 1, 2014, and the full RSAC will be asked whether it approves the working group's recommendations by electronic ballot. If the full RSAC approves the working group's recommendations, they will convey these

recommendations to me. If I agree with the full RSAC's recommendations regarding changes in the Hazardous Materials Regulations, I will convey them to the PHMSA Administrator, as PHMSA promulgates the hazardous materials transportation regulations.

**13. Do you have current statistics on how many freight and passenger train derailments have taken place over the past five years?**

The tables below present derailments and derailment rates (per million train-miles) on both a calendar and fiscal year basis.

<b>Fiscal</b>	<b>Derailments</b>	<b>Total Miles</b>	<b>Rate</b>
<b>2009</b>	764	687952167	1.11054
<b>2010</b>	811	692341016	1.17139
<b>2011</b>	819	712899248	1.14883
<b>2012</b>	745	733046025	1.01631
<b>2013</b>	715	741301114	0.96452
<b>2014*</b>	262	251854485	1.04028

<b>Calendar</b>	<b>Derailments</b>	<b>Total Miles</b>	<b>Rate</b>
<b>2009</b>	748	667973049	1.11981
<b>2010</b>	805	704840558	1.1421
<b>2011</b>	836	717611706	1.16498
<b>2012</b>	706	731644354	0.96495
<b>2013</b>	756	747924153	1.0108
<b>2014*</b>	59	62711310	0.94082

\* Partial year

**a. Do you have statistics on the significant causes of the derailments that have taken place over the past 5 years?**

The table below shows significant derailment causes over the past 5 years:

<b>Code</b>	<b>Cause Description</b>	<b>Derailments</b>
T110	Wide gage (due to defective or missing crossties)	306
T207	Detail fracture from shelling or head check	156
T220	Transverse/compound fissure	152
T314	Switch point worn or broken	140
T109	Track alignment irregular (buckled/sun kink)	133

- b. **Has the FRA investigated whether these train derailments were the result of failed roller bearings caused by wheel set cap screws that came loose?**

The major cause of failed journal roller bearings is overheating, which causes significant damage to the bearing. Determining the primary cause of the failure is difficult; however, it is extremely rare that a cap screw is missing or loose. Over the past 5 years, there have been 74 derailments caused by overheated journal roller bearings. This type of derailment accounts for approximately 8 percent of the total mechanical- or electrical-caused derailments. The breakdown per year is:

	Percent of Total Derailments	Total Year Counts				
		2009	2010	2011	2012	2013
<b>E53C Journal (roller bearing) overheating</b>	8.30%	24	11	15	10	14

During the same period, the number of exception reports and violations for loose cap screws are as follows:

<b>49 C.F.R. Section</b>	<b>Defects</b>	<b>Violations</b>
215.115.A2 – Cap Screws Loose	11	0
215.115.A2i – Cap Screws Loose	10	2
215.115.A2ii – Lock Broken/Missing	15	0

These defects and violations only represent a fraction of a percent of the total number of deficiencies observed.

- 14. To my understanding there was a formal petition submitted to the FRA in August 2011 requesting the FRA to initiate a rulemaking that would establish a performance requirement for a standard system for clamping and retaining bearings on railroad freight cars. Has FRA issued a ruling to determine these requirements?**

On August 8 and September 28, 2011, a manufacturer wrote letters to FRA requesting that the agency initiate a rulemaking and issue a Letter of Exception related to their cap screw locking system. There are no Federal railroad safety legal requirements related to torque or the type or style of locking plate that must be used on journal roller bearings. Notably, torque values and the size of the locking plate are specified by AAR for each class of journal roller bearings.

There are many causes of journal roller bearing failures, and FRA told the manufacturer that the contribution of cap screw loosening is not well-defined. No failure of journal roller bearings was proven by this manufacturer to be caused by a reduction of torque on

one or more cap screws. Only anecdotal evidence of journal roller bearing failures from the 1980s was presented. This evidence did not show a conclusive causal link between the torque values of the cap screws and the failures, particularly in light of other changes made to the journal roller bearings, which may have contributed significantly to the failures. None of the data recorded by FRA or AAR indicates that the residual torque on journal roller bearings is a significant safety issue. In fact, the data presented by the manufacturer related to the test of the release torque of bearings at the completion of the wheelset's useful life confirms that a bearing with low torque did not cause a failure, because it lasted until the wheelsets were removed for other reasons, such as thin rims or flanges, or end of life.

After thorough review and careful consideration, FRA wrote a letter on January 31, 2012, denying the manufacturer's rulemaking request. There was insufficient historical data on journal roller bearing failures to warrant a change to the existing safety requirements. A cost/benefit analysis was not conducted.

**15. Knowing that NHTSA and FMCSA safety functions were both housed in FHWA once but were separated so as to not compete with the highway development business and budget, is there any merit in making the same shift at FRA removing the safety department functions?**

Safety is FRA's highest priority. The mission of the Federal Railroad Administration is to enable the safe, reliable and efficient movement of people and goods for a strong America, now and in the future. This mission supports continuous safety improvement through three pillars:

1. Continuing a rigorous oversight and inspection program based on strategic use of data
2. Advancing proactive approaches for early identification and mitigation of risk
3. Capital investments and robust research and development program

The FRA mission is best served through predictable, dedicated funding, which would enable FRA to balance requirements across these three pillars to ensure continuous safety improvement, while making long-term investments to grow the rail network.

THE HONORABLE JOSEPH C. SZABO,  
ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION,  
U.S. DEPARTMENT OF TRANSPORTATION

QUESTIONS FOR THE RECORD

SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
U.S. HOUSE OF REPRESENTATIVES

“OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY”

FEBRUARY 26, 2014

QFRs from Rep. Corrine Brown

1. **The Department of Transportation (DOT) has issued a number of safety advisories and emergency orders to the industry and others as a result of recent passenger and freight rail accidents. What enforcement authority does Federal Railroad Administration (FRA) have to ensure compliance with these safety advisories and emergency orders?**

The recent DOT and FRA emergency orders are requirements and are enforceable through a variety of means. FRA’s tools for enforcing FRA emergency orders and DOT emergency orders include civil and criminal penalties, compliance orders, injunctions, special notices for repairs, and orders disqualifying individuals from safety-sensitive service in the railroad industry.

The recent safety advisories issued by FRA or the Pipeline and Hazardous Materials Safety Administration (PHMSA), or both jointly, are recommendations to take certain voluntary action or are reminders to comply with existing law, but are not intended to be requirements in themselves and, therefore, are not intended for FRA or PHMSA to enforce.

2. **What steps is FRA taking to ensure local communities and responders are prepared to plan for, manage, and respond to accidents involving hazardous and flammable materials that are transported by rail?**

DOT and AAR signed an agreement as a result of the “Call to Action” by Secretary Foxx that contained important voluntary steps to improve emergency response along Key Crude Oil train routes:

1. Subscribers will develop an inventory of emergency response resources along Key Crude Oil Train routes. This information will be provided to DOT and emergency responders upon request.
2. Subscribers will provide \$5 million to develop and provide training on hazardous material transportation and fund training for emergency responders through the end of 2014. Comprehensive training will occur at the Transportation Technology Center, Inc. (TTC) facility in Colorado with a training program fully developed by July 1. TTC is funded by FRA and operated under a care, custody, and control contract with FRA.
3. Subscribers will continue to work with communities on Key Crude Oil Train routes to address location-specific concerns.

FRA has provided a grant to the American Chemistry Council, which oversees the Transportation Community Awareness and Emergency Response (Transcaer®) program. The Transcaer® program is a voluntary outreach program that focuses on assisting communities to prepare for and respond to possible hazardous materials transportation incidents. Transcaer® members consist of representatives from the chemical manufacturing, transportation (including railroad), distributor, and emergency response industries.

3. **Crude oil is often transported in trains carrying many different materials, called mixed trains. With mixed trains, it is even more important that emergency responders have an accurate list of what is contained in each of the rail cars. Often rail cars change in transportation so the shipping paper provided by the train crew at the scene of an accident may no longer be accurate. What is FRA doing to ensure the accuracy and availability of train consist information to emergency responders?**

FRA enforces the Hazardous Materials Regulations (HMR), which, in 49 C.F.R. 174.26(a), require train crews to have a document that accurately reflects the current position in the train of each rail car containing hazardous material. This document is often called the "consist," "train consist," or "consist list." The HMR provide substantial flexibility for updating the document either electronically or by handwriting, but the crew is required to maintain an accurate document. Since 2006, FRA has performed approximately 1,500 audits to determine compliance with this regulatory provision, and civil penalties for violations were recommended in two-thirds of the audits.

Ensuring an accurate consist list is available to emergency responders, however, goes beyond the document maintained by the crew. Generally, the document indicating the location in the train of cars carrying hazardous material is updated in one of two ways, either manually or through automated equipment identification (AEI) tags. AEI tags work using radio frequency technology such that when cars equipped with AEI tags pass an AEI "reader" the list of cars in the train consist (which identifies the location of each car in the train, including the contents of each car carrying hazardous material) is automatically updated in the railroad's database. This consist list can be provided to first responders by off-site railroad personnel, but unless the electronic updates are communicated to the crew and the crew manually updates the physical list in its possession, the crew's consist list may become outdated. Accordingly, issues arise when cars are picked up for a train or set off from a train and the crew does not manually update the list in its possession. When cars are picked up or set off, the train crew must manually update the crew's copy of the train consist to accurately identify the new location of cars carrying hazardous material. Related to this issue, FRA is evaluating the HMR and considering NTSB recommendation R-07-04, which is aimed at ensuring that a document with "accurate, real-time information regarding the identity and location of all" the cars carrying hazardous material in each train is immediately available for first responders..

4. **The FRA has a voluntary Confidential Close Call program, which allows railroad carriers and their employees to report near-miss accidents to the FRA. The program provides a safe environment for employees to report unsafe events and conditions, and protects railroads from FRA enforcement for events reported within the program. It has helped many freight railroads improve safety on their system. FRA has urged all 28 commuter railroads to participate in the Close Call program. Why is the program important, and out of the 28 commuter railroads operating in the United States, which ones currently participate in the program?**

Railroads can reduce risk before an accident occurs by systematically studying close calls, which is a proactive way to manage safety. When individual events are analyzed collectively, railroads can identify safety hazards and develop solutions to threats. Evaluating close calls is also a key part of safety management, where it is essential to identify hazards, assess risks, take corrective actions, and evaluate and monitor the performance of the safety system. Close calls can show where current weaknesses exist in the safety system, they can be used to monitor changes in safety over time, and they can uncover hidden conditions previously not exposed by looking at reportable accidents alone. In the Rail Safety Improvement Act of 2008, Congress required FRA to develop regulations that require certain railroads to develop and implement safety risk management systems known as Risk Reduction Programs. Therefore, railroads that participate in FRA's Confidential Close Call Reporting System (C<sup>3</sup>RS) will be engaging in a program that substantially supports their risk reduction efforts.

Currently, there is one commuter railroad (New Jersey Transit Rail Operations) that has long participated in C<sup>3</sup>RS. Three commuter railroads (Metro-North Commuter Railroad, Long Island Rail Road, and Massachusetts Bay Transportation Authority) are in the early stages of preparing for the program. The C<sup>3</sup>RS Implementation Team, in partnership with the National Aeronautical and Space Administration (NASA), continue to conduct outreach to the commuter railroad industry in order to recruit more participants.

5. **During the hearing, Congresswoman Esty stated: I know that the FRA has concluded its "Operation Deep Dive" and plans to release that report in March. I also note that the National Transportation Safety Board**

(NTSB) investigations are ongoing and plan to release those reports later this year. And I want to know from both of you [FRA and NTSB], if I have your commitments to work directly with the state of Connecticut and with Metro North so that we can restore service and reliability as quickly as possible and any prior information you can share with us to expedite. We are in the middle of a legislative session that is three months long in Connecticut. They need to know budget priorities. They need to have direction, right now, where they will have to come back in special session. It will delay safety and delay reliability." You stated, in response: "Definitely, yes, already been in conversation with Commissioner Redeker up there in Connecticut and have promised him a briefing on this ... That's the short answer, and I would be glad to provide more for the record." Please provide more information on this for the hearing record.

Congresswoman Esty, I appreciated working with you and your staff during the release of the report, and I look forward to working together in the future to ensure the safety of Metro North and your constituents who depend on it for safe, reliable service. FRA has been working closely with the state of Connecticut, as well as the leadership at Metro North and MTA to implement changes that we believe are necessary for the safety of Metro North employees and the public. You have my commitment to work with you and the State of Connecticut going forward.

6. **Title 49 Part 213 "Track Safety Standards" provides that the safety requirements for tank cars transporting freight are more stringent than for passenger cars. Why the discrepancy? Shouldn't the safety standards be higher for passenger trains? Does FRA intend to address this?**

The Track Safety Standards treat tank cars and other freight cars more stringently than these regulations treat passenger cars for a good reason. Freight cars and passenger cars are designed, operate, and create track loadings differently. When FRA wrote the Track Safety Standards, the agency considered the design and operating differences to set the maximum speeds for freight trains and passenger trains for each track class. The freight cars that make up freight trains are designed for load-carrying capabilities, while the passenger cars that make up passenger trains are lighter in weight and have a lower center of gravity. Passenger cars are also designed and engineered with specialized trucks (a type of component) that provide smoother operation and handling to enhance passenger comfort and train speed. As a result of these differences in the designs of freight cars as opposed to passenger cars, the passenger cars' dynamic loading of the track structure is much less than the freight cars' with their heavier weight, higher center of gravity, and heavy-duty trucks. The Track Safety Standards recognize the different operating characteristics between the two types of cars when determining the safest speed for each class of track. A rough analogy would be that the highway speed limit for a heavy, high center-of-gravity large tractor-trailer is lower than the highway speed limit for a passenger car.

7. **During the hearing, Congressman Larsen asked about current track inspection requirements.**
- Please describe in detail the track inspection requirements under current regulations nationwide.
  - Please describe in detail the track inspection requirements that pertain to rail track located in Congressman Larsen's district.
  - Please describe in detail the differences between the track inspection requirements that pertain to rail track located in Congressman Larsen's district in comparison to the inspection requirements agreed to in the DOT-AAR agreement.

The Track Safety Standards, which are in 49 C.F.R. Part 213, require various types of inspections of the track structure, including the following:

- Track Inspections (section 213.233);
- Inspection of Rail (section 213.237) (new regulations go into effect in March 2014);
- Continuous Welded Rail Joint Bar Inspection (section 213.119);
- Automated Inspections of Concrete Ties (section 213.234);
- Inspection of Switches, Track Crossings, and Lift Rail Assemblies (section 213.235); and
- Special Inspection (section 213.239).

Additional interpretation and guidance for these rules are available in the FRA compliance manuals, related technical bulletins and other interpretive guidance.

The Federal track inspection requirements outlined in 49 C.F.R. part 213 are applied industrywide to standard gage track that is part of the general railroad system of transportation. See 49 C.F.R. part 209, appendix A, for discussion of the term "general railroad system of transportation." The Track Safety Standards establish several classes of track, which are divided according to the maximum allowable operating speed for freight trains on the track (e.g., 10 miles per hour for freight trains operating on Class 1 track and 15 mph for passenger trains operating on Class 1 track). See, e.g., 49 C.F.R. 213.9 and 213.307. The higher the class of the track is, the higher are the particular requirements of the Track Safety Standards that apply to the track. In other words, in order for a train to operate at higher speeds on a segment of track, the track segment must be maintained to meet more demanding requirements than the requirements that apply to a track segment where trains are permitted to operate at lower speeds. The geographical location of a track does not change the inspection requirements.

The DOT-AAR agreement states that the Railroad Subscriber will conduct certain additional inspections of track over which Key Crude Oil Trains are operated, beyond what is required in the Track Safety Standards. The Subscriber will agree to annually conduct on such track at least one additional internal inspection of rail (49 C.F.R. 213.237(c)) than what is required, and at least two track geometry inspections. The Track Safety Standards do not currently require automated track geometry inspections.

#### **QFRs from Rep. Michael Michaud**

**1. Do you believe a blanket extension of the PTC implementation deadline is warranted? Or should we take a more limited approach with individual extensions granted only where absolutely necessary?**

The unfortunate reality is that there are both technical and programmatic issues affecting individual railroads' abilities to complete PTC implementation by the December 31, 2015, deadline. The extent to which these issues affect individual railroads is not uniform. Some Class I railroads have publicly acknowledged that they will not be able to complete PTC implementation by the deadline. These railroads have indicated that full implementation will not be complete until 2018 or 2020. In FRA's 2012 report to Congress,<sup>1</sup> FRA recommended that, if Congress were to consider legislation extending the PTC implementation deadline, it should consider giving FRA flexibility in approving PTC implementation plans. I do not believe that a blanket extension is necessarily the most appropriate (or effective) way to address the unique circumstances each railroad is facing. I strongly recommend a more limited approach that would provide implementation flexibility for covered railroads to install PTC systems, in which the Secretary would prescribe regulations to establish a schedule for the implementation of PTC systems, and FRA as the Secretary's delegate would be permitted to grant extensions when necessary under certain specified criteria. Providing milestones for PTC system implementation would recognize that implementation of PTC systems is an immensely complicated undertaking and would give the Secretary the tools to ensure that railroads are working diligently towards completion and using the additional time granted wisely. Both passenger and freight railroads subject to the PTC statutory mandate could be faced with the same or similar types of circumstances that are beyond their control which might significantly impact their ability to implement PTC on all segments of their operations by December 31, 2015.

While it is difficult to discern fully all of the potential obstacles to full implementation by the statutory deadline, two of the most significant obstacles are (1) the development and lack of implementation of a workable interoperability standard and (2) the availability of sufficient radio spectrum. Due to the significant cost related to the implementation of PTC systems and due to the need to ensure the safe and proper operation of such systems, some latitude should be provided to

<sup>1</sup> Federal Railroad Administration Report to Congress: *Positive Train Control Implementation Status, Issues, and Impacts* (August 2012), available at <http://www.fra.dot.gov/eLib/Details.103718>.

those entities that have taken appropriate action to implement PTC systems on their rail lines but that may not reach full implementation within the timeframe specified in the PTC statutory mandate due to circumstances beyond their control.

Additionally, in the 2012 report to Congress, FRA recommended that Congress consider allowing alternative methods of improving rail safety in lieu of PTC where the alternatives provide an appropriate level of risk mitigation with respect to the functions of a PTC system. The authority to allow alternative methods of protection, in lieu of PTC, would permit FRA to focus the burden of PTC system implementation on the most dangerous mainlines and allow a more appropriately-tailored reduction of risk on mainlines covered by the current statutory mandate to implement PTC systems. The authority would not allow alternative protection methods in lieu of PTC systems and would not be authority to completely eliminate any railroad's responsibilities under the PTC mandate. Rather, the alternative protection authority would allow railroads to remove "particular mainlines" from the mandate where alternatives are appropriate.

Another FRA recommendation in the 2012 report to Congress suggested that Congress consider permitting the provisional certification and operation of PTC systems during FRA's review of the system. Prior to this provisional certification, railroads would be required to provide documentation to satisfactorily demonstrate safety performance and railroad operational competency. The provisional certification period would allow railroads to evaluate and further develop data supporting the safety of the PTC system, reflecting good engineering practice and well-documented risk mitigation strategies. During the period of provisional certification, railroads and the public would receive the benefits of the PTC system, and FRA would have an opportunity to review and evaluate all aspects of safety related to the system in a diverse, revenue service environment.

- 2. If the RSAC's crew size working group fails to issue recommendations by their April 1st deadline, would the FRA still be willing to take concrete action on the issue?**

Yes. FRA advised the Railroad Safety Advisory Committee that the agency intended to initiate a rulemaking even if a consensus recommendation could not be reached by April 1. Consensus recommendations were not received, but it is clear that RSAC was useful in identifying railroad practices that could potentially be impacted by a requirement for a two-person crew. FRA has announced publicly its intention to move forward with a rulemaking without consensus recommendations from RSAC.

- 3. I know DOT's recent agreement with AAR did address some aspects of the NTSB's recommendations. But that agreement was only with the Class I railroads, which do not operate in Maine. What are you doing to ensure that all railroads take these necessary safety precautions?**

In a similar letter, dated February 12, 2014, the American Short Line and Regional Railroad Association (ASLRRA) recommended to its members that unit trains of crude oil (20 cars or more) operate at a top speed of no more than 25 MPH on all routes and agreed to work with its member railroads and the Class I railroads to develop a program of best practices to ensure a seamless system of timely and effective emergency response to crude oil spills.

- 4. Since 2011, thanks to a voluntary commitment from the rail industry, new tank cars have been built to higher standards. Have these new cars been crash tested to ensure they perform as intended? If not, would you be willing to work with the industry to test them?**

To be clear, in 2011 AAR issued Casualty Prevention Circular (CPC) 1232 containing industry requirements for certain new DOT specification 111 tank cars ordered after October 1, 2011, from tank car manufacturers. The requirements of CPC-1232 do exceed the requirements of existing Federal regulations and contain certain enhancements designed to improve the safety of the cars; however, because of the approximately 2-year backlog of

orders for new tank cars for crude oil service that existed at that time, through at least 2013, cars continued to be built to the legacy minimum standards.

To date, cars constructed to the CPC-1232 standards have not been full-scale crash-tested, and FRA does not believe that such full-scale testing is necessary. Recently, FRA funded puncture tests of tank cars meeting two DOT specifications: the DOT 111 and DOT 112. The DOT 111 specification tank car is the general-purpose, non-pressure tank car currently used to transport crude oil, ethanol, and many other hazardous materials. The DOT 112 specification tank car is used to transport compressed gases and high-hazard materials such as anhydrous ammonia. Six years ago, similar tests were performed on DOT 105 specification tank cars (pressure cars), which are used to transport high-hazard hazardous materials such as chlorine and other materials that are poisonous by inhalation. Considered together, the full-scale puncture testing of both general purpose and pressure tank cars has provided the data necessary to validate the research models utilized by the Department (as well as industry) to understand the dynamic forces acting on railroad tank cars under accident conditions. In other words, the test procedures are standardized to ensure repeatability and designed to minimize variables that could affect the test results. The intent of the test program was to validate computer models and subsequently use such models to predict the puncture velocity of tank cars built to a variety of existing specifications or conceptual designs. Given these facts, with a validated model there is no need to field test a tank car built to the CPC-1232 standard; rather we can simulate the puncture velocity and validate a range of results. While the Department's model is focused on the puncture resistance of the tank, existing performance standards applicable to other components of the tank car (e.g., top fittings, bottom outlet valves, pressure relief valves, thermal protection) provide an understanding of the expected performance of the CPC-1232 cars, further reducing the need to field test the design.

**QFRs from Rep. Sean Patrick Maloney**

- 1. Given the alarming increase in train derailments, both in passenger and in freight rail, and that implementing Positive Train Control systems remains as one the NTSB's Most Wanted List priorities, would it be fair to say that implementing PTC on our freight and passenger lines should be one of the FRA's top safety priorities?**

Just to preface my answer to your question, though it may seem that derailments are increasing, they are actually decreasing. In particular, derailments declined by 47 percent during the last 10 fiscal years (FY 2004–2013), and train accidents of all kinds declined by 47 percent during the same period. The industry has never been safer.

The type of PTC system required by the Rail Safety Improvement Act of 2008 (RSIA) is “a system designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position.” See 49 U.S.C. 20157(i)(3). FRA firmly believes that implementing a PTC system on a segment of track will enhance safety. However, no single approach will comprehensively improve rail safety. Rail safety must be addressed by implementing multiple approaches that, when working together, can help drive down the number and frequency of accidents or mitigate their severity. PTC, for example, is not designed to protect against derailments and other train accidents caused by equipment failures such as broken wheels, pulled drawbars, and seized journals; infrastructure conditions such as washouts, rock slides, and some broken rails and heat kinks; and external factors such as grade crossing accidents or deliberate vandalism. The benefits of PTC are largely limited to a portion of the train accidents that are caused by human error. In the United States, human factors account for roughly 35 percent of all train accidents. PTC's preventing a portion of 35 percent of all train accidents is a considerable share, but far from an exhaustive one. Another third of train accidents are caused by poor track, and many others are a result of faulty equipment, grade crossings, or other factors.

- 2. Given that one of the largest hurdles to implementing PTC cited by rail stakeholders is the cost, would you say that reauthorizing the Railroad Safety Technology Grants Program and ensuring access to the Railroad Rehabilitation and Improvement Financing program for PTC, as my bill HR 3634 would do, would help railroads in overcoming this obstacle?**

As noted in the DOT Budget Estimates for Fiscal Year 2015, significant technical and programmatic challenges make it unlikely that the rail industry will meet the statutory deadline for full PTC system implementation. However, FRA does view the high cost of PTC system implementation to be an impediment to full implementation by passenger railroads, and has requested funds for commuter railroads and Amtrak to assist these railroads in fulfilling their statutory obligation to implement PTC systems. Additionally, under present law railroads have access to the Railroad Rehabilitation and Improvement Financing program for PTC system implementation efforts, and FRA currently has a pending application for that purpose.

**3. Do you believe Congress should act on reauthorizing the Railroad Safety Technology Grants program this year?**

FRA views financial assistance for PTC system implementation to be a part of the larger program of rail service improvement and investment in high-performance rail infrastructure, rather than considered as a separate program.

**QFRs from Rep. Daniel Lipinski**

**1. In the recently passed Omnibus funding legislation, P.L. 113-76, Congress freed up approximately \$60 million to be used for grants for various rail projects, including railroad safety technology as outlined in 49 U.S.C. 20158. Does the FRA know yet how this money will be spent? Specifically, will any of the \$60 million go to assist railroads (commuter or freight) with PTC implementation?**

FRA plans to utilize some of the available funds to address shared PTC implementation issues common to multiple railroads. FRA believes that this will make the most effective use of the limited available funds, as opposed to direct grants to individual railroads for their specific implementation projects.

**2. Without additional public funding beyond the Omnibus, what do you view as a reasonable timeline to accomplish PTC implementation? Do you think there is a need for increased public funds to assist the railroads with PTC implementation? Do you see distinction between passenger/commuter and freight railroads' need for public funding? How would robust funding for this program help expedite this much needed technology adoption and its execution? Do you think there are other impediments beyond funding that will prevent timely implementation?**

As mentioned earlier in my response to Rep. Michaud's question, FRA identified a number of programmatic and technical issues in its August 2012 report to Congress in the timely implementation to PTC. In addition, after the report was published, a new issue arose: deployment of 22,000 PTC communications towers. The extent to which these issues affect individual covered railroads is not uniform. Not all of these railroads are affected to the same extent and by the same issues. The specific issues affecting the railroads as well as the ability of the railroad to address the issues, the availability and effectiveness of alternative solutions, and the safety risks are the key determinants in establishing reasonable timelines to completion of PTC deployment. I believe these issues need to be addressed on a limited basis, and that a single, one-size-fits-all response would not be appropriate. We must make every effort to deploy PTC as soon as possible consistent with each individual railroad's capabilities and the specific technical and programmatic issues it faces. Please see my response to Rep. Michaud for further details.

Unfortunately, the costs of implementing PTC far exceed the direct safety benefits. Given the current economic situation faced by many railroads, especially the public intercity passenger and commuter agencies, enacting PTC technology, without an infusion of additional funds, will lead to other critical safety and investment trade-offs. Money invested in PTC is money that cannot be spent on infrastructure upgrades, and other safety improvements and in some situations may potentially result in degradations in safety (or even service reductions) as funds are diverted from other activities that are not statutorily required. FRA is concerned that such diversion decisions could create future large-scale safety or operational problems that present greater risks than those that PTC is intended to prevent. While all railroads implementing PTC are incurring additional capital expenses to deploy PTC (and will incur additional operational and maintenance costs once the system has been deployed), FRA believes that the public

agencies are a disadvantage in addressing these, compared to private entities. The availability of dedicated funding for PTC implementation is essential.

Even if funding issues are resolved, the high degree of concurrency in the design, development, test, and deployment of the various PTC subsystems and their components still leaves the potential for further delays in the final deployment and the potential for increased costs. Even with positive trends in manufacturing, cost, and schedule, the railroads continue to incur risk by procuring large quantities of PTC components because the majority of testing and field-testing still lies ahead. The various suppliers continue to make major design and tooling changes and alter manufacturing processes concurrent with development testing. Railroads are investing billions of dollars before the design is stable, testing proves that it works and is reliable, and manufacturing processes mature to where the system can be produced in quantity to cost and schedule targets.

3. **On February 20, 2014, Metrolink held a PTC media event and related revenue service demonstration in southern California. Please provide an updated status report on Metrolink's implementation of PTC. Specifically, please include details about development of their dispatching system, their PTC back office system, and status of PTC revenue service runs across Metrolink territory.**

Metrolink continues to make significant progress towards completion of PTC implementation, although the railroad has encountered a number of technical and programmatic obstacles that have precluded completion as originally planned. Perhaps the most significant impediment was the inability of the original dispatch system and back office system contractor, Aeronautical Radio Incorporated (ARINC), to deliver a functioning dispatch system as originally required. The lack of a functioning dispatch system that could integrate with the PTC system components resulted in Metrolink's recently terminating ARINC for cause, and has resulted in a 2-year delay in the program. Metrolink has subsequently engaged Wabtec Corporation to develop the required dispatch and back office systems. Once Metrolink's dispatch and back office systems are complete, installed, and tested (which FRA believes will occur late in the second quarter of calendar year 2014 or early in the third quarter of calendar year 2014), Metrolink will be able to begin revenue demonstration operations on its own territory. Until the Metrolink dispatch and back office system is available, the railroad will be unable to conduct revenue demonstration operations on Metrolink territories.

As a risk mitigation measure, and in order to gain experience with the Interoperable Electronic Train Management System (IETMS), Metrolink began revenue demonstration operations over the BNSF Railway Company's (BNSF) San Bernardino subdivision on February 20, 2014 using one trainset and three trains per day. Metrolink experienced significant technical issues that necessitated placing the revenue demonstration on hold pending resolution of these issues. Engineering changes to address these issues have recently been completed and successfully regression tested, with revenue demonstration on BNSF scheduled to recommence.

Assuming there are no additional major technical issues discovered during Metrolink's dispatch and back office systems testing, subsequent integration and revenue demonstration operations over Metrolink territories, or system testing by Union Pacific Railroad Company (UP), Amtrak, and BNSF, FRA anticipates receipt of the system certification request from Metrolink for IETMS in the first quarter of calendar year 2015.

Currently Metrolink has completed its PTC track database asset mapping and validation as well as wayside interface unit verification and validation. Metrolink has completed roughly one-third of the required brake testing and is conducting Los Angeles regional communications network design and testing with UP, BNSF, Amtrak, PTC 220, LLC, Transportation Technology Center, and Meteorcomm Communications. The majority of the onboard system work has been completed on the rolling stock; however, additional hardware and software modifications will be required before the onboard systems will be fully completed. Employee training has also begun.



**UNITED STATES DEPARTMENT OF TRANSPORTATION  
Pipeline and Hazardous Materials Safety Administration**

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**Hearing on  
Oversight of Passenger and Freight Rail Safety**

**Before the  
U.S. House of Representatives  
Committee on Transportation and Infrastructure  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials**

**Written Statement of  
Cynthia L. Quarterman, Administrator**

**February 26, 2014**

**WRITTEN STATEMENT  
OF  
CYNTHIA L. QUARTERMAN  
ADMINISTRATOR  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION**

**BEFORE THE  
SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
U.S. HOUSE OF REPRESENTATIVES  
WASHINGTON D.C.**

**OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY  
February 26, 2014**

Chairman Denham, Ranking Member Brown, and Members of the Subcommittee, thank you for the opportunity to appear today to discuss the Pipeline and Hazardous Materials Safety Administration's (PHMSA) comprehensive approach to address the risks associated with increased bulk shipments of flammable liquids by rail. I would also like to thank you for your leadership and for your efforts to advance rail safety. While rail safety is improving, high-profile train accidents like the ones we've seen in Lac-Mégantic, Quebec, Canada; Aliceville, Alabama; and Casselton, North Dakota underscore how important it is to be ever-vigilant in protecting local communities and the environment.

Safety is the top priority for Secretary Foxx, everyone at PHMSA, and the other modes in the U.S. Department of Transportation (DOT). PHMSA continues to work diligently to protect the American people and the environment from the risks in the transportation of hazardous materials by all modes, including rail. PHMSA works to achieve its safety mission through efforts to prevent and mitigate accidents by developing regulations and guidance, taking rigorous

enforcement actions, collaborating with stakeholders, and educating emergency responders and the public.

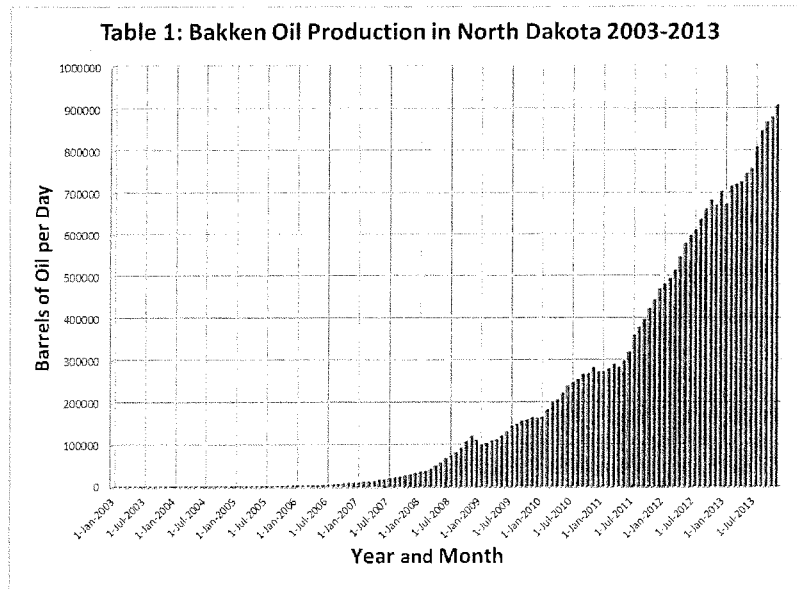
This testimony will focus on the risks posed by the transport of bulk shipment of flammable liquids, including petroleum crude oil, by rail and PHMSA's efforts to both prevent and mitigate those risks. First, I will provide an overview of the current state of petroleum crude oil (crude oil) transportation by rail in the United States. Second, I will discuss our comprehensive approach to prevent and mitigate the damage caused by rail accidents involving hazardous materials.

#### **I. STATE OF CRUDE OIL TRANSPORTATION**

As energy production in the United States increases, so does the transportation of more products in their various forms by multiple modes. The epicenter of the increased crude oil production is the Bakken Formation, occupying about 200,000 square miles (520,000 kilometers<sup>2</sup>) of the subsurface underlying parts of Montana and North Dakota, and Saskatchewan and Manitoba in Canada. Production from the Bakken in recent years has elevated North Dakota to the second largest oil producing State, and one of the most important sources of oil in the United States. While most new Bakken drilling and production has been in North Dakota, drilling operations also extend into Montana, Saskatchewan, and Manitoba. As of 2013, the Bakken produced more than ten percent of all oil in the United States. In November 2013, 10,022 Bakken wells extracted approximately 29 million barrels of oil and 32 million cubic feet of gas. This equates to over 900,000 barrels of oil produced daily (See Table 1).<sup>1</sup>

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<sup>1</sup> Data from the North Dakota Department of Mineral Resources Web site:  
<https://www.dnr.nd.gov/oilgas/stats/historicalbakkenoilstats.pdf>



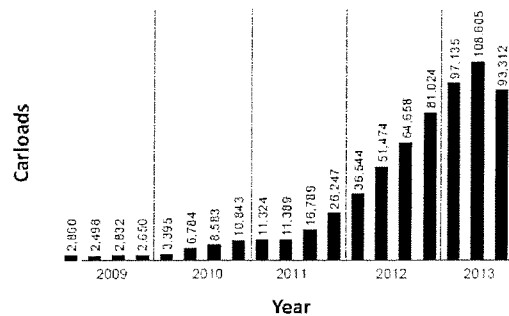
Approximately 71 percent of all oil produced in North Dakota was transported by rail in November 2013, or around 800,000 barrels per day, according to the North Dakota Public Service Commission.<sup>2</sup> Corresponding with increased production, the volume of crude oil moving by rail has quadrupled in less than a decade (See Table 2—A Class I railroad is a railroad of having annual inflation-adjusted operating revenues for three consecutive years of \$250 million or more as the figure \$250 million is adjusted by applying the railroad revenue deflator formula).<sup>3</sup> While overall train volume has increased, train accidents declined by 43

<sup>2</sup> <http://in.reuters.com/article/2014/01/16/usa-rail-regulator-idINL2N0KQ1WN20140116>

<sup>3</sup> The Surface Transportation Board Web site indicates that the inflation-adjusted dollar amount for 2012 (the most recent year for which a complete year of annual operating revenue data is available) is \$452,653,248 or more for a Class I railroad. Figures in table are quarterly totals. Source: Association of American Railroads

percent and train accidents involving a hazardous materials release are down 16 percent between 2003 and 2012.<sup>4</sup>

**Table 2: Originated Carloads of Crude Oil on Class I Railroads**



Despite this decline in such accidents, there is always the potential for low probability, high consequence events to occur that could have devastating consequences to the public, communities, and the environment. Recent incidents in the United States and Canada demonstrate the need for a renewed focus on rail safety efforts. PHMSA works in partnership with the Federal Railroad Administration (FRA), to address and mitigate the risks associated with the rail transport of hazardous materials. Here are a few incidents that have sharpened our focus on the safe transportation of high-hazard flammable liquids by rail.

On July 6, 2013, a catastrophic derailment involving an unattended freight train containing 72 loaded DOT Specification 111 tank cars of petroleum crude oil occurred in the town of Lac-Mégantic, Quebec. The train was 4,701 feet long and weighed 10,287 tons. The train, which was not properly secured, rolled down a descending grade and subsequently

<sup>4</sup> Data from 2003-2012 compiled by FRA Office of Safety Analysis.

derailed. The unattended train started to move and gathered speed as it rolled uncontrolled down the descending grade into the town of Lac-Mégantic. While traveling in excess of the authorized speed, the train derailed near the center of Lac-Mégantic. The locomotives separated from the train and came to a stop about one half-mile east of the derailment. In the course of the accident, 63 tank cars derailed. Several derailed tank cars released crude oil, causing fires that killed 47 people, extensively damaged the town center, and required the evacuation of about 2,000 people from the surrounding area.

On November 7, 2013, a train carrying crude oil to the Gulf Coast from North Dakota derailed in Aliceville, Alabama, spilling crude oil in a nearby wetland and igniting into flames. There were a total of 88 tank cars containing crude oil in the 90 car train. Twenty-six DOT Specification 111 tank cars derailed, 21 of which released all or part of their contents. The National Transportation Safety Board (NTSB) is currently investigating the accident.

On December 30, 2013, a train carrying crude oil derailed and ignited near Casselton, North Dakota prompting authorities to issue a voluntary evacuation of the city and surrounding area. A collision with a disabled train blocking the track caused 20 DOT Specification 111 tank cars to derail. Estimates indicate that those cars lost 476,436 gallons of product. NTSB is investigating the accident.

Accidents like these demonstrate both the inherent dangers of transporting hazardous materials, and the various factors that may cause accidents and the unintentional release of hazardous materials. PHMSA strives to prevent these accidents from occurring and, in the event they do occur, helps to mitigate the consequences of these types of accidents. Train accidents involving hazardous materials releases like the ones previously described highlight the need for a robust hazardous materials transportation regulatory system, strong enforcement capabilities, and

wide-reaching communication and training with hazardous materials stakeholders, including the public, hazmat transporters, and emergency responders.

## **II. COMPREHENSIVE APPROACH TO PREVENT AND MITIGATE RAIL HAZARDOUS MATERIALS ACCIDENTS AND INCIDENTS**

In order to achieve our safety mission, PHMSA works to ensure that the transportation system is functioning as it should. With regard to rail safety, PHMSA and FRA have taken a comprehensive approach to the risks posed by the bulk transport of hazardous materials by rail. Specifically, PHMSA, in coordination with the FRA, is focusing on methods to prevent accidents and incidents from occurring, and ways to mitigate the effects of those events that do occur. On the prevention front, we are working together to put in place the necessary operational controls and ensure rail track integrity to lessen the likelihood of accidents. PHMSA has requirements in place to mitigate effects of potential accidents through appropriate classification of the materials being transported, appropriate packaging of the material, ensuring materials are in the appropriate container, and effectively communicating to transportation workers and first responders what material is involved so they can handle or respond correctly to any accidents associated with them. This approach is designed to prevent the occurrence of a hazardous materials release in the course of rail transportation, and mitigate the damage caused should a hazardous material release occur.

PHMSA has a variety of regulatory and non-regulatory tools to address the risks of the bulk transport of flammable materials, including crude oil, by rail. In the wake of increased crude oil movements by rail and recent incidents, PHMSA has used many of these tools to improve safety. Most recently, PHMSA has issued guidance and advanced rulemakings,

participated in rail safety committees, held public meetings, enhanced enforcement and inspection efforts, and coordinated with other agencies to improve the safety of the public.

#### **Regulatory Efforts by PHMSA and FRA**

On May 14, 2010, PHMSA published a final rule (HM-233A) to amend the Hazardous Materials Regulations to incorporate provisions contained in certain widely used or longstanding special permits that have an established safety record.<sup>5</sup> As part of that rulemaking, PHMSA adopted a requirement that would allow certain rail tank cars, transporting hazardous materials, to exceed the gross weight on rail limitation of 263,000 pounds upon approval by FRA.

On January 25, 2011, FRA issued a *Federal Register* notice of FRA's approval pursuant to PHMSA's May 14, 2010 final rule.<sup>6</sup> The approval established detailed conditions for manufacturing and operating certain tank cars in hazardous materials service, including the DOT Specification 111 tank car, which is the tank car used for the transportation of flammable liquids, such as crude oil, that weigh between 263,000 and 286,000 pounds. These actions provided tank car manufacturers with the authority to build a 286,000 pound tank car. Rail car manufacturers have used that authority to manufacture an enhanced DOT Specification 111 tank car (CPC-1232) under the conditions outlined in the January 25, 2011 approval. Specific improvements to the car include the following: normalized steel, puncture resistance, head shields, and top fitting protection. Should a manufacturer choose to design a car outside the conditions of that approval, it can seek another approval in accordance with section (§) 179.13 of the Hazardous Materials Regulations in title 49 of the Code of Federal Regulations (CFR). To date, PHMSA and FRA

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<sup>5</sup> See *Federal Register* <http://www.gpo.gov/fdsys/pkg/FR-2011-01-25/pdf/2011-1414.pdf>

<sup>6</sup> See *Federal Register* <http://www.gpo.gov/fdsys/pkg/FR-2011-01-25/pdf/2011-1342.pdf>

have not received any requests to design a car that deviates from the January 25, 2011 approved design.

Following the publication of the PHMSA rule and the subsequent FRA approval, PHMSA received a petition (P-1577)<sup>7</sup> from the Association of American Railroads (AAR) on March 9, 2011, requesting changes to PHMSA's specifications for the DOT Specification 111 tank car used to transport Packing Group I and II materials<sup>8</sup> (see Table 4 for tank car comparison).<sup>9</sup> During the summer of 2011, the AAR Tank Car Committee (TCC) created a task force (Task Force), which included FRA participation, with a dual responsibility to develop an industry standard for tank cars used to transport crude oil, denatured alcohol and ethanol/gasoline mixtures and to consider operating requirements to reduce the risk of derailment of tank cars carrying crude oil classified as packing group I and II, and ethanol.

**Table 4: Comparison of Rail Tank Car Safety Features**

Rail Tank Car Safety Features Comparison								
Rail Tank Car Specification	Bottom Outlet Handle	Gross Rail Load (lbs)	Head Shield Type <sup>1</sup>	Pressure Relief Valve	Shell Thickness	Tank Material	Top Fittings Protection	Thermal Protection System
DOT Specification 111	Attached During Transportation	253,000	Optional	SDP set 165 psig Optional Reclosing Requirement	7/16 inch Minimum	TC-1288 or ASTM A516-70 Steel	Optional	Not Required, Optional
DOT Approved 286K Car (76 FR 4250)	Attached During Transportation	256,000	Half Height	SDP set 165 psig Optional Reclosing Requirement	7/16 inch-TC-1288 or 1/2 inch-ASTM 516-70	Normalized TC-1288 or ASTM 516-70 Steel	Yes	Not Required, Optional
AAR Petition 1577 (Non-Jacketed)	Attached During Transportation	256,000	Half height	SDP Set 165 psig Reclosing Requirement	1/2 inch TC-1288 or 9/16 inch-ASTM 516-70	Normalized TC-1288 or ASTM 516-70 Steel	Yes	Not Required, Optional
AAR Petition 1577 (Jacketed)	Attached During Transportation	256,000	Full Height <sup>2</sup>	SDP Set 165 psig Reclosing Requirement	7/16 inch TC-1288 or 1/2 inch-ASTM 516-70	Normalized TC-1288 or ASTM 516-70 Steel	Yes	Not Required, Optional
<sup>1</sup> (1/2 inch) Minimum Thickness <sup>2</sup> Full Height Head Shields Require a Jacket SDP=Start to Discharge Pressure								

<sup>7</sup> See <http://www.regulations.gov/#?documentDetail=D=PHMSA-2011-0059-0001>

<sup>8</sup> "Packing Group" designates the hazard level posed by a class of materials. Class 3 (flammable liquids) Packing Group I materials have a low boiling point and represent a high flammability risk. Packing Group II materials have a higher boiling point and a low flash point and represent a slightly lower flammability risk.

<sup>9</sup> Table 4 provides a comparison of the DOT Specification 111 tank car currently authorized in the Hazardous Materials Regulations, the minimum standards for the DOT approved tank car pursuant to the January 25, 2011 Federal Register Notice and the tank car proposed for incorporation in petition (P-1577) by AAR.

The Task Force worked to address the root cause, severity, and consequences of derailments, and its recommendations were finalized on March 1, 2012. As a result PHMSA, with FRA's agreement, decided to initiate preparation of an advance notice of proposed rulemaking (ANPRM) to arrive at a more comprehensive solution.

In May 2012, PHMSA began drafting an ANPRM to consider revisions to the Hazardous Materials Regulations to improve the crashworthiness of railroad tank cars and identify and address operational improvements. The ANPRM addressed several Petitions for Rulemaking submitted by industry and recommendations issued by the NTSB.<sup>10</sup> The ANPRM posed a series of questions to the regulated community designed to solicit comments on potential operational and tank car design improvements that could improve rail safety, along with the costs of these improvements. The ANPRM was also designed to build and improve on the Task Force recommendations and examined the differences in the DOT-approved tank car (pursuant to the January 25, 2011 *Federal Register* Notice) and the tank car proposed in AAR's petition.

Concurrent with completing the first draft of its ANPRM in May 2012, between April 2012 and October 2012, PHMSA received three additional petitions (P-1587, P-1595 and P-1612) and one modification of a previously filed petition (P-1612). These petitions were submitted by concerned communities and various industry associations requesting further modification to the tank car standards. PHMSA published an ANPRM on September 6, 2013.<sup>11</sup> The published ANPRM addressed all of the petitions and NTSB recommendations related to rail safety, including tank car and operational standards for flammable liquids.

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<sup>10</sup> See NTSB recommendations: R-07-4, R-12-5, R-12-6, and R-12-7  
<http://www.phmsa.dot.gov/hazmat/regs/ntsb/rail>

<sup>11</sup> See *Federal Register* <http://www.gpo.gov/fdsys/pkg/FR-2013-09-06/pdf/2013-21621.pdf>

Public interest in this rulemaking was significant. We received comments from local communities, cities, and towns, rail carriers, shippers, equipment suppliers, tank car manufacturers, environmental groups, and the NTSB. PHMSA is reviewing the extensive public comments received during the comment period which ended on December 5, 2013, and will use the comments to assess possible future regulatory changes. PHMSA, in coordination with FRA, is considering all regulatory avenues available to improve rail safety.

Tank cars are only one part of the chain of delivery and we must identify and evaluate all of the risks associated with bulk movements of highly hazardous material, such as crude oil and ethanol, and then work to reduce or eliminate those risks. In response to recent train accidents in the United States and Canada involving tank cars carrying crude oil, DOT, including PHMSA and FRA, is taking aggressive action on multiple fronts to mitigate risks and ensure the safe transportation of crude oil and other hazardous materials by rail.

#### **Non-regulatory efforts**

In addition to the rulemaking activity by PHMSA, DOT took extensive action following the Lac-Mégantic derailment. On August 7, 2013 FRA, in coordination with PHMSA, issued an emergency order.<sup>12</sup> This order was designed to address the immediate hazard of death, personal injury, or significant harm to the environment, by instituting requirements related to attending and securing certain hazardous materials trains and cars, including crude oil and ethanol unit trains. The order addressed the leading factors identified in preliminary findings in the Lac-Mégantic investigation. PHMSA and FRA are conducting field inspections and investigations to monitor compliance with the emergency order.

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<sup>12</sup> See *Federal Register* <https://federalregister.gov/a/2013-19215>

Concurrent with FRA's emergency order, PHMSA and FRA published a joint Safety Advisory.<sup>13</sup> This joint advisory addressed preliminary findings of the Lac-Mégantic investigation and made the following safety and security recommendations: (1) reminding railroads to review the adequacy of their crew staffing requirements for trains transporting hazardous materials; (2) requiring system-wide evaluations to identify particular hazards that may make it more difficult to secure a train or pose other safety risks; and (3) requiring that procedures be developed to mitigate those risks.

The joint advisory also announced an emergency meeting of FRA's Railroad Safety Advisory Committee (RSAC) to address rail safety concerns, which was held on August 29, 2013.<sup>14</sup> During the emergency meeting, PHMSA and FRA explained the safety requirements in the August 7, 2013 Emergency Order and the recommendations in the joint Safety Advisory and proposed that an RSAC working group be formed, to address hazardous materials transportation requirements. RSAC members discussed the formulation of a task statement regarding appropriate train crew size, hazard classes, and quantities of hazardous materials that should trigger additional operating procedures, including attendance and securement requirements. PHMSA continues to participate in FRA's RSAC meetings on hazardous materials transport by rail. The RSAC plans to provide its recommendations regarding hazardous materials rail safety by April 2014 to PHMSA and FRA. PHMSA will evaluate those recommendations at that time.

In addition to participating in the RSAC meetings, PHMSA, as mentioned above, has been a participant in and an observer of the TCC. This committee is comprised of representatives of the Class I, short line and regional railroads, rail tank car owners,

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<sup>13</sup> See *Federal Register* <https://federalregister.gov/a/2013-19211>

<sup>14</sup> See *Federal Register* <https://federalregister.gov/a/2013-19471>

manufacturers, repair facilities, and rail hazardous materials customers, and includes participation from FRA, Transport Canada, and the NTSB. The TCC works together to develop technical standards for how tank cars, including those used to move hazardous materials, are designed and constructed. PHMSA also participates as a working member of other rail task forces.

On August 27-28, 2013, before the RSAC meeting, PHMSA and FRA held a public meeting to review the requirements in the Hazardous Materials Regulations applicable to rail operations.<sup>15</sup> PHMSA and FRA conducted this meeting as part of a comprehensive review of operational factors that affect the safe transportation of hazardous materials by rail. This meeting provided the opportunity for public input on requirements related to rail operations.<sup>16</sup> PHMSA and FRA are currently reviewing the transcript and public comments and will use the comments to inform their future possible regulatory changes.

On November 20, 2013, PHMSA and FRA issued another Joint Safety Advisory to reinforce the importance of proper characterization, classification, and selection of a packing group for Class 3 materials (flammable liquids), and the corresponding regulations for safety and security planning.<sup>17</sup> This Advisory noted that we expect offerors of hazardous material by rail and rail carriers transporting hazardous material to revise their safety and security plans as required under the Hazardous Materials Regulations, including the required risk assessments, to address the safety and security issues identified in FRA's Emergency Order No. 28 and the August 7, 2013 joint Safety Advisory. FRA has initiated a focused effort to audit security plans, specifically at railroads that move unit trains of flammable liquids.

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<sup>15</sup> See *Federal Register* <https://federalregister.gov/a/2013-17201>

<sup>16</sup> See public comments <http://www.regulations.gov/#/docketDetail:D=FRA-2013-0067>

<sup>17</sup> See *Federal Register* <https://federalregister.gov/a/2013-27785>

On January 2, 2014, PHMSA issued a Safety Alert warning of the variability in certain crude oil and emphasizing that proper and sufficient testing to ensure accurate characterization and classification should be performed.<sup>18</sup> Proper characterization and classification are integral for the Hazardous Materials Regulations to function as they were designed. Characterization and classification ultimately determine the appropriate and permitted packaging for a given hazardous material. This alert addressed the initial findings of “Operation Classification,” a compliance initiative (described below) involving unannounced inspections and testing of crude oil samples to verify that offerors of the materials have properly characterized and classified the hazardous materials. The alert expressed PHMSA’s concern that unprocessed crude oil may affect the integrity of the packaging or present additional hazards, related to corrosivity, sulfur content, and dissolved gas content. It also noted (1) that preliminary testing had focused on the classification and packing group assignments that have been selected and certified by offerors of crude oil, and (2) that PHMSA has found it necessary to expand the scope of its testing to measure other factors that might affect the proper characterization and classification of the materials.

#### **Call to Action**

On January 9, 2014, the Secretary issued a “Call to Action,” to actively engage stakeholders in the crude oil and rail industries to take immediate steps to improve the transportation of crude by rail. On January 16, 2014, the Secretary held a meeting where the Administrators of PHMSA, FRA, and the Federal Motor Carrier Safety Administration

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<sup>18</sup> See safety alert

[http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1\\_2\\_14%20Rail\\_Safety\\_Alert.pdf](http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf)

challenged representatives of all stakeholders to identify prevention and mitigation strategies that can be implemented quickly.

Specifically, the “Call to Action” discussed (1) operational controls and track maintenance measures that could prevent accidents and (2) the proper classification and characterization of hazardous materials. The meeting was an open and constructive dialogue on how, collaboratively, industry and government can make America’s railways and other modes of transportation for hazardous materials safer, since the misclassification of a hazardous material affects more than just the railroad industry. As a result of this meeting, the rail and crude oil industries agreed to consider potential actions including speed restrictions in high consequence areas, alternative routing, the use of distributive power to improve braking, increased track inspections, improvements to crude testing and classification processes, and emergency response preparedness and training. In addition, the participants agreed to return to the TCC for discussions on further improvements to the tank car standard. On January 22, 2014, the Secretary sent a letter to the attendees recapping the meeting and stressing the importance of this issue.<sup>19</sup>

In the weeks following the “Call to Action” meeting, PHMSA has worked closely with industry stakeholders to advance the safety initiatives. Resulting in voluntary agreements from the Association of American Railroads; the American Short Line and Regional Railroad Association.

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<sup>19</sup> See Call to Action follow-up letter at [http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Letter\\_from\\_Secretary\\_Foxx\\_Follow\\_up\\_to\\_January\\_16.pdf](http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Letter_from_Secretary_Foxx_Follow_up_to_January_16.pdf)

**Enhanced Enforcement and Outreach**

In addition to regulatory and non-regulatory efforts to improve rail safety, PHMSA has increased its efforts to improve awareness and understanding of, and compliance with, the Hazardous Materials Regulations. These efforts include enforcement and outreach activities that are focused on proper classification and characterization, safety and security plans, and ensuring the public is aware of and understands the Hazardous Materials Regulations. PHMSA has focused on addressing the considerable public, media, and congressional interest in the subject of crude oil transport by rail.

As mentioned above, PHMSA launched "Operation Classification," a compliance initiative involving unannounced inspections and testing of crude oil samples to verify that offerors of the materials have properly classified and described hazardous materials being shipped. In January 2013, PHMSA and FRA began planning this initiative and in August 2013 we officially launched "Operation Classification." This initiative is an ongoing effort, and PHMSA will continue to collect samples and measure the characteristics of Bakken crude as well as oil from west Texas. To date, PHMSA has taken 58 samples to collect some preliminary information about the hazards associated with these oils. PHMSA plans to release the findings of Operation Classification publicly upon conclusion of the effort and has uncovered 11 potential violations, primarily related to improper packaging group assignment. PHMSA has initiated enforcement actions on violators. In addition, as these violations could indicate further non-compliance issues, PHMSA continues to expand the scope of its investigations. In addition, PHMSA will use the results of our findings to consider the benefits, costs, and alternatives of any future regulatory action.

On January 17, 2014, PHMSA published a Web Page entitled "Operation Safe Delivery: Enhancing the Safe Transport of Flammable Liquids."<sup>20</sup> This site describes the Department's efforts to enhance the safe transport of flammable materials by rail and serves as a valuable resource for enhancing the safe transport of flammable liquids. The site will be continuously updated to provide progress reports on industry commitments as part of the "Call to Action" and additional Departmental activities related to rail safety initiatives. This page also displays the Department's rail safety action plan. Although the site was only recently unveiled, it has already received considerable traffic and is an educational resource for industry and the general public..

PHMSA is also diligently responding to both congressional and media inquiries on the subject of crude oil transport by rail. Since the beginning of 2013, PHMSA has received and responded to over twenty letters from Members of Congress requesting information on this topic. In addition, PHMSA receives requests from all forms of media daily. Finally, PHMSA is coordinating with the Government Accountability Office on an audit of the transportation infrastructure of the United States used to accommodate increased shale oil and gas production.

### **III. CLOSING REMARKS**

During my four years as PHMSA's Administrator, I have experienced marked changes in our hazardous materials transportation landscape. The emergence of the United States as the world's leading energy producer has undoubtedly changed our transportation system and provided new challenges for PHMSA. I have seen these changes and the evolution of the energy industry firsthand. I have also seen the lasting consequences that transportation incidents can

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<sup>20</sup> Web site available at <http://phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=c5ff6d96d8283410VgnVCM100000d2c97898RCRD&vgnextchannel=0f0b143389d8c010VgnVCM1000008049a8c0RCRD&vgnextfint=print>

have on the public and communities nearby. We must prepare for these new and shifting demands right now and make sure we protect our communities and the environment. Effective standards and regulations are important mechanisms for keeping America's people and its environment safe while providing for the transportation of the Nation's energy supplies, and we will continue to use our authorities to improve the effectiveness of our standards and regulations. PHMSA's oversight and enforcement capabilities, along with those of our Federal and State partners, are critically important.

PHMSA and FRA are committed to improving the safety of the transportation of hazardous materials by rail and other modes. With this in mind, I believe that our comprehensive approach to rail safety is working, but we must continue to adapt our approach as we identify changing risks. Improvement in tank car integrity is one part of the ongoing effort to address the changes in the risks associated with transportation of hazardous materials. Furthermore, PHMSA and FRA are not alone in our safety efforts. As the "Call to Action" demonstrated, the rail and crude oil industries are integral partners in improving transportation safety, and PHMSA will continue to work collaboratively to improve safety. We have a long way to go to reach no deaths, injuries, environmental or property damage, or transportation disruptions, but I truly believe our efforts are helping prevent accidents and will help mitigate their damage.

In closing, we look forward to continuing to work with Congress to address rail safety issues, specifically those dealing with the bulk shipment of flammable liquids. Together, we will strive to keep America's people and its environment safe while providing for the reliable transportation of the Nation's energy supplies. Everyone at PHMSA is dedicated and committed to fulfilling our safety responsibility to the American people. It is an honor to serve the

American people and to work with the dedicated public servants at PHMSA. Thank you again for the opportunity to speak with you today. I would be pleased to answer any questions you may have.

# # #

**Committee on Transportation and Infrastructure**  
**Subcommittee on Railroads, Pipelines, and Hazardous Materials**  
**Hearing on "Oversight of Passenger and Freight Rail Safety"**  
**February 26, 2014**  
**Questions for the Record**  
**To**  
**Cynthia Quarterman, Administration**  
**Pipeline and Hazardous Materials Safety Administration**

**THE HONORABLE JEFF DENHAM**

**QUESTION 1:** *Could you please provide a timeline for your consideration of the rule for the DOT-111 tank car standards, including your target for issuance of a final rule?*

**ANSWER 1:** PHMSA, in cooperation with FRA, is in the process of developing a draft Notice of Proposed Rulemaking, RIN 2137-AE91, "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains." You can monitor progress at: [www.reginfo.gov](http://www.reginfo.gov).

**QUESTION 2:** *Manufacturers estimate that it could take roughly a year from issuance of the final rule to produce all the parts, such as bottom valves, that will be in demand to meet the final rule standards. Furthermore, manufacturers estimate the current backlog of tank cars is somewhere between 50 and 60 thousand tank cars. This backlog has stalled since the ANPRM because no one knows what standard to build. With the possibility of a retrofit, tank car manufacturing will remain at a standstill until the rule is issued. What would you recommend the industry do?*

**ANSWER 2:** The Hazardous Materials Regulations prescribe minimum standards for safety. PHMSA recommends that industry look beyond compliance with those regulations to focus on safety in all of their transportation decisions and actions.

**QUESTION 3:** *Can you commit that you will do nothing in this rulemaking without sound data- driven evidence that the costs do not outweigh the benefits?*

**ANSWER 3:** PHMSA is committed to follow the formal regulatory process. As with all rulemakings, any regulatory action with regard to rail safety will be accompanied by a regulatory evaluation. This evaluation will consider the cost and benefits of any proposal as well as the impacts on the regulated community and general public. Further, the public and regulated community will have the opportunity to provide comments on both the regulatory proposals and the evaluation of the cost and benefits.

**QUESTION 4:** *Could you share with us your findings to date in "Operation Classification"? How much variation are you finding in the crude?*

**ANSWER 4:** PHMSA is working diligently to share the findings from Operation Classification by May 2014.

**QUESTION 5:** *How are you helping industry to comply with the Amended Emergency Order issued on March 6, 2014?*

**ANSWER 5:** PHMSA's focused inspections, outreach, and training activities assisting in industry compliance with the Emergency Order. In addition, PHMSA developed and published a comprehensive list of frequently asked questions on its website. PHMSA also met with the American Petroleum Institute on March 6, 2014 to discuss the Emergency Order and answer industry questions. We continue to address concerns as they are raised by associations or individual shippers.

**QUESTION 6:** *Please explain the efforts you are undertaking with API and others to establish standards for crude oil testing.*

**ANSWER 6:** As a result of the Call to Action, on February 20, 2014 the API agreed to pursue various actions including to work with PHMSA and other representatives from the Department of Transportation to share information and expertise on crude oil characteristics. API created a working group on entitled the "API Classification & Loading of Crude Oil Work Group." Within this working group are two task groups: "Crude Oil Classification Task Group" and the "Crude Oil Quantity & Quality Measurement Task Group."

A six month schedule for completion of this effort was launched in 2014, with working groups meeting every two weeks in Houston, TX and Washington, DC. The goal of this group is to develop a standard that will ultimately be proposed to the American Society for Testing and Materials (ASTM) to become an ASTM endorsed standard. PHMSA personnel have been active participants in these meetings and look forward to reviewing the products of these groups. If the resulting standard is acceptable to PHMSA, it will consider incorporating it into our regulations.

**QUESTION 7:** *You indicated that your agency is hurriedly working on a Notice of Proposed Rulemaking on tank car design and could not say when a proposed rule would be issued much less when a final rule would be issued. What is the current backlog for manufacturing new CPC-1232's?*

**ANSWER 7:** According to comments to the September 6, 2013 ANPRM made by the Railway Supply Institute Committee on Tank Cars (RSICTC) on pending work orders for 2014 include:

1. 17,000 – Jacketed, DOT Specification 111 tank cars meeting CPC-1232.
2. 5,900 – Non-Jacketed, DOT Specification 111 tank cars meeting CPC-1232.

The comments do not indicate the type of service for these cars, or if the NPRM would impact the usage of those cars.

**QUESTION 8:** *In writing a proposed rule, is the agency considering the growth in production in the Bakken region, the long lead times for manufacturing tank cars and the uncertainty in the industry given that they have been building tank cars since 2011 without regulatory certainty?*

**ANSWER 8:** Yes, PHMSA's regulatory development and action will be accompanied with a comprehensive regulatory evaluation. This evaluation will consider the costs and benefits of any proposal as well as the impacts on the regulated community and general public. Specifically, this evaluation considers market factors such as projected growth in crude oil production and time and cost of manufacturing. Further, the public and regulated community will have the opportunity to provide comments on both the regulatory proposals and the evaluation of the cost and benefits.

**QUESTION 9:** *Has or is the agency considering an interim final rule that would allow the current CPC-1232 in operation to continue operating throughout its useful life while continuing work on a long-term rule that would address cars not yet in the manufacturing queue?*

**ANSWER 9:** We are working on a comprehensive regulatory proposal as expressed in the September 6, 2013 ANPRM, PHMSA and FRA as well as the NTSB and AAR have questioned whether the tank car enhancements under CPC-1232 sufficiently address the risks posed by unit trains of flammable liquids. During the docket T87.6 AAR Tank Car Committee, several tank car design enhancements supported by the DOT were not adopted. PHMSA recognizes that the AAR Tank Car Committee continues to seek revisions and consensus on design improvements within the committee.

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## **HOUSE TRANSPORTATION AND INFRASTRUCTURE HEARING** **“OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY”**

THE HONORABLE CORRINE BROWN  
MEMBER, SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY

FEBRUARY 26, 2014  
QUESTIONS FOR THE RECORD  
To

CYNTHIA QUARTERMAN, ADMINISTRATOR  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

**QUESTION 1:** *The Department of Transportation (DOT) has issued a number of safety advisories and emergency orders to the industry and others as a result of recent passenger and freight rail accidents.*

1. *What enforcement authority does the Pipeline and Hazardous Materials Safety Administration (PHMSA) have to ensure compliance with these safety advisories and emergency orders?*
2. *How does PHMSA intend to monitor compliance with the advisories and orders?*

**ANSWER 1:** Under the Federal hazardous material transportation laws (49 U.S.C. 5101 et seq.) and the Hazardous Materials Regulations (HMR) (49 CFR parts 171-180), PHMSA exercises its authority to inspect and investigate entities affecting transportation safety of hazardous materials. Because of the Federal Railroad Administration’s (FRA) specialized knowledge and experience regarding railroads and because railroads are specific to FRA’s delegated responsibility, FRA leads enforcement efforts related to transportation of hazardous materials by rail. Entities determined to be in non-compliance with the regulations or an emergency order may be subject to sanctions imposed by PHMSA or FRA, including civil penalties.

Through its Field Operations inspection program, PHMSA prioritizes its limited resources towards the highest risks, including monitoring compliance with emergency orders. The recent safety advisories are recommendations to take certain voluntary action or are reminders to comply with existing law, but are not intended to be requirements in themselves, and, therefore, are not intended for PHMSA or the other modal administrations to enforce.

PHMSA has conducted focused inspection and outreach activities with the crude oil industry. PHMSA and FRA have also continued their presence and outreach efforts in the Bakken oil field region. PHMSA and FRA have worked together, and with other Federal and State agencies, to broaden the impact of those enforcement and outreach efforts.

**QUESTION 2:** *DOT-111 tank cars make up about 69 percent of the national tank car fleet, and denatured fuel ethanol is ranked as the largest-volume hazardous materials commodity shipped by rail. The accident in Cherry Valley, Illinois in 2009 demonstrated the need for extra protection such as head shields, tank jackets, more robust top fittings protection, and modification of bottom outlet valves on DOT-111 tank cars used to transport hazardous materials. The National Transportation Safety Board (NTSB) concluded that if enhanced tank head and shell puncture-resistance systems such as head shields, tank jackets, and increased shell thicknesses had been features of the DOT-111 tank cars involved in this accident, the release of hazardous materials likely would have been significantly reduced, mitigating the severity of the accident. (<http://www.nts.gov/doclib/recletters/2012/R-12-005-008.pdf>)*

*On March 2, 2012, the NTSB issued numerous recommendations to PHMSA to improve the standards of tank cars. Can you tell us the status of this recommendation?*

**ANSWER 2:** With regard to the NTSB recommendations, (specifically, R-12-5/6/7/8), PHMSA successfully closed recommendation R-12-8 as "Closed – Acceptable Action" with the publication of an Advisory Bulletin (<http://www.gpo.gov/fdsys/pkg/FR-2012-07-31/pdf/2012-18571.pdf>). The remaining recommendations (R-12-5/6/7) are all classified by the NTSB as "Open – Acceptable Action." PHMSA included these recommendations in its HM-251 advance notice of proposed rulemaking (ANPRM). PHMSA will take comments from the ANPRM into consideration when developing future rulemaking.

**QUESTION 3:** *The NTSB identified the poor performance of DOT-111 tank cars in the 80's and 90's. Since that time, the Board has made several recommendations following accidents to improve the integrity of the tank cars. In 2011, the Association of American Railroads (AAR) petitioned PHMSA for a rulemaking to provide for new tank car standards. Yet it was not until 2012 that PHMSA began drafting an advance notice of proposed rulemaking to consider revisions to tank car standards. At the hearing, Chairman DeFazio asked you what was the earliest deadline you can set to get the rulemaking done? You stated: "I can tell you when I can get the rule done, but I cannot tell you when everybody else..."*

- *When is the earliest deadline you, meaning PHMSA, can get the rule done?*
- *Is PHMSA working on a Notice of Proposed Rulemaking, Interim Final Rule, or Final Rule?*

**ANSWER 3:** PHMSA, in cooperation with FRA, is in the process of developing a draft Notice of Proposed Rulemaking, RIN 2137-AE91, "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains." You can monitor progress at: [www.reginfo.gov](http://www.reginfo.gov).

**QUESTION 4:** *What steps is PHMSA taking to ensure local communities and responders are prepared to plan for, manage, and respond to accidents involving hazardous and flammable materials that are transported by rail?*

**ANSWER 4:** PHMSA has initiated a public outreach campaign to educate the regulated community, and emergency responders on the unique characteristics and risks associated with mined materials, including some types of crude oil. These efforts include, but are not limited to, the following:

- On February 10, 2014, PHMSA held a meeting with various members of the emergency responder community to discuss the risks that crude oil poses and the challenges associated with unit train incidents.
- PHMSA has launched a Web site specifically devoted to the safety of shipments of flammable materials by rail: “Operation Safe Delivery.” This website provides valuable information to both the public and emergency responders.
- PHMSA field personnel and Hazardous Materials Safety Assistance team (HMSAT) have held and continue to hold workshops in the North Dakota Bakken region and plan to hold sessions throughout the country to educate that community on Bakken crude oil.
- PHMSA requires registration fees for certain quantities and types of hazardous materials. PHMSA’s training and grants program then uses the collected fees to provide grants to educate the public and first responders of the dangers of hazardous materials..

**QUESTION 5:** *The federal hazardous materials safety program expires at the end of this fiscal year. Current law provides \$28.3 million annually to States to help train fire fighters on how to respond to accidents involving hazardous materials.*

- *How does PHMSA make sure States are aware of the availability of the planning and training grants?*
- *As we look toward reauthorizing the program, should Congress consider increasing funding for the program?*
- *Please provide a list of the states and amounts of their grants received through the program for FY 2012 and FY2013.*

**ANSWER 5:** PHMSA implements the Hazardous Materials Emergency Preparedness (HMEP) grant program, which was authorized by the Hazardous Materials Transportation Uniform Safety Act of 1990. The HMEP grant program provides funding to States, Territories, and Native American tribes (Tribes) to ensure local emergency responders are prepared and trained to effectively respond to, and mitigate the consequences of, hazardous materials transportation incidents. The recipients of the HMEP grant consist of designated agencies assigned by each State, Territory, or Tribe to oversee and administer the grant. These designated agencies are responsible for ensuring grant funds are passed through to their local first responders to conduct the necessary planning and training activities for their State and local jurisdictions.

PHMSA ensures States, Territories, and Tribes are made aware of the availability of the planning and training grants through: 1) a grant announcement posted annually on grants.gov Web site, 2) email communication to designated States, Territories, and Tribes informing them

about the grant-application open period and the announcement posted on the grants.gov Web site, and 3) program webinars directed towards potential applicants and existing grantees/States to inform them of upcoming grant application open periods and requirements.

For the 2014-2015 grant cycle, and subsequent cycles moving forward, PHMSA is encouraging the allocation of funds to specific emergency preparedness activities. These activities include developing or revising emergency plans to account for bulk rail shipments of crude, developing commodity flow studies to determine the frequency and quantity of crude shipments transported through local communities, and training emergency responders to respond appropriately to incidents involving bulk shipments of crude.

At this time, PHMSA is not requesting authorization to increase funding for the Hazmat Grant Program. The current authorization of \$28.3 million is providing sufficient funds for each of the Hazmat Grant Programs to include HMEP (\$21.8M), the Supplemental Public Sector Training grant (\$1M), and the Hazardous Materials Training Instructor Grant. However, using the upcoming reauthorization, PHMSA will seek approval to further streamline the hazmat grants program in an effort to reduce administrative constraints and increase grantee spending. If successful, a request for future increase in annual funding may be considered.

We are still collecting data for the 2013 grant cycle. The historical data (2000-2012) for HMEP grant awards can be found on the PHMSA Web site at <http://phmsa.dot.gov> or under the direct link.

<http://phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=3b5cef80708c8110VgnVCM1000009ed07898RCRD&vgnextchannel=b9623074e1db8110VgnVCM1000009ed07898RCRD&vgnextfmt=print>

**QUESTION 6:** *Crude oil is often transported in trains carrying many different materials, called mixed trains. With mixed trains, it is even more important that emergency responders have an accurate list of what is contained in each of the rail cars. Often rail cars change in transportation so the shipping paper provided by the train crew at the scene of an accident may no longer be accurate. What is PHMSA doing to ensure the accuracy and availability of train consist information to emergency responders?*

**ANSWER 6:** PHMSA prescribes in Section 174.26(a) of the Hazardous Materials Regulations (HMR) that railroads and train crews must have a document (i.e. train consist) that reflects the current position in the train of each rail car containing a hazardous material. Further, they must update their train consist to reflect any changes in the tank car placement on a mixed train.

Ensuring an accurate consist list is available to emergency responders, however, goes beyond the document maintained by the crew. Generally, the document indicating the location in the train of cars carrying hazardous material is updated in one of two ways, either manually or through automated equipment identification (AEI) tags. AEI tags work using radio frequency technology such that when cars equipped with AEI tags pass an AEI "reader" the list of cars in the train consist (which identifies the location of each car in the train, including the contents of each car carrying hazardous material) is automatically updated in the railroad's database. This consist list can be provided to first responders by off-site railroad personnel, but unless the electronic updates are communicated to the crew and the crew manually updates the physical list in its

possession, the crew's consist list may become outdated. Accordingly, issues arise when cars are picked up for a train or set off from a train and the crew does not manually update the list in its possession. When cars are picked up or set off, the train crew must manually update the crew's copy of the train consist to accurately identify the new location of cars carrying hazardous material. Related to this issue, PHMSA and FRA are evaluating the HMR and considering NTSB recommendation R-07-04, which is aimed at ensuring that a document with the location of the cars carrying hazardous material in each train is available for first responders.

PHMSA also received an NTSB recommendation (R-07-4) requesting that PHMSA require railroads to immediately provide to emergency responders accurate, real-time information regarding the identity and location of all hazardous materials on a train. FRA and PHMSA hosted a two-day public meeting in August 27-28, 2013 to solicit comments related to the transportation of hazardous materials by rail. Requirements for train consist was a specific agenda item. FRA and PHMSA are reviewing public comments submitted relative to the current regulatory requirements for train consists and may revise these requirements in a future rulemaking.

**QUESTION 7:** *In MAP-21 Congress authorized PHMSA to conduct pilot projects on paperless hazmat information sharing among carriers and first responders.*

- *What is the status of that pilot project?*
- *We understand that the fire fighter community has raised concerns regarding a paperless system. Have they shared their concerns with PHMSA? If so, can you provide a synopsis of their concerns?*

**ANSWER 7:** Pilot tests will be conducted in 2014, pending completion of the related information collection approval process. After consultation with emergency responders, shippers, and carriers through workshops and meetings, PHMSA has determined that pilot tests will occur in at least three regions, including a rural area, possessing high concentrations of hazardous materials registrants and presenting historically high numbers of hazardous materials incidents. The pilot tests will focus on the use of e-systems to communicate hazardous materials shipping paper information while shipping hazardous materials from origin to final destination and during law enforcement inspections and emergency response simulations.

PHMSA is aware of the fire fighter community concerns regarding a paperless hazmat information sharing system. A roundtable discussion took place on March 13, 2014 with the emergency response community and law enforcement to discuss the overall objectives of the pilot program. Attendees were receptive to exploring the feasibility of whether shipping information can be provided electronically and were hopeful that the pilot would be the first step of many towards eventual paperless hazardous materials (hazmat) information sharing. The response community expressed concern that the pilot exercise may not accurately reflect real-life scenarios.

**QUESTION 8:** *During the hearing, Mr. Gerard from the American Petroleum Institute (API) stated: "The emergency order, unfortunately, says that we need to look at proper testing with sufficient frequency and quality. We don't know what that means, and yet in the same order it*

*reminds us there are criminal penalties and \$175,000 in infraction attached to this." What is your response to this? Mr. Gerard also testified that the oil industry has provided and is providing all the information PHMSA needs on the makeup and testing of their petroleum products. Is that accurate? If not, what information is needed and why is it important for PHMSA to have this information?*

**ANSWER 8:** On March 6, 2014 DOT issued an Amended and Restated Emergency Restriction and Prohibition Order (Amended Order)

(<http://www.dot.gov/sites/dot.gov/files/docs/Amended%20Emergency%20Order%20030614.pdf>).

This Amended Order seeks to clarify the original Order and supersedes and replaces in its entirety the original Order. In addition, frequently asked questions regarding the Amended Order was published on the PHMSA Web site at: (<http://www.phmsa.dot.gov/hazmat/osd/qanda>). Finally, PHMSA met with API on March 6, 2014 to discuss the Amended Order and answer API's questions. The HMR require offerors to know what they are shipping, which is why the need to do the testing as a matter of routine compliance with the HMR.

PHMSA has received some testing data results from individual crude oil companies, but thus far the data has been limited. The Association of Fuel and Petrochemical Manufacturers has offered to hire an independent consultant to provide industry data without attribution. PHMSA looks forward to receiving that information.

**THE HONORABLE DANIEL LIPINSKI  
MEMBER, SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY**

**FEBRUARY 26, 2014**

**QUESTIONS FOR THE RECORD**

**To**

**CYNTHIA QUARTERMAN, ADMINISTRATOR  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION**

**QUESTION 9:** *As you know, the lack of updated regulations for tank cars in the U.S. has caused difficulty for many rail stakeholders. As discussed during the hearing, many, including me, are interested in what PHMSA's timeline will be for an updated tank car standard. Please provide a range of possible dates for a decision to be made for replacement of the DOT-111 tank car standard as well as predicted steps in that process. Please also include explanations for what factors will affect whether PHMSA will be able to set a standard earlier or later within the date range you set out.*

**ANSWER 9:** PHMSA, in cooperation with FRA, is in the process of developing a draft Notice of Proposed Rulemaking, RIN 2137-AE91, "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains." You can monitor progress at: [www.reginfo.gov](http://www.reginfo.gov).

THE HONORABLE MICHAEL H. MICHAUD  
MEMBER, SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY  
FEBRUARY 26, 2014  
QUESTIONS FOR THE RECORD  
To  
CYNTHIA QUARTERMAN, ADMINISTRATOR  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

**QUESTION 10:** *Last fall PHMSA issued an ANPRM for new rail safety regulations, including new tank car design standards. Do you have timeframe for when we can expect to see a final rule? And if so, what is it?*

**ANSWER 10:** PHMSA, in cooperation with FRA, is in the process of developing a draft Notice of Proposed Rulemaking, RIN 2137-AE91, "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains." You can monitor progress at: [www.reginfo.gov](http://www.reginfo.gov).

**QUESTION 11:** *I know DOT's recent agreement with AAR did address some aspects of the NTSB's recommendations. But that agreement was only with the Class I railroads, which do not operate in Maine. What are you doing to ensure that all railroads take these necessary safety precautions?*

**ANSWER 11:** As a result of the "Call to Action," on February 21, 2014 the AAR agreed to take a series of immediate actions one of which was that AAR would "[b]y no later than July 1, 2014, expand routing requirements to trains carrying more than 20 cars of crude." As part of the "Call to Action" the American Short Line and Regional Railroad Association (ASLRRRA) also offered in its February 12, 2014 letter to take the following series of immediate actions with its members:

1. ASLRRRA will recommend to its members that unit trains of crude oil (20 cars or more) operate at a top speed of no more than 25 mph on all routes.
2. ASLRRRA will work with its member railroads and the Class I railroads to develop a program of best practices to assure a seamless system of timely and effective emergency response to crude oil spills no matter where on the national rail system an incident may occur
3. ASLRRRA will recommend that its member railroads sign master service agreements with qualified environmental cleanup providers to ensure prompt and effective remediation in all areas subjected to unintentional discharge of crude oil. In addition, ASLRRRA will work with the AAR and Class I railroads to eliminate any gaps in coordination or response systems when both large and small railroads are involved.
4. ASLRRRA will support and encourage the development of new tank car standards including but not limited to adoption of the 9/16 inch tank car

wall that will meet the needs of all stakeholders and enhance the safety of the transportation of crude oil by rail.

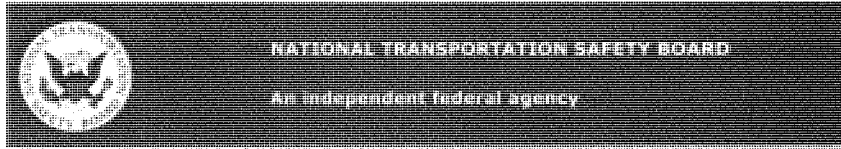
5. Contingent upon securing a six to twelve month pilot-project grant from the FRA, the ASLRRRA plans to expedite the most significant project in its 100 year history to reduce the risks of accidents, incidents and regulatory noncompliance in the small railroad industry. If grant funding is provided, ASLRRRA will create the Short Line Safety Institute which will:
  - a. Work jointly with the FRA to develop and implement a pilot safety inspection and evaluation project for short line railroads.
  - b. Work with the FRA Office of Research and Development Human Factors Division (1) to create an assessment process to evaluate the current safety and compliance attainment levels on small railroads, (2) to contract and train expert qualified inspectors, and (3) to develop training, assessment and reporting document systems.
  - c. Work with FRA to create benchmarks and objectives to measure the progress and effectiveness of the Short Line Safety Institute safety inspection programs.
  - d. Begin with a focus on the transportation of crude oil by small railroads and thereafter expand to the transportation of all commodities for Class III railroads.

PHMSA and FRA continue to monitor the status of industry commitments made in the “Call to Action.”

**QUESTION 12:** *Since 2011, thanks to a voluntary commitment from the rail industry, new tank cars have been built to higher standards. Have these new cars been crash tested to ensure they perform as intended? If not, would you be willing to work with the industry to test them?*

**ANSWER 12:** Let me preface my answers to your questions by commenting on your first statement. Actually, only cars ordered after October 1, 2011 are required to be built to the new, CPC-1232 standard. In 2011, there was an 18-month backlog of orders for new tank cars for crude oil service. Given the backlog, legacy cars were being built as recently as the end of calendar year 2013.

Now I'll turn to your questions. No, the new cars (i.e., the CPC-1232 cars) have not been crash tested, and neither PHMSA nor FRA believes that such full-scale testing is necessary. We believe that our validated computer modeling is sufficient to determine whether or not the cars are safe. FRA recently funded puncture tests of tank cars meeting two DOT specifications: the DOT 111 and DOT 112 (both non-pressure cars). Similarly, six years ago, similar tests were performed on DOT 105 specification tank cars (pressure cars). The puncture tests were performed to validate computer models and simulation results designed to predict the puncture velocity of tank cars built to a variety of existing specification or conceptual designs. With validated results in hand, we can then model a variety of tank car designs to determine their performance. A crash test would not necessarily provide a validation that one car is more robust than another.



**The Honorable Robert L. Sumwalt  
Board Member  
On Behalf of the  
National Transportation Safety Board**

**Before the**

**Subcommittee on Railroads, Pipelines, and Hazardous Materials  
Committee on Transportation and Infrastructure  
United States House of Representatives**

**Hearing on**

**Oversight of Passenger and Freight Rail Safety**

**Washington, DC  
February 26, 2014**

Good afternoon, Chairman Denham, Ranking Member Brown, and Members of the Subcommittee. Thank you for the opportunity to appear before you on behalf of the National Transportation Safety Board (NTSB) and to update you on our ongoing work to improve railroad safety by investigating railroad accidents and issuing safety recommendations. Our nation's economy depends on a safe, reliable rail transportation system, and the American public expects and deserves nothing less. Recent railroad accidents under active investigation, including fatal accidents, remind us of the clear imperative to stay vigilant and stand ready to make improvements to the safety of railroad transportation. Our Nation's railroad system is safe, but evolving demands on the railroad system mean evolving safety challenges, and much work is ahead in our shared mission of making our nation's railroad system as safe as it can be.

Recent events have placed railroad safety at the forefront of the national conversation. Last May, in Bridgeport, Connecticut, 76 people were injured when a Metro-North Railroad (Metro-North) commuter train derailed, fouled the adjacent track, and was struck by a train approaching on that adjacent track. Just more than a week later, a Metro-North track foreman was struck by a train and killed in West Haven, Connecticut. In July, a CSX train operating on Metro-North tracks derailed in The Bronx. In December, four people lost their lives and 59 others were injured when a Metro-North commuter train derailed in The Bronx after entering a curve with a 30-mile-per-hour (mph) speed limit at 82 mph. One month later, 2014 dawned with a team of NTSB investigators working the scene of a serious railroad accident near Casselton, North Dakota, where 20 cars of a 106-car BNSF petroleum crude oil unit train ignited after colliding with cars from a derailed BNSF grain train.<sup>1</sup> More than 476,000 gallons of crude oil were released in the accident, and the massive fire triggered a voluntary evacuation of 1,400 people from the surrounding area and resulted in millions of dollars in damage.

Our investigations into these accidents continue, and the second portion of this written testimony will update the Subcommittee on what we have learned so far. Last week, we issued three recommendations to Metro-North that Metro-North install signs to clearly warn train crews that they are approaching areas of permanent speed restrictions and that Metro-North install and review inward- and outward-facing audio and video recorders in locomotives and control cars, which is a longstanding NTSB recommendation to the Federal Railroad Administration (FRA).

### **Current Safety Issues**

First, I would like to offer some perspectives on safety issues including, (1) safety deficiencies in the design of thousands of railroad tank cars; (2) the need for widespread implementation of positive train control (PTC) systems; (3) the need for installation of inward- and outward-facing locomotive cameras; and (4) the need for focused, industrywide efforts to foster top-down safety cultures in which safety thrives. There is not one approach that will improve rail safety, but it must be addressed by implementing

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<sup>1</sup> A unit train is a train made up of cars carrying the same product.

varied approaches that, when working together, can help drive down the number and frequency of accidents or mitigate the severity of accidents.

### **Railroad Tank Car Design**

The Nation's railroad network is taking on an expanding role—one that has profound economic importance—as a major channel for the transportation of crude oil and other hazardous products. As the NTSB noted recently, the American Association of Railroads' 2012 *Annual Report of Hazardous Materials Transported by Rail* states that crude oil traffic has increased by 443 percent since 2005 and that this growth is expected to continue for the foreseeable future. According to the FRA, the volume of crude oil transported by rail has increased dramatically in recent years, from approximately 65,600 carloads in 2011 to approximately 257,450<sup>2</sup> carloads in 2012—an increase of 292 percent.<sup>3</sup> Moreover, not only is more crude oil being transported by rail, but some of the crude oil being moved on the Nation's railroad system—such as that originating in the Bakken formation—may have more volatile properties. Last month, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a safety alert advising “the general public, emergency responders and shippers and carriers that . . . the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude oil,” with the results of further tests of Bakken crude oil forthcoming.<sup>4</sup>

Furthermore, ethanol traffic transported by railroad increased 442 percent between 2005 and 2010; in 2012, ethanol was the most frequently transported hazardous material in the railroad system.<sup>5</sup> The evolving role of our Nation's railroad network in the transportation of flammable crude oil and ethanol requires interested parties to take a comprehensive approach to eliminate or significantly reduce the safety risks. This approach must include improvements to track inspection and maintenance programs and the crashworthiness of the tank cars that transport these materials.

Indeed, as the volume of flammable materials transported by rail grows the Casselton, North Dakota, accident has become an increasingly commonplace story—and multiple recent serious and fatal accidents reflect substantial shortcomings in tank car design that create an unacceptable public risk. The crude oil unit train involved in the Casselton accident consisted of railroad tank cars designed and manufactured to Department of Transportation (DOT) Specification 111-A100W1 (DOT-111)—a design that presents demonstrated and serious safety concerns when used to transport hazardous materials such as crude oil. Specifically, the NTSB has identified vulnerabilities in DOT-111 tank car design with respect to tank heads, shells, and fittings that create the unnecessary and demonstrated risk that, in an accident, hazardous materials could be

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<sup>2</sup> The capacity of a tank car is about 30,000 gallons or 675 barrels of oil.

<sup>3</sup> FRA Emerg. Order No. 28, 78 Fed. Reg. 48218, 48220 (Aug. 7, 2013).

<sup>4</sup> PHMSA Safety Alert: Preliminary Guidance from Operation Classification (Jan. 2, 2014).

<sup>5</sup> FRA Emerg. Order No. 28, 78 Fed. Reg. at 48221; *see also* NTSB, Letter to The Honorable Cynthia L. Quarterman, Administrator, Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation (Jan. 21, 2014), at 7 n. 11-13 (and citations therein).

released and, in the case of flammable materials such as crude oil and ethanol, could ignite and cause catastrophic damage.<sup>6</sup>

The NTSB continues to find that accidents involving the rupture of DOT-111 tank cars carrying hazardous materials often have violent and destructive results. For example, on July 6, 2013, a 4,700-foot-long train that included 72 DOT-111 tank cars loaded with crude oil from the Bakken fields derailed in Lac-Mégantic, Quebec, triggering an intense fire fed by crude oil released from at least 60 cars. The fire engulfed the surrounding area and completely destroyed buildings and property. Forty-seven people died. The NTSB is assisting the Transportation Safety Board of Canada (TSB) in its investigation of that accident, and last month both the NTSB and TSB issued safety recommendations asking FRA and PHMSA, as appropriate, to require railroads to evaluate the safety and security risks of crude oil train routes and select routes that avoid populous and other sensitive areas, require railroads to develop comprehensive emergency response plans for worst-case releases resulting from accidents, and require shippers to sufficiently test and properly classify hazardous materials such as crude oil prior to shipment. With respect in particular to the recommendation on classification of crude oil, PHMSA's safety alert regarding Bakken crude oil underscores the critical importance of accurate classification of flammable materials. We look forward to working with PHMSA and FRA on implementing these recommendations.

In addition, the NTSB is investigating, or has investigated, a spate of recent similar accidents in the United States that demonstrate the destructive results when DOT-111 tank cars containing hazardous materials are punctured, including:

- The July 11, 2012, Norfolk Southern Railway Company train derailment in a Columbus, Ohio, industrial area in which three derailed DOT-111 tank cars released about 54,000 gallons of ethanol, with energetic rupture of one tank car in a post-accident fire.
- The October 7, 2011, Tiskilwa, Illinois, train derailment of 10 DOT-111 tank cars resulting in fire, energetic rupture of several tank cars, and the release of 162,000 gallons of ethanol.
- The June 19, 2009, Canadian National Railway train derailment in Cherry Valley, Illinois, in which 13 of 19 derailed DOT-111 tank cars were breached, caught fire, and released about 324,000 gallons of ethanol. The post-accident fire resulted in one death, nine injuries, and the evacuation of 600 houses within half a mile of the accident.

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<sup>6</sup> See, e.g., NTSB, *Derailed of CN Freight Train U70691-18 With Subsequent Hazardous Materials Release and Fire Cherry Valley, Illinois, June 19, 2009*, Accident Rpt. No. NTSB/RAR-12/01 (Feb. 14, 2012), at 88 (concluding that, in accident involving breaches of DOT-111 tank cars, "If enhanced tank head and shell puncture-resistance systems such as head shields, tank jackets, and increased shell thicknesses had been features of the DOT-111 tank cars involved in this accident, the release of hazardous materials likely would have been significantly reduced, mitigating the severity of the accident.").

- The October 20, 2006, New Brighton, Pennsylvania, Norfolk Southern Railway Company train derailment in which 23 DOT-111 tank cars derailed, fell from a bridge, caught fire, and released more than 485,000 gallons of ethanol.

Federal requirements simply have not kept pace with evolving demands placed on the railroad industry and evolving technology and knowledge about hazardous materials and accidents. In fact, the current American Association of Railroads (AAR) industry standards adopted for DOT-111 tank cars ordered after October 1, 2011 that are used to transport packing group I and II crude oil, impose a level of protection greater than corresponding federal requirements.<sup>7</sup> At this point, however, the NTSB is not convinced that these modifications offer significant safety improvements.

The NTSB continues to assert that DOT-111 tank cars, or tank cars of any successor specification, that transport hazardous materials should incorporate more effective puncture-resistant and thermal protection systems. This can be accomplished through the incorporation of additional protective features such as full head shields, jackets, thermal insulation, and thicker head and shell materials. Because the average service life of a tank car may run 20-30 years, it is imperative that industry, the FRA, and PHMSA take action now to address hazards that otherwise would exist for another half-generation or longer.

Following the 2011 Cherry Valley, Illinois, accident the NTSB recommended that PHMSA improve DOT-111 tank car crashworthiness by:

[r]equir[ing] that all newly manufactured and existing general service tank cars authorized for transportation of . . . crude oil in Packing Groups I and II have enhanced tank head and shell puncture-resistance systems and top fittings protection that exceeds existing design requirements for DOT-111 tank cars.<sup>8</sup>

The NTSB also recommended that PHMSA improve requirements for bottom outlet valves so that they remain closed during accidents involving impact forces<sup>9</sup> and require improved center sill or draft sill attachment designs,<sup>10</sup> and the NTSB reiterated its prior recommendation that PHMSA, in consultation with FRA, require that railroads

<sup>7</sup> These new standards, for example, call for DOT-111 tank cars that transport flammable liquids in packing groups I and II (the highest-risk of the three packing groups, classified according to flash and boiling points) to be built with protective “jackets” around their tanks, constructed of normalized steel at least 7/16 inch thick, and call for non-jacketed tanks to be constructed from normalized steel (steel that has been subjected to a heat-treating process that improves its material properties) at least half an inch thick. See American Assoc. of Railroads, *Manual of Standards and Recommended Practices: Specifications for Tank Cars*, M-1002. Corresponding Federal regulations require steel thickness of at least 7/16 inch, but they allow for the use of non-normalized steel and do not require incorporation of jackets or head shields. See 49 C.F.R. part 179, subpart D.

<sup>8</sup> See NTSB, *Derailed of CN Freight Train U70691 With Subsequent Hazardous Materials Release and Fire, Cherry Valley, Illinois, June 19, 2009*, RAR-12/01 (2012); NTSB Recommendation No. R-12-5 (2012).

<sup>9</sup> NTSB Recommendation No. R-12-6

<sup>10</sup> NTSB Recommendation No. R-12-7

immediately provide emergency responders with accurate, real-time information on hazardous materials on a train.<sup>11</sup>

The importance of providing correct information to first responders highlights a related issue. Following the freight train derailment in Paulsboro, New Jersey, on November 30, 2012, which is the subject of an ongoing NTSB investigation, the NTSB learned of the critical importance to first responders of immediate, accurate information about the contents of a derailed tank car so that first responders may tailor their emergency response in a manner that best protects life and property. First responders' ability to make good decisions in responding to a hazardous-materials release depends on their clear understanding of what is in a tank car. Any improvement to railroad tank car safety must proceed hand-in-hand with an improved approach to ensuring first responders have adequate information to take appropriate life-saving actions. PHMSA indicates it, along with FRA, is working to implement this recommendation.

Although important decisions are clearly ahead for regulators and industry, the NTSB is pleased that at least some progress has been made. PHMSA published an advance notice of proposed rulemaking (ANPRM) on September 6, 2013, for potential safety improvements to DOT-111 tank cars, and we remain engaged in that rulemaking proceeding. In NTSB comments on the ANPRM dated December 5, 2013, we urged PHMSA to promptly address the four recommendations that were included in the NTSB report on the Cherry Valley accident, described above, and to issue improved and effective regulations that reduce the risks associated with DOT-111 tank cars. We will continue to carefully monitor PHMSA's progress and will ensure decision-makers have the full benefit the lessons the NTSB has learned through its investigations. The NTSB also continues to call on industry stakeholders to rise to the challenge and explore measures that will improve tank car design in the interim. Industry and Department of Transportation leaders met in January to discuss development of an industry plan to make certain safety improvements.<sup>12</sup> This dialogue is encouraging, and the NTSB will continue to urge regulators and industry stakeholders to follow through on any commitments.

### **Implementation of PTC Systems**

PTC systems help prevent (a) derailments caused by overspeeding, (b) train-to-train collisions by slowing or stopping trains that are not being operated in accordance with the signal systems and operating rules, and (c) injury to track workers. The first NTSB-investigated accident that train control technology would have prevented occurred in 1969, when four people died and 43 were injured in the collision of two Penn Central commuter trains in Darien, Connecticut. The NTSB recommended in response to that

<sup>11</sup> NTSB Recommendation No. R-07-4.

<sup>12</sup> "Rail, Oil Industries Weigh New Safety Measures in Wake of Derailments, Explosions," NBC News Investigations, Jan. 16, 2014, *available at* [http://investigations.nbcnews.com/\\_news/2014/01/16/22328508-rail-oil-industries-weigh-new-safety-measures-in-wake-of-derailments-explosions?lite](http://investigations.nbcnews.com/_news/2014/01/16/22328508-rail-oil-industries-weigh-new-safety-measures-in-wake-of-derailments-explosions?lite).

accident that FRA study the feasibility of requiring railroads to install an automatic train control system, the precursor to today's PTC systems.<sup>13</sup>

More recently, in 2008, more lives were lost in a PTC-preventable accident when a Metrolink commuter train and a Union Pacific freight train collided head-on in Chatsworth, California, killing 25 people and injuring 102 others. The NTSB concluded that the Metrolink engineer's use of a cell phone to send text messages distracted him from his duties. PTC would have prevented the tragedy that resulted. In the aftermath of the Chatsworth accident, Congress enacted the Rail Safety Improvement Act (RSIA) of 2008, which requires each class I rail carrier and each provider of regularly scheduled intercity passenger or commuter rail transportation to implement a PTC system by December 31, 2015, on each line over which intercity passenger or commuter service is operated or over which poison- or toxic-by-inhalation hazardous materials are transported.<sup>14</sup> In 2012, however, FRA exempted about 10,000 miles of track from the PTC mandate, and several rail carriers and transit authorities have stated that they will not meet the 2015 deadline.

We continue to see accidents that could be prevented by PTC. The December 1, Metro-North accident in the Bronx, which killed four people and injured 59 others would have been prevented by PTC. We also are examining the role PTC could have played in the May 28 roadway worker fatality. Since 2004 alone, in the 25 PTC-preventable freight and passenger rail accidents that NTSB investigated, 65 people died, more than 1,100 were injured, and damages totaled millions of dollars.<sup>15</sup> With each PTC-preventable accident, the case for PTC only grows stronger, yet progress toward industry-wide implementation has been slow.

Implementation of PTC systems was included on the NTSB's Most Wanted List when the list was first published in 1990 and has remained on the list almost continuously since that time. We may never eliminate human error from the railroad system, but PTC provides a level of redundancy to protect trains and those on board when human factors, such as distraction or fatigue, might otherwise set an accident sequence into motion.

Some rail carriers have installed PTC or are working to meet the 2015 deadline. However, in August 2013, the Government Accountability Office reported to the U.S. Senate that, due to a number of complex and interrelated challenges, the majority of railroads will not complete PTC implementation by the 2015 deadline.<sup>16</sup> NTSB files are filled with accidents that could have been prevented by PTC, and for each and every day that PTC implementation is delayed, the risk of an accident remains. For PTC to reach its greatest safety potential, it must be implemented on all passenger and freight lines subject to the installation requirements specified in the RSIA. Lives depend on it.

<sup>13</sup> NTSB Recommendation No. R-70-020.

<sup>14</sup> Rail Safety Improvement Act of 2008, Pub. L. No. 110-432, § 104 (2008).

<sup>15</sup> These accidents do not include Metro-North accidents.

<sup>16</sup> Gov't Accountability Office, *Positive Train Control: Additional Authorities Could Benefit Implementation*, GAO Rpt. No. GAO-13-720 (August 2013), available at <http://www.gao.gov/assets/660/656975.pdf>.

There is much debate by policymakers over whether to extend the 2015 deadline established by RSIA. If Congress were to delay the statutory deadline, railroads that had delayed planning PTC implementation would be rewarded and railroads that had moved ahead with planning for PTC implementation by the deadline would essentially be punished. Therefore if Congress were to delay the deadline, the NTSB would encourage the FRA to adjust Appendix A to Part 236 accordingly. However if Congress does not delay the statutory deadline, the NTSB would encourage the FRA to use its regulatory authority to levy the appropriate penalties for all instances of noncompliance.

Following the head-on collision of two Union Pacific freight trains in Goodwell, Oklahoma, NTSB issued the following recommendation to the railroads covered under the RSIA mandate:

Provide positive train control implementation update reports to the Federal Railroad Administration every 6 months until positive train control implementation is complete. The update reports should consist of two sections: components and training. The components section should include a description of the positive train control component to be implemented, the number of components, the number of components completed on the report date, the number of components that remain to be completed, the overall completion percentage, and the estimated completion date. Components are defined as locomotives, wayside units, switches, base station radios, wayside radios, locomotive radios, and any new and novel technologies that are part of a positive train control system. The training section should include the number of safety-related employees and equivalent railroad carrier contractors and subcontractors that need to be trained, by class and craft; minimum training standards for those employees and contractors, meaning the knowledge of and ability to comply with federal railroad safety laws and regulations and carrier rules and procedures to implement positive train control; the percentage of employees who have completed training; the percentage of employees who remain to be trained; and the estimated date that training will be completed.

Additionally, the NTSB recommended that FRA:

Publish the positive train control implementation update reports submitted by all railroads subject to the positive train control provisions of the Rail Safety Improvement Act of 2008 and make the reports available on your website within 30 days of report receipt.<sup>17</sup>

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<sup>17</sup>See NTSB, *Head-On Collision of Two Union Pacific Railroad Freight Trains Near Goodwell, Oklahoma* June 24, 2012, Rpt. No. NTSB/RAR-13/02 (June 18, 2013); Recommendations Nos. R-13-23 and R-13-27 (2013).

The NTSB believes this information should be made available online to ensure a transparent accounting for actions taken and not taken to meet the 2015 deadline so that regulators and policymakers can make informed decisions. However, because of FRA's lack of sufficient action on its recommendation, this week we classified this recommendation as "Open—Unacceptable Response."

### **Inward- and Outward-Facing Locomotive Audio and Image Recorders**

The December 1, Metro-North accident in The Bronx raised questions about the actions of the engineer prior to the crash. The NTSB has repeatedly called for railroad carriers to install inward- and outward-facing audio and image records to answer similar questions that have arisen in other accidents. Recorders in locomotives and cab car operating compartments are critically important not only because they would assist NTSB investigators and others understand what was happening in a train in the minutes and seconds before an accident, but also because they would help railroad management *prevent* accidents by identifying and responsibly addressing safety issues before they lead to injuries and loss of life and allow for the development of material that can be a valuable training and coaching tool.

The Chatsworth tragedy in 2008 again made the case crystal-clear for understanding crewmembers' activities in the minutes and seconds leading up to accidents. Discussing the strong safety case for a requirement for inward-facing cameras in locomotives, the NTSB noted that

[i]n all too many accidents, the individuals directly involved are either limited in their recollection of events or, as in the case of the Chatsworth accident, are not available to be interviewed because of fatal injuries. In a number of accidents the NTSB has investigated, a better knowledge of crewmembers' actions before an accident would have helped reveal the key causal factors and would perhaps have facilitated the development of more effective safety recommendations.

On the basis of that reasoning, the NTSB recommended that FRA require the installation, in control compartments, of "crash- and fire-protected inward- and outward-facing audio and image recorders capable of providing recordings [for at least 12 hours] to verify that train crew actions are in accordance with rules and procedures that are essential to safety as well as train operating conditions."<sup>18</sup> The NTSB also recommended that FRA "[r]equire that railroads regularly review and use in-cab audio and image recordings . . . to verify that train crew actions are in accordance with rules and procedures that are essential to safety."<sup>19</sup>

The NTSB recently reiterated these important recommendations in its report on the collision of a BNSF coal train with the rear end of a standing BNSF maintenance-of-way equipment train near Red Oak, Iowa, which resulted in fatal injuries to the two

<sup>18</sup> NTSB Recommendation No. R-10-1.

<sup>19</sup> NTSB Recommendation No. R-10-2.

crewmembers of the striking train. Damage was in excess of \$8.7 million. As the NTSB stated in its report, the accident again demonstrated the need for in-cab recording devices to better understand (and thereby prevent) serious railroad crashes that claim the lives of crewmembers, passengers, and the public.

Last week, we issued our longstanding recommendation on this subject directly to Metro-North Railroad. An industry-wide FRA-mandated approach would be far more effective, but failing that, we will address the recommendation on an individual basis.

### **Safety Culture**

Fostering the development of transparent, top-to-bottom safety cultures in transportation is an important priority of the NTSB. Creating and nurturing a thriving safety culture within rail carriers is even more imperative in light of the expanding role of the Nation's railroad system as a main transporter of flammable materials.

The NTSB held a public forum on September 10 and 11, 2013, on successes and challenges associated with creating and maintaining strong safety cultures across the transportation modes, including rail. Panels of experts from academia, industry, and Federal regulatory agencies, such as the FRA, offered their perspectives on the significant organizational commitments and managerial work that are required to maintain safety cultures across large, complex organizations such as transportation carriers.

As Members of the Subcommittee well remember, organizational factors at the Washington Metropolitan Area Transit Authority (WMATA) contributed to the fatal June 22, 2009, Metrorail train collision near the Fort Totten station in Washington, D.C. The NTSB found that WMATA leaders did not take sufficient action to make safety a priority and to identify and address safety issues from the top down: the WMATA General Manager did not provide adequate information about critical safety issues; the WMATA Board of Directors did not seek information about critical safety issues; and the Board of Directors did not exercise oversight responsibility for system safety.

While WMATA has addressed many of these issues, the NTSB is examining the role of safety culture in the Metro-North accident investigations. The NTSB public investigative hearing regarding last May's two Metro-North accidents examined the importance of an organizational safety culture and the critical role that organizational culture plays in preventing accidents. The NTSB learned during the hearing that Metro-North has undertaken efforts to foster a stronger safety culture but that challenges remain. The then-president of Metro-North, spoke of the "challenge" associated with creating "a clear understanding across the organization that safety is the core value and we're not looking for shortcuts, and that we want people to work safely."<sup>20</sup> Metro-North officials and labor stakeholders further assured the NTSB that Metro-North is taking action to address safety issues from the top to the bottom. Organizational issues within the railroad

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<sup>20</sup> NTSB, Board of Inquiry in the Matter of Two Metro-North Rail Accidents: Bridgeport Train Derailment on May 17, 2013 and West Haven Collision Death of a Metro-North Track Foreman on May 28, 2013, Tr. Vol. II at 329 (Washington, D.C., Nov. 7, 2013).

industry will continue to be an area of examination as the NTSB investigations of the Bridgeport, West Haven, and two Bronx accidents continue. In particular, the Bridgeport accident underscores the critical importance of regular, vigorous, and robust inspections of tracks. Railroad management must afford track workers adequate time and opportunity to conduct inspections and make repairs as necessary. As part of its ongoing investigation, the NTSB is undertaking a comprehensive review of Metro-North track inspections and follow-up work and is also looking at the adequacy of the FRA's Track Safety Standards.

The importance of building relationships between management and employees that foster a vibrant safety culture cannot be overlooked. Trust is an essential ingredient in those relationships. A culture in which front-line employees may openly report operational errors and safety issues without fear of reprisal is absolutely critical, and, as we have seen in the aviation context, improves safety.

The NTSB will continue to urge Federal regulators, such as FRA and the Federal Transit Administration (FTA), to facilitate establishment of appropriate safety cultures. The WMATA accident, in particular, underscored the critical need for rail mass transit operators to enhance and nourish safety cultures. Our 2014 Most Wanted List reaffirms our view that:

[t]he FTA should consider the elements of safety culture, crew resource management, fatigue risk management, and technology, as well as lessons learned from the rail industry, as it moves forward with [new legislative authority to set and enforce new safety standards and conduct investigations]. Identifying and implementing these will be key to saving lives and preventing injuries.

#### **Updates on Ongoing Investigations**

I would now like to update the Subcommittee on developments in several recent investigations that are keeping the NTSB's railroad investigators very busy and demonstrate the need for continued vigilance in the railroad operating environment.

#### **Metro-North Railroad Accidents**

On December 1, 2013, the NTSB launched an investigative team to The Bronx, where a Metro-North Railroad commuter train with approximately 115 passengers on board derailed shortly after 7:15 a.m. near the Spuyten Duyvil station, while going from Poughkeepsie to Grand Central Station in New York City. Four passengers died in this Thanksgiving holiday weekend accident and at least 59 others sustained injuries requiring medical treatment. Metro-North estimated damage in excess of \$9 million.

The NTSB issued a preliminary factual report on the accident on January 14, 2014. Based on evidence obtained to this point, our investigators have found that the accident train was traveling at approximately 82 mph when it derailed in the curve on

approach to the Spuyten Duyvil station. The speed limit for the curve was 30 mph. PTC would have prevented this accident. Metro-North does not have a PTC system and has stated it will not meet the deadline, but it thought its system would be as robust as PTC. This accident clearly demonstrated that it was not.

Investigators have conducted detailed inspections and testing of the signal system, train brakes, and other mechanical equipment, and thus far have found no anomalies. They found no pre-accident anomalies in the track in the derailment area. Investigators have interviewed the train crewmembers, including the engineer and first responders and will continue to obtain and examine evidence from NTSB headquarters as the investigation proceeds. We are receiving excellent cooperation from the parties to the investigation: the FRA, Metro-North, the New York Public Transportation Safety Board, Teamsters Local 808, the New York Police Department, the New York Fire Department, and Bombardier Transportation, which manufactured the cars involved in the accident.

Last week, as I stated earlier, the NTSB issued three safety recommendations to Metro-North. We recommended that Metro-North install signs to clearly warn train crews that they are approaching areas of permanent speed restrictions; install inward- and outward-facing audio and video recorders in locomotives and control cars, and regularly review and use in-cab audio and image recordings in conjunction with other performance data, to verify train crew actions are in accordance with rules and procedures that are essential to safety. As our investigation proceeds, the NTSB will be prepared to issue additional safety recommendations if we determine any further safety improvements are necessary pending completion of our investigation.

The Bronx derailment was the fourth accident involving Metro-North property to trigger an NTSB investigation in 2013. Last June, the NTSB issued an urgent safety recommendation following the May 28 accident in which the track foreman died, calling upon Metro-North to immediately implement redundant measures to ensure the safety of track workers<sup>21</sup> (Metro-North indicates it is implementing this recommendation), and the NTSB reiterated a safety recommendation to the FRA to require redundant signal protection, such as shunting, for maintenance-of-way work crews who depend on the train dispatcher to provide signal protection.<sup>22</sup> That recommendation is currently classified as open with an acceptable response.

I am pleased to inform the Subcommittee that Metro-North has fully cooperated in all these investigations, at a difficult time for the railroad and its employees in the wake of several closely-spaced accidents. We anticipate and look forward to Metro-North's continued cooperation as the investigations proceed.

Although it is still too early in our investigations of these accidents to draw definitive conclusions, we will seek answers to the following questions, among others: What caused these accidents? Are there common threads among the accidents? What

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<sup>21</sup> NTSB Recommendation No. R-13-17.

<sup>22</sup> NTSB Recommendation No. R-08-6.

improvements can Metro-North, regulators, and others adopt that will prevent similar accidents from occurring in the future?

The NTSB tentatively expects to complete our investigations of all four accidents involving Metro-North trains or property in the second half of this year. We recognize and share the Subcommittee's sense of urgency to understand what lessons can be drawn from these accidents and to ensure that the railroad industry and its regulators implement appropriate safety improvements to prevent recurrences, and if our investigation reveals problems that need immediate attention, we will not hesitate to issue appropriate recommendations before we complete the investigation.

#### **Freight Train Collision and Crude Oil Release near Casselton, N.D.**

As I noted above, the NTSB is investigating the December 30, 2013, Casselton, North Dakota, accident that resulted in a significant post-crash fire that triggered a voluntary evacuation of about 1,400 people from the surrounding community.

The accident sequence began shortly after 2 p.m. when 13 cars of a 112-car westbound BNSF Railway grain train derailed. One of the derailed cars came to rest on the adjacent track. Shortly afterward, a BNSF 106-car petroleum crude oil unit train travelling east on the parallel track collided with the derailed grain car. The collision caused the head-end locomotives and the first 21 cars of the crude oil train to derail. Some of the crude oil tank cars were punctured during the accident releasing crude oil that ignited and caused the energetic rupture of several other tank cars. Dense smoke and concern over expanding fires resulted in voluntary evacuation of the surrounding area.

The crews on the two trains were uninjured. No injuries to the public were reported. Damage was estimated at \$6.1 million.

On a preliminary basis, we have found that, of the 20 tank cars that derailed, 18 tank cars were breached and more than 476,000 gallons of crude oil were released. NTSB investigators have completed the on-scene portion of the investigation, including interviews with the train crews and first responders. A broken axle and two wheels were shipped to the NTSB materials laboratory in Washington, D.C., for further evaluation and analysis, as well as the locomotive event and video recorders. The parties to the investigation include the FRA; PHMSA; the BNSF; the Brotherhood of Locomotive Engineers and Trainmen; the International Association of Sheet Metal, Air, Rail and Transportation Workers, formerly known as the United Transportation Union; Trinity Rail Car; and Standard Steel, LLC.

#### **Conclusion**

Thank you for the opportunity to appear before you and to provide updates on our ongoing investigations as well as NTSB perspectives on several compelling safety issues. Please be assured that the NTSB will remain engaged on these and all issues affecting transportation safety. I look forward to answering the Subcommittee's questions.

Hon. Robert L. Sumwalt  
Board Member  
National Transportation Safety Board  
Responses to Questions for the Record from Hon. Jeff Denham

**1. The NTSB recently recommended inward facing cameras in light of the Metro-North incident, why did you make that recommendation?**

The December 1, Metro-North accident in the Bronx raised questions about the actions of the engineer prior to the crash. The NTSB has repeatedly called for railroad carriers to install inward- and outward-facing audio and image records to answer similar questions that have arisen in other accidents. Recorders in locomotives and cab car operating compartments are critically important not only because they would assist NTSB investigators and others understand what happened in a train in the minutes and seconds before an accident, but also because they would help railroad management *prevent* accidents by identifying and responsibly addressing safety issues before they lead to injuries and loss of life and allow for the development of material that can be a valuable training and coaching tool.

In 2008, the NTSB called for inward- and outward-facing audio and image recorders after the deadly rail accident in Chatsworth, CA, and most recently reiterated in Goodwell, OK. This important crash protected information would assist investigators in reconstructing accident scenarios. In the future, image technology may play a role in identifying fatigued engineers and allowing interventions.

TO THE FEDERAL RAILROAD ADMINISTRATION: Establish an ongoing program to monitor, evaluate, report on, and continuously improve fatigue management systems implemented by operating railroads to identify, mitigate, and continuously reduce fatigue-related risks for personnel performing safety-critical tasks, with particular emphasis on biomathematical models of fatigue. (R-12-17)

TO THE FEDERAL RAILROAD ADMINISTRATION: Conduct research on new and existing methods that can identify fatigue and mitigate performance decrements associated with fatigue in on-duty train crews. (R-12-18).

Some commuter and freight railroads have installed or are installing these cameras, and their use is a condition of employment. Requiring these cameras through rulemaking would create opportunities to prevent accidents that are lacking today.

**2. When NTSB makes recommendations on safety measures, does the agency undertake a cost-benefit analysis?**

Congress established the NTSB as an independent safety agency, to investigate accidents and to examine methods to improve the safety of the American public without performing cost-benefit analysis. Our mission is to identify why the accident occurred and then make recommendations to prevent future similar accidents. It is the responsibility of the regulatory agencies that receive NTSB recommendations to perform the cost-benefit analysis.

Hon. Robert L. Sumwalt  
Board Member  
National Transportation Safety Board  
Responses to Questions for the Record from Hon. Jeff Denham

**3. When the NTSB makes recommendations do you consider whether the technology you recommend is commercially available?**

We do evaluate the availability of technology when issuing a recommendation, but in some cases, our recommendations spur development of technology that may not be widely available or feasible at the time. For example, in 1996, in response to the inflight explosion of TWA flight 800 the coast of Long Island, NTSB called for FAA to require design or operational changes that would preclude the operation of transport-category airplanes with explosive fuel/air mixtures in the fuel tanks. At the time, this technology was not practical for transport-category aircraft, but it was used in military aircraft. However, as a result of this safety recommendation, the industry sought innovative means of compliance, and FAA now requires this technology for newly manufactured transport aircraft, with a requirement for retrofit of existing aircraft.

**4. What types of data do you look at when making recommendations for safety technology?**

When making recommendations, we use our accident investigations and safety studies, which use government and industry data, to guide our recommendations.

For example, with regard to positive train control (PTC), the first NTSB-investigated accident that train control technology would have prevented occurred in 1969, when four people died and 43 were injured in the collision of two Penn Central commuter trains in Darien, Connecticut. The NTSB recommended in response to that accident that FRA study the feasibility of requiring railroads to install an automatic train control system, the precursor to today's PTC systems.

In the years following that 1969 accident, the NTSB has investigated dozens more accidents that could have been prevented or mitigated, lives saved, and damages limited by PTC. It is a technology solution that's overdue.

**5. In derailment investigations what factors have been found to be the cause of most derailments?**

The leading cause of derailments is insufficient or improper track maintenance. The NTSB has several open recommendations to improve track maintenance, including calling for improved inspection technology, audits of inspection practices, and improved track testing techniques.

**6. Your written testimony says the following, "...the current American Association of Railroads (AAR) industry standards adopted for DOT-111 tank cars order after October 1, 2011 that are used to transport packing group I and II crude oil, impose a level of protection greater than corresponding federal requirements. At this point, however, the NTSB is not convinced that these modifications offer significant safety**

**Hon. Robert L. Sumwalt  
Board Member  
National Transportation Safety Board  
Responses to Questions for the Record from Hon. Jeff Denham**

**improvements.” Can you share with the committee any evidence you have that would support this statement? Alternatively, what is the basis for this statement?**

As you may know, industry representatives who offered this new standard have publicly stated that the petition car design does not go far enough. The tremendous dynamic energy involved in a derailment is difficult to predict. The Volpe center continues with its crash studies to help improve the understanding of how a tank car performs in an accident, and we are monitoring these studies.

With the unprecedented carriage of flammable products by rail, American citizens and railroad workers deserve more robust tank cars to carry hazardous, flammable products. The NTSB has called for strengthened tank heads, shells, and fittings that reduce the occurrence of a flammable liquid release in an accident.

It is important to note that the transport of hazardous materials requires a holistic safety approach. There is no single solution that will solve the myriad of rail safety issues related to hazardous materials transportation. Current safety issues, or overarching trends, include safety deficiencies in the tank car design, widespread implementation of positive train control (PTC) systems, improved operating crew medical programs, improved track inspections, and focused, industrywide efforts to foster top-down safety cultures in which safety thrives.

Improving rail safety must be addressed by implementing varied approaches that, when working together, can help drive down the number and frequency or mitigate the severity of accidents.

**NTSB Responses to Questions for the Record issued by Democratic Members of the  
House Committee on Transportation and Infrastructure  
Hearing on Oversight of Passenger and Freight Rail Safety**

There is a lot of debate on whether to require retrofit of existing DOT-111 tank cars. The Board in a March 2012 letter to Pipeline and Hazardous Materials Safety Administration (PHMSA) that “the safety benefits of new specification tank cars will not be realized while the current fleet of DOT-111 tank cars remains in hazardous materials unit train service, unless the existing rail cars are strengthened.” Can you comment on that? As a follow-up, was there an instance in the past, maybe the DOT-105 tank cars, where NTSB recommended a retrofit and a retrofit was then done?

Commingling new specification and legacy DOT-111 tank cars in service defeats the intended safety benefits of newer tank cars that have thicker shells, head shields, fittings protection, and increased pressure relief capacity. These tank cars can have a service life up to 50 years. Thus, insufficiently protected legacy tank cars could remain in service for many years, releasing their products the majority of the time when derailed. The NTSB has also seen that when released product becomes involved in a pool fire, there is often a cascading effect with thermal failures (energetic fireballs or perceived explosions) from tank cars that likely would have otherwise survived without releasing product.

The NTSB believes these older DOT-111 cars pose an unacceptable safety risk and should be taken out of service sooner rather than later.

A past instance of NTSB recommended retrofitting or elimination of grandfather provisions for tank cars is exemplified by RSPA rulemaking docket HM-175A. In Safety Recommendation R-85-05 involving a February 23, 1985 derailment in Jackson, South Carolina, the NTSB recommended that railroad tank cars used to transport materials with a DOT Emergency Response Guidebook recommended evacuation distance of ½ mile or more be equipped with head shield protection and, as applicable, thermal insulation. The NTSB stated in comments to the docket that it is time to stop permitting tank cars that fail to meet current minimum safety requirements to be used to transport dangerous materials under grandfather clauses, and at a minimum, DOT should establish a specific date by which all tank cars would have to comply with new requirements.

In response to the NPRM (58 FR 52574), RSPA proposed to remove from the HRM several grandfather provisions that allow tank cars built before a certain date to remain in service without modification.

In the final rule (60 FR 49048), RSPA removed grandfather provisions that disallowed the use of certain tank cars without head puncture resistance or thermal protection systems from being used to transport certain specified materials, such as ethyl chloride and ethyl methyl ether. The final rule also stated that tank cars used to transport Class 2 hazardous material not requiring a tank head puncture resistance system prior to July 1, 1996, must have a system installed no later than July 1, 2006.

It should be noted that the population of affected cars that was given a 10-year retrofit requirement was much less in number than the current fleet of legacy DOT-111's used to transport crude oil and ethanol.

Can you talk a little bit about NTSB's history and lessons learned in investigating accident involving the DOT-111 tank cars? How long has NTSB been raising concerns about the poor performance of these tank cars? (You are welcome to provide a list of open safety recommendations pertaining to FRA and PHMSA, including any involving tank cars.)

In addition to its numerous investigations of accidents involving DOT-111 tank cars, the NTSB conducted a 1991 safety study<sup>64</sup> that examined the performance of 84 DOT-111 tank cars in accidents that occurred between March 1988 and February 1989. The study found that 54 percent of the DOT-111 cars involved in these accidents released product, with head and shell punctures accounting for 22 percent of the releases. The study found that the rate at which the DOT-111 tank cars experienced head or shell punctures or failures was double that of DOT-105, -112, and -114 pressure tank cars. The NTSB concluded that the DOT-111 tank cars, which are frequently used to transport hazardous materials, have a high incidence of failure when involved in accidents.

Since that study was conducted, we continue to assert that DOT-111 tank cars, or tank cars of any successor specification, that transport hazardous materials should incorporate more effective puncture-resistant and thermal protection systems. This can be accomplished through the incorporation of additional protective features such as full head shields, jackets, thermal insulation, and thicker head and shell materials. Because the average service life of a tank car may run 20-50 years, it is imperative that industry, the FRA, and PHMSA take action now to address hazards that otherwise would exist for another half-generation or longer.

The NTSB also recommended that PHMSA improve requirements for bottom outlet valves so that they remain closed during accidents involving impact forces<sup>1</sup> and require improved center sill or draft sill attachment designs,<sup>2</sup> and the NTSB reiterated its prior recommendation that PHMSA, in consultation with FRA, require that railroads immediately provide emergency responders with accurate, real-time information on hazardous materials on a train.<sup>3</sup>

Attached is a list of open and closed tank car recommendations to FRA and PHMSA.

In your testimony, you mention the NTSB has repeatedly called for railroad carriers to install both inward and outward facing audio and image recorders. How would the presence of these cameras improve safety? What types of obstacles do you envision if installation is required?

In 2008, the NTSB called for inward- and outward-facing audio and image recorders after the deadly rail accident in Chatsworth, CA, and most recently reiterated in Goodwell,

<sup>1</sup> NTSB Recommendation No. R-12-6

<sup>2</sup> NTSB Recommendation No. R-12-7

<sup>3</sup> NTSB Recommendation No. R-07-4.

OK. This important crash protected information would assist investigators in reconstructing accident scenarios. Also, it could help railroad management *prevent* accidents by identifying and responsibly addressing safety issues before they lead to injuries and loss of life and allow for the development of material that can be a valuable training and coaching tool. In the future, image technology may well play a role in identifying fatigued engineers and allowing interventions (See Red Oak recommendation: R-12-17 and R-12-18).

In the investigation of the 2012 Goodwell, Oklahoma, head-on train collision, the NTSB made the following recommendation to all Class I railroads:

Install in all controlling locomotive cabs and cab car operating compartments crash-and fire-protected inward-and outward-facing audio and image recorders. The devices should have a minimum 12-hour continuous recording capability. (R-13-26)

The NTSB continues to believe that inward-and outward-facing audio and image recorders improve the quality of accident investigations and provide the opportunity for proactive steps by railroad management to improve operational safety.

On February 18, 2014, in the wake of several accidents at Metro-North Commuter Railroad, NTSB issued the following two recommendations to Metro-North:

Require the installation, in all controlling locomotive cabs and cab car operating compartments of crash-and fire-protected inward-and outward-facing audio and image recorders capable of providing recordings to verify that train crew actions are in accordance with rules and procedures that are essential to safety as well as train operating conditions. The devices should have a minimum 12-hour continuous recording capability with recordings that are easily accessible for review, with appropriate limitations on public release, for the investigation of accidents or for use by management in carrying out efficiency testing and systemwide performance monitoring programs. (R-14-08)

Regularly review and use in-cab audio and image recordings in conjunction with other performance data, to verify that train crew actions are in accordance with rules and procedures that are essential to safety. (R-14-09)

Some commuter and freight railroads have installed or are installing these cameras, and their use is a condition of employment. Requiring these cameras through rulemaking would create opportunities to prevent accidents that are lacking today. Opposition to such a rule would most likely come from the railroad workforce, but as stated previously, the video and audio obtained from these devices will greatly improve safety.

The commuter railroads have stated on numerous occasions that Automatic Train Control (e.g. “an alerter”) is an appropriate substitute for implementation of Positive Train Control. What is

the difference between ATC and PTC and do you believe ATC is an adequate alternative to PTC? Was ATC on the Metro North train?

ATC is a reactive technology in that a train must violate a signal requirement before the technology steps in, and not all ATC systems have enforcement that will initiate a penalty brake application when a violation of a signal occurs. PTC, on the other hand, is predictive. It will take some control of a train from the engineer to enforce compliance with the signal system requirements and prevent the train from going past its authority, such as beyond a red or stop signal.

On December 1, 2013, we all saw through Metro-North's tragic accident another example of how PTC could have prevented an accident. ATC was on the Metro-North train, but did nothing to slow the train as it entered the curve near the Spuyten Duyvil station. The ATC was configured to enforce Stop signals at wayside signal locations only and was not configured for speed control enforcement. (Metro-North has since reconfigured its ATC for speed control since the accident, but ATC still does not initiate a penalty brake application until a train is accelerated past the authorized speed or goes beyond its operating authority (e.g. red or stop signal).) PTC would have warned the train engineer and then initiated a penalty brake application in preparation of entering a speed restriction, signal, or the limits of an established work zone to ensure that a train did not violate its operating limits, and prevented or mitigated that accident.

After the accident, Metro-North modified the signal equipment to limit the speed in the area of the derailment to 30 mph. Again, unlike PTC, ATC stops a train only after it has entered a restricted area faster than allowed and will not provide protection for employee work zones. Additionally, Metro-North's ATC allows a train to pass a stop signal at 15 mph. PTC would stop a train short of the stop signal.

During the hearing, Congresswoman Esty stated: "I know that the FRA has concluded its "Operation Deep Dive" and plans to release that report in March. I also note that the NTSB investigation are ongoing and plan to release those reports later this year. And I want to know from both of you [FRA and NTSB], if I have your commitments to work directly with the state of Connecticut and with Metro North so that we can restore serviceable liability as quickly as possible and any prior information you can share with us to expedite. We are in the middle of a legislative session that is three months long in Connecticut. They need to know budget priorities. They need to have direction, right now, where they will have to come back in special session. It will delay safety and delay reliability."

Witnesses were not provided enough time for a response. Please provide a response for the hearing record.

Since the first Metro-North accident on May 17, 2013, the NTSB has, on two separate occasions, issued safety recommendations to Metro-North and reiterated one to the Federal Railroad Administration (FRA). These recommendations provide an early glimpse in to the investigation of the safety shortfalls that the NTSB has identified to

date. These recommendations can also be used by policymakers who are examining ways to improve safety at Metro-North.

If warranted, we will issue new safety recommendations at any time before the final report is released. Additionally, FRA, Metro-North and the other parties to our investigation are fully aware of all factual material that is developed and this access provides them with the opportunity to take corrective actions immediately, rather than wait for the NTSB's final report. In fact, as a result of participating in our investigation both Metro-North and FRA have taken actions (e.g.: FRA Deep Dive and Metro-North enhanced train speed enforcement).

Also, the NTSB has been in regular contact with state officials throughout the investigative process. We continue to be available to answer any questions, submit testimony to the legislature, or provide technical assistance as needed.

What are the NTSB's resources for conducting rail and hazardous materials investigations?  
What are NTSB's needs?

The NTSB currently has 10 rail investigators and 2 hazardous materials investigators in our office of Rail, Pipeline, and Hazardous Materials (RPH). The RPH office is investigating 23 rail accidents, and 2 of those involve hazardous materials as well. (Our hazmat investigators also investigate accidents in other modes of transportation.) The office's resources are stretched very thin, and we are missing our own deadline of completing accident reports in about one year.

With enactment of the fiscal year 2014 appropriations bill, we have started hiring actions, with a priority on RPH positions. We hope to add 4 people to the RPH office over the next few months, and these resources will help with the workload.

We are happy to talk with you further about these resources and plans to move forward with hiring and handling our open investigations.

Do you believe a blanket extension of the PTC implementation deadline is warranted? Or should we take a more limited approach with individual extensions granted only where absolutely necessary?

The NTSB has called for more accountability on the part of railroads that are subject to the PTC mandate and by the FRA. We believe that this information is critical as policymakers determine how to handle the current PTC deadline.

In response to Lac Megantic, the NTSB recently put out new safety recommendations concerning route planning, emergency response planning, and proper classification of hazardous materials. Can you tell us what you learned from the Lac Megantic investigation that led to those recommendations?

Regarding route planning, title 49 CFR, Part 172, Subpart I, prescribes the requirements for the development and implementation of plans to address security risks related to the commercial transportation of hazardous materials. On November 26, 2008, PHMSA, in coordination with the FRA and the Transportation Security Administration (TSA), issued a final rule requiring, among other things, that rail carriers compile annual data on certain shipments of explosive, toxic by inhalation, and radioactive materials; use the data to analyze safety and security risks along rail routes where those materials are transported; assess alternative routing options; and make routing decisions based on those assessments.

Route planning and route selection requirements have been incorporated into the Hazardous Materials Regulations at 49 CFR 172.820. The regulation requires that a rail carrier that transports more than 5,000 pounds of a Division 1.1, 1.2, or 1.3 explosive in a single car load; a single bulk package of a material toxic by inhalation; or a highway route-controlled quantity of a Hazard Class 7, radioactive material, must annually compile commodity data to identify routes on which these materials are transported. The rail carrier also must annually analyze the safety and security risks for the transportation routes to include 27 risk factors, such as the volume of hazardous materials transported; track type, class, and maintenance schedule; track grade and curvature; environmentally sensitive or significant areas; population density along the route; emergency response capability along the route; and areas of high consequence along the route as defined in 49 CFR 172.820(c). The carrier also must identify alternative routes over which it has authority to operate and perform a safety and security risk assessment of those routes for comparison. The carrier must use the analysis to select the practicable route posing the least overall safety and security risk.

According to the regulations, if the FRA finds the carrier's route selection documentation and underlying analyses to be deficient, the carrier may be required to revise the analyses or make changes in the route selection. If the FRA finds that a selected route is not the safest and most secure practicable route available, in consultation with the TSA, the FRA may require the use of an alternative route.

A primary safety and security concern related to rail transportation of hazardous materials that was considered in the interim final rule issued on April 16, 2008,<sup>4</sup> is the prevention of catastrophic release or explosion in proximity to densely populated areas, including urban areas and events or venues with large numbers of people in attendance, iconic buildings, landmarks, or environmentally sensitive areas. The goal of this routing analysis is to ensure that each route used for the transportation of the specified hazardous materials presents the fewest overall safety and security risks. Even in the absence of alternative routes, assessing the safety and security risks along the route is critical to enhancing rail transportation safety and should prompt rail carriers to address identified vulnerabilities.

With regard to emergency response planning, the Lac-Mégantic accident shows that railroad accidents involving crude oil have a potential for disastrous consequences and environmental contamination equal to that of the worst on-shore pipeline accidents. Although railroad accidents involving large numbers of crude oil tank cars can have similar outcomes, oil spill response planning requirements for rail transportation of oil/petroleum products are practically nonexistent compared with other modes of transportation. Current regulations do not require railroads transporting crude oil in multiple tank cars to develop comprehensive spill response plans and have resources on standby for response to worst-case discharges. Although simple plans must be developed, the plans are not reviewed to evaluate the capability of rail carriers to respond to and mitigate discharges.

In the preamble to the June 17, 1996, final rule,<sup>5</sup> the Research and Special Programs Administration (RSPA)<sup>6</sup> stated its belief that 42,000 gallons in a single packaging is an appropriate and reasonable liquid quantity for a finding that a release would cause substantial harm to the environment, and thus should be the threshold for comprehensive planning. However, RSPA noted that on the basis of available information, no rail carrier was transporting oil in a quantity greater than 42,000 gallons in tank cars. During 1996, when the rulemaking was being considered, there were only 67 tank cars listed in the AAR UMLER<sup>7</sup> file with a capacity equal to or greater than 42,000 gallons. Only six of these cars were being used to transport oil or petroleum products.

The NTSB finds that as currently written, the regulation circumvents the need for railroads to comply with spill response planning mandates of the federal Clean Water Act. Although the DOT 42,000-gallon threshold for comprehensive response plan development is equivalent to an unrelated threshold contained in a spill prevention, control, and countermeasures rule administered by the US Environmental Protection

<sup>4</sup> *Federal Register* 73, no. 74 (April 16, 2008): 20752.

<sup>5</sup> *Federal Register* 61, no. 117 (June 17, 1996): 30533.

<sup>6</sup> RSPA was abolished by act of November 30, 2004 (118 Stat. 2424-2426), and certain duties were transferred to both PHMSA and the Administrator of the Research and Innovative Technology Administration, DOT.

<sup>7</sup> UMLER refers to the Universal Machine Language Equipment Register, which is a file of vital statistics for each rail car in service.

Agency for nontransportation related oil storage facilities,<sup>8</sup> the DOT regulation is rendered ineffective because of its lack of applicability to any real-world transportation scenario. By limiting the comprehensive planning threshold for a single tank size that is greater than any currently in use, spill-planning regulations do not take into account the potential of a derailment of large numbers of 30,000-gallon tank cars, such as in Lac-Mégantic where 60 tank cars together released about 1.6 million gallons of crude oil.

RSPA stated further that the risk to the marine environment posed by oil in transport is proportional to the quantity of oil that could be discharged in an accident, and when the rule was developed 17 years ago, it was based on the relatively few petroleum shipments by tank car that were not being assembled as unit trains. The NTSB believes that because conditions have significantly changed with the recent massive growth in crude oil transportation, the regulations are no longer sufficient to mitigate the risks of petroleum product releases in accidents. Although no one tank car meets the current threshold for comprehensive spill planning, the Lac-Mégantic accident and the well-known poor lading retention performance history of DOT-111 tank cars have demonstrated that the worst-case release potential of these unit trains, in many cases greater than 2 million gallons, must be considered in the oil and hazardous materials spill planning process.

US Coast Guard regulations for marine tank vessels require spill response planning to address a worst-case discharge, which is defined as the entire cargo on the vessel. Planning to respond to maximum potential releases for trains transporting crude oil, many of which are configured in unit trains as “virtual pipelines” of tank cars, also must take into account the entire quantity of lading.

Regarding hazardous materials classification, the Montreal Maine and Atlantic train originated from a tank truck-to-rail car transloading facility in New Town, North Dakota, operated by Strobel Starostka Transfer (SST) on behalf of subsidiaries of World Fuel Services Corporation. The original bills of lading that SST provided to Canadian Pacific Railway described the hazardous material as a Hazard Class 3 flammable material, Packing Group III.

Packing groups indicate the degree of danger presented by the material as either high, medium, or low (Packing Group I, II, or III, respectively).<sup>9</sup> The table below shows the flash point and initial boiling point criteria for each packing group.

<sup>8</sup> Under 40 CFR Part 112, if the facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons it could, because of its location, reasonably be expected to cause substantial harm to the environment by discharging oil on the navigable waters or adjoining shorelines.

<sup>9</sup> Packing groups for Class 3 materials are defined in 49 CFR 173.121.

**Table.** Hazardous Liquids Class 3 Packing Group Criteria

Packing Group	Flash Point	Boiling Point
I	N/A	$\leq 35^{\circ}\text{C}$
II	$< 23^{\circ}\text{C}$	$> 35^{\circ}\text{C}$
III	$\geq 23^{\circ}\text{C}$ $\leq 60^{\circ}\text{C}$	$> 35^{\circ}\text{C}$

The intensity of the postaccident fire in Lac-Mégantic and the apparent low viscosity of the crude oil product prompted the TSB to collect and analyze samples of the product from nine undamaged tank cars in the train and from two tank cars in a second crude oil train stationed in Farnham, Quebec, to determine if the shipments had been properly described and the appropriate packing group assigned. Test results indicate the flash point was less than  $-35^{\circ}\text{C}$  and the initial boiling point was between  $43.9^{\circ}\text{C}$  and  $48.5^{\circ}\text{C}$ , which placed this product in the lower end of the crude oil flash point range, well below the parameters for Packing Group III materials. Thus, the test results confirmed the crude oils on these trains had been incorrectly assigned to Packing Group III, and they should have been assigned to the more hazardous Packing Group II.

Investigators learned that after these loads were placed into rail tank cars, the bills of lading SST provided to the Canadian Pacific Railway described the crude oil as Packing Group III. The accident train with the same incorrect Packing Group III waybill information was interchanged to the MMA in Montréal.

The packing group classification requirements of the Hazardous Materials Regulations include the packaging that must be used to ship the material. The packing group classification determines authorized filling densities and outage requirements, hazard communications (marking, labeling, and placards), transportation safety and operational controls, and safety and security planning. Proper identification of hazardous materials is required to ensure emergency responders understand the hazards associated with the shipped material.

The NTSB believes that properly classified shipments are paramount for appropriate package selection, for assessment of risks to develop meaningful safety and security plans, and for the safety of emergency responders and other individuals who may come into contact with hazardous materials in transportation.

Can you give us any insights or updates regarding the Lac Megantic investigation?

The Transportation Safety Board (TSB) of Canada is leading the Lac Megantic investigation, and the NTSB is assisting. If the TSB and NTSB identify additional concerns, we will be working together to ensure the safe transport of goods across our borders.

Given the alarming increase in train derailments, both in passenger and in freight rail, would it be fair to say that implementing Positive Train Control systems on our freight and passenger lines is one of the NTSB's top safety priorities?

Positive Train Control or PTC has been on the NTSB's Most Wanted List nearly continuously since it was created in 1990. We know if implemented, it could prevent or mitigate most accidents that are the result of human error, which is one of the leading causes of rail accidents today.

We were encouraged by the enactment of a date certain for PTC implementation, but as we approach that deadline, we are disappointed by the fact that most railroads will not meet this deadline. Lives depend on this technology, and the NTSB will continue to advocate vigorously for its implementation.

**Tank Car Recommendations issued to PHMSA**

R-04-010 CAAA TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (ORIGINALLY ISSUED TO THE RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION): In cooperation with the Occupational Safety and Health Administration and the Environmental Protection Agency, develop regulations that require safe operating procedures to be established before hazardous materials are heated in a railroad tank car for unloading; at a minimum, the procedures should include the monitoring of internal tank pressure and cargo temperature.

R-12-005 OAA TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Require that all newly manufactured and existing general service tank cars authorized for transportation of denatured fuel ethanol and crude oil in Packing Groups I and II have enhanced tank head and shell puncture resistance systems and top fittings protection that exceeds existing design requirements for DOT-111 tank cars.

R-12-006 OAA TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Require that all bottom outlet valves used on newly manufactured and existing non-pressure tank cars are designed to remain closed during accidents in which the valve and operating handle are subjected to impact forces.

R-12-007 OAA TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Require that all newly manufactured and existing tank cars authorized for transportation of hazardous materials have center sill or draft sill attachment designs that conform to the revised Association of American Railroads' design requirements adopted as a result of Safety Recommendation R-12-9.

R-14-005 OAR TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION: Revise the spill response planning thresholds contained in Title 49 Code of Federal Regulations Part 130 to require comprehensive response plans to effectively provide for the carriers' ability to respond to worst-case discharges resulting from accidents involving unit trains or blocks of tank cars transporting oil and petroleum products.

R-92-023 CAA TO THE PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION (ORIGINALLY ISSUED TO RSPA): Develop and promulgate, with the Federal Railroad Administration, requirements for the periodic testing and inspection of rail tank cars that help to ensure the detection of cracks before they propagate to critical length by establishing inspection intervals that are based on the defect size detectable by the inspection method used, the stress level, and the crack propagation characteristics of the structural component (requirement based on a damage-tolerance approach).

#### **Tank Car Recommendations to FRA**

R-01-001 CAA TO THE FEDERAL RAILROAD ADMINISTRATION: Issue an advisory bulletin reminding shippers of hazardous materials that any time a change is made in the constituents of hazardous materials shipped, they should verify the compatibility of all tank car components, such as valves and gaskets, with all of the commodities to be transported.

R-02-016 CAA The National Transportation Safety Board makes the following safety recommendation to the Federal Railroad Administration: Issue a hazardous materials bulletin to warn companies involved in tank car loading and unloading operations that tank car excess flow valves cannot be relied upon to stop leaks that occur during those operations.

R-04-004 CUA TO THE FEDERAL RAILROAD ADMINISTRATION: Conduct a comprehensive analysis to determine the impact resistance of the steels in the shells of pressure tank cars constructed before 1989. At a minimum, the safety analysis should include the results of dynamic fracture toughness tests and/or the results of nondestructive testing techniques that provide information on material ductility and fracture toughness. The data should come from samples of steel from the tank shells from original manufacturing or from a statistically representative sampling of the shells of the pre-1989 pressure tank car fleet.

R-04-005 CUA TO THE FEDERAL RAILROAD ADMINISTRATION: Based on the results of the Federal Railroad Administration's comprehensive analysis to determine the impact resistance of the steels in the shells of pressure tank cars constructed before 1989, as addressed in Safety Recommendation R-04-4, establish a program to rank those cars according to their risk of catastrophic fracture and separation and implement measures to eliminate or mitigate this risk. This ranking should take into consideration operating temperatures, pressures, and maximum train speeds.

R-04-006 CAA TO THE FEDERAL RAILROAD ADMINISTRATION: Validate the predictive model the Federal Railroad Administration is developing to quantify the maximum dynamic forces acting on railroad tank cars under accident conditions.

R-04-007 OUA TO THE FEDERAL RAILROAD ADMINISTRATION: Develop and implement tank car design-specific fracture toughness standards, such as a minimum average Charpy value, for steels and other materials of construction for pressure tank cars used for the transportation of U.S. Department of Transportation class 2 hazardous materials, including those in "low temperature" service. The performance criteria must apply to the material orientation with the minimum impact resistance and take into account the entire range of operating temperatures of the tank car.

R-05-016 CUA 08/19/10 TO THE FEDERAL RAILROAD ADMINISTRATION: Require railroads to implement operating measures, such as positioning tank cars toward the rear of trains and reducing speeds through populated areas, to minimize impact forces from accidents and reduce the vulnerability of tank cars transporting chlorine, anhydrous ammonia, and other liquefied gases designated as poisonous by inhalation.

R-69-009 CAA The NTSB recommends that the department of transportation, through its assistant secretary for research and technology, and the federal railroad administration, in cooperation with the Association of American Railroads: study the problem of proper management of hazardous materials in train accidents and take appropriate action. This study should include the matter of whether it is feasible to provide vehicles that will resist mechanical puncturing, the problem of controlling the flow of flammable and poisonous liquids out of punctures in tank cars, and whether it is feasible and preferable to separate cars of hazardous materials with cars of inert materials. The problem of adequate capacity of safety valves should also be reviewed.

R-70-014 CAA The NTSB recommends that the Federal Railroad Administration: immediately initiate a proposed rulemaking procedure to restrict the speed of trains carrying liquefied flammable gases in tank cars of capacities exceeding 25,000 gallons through incorporated communities.

R-72-006 CAA The NTSB recommends that the Federal Railroad Administration, in collaboration with the U.S. Coast Guard: develop a definition for an "empty" tank car for safety regulations, taking into account the potential losses attributable to various hazardous substances remaining in tank cars after unloading, and initiate rulemaking action to incorporate this definition and such related requirements as may be found necessary into 49 CFR 170-179.

R-72-020 CAAA 09/10/76 The NTSB recommends that the federal railroad administration: conclude the proposed rulemaking regarding the transportation of liquefied flammable gases in tank cars of DOT Specifications 112A and 114A having capacities exceeding 25,000 gallons. This rulemaking was initiated with the Hazardous Materials Regulations Board's "Request For Public Advice On Speed Restriction On Tank Cars," Docket No. HM-60, published in the Federal Register on October 15, 1970.

R-72-022 CAA The NTSB recommends that the Federal Railroad Administration: encourage the expeditious completion of the RPI-AAR railroad tank car safety research and test project and take steps to insure that the results of the research are applied to enhance the safety of transportation of hazardous materials.

R-74-029 CAA The NTSB recommends that the Federal Railroad Administration: through its emergency powers, issue an order to prohibit switching of tank cars containing compressed flammable gases unless the tank cars are under the control of a locomotive and prohibit such tank cars from being coupled by other free-rolling equipment.

R-74-033 CAA The NTSB recommends that the Federal Railroad Administration: employ the information developed by their tank car studies and by those of the RPI-AAR railroad tank car safety research and test project and expedite the promulgation of regulations that will eliminate or reduce to manageable dimensions the severity of the possible losses to communities which develop when tank cars of the general type of 112A and 114A loaded with hazardous materials are exposed to a railroad accident or a fire.

R-75-016 CAAA The NTSB recommends that the Federal Railroad Administration: identify all liquids now transported in tank cars which are capable of detonation; determine whether detonation or other dangerous chemical reactions can be initiated by conditions and circumstances encountered by those liquids in railroad transportation and issue regulations to control the risks identified.

R-75-019 CAA 09/10/82 The NTSB recommends that the Federal Railroad Administration, in cooperation with the railway progress institute and the Association of American Railroads: determine the capabilities of top and bottom shelf couplers, head shields, and a combination of both, and issue regulations to require that DOT-112A and -114A tank cars be equipped with the best practical combination.

R-79-024 CAA The NTSB recommends that the Federal Railroad Administration: in cooperation with the inter-industry task force, determine what additional cost-effective steps, based on risk-ranking results, can be taken to make tank cars more resistant to hazardous materials releases in derailments.

R-79-028 CNLA The NTSB recommends that the Federal Railroad Administration: require that all trains with placarded loaded tank cars of the 112A and 114A types not equipped with the required shelf couplers and tank head protection, which are loaded with liquefied flammable gases and other liquids or toxic compressed gases, operate at a speed 10 mph less than the maximum speeds authorized for those trains on classes 3,4,5, and 6 track.

R-81-075 CNLA The NTSB recommends that the Federal Railroad Administration: immediately ascertain, in conjunction with the Research and Special Programs Administration, the adequacy of industry-adopted interim safety precautions for transportation of anhydrous methylamines in specification 112A tank cars and institute any additional interim safety precautions which may be necessary to adequately control the risks to the public pending installation of tank head puncture resistance and thermal protection systems. In the identification of possible interim safety precautions consideration should be given to measures such as application of distinctive markings to the unretrofitted tank cars to make their status conspicuous to railroad employees and emergency response personnel, restrictions on the speeds of trains containing unretrofitted tank cars to derailment, and other precautions which may be appropriate.

R-84-015 CAA The NTSB recommends that the Federal Railroad Administration: immediately initiate inspections of tank cars equipped with excess flow valves to determine the extent to which these tank cars may have improperly positioned excess flow valve seats, determine the cause of deficient conditions found, and require correction of deficiencies before inspected tank cars are returned to service.

R-85-012 CAA The NTSB recommends that the Federal Railroad Administration, in conjunction with the Association of American Railroads: require that all dot specification 112 tank cars built to the same drawing specifications as NATX 9408, be removed from service promptly for inspection using appropriate nondestructive inspection techniques, and that any car found defective not be returned to service until the defect is corrected.

R-85-059 CAA The NTSB recommends that the Federal Railroad Administration: require inspection of all jacketed tank cars in hazardous materials service that have tank car anti-shift brackets protruding outside the tank jackets for indications of jacket shifting or product seepage in the anti-shift bracket area, and remove from service all cars that exhibit symptoms of such distress until approved repairs are made.

R-85-060 CUA The NTSB recommends that the Federal Railroad Administration: evaluate for adequacy and timeliness, directing changes as necessary, the General American Transportation Corporation's proposed inspection and repair program for bringing tank cars on which anti-shift brackets are welded directly to the tank shell into regulatory compliance, and monitor the completion of the program.

R-85-064 CAA The NTSB recommends that the Federal Railroad Administration: in consultation with the Research and Special Programs Administration and the Association of American Railroads conduct a full testing and evaluation program to develop a head shield to protect dot specification aluminum tank car ends from puncture and mandate installation of the head shield at an early date.

R-85-099 CAA The NTSB recommends that the Federal Railroad Administration: institute an inspection program to verify that tank cars intended to be used in hazardous materials service are manufactured in compliance with department of transportation standards.

R-87-046 CAA The NTSB recommends that the Federal Railroad Administration: establish a procedure for evaluating throughout the life of the tank cars, the performance of all General American Transportation Corporation tank cars modified to remove the antishift bracket welded directly to the tank to facilitate the early detection of any failures that may be associated with the tank shell thickness having been reduced by the modification process.

R-87-047 CAA The NTSB recommends that the Federal Railroad Administration: define explicitly those authorities concerning tank car safety delegated to the Association of American Railroads and establish procedures governing the implementation of these delegated authorities.

R-87-048 CAA The NTSB recommends that the Federal Railroad Administration: require the Association of American Railroads to report on all actions taken under authorities delegated for tank car safety.

R-87-049 CAA 01/08/91 The NTSB recommends that the Federal Railroad Administration: develop and implement a program for effectively reviewing and evaluating all actions taken by the Association of American Railroads, tank car repair facilities, and tank car manufacturers under the authorities delegated to them to determine that all actions comply with federal requirements for tank car design, construction, modification, operation, and repair.

R-87-050 CEX The NTSB recommends that the Federal Railroad Administration: evaluate annually the Association of American Railroads tank car specifications to determine that the instructions and guidance provided on tank car design and consistent with federal requirements.

R-87-051 CAA The NTSB recommends that the Federal Railroad Administration: coordinate a formal arrangement with the Canadian Transport Commission for routinely exchanging information on the performance of tank cars, for meeting to discuss common safety concerns related to the design, manufacture, retrofit, and use of tank cars, and for establishing controls for and the oversight of the delegated authorities for tank car safety.

R-88-058 CAA The NTSB recommends that the Federal Railroad Administration: establish performance standards for determining the acceptability of heat-resistant gaskets required to be used on tank cars.

R-88-059 CAA The NTSB recommends that the Federal Railroad Administration: prohibit from hazardous materials service the use of tank cars that have a manway opening located below the level of the liquid being transported.

R-88-060 CAA The NTSB recommends that the Federal Railroad Administration: evaluate the effect on gasket compatibility and heat resistance performance of sealants used for installing gaskets on tank cars, and if the use of sealants is allowed, establish performance criteria to determine which sealants are acceptable and the conditions for their use.

R-88-061 CAAA The NTSB recommends that the Federal Railroad Administration: where special procedures or material specifications or dimensions are required for maintaining the integrity of tank cars, require such information to be permanently and conspicuously affixed to the tank car.

R-88-062 CAAA The NTSB recommends that the Federal Railroad Administration: require tank car owners to be provided with a copy of design drawings and other documentation which is a part of the tank car certification, modification, or repair and require that these documents be maintained for the life of the tank car.

R-88-063 CAA The NTSB recommends that the Federal Railroad Administration: establish quality control requirements for tank car manufacturers and tank car repair shops sufficient to ensure that actions taken comply with federal regulations and with any conditions established in Association of American Railroads approvals for manufacture, repair, or modification of rail tank cars.

R-88-064 CAA The NTSB recommends that the Federal Railroad Administration: require that tank car repair shops develop and maintain current written procedures to guide their employees in performing work on tank cars and that their employees be trained on those procedures.

R-89-049 CAA TO THE FEDERAL RAILROAD ADMINISTRATION: Assist and cooperate with the Research and Special Programs Administration in amending 49 CFR Part 179 to require that specifications for securing closure fittings, such as minimum torque values for sealing bolted closures and gasket specifications, be determined and provided by tank car designers and manufacturers.

R-90-039 CAA The NTSB recommends that the Federal Railroad Administration: require that Federal Railroad Administration personnel responding to a derailment involving hazardous materials (1) make their presence and purpose known to local emergency response personnel, (2) advise local authorities of guidance available for assessing tank car damage and wreckage clearing operations, and (3) notify emergency response personnel of any imminently hazardous conditions that may exist.

R-91-012 CNLA The NTSB recommends that the Federal Railroad Administration assist the Research and Special Programs Administration (RSPA) in the establishment of a working group--comprising the RSPA, the Association of American Railroads, the Chemical Manufacturers Association, the American Petroleum Institute, the National Fire Protection Association, and your agency--to expeditiously improve the pack aging of the more dangerous products (such as those that are highly flammable or toxic, or pose a threat to health through contamination of the environment by (a) developing a list of hazardous materials that should be transported only in pressure tank cars with head shield protection and thermal protection (if needed); and (b) establishing a working agreement to ship the listed hazardous materials in such tank cars.

R-91-054 CAA The NTSB recommends that the Federal Railroad Administration: determine, using owners' records of derailments for special-use, heavy-capacity flatcars under load, whether handling of such equipment should be restricted in trains that include tank cars or hopper cars transporting hazardous materials and cars carrying shipments of class a and b explosives.

R-92-007 CAA The NTSB recommends that the Federal Railroad Administration: require owners and operators of dual diameter pressure tank cars to inspect by x-ray radiography and/or other appropriate means a representative sampling of their dual diameter cars for evidence of cracks and other serious defects in the circumferential welds between the transition and larger diameter tank shell plates. Based on these inspections, assess whether the total fleet of dual diameter pressure tank cars should be inspected immediately for evidence of cracking, and if periodic inspections should be required.

R-92-021 CAA TO THE FEDERAL RAILROAD ADMINISTRATION: Evaluate, with the cooperation and assistance of the Association of American Railroads, the Railway Progress Institute, and the Chlorine Institute, nondestructive testing techniques and determine how such techniques can best be applied for periodic testing and inspection of all tank cars that transport hazardous materials.

R-92-022 CUA 01/10/11 TO THE FEDERAL RAILROAD ADMINISTRATION: Develop and promulgate, with the Research and Special Programs Administration, requirements for the periodic testing and inspection of rail tank cars that help to ensure the detection of cracks before they propagate to critical length by establishing inspection intervals that are based on the defect size detectable by the inspection method used, the stress level, and the crack propagation characteristics of the structural component (requirements based on a damage-tolerance approach).

R-95-009 CAA The NTSB recommends that the FRA: evaluate, with the assistance of the Railway Progress Institute & the Association of American Railroads, the failure rate & the mode

of failure of bowl-shaped sumps & education pipe bracing systems in tank cars transporting hazardous materials, & based on the results of this evaluation, require repairs or modifications to prevent mechanical damage to coatings or linings & subsequently to the tanks from misaligned components of the education pipe systems in tank cars.

R-95-010 CAA The NTSB recommends that the FRA: require, in cooperation with the RSPA, that the shipper or party using a tank car to transport materials corrosive to the tank determine the periodic inspection interval & testing technique for linings & coatings, & require that this info be provided to parties responsible for the inspection & testing of tank cars.

R-98-067 CAAA The NTSB recommends that the Federal Railroad Administration: inform all tank car repair facilities of the circumstances of the 4/2/97, failure of a railroad tank car and release of anhydrous hydrogen fluoride in Memphis, TN, and urge them to review and modify, if necessary, their practices for heat treatment and hardness testing of weld repairs to prevent additional tank car weld failures from hydrogen assisted cracking.

R-98-068 CNLA The NTSB recommends that the Federal Railroad Administration: prohibit the transportation of anhydrous hydrogen fluoride in tank cars manufactured of TC 128 steel.

R-98-071 CR The NTSB recommends that the FRA: cooperate with the Compressed Gas Association, Inc., in its efforts to revise its recommended procedures for nitrogen purging of tank cars to specify a minimum threshold temperature for nitrogen that is based on an engineering analysis of ductile-to-brittle transition temperatures of tank car steels.

**TESTIMONY OF  
MICHAEL P. MELANIPHY  
PRESIDENT AND CEO  
AMERICAN PUBLIC TRANSPORTATION ASSOCIATION  
BEFORE THE  
SUBCOMMITTEE ON RAILROADS, PIPELINES AND HAZARDOUS MATERIALS  
OF THE  
HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
ON "OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY"**

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**FEBRUARY 26, 2014**

**SUBMITTED BY**

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The American Public Transportation Association is a non-profit international association of more than 1,500 public and private member organizations, including transit systems and high-speed, intercity, and commuter rail operators; planning, design, construction, and finance firms; product and service providers; academic institutions, transit associations and state departments of transportation. APTA members serve the public interest by providing safe, efficient and economical transit services and products. More than 90 percent of the people using public transportation in the United States and Canada are served by APTA member systems.

## Introduction

Chairman Denham, Ranking Member Brown, and members of the Railroads, Pipelines, and Hazardous Materials Subcommittee, on behalf of the American Public Transportation Association (APTA) and its more than 1,500 member organizations, I thank you for this opportunity to testify on the oversight of passenger and freight rail safety. My name is Michael Melaniphy, and I am the President and Chief Executive Officer of the American Public Transportation Association. We appreciate the subcommittee's attention to the critical issues of rail safety and positive train control and the struggles publicly funded commuter railroads have encountered as they attempt to implement this technology.

## About APTA

The American Public Transportation Association is a non-profit international association of more than 1,500 public and private member organizations, including transit systems and high-speed, intercity, and commuter rail operators; planning, design, construction, and finance firms; product and service providers; academic institutions, transit associations and state departments of transportation. APTA members serve the public interest by providing safe, efficient and economical transit services and products. More than 90 percent of the people using public transportation in the United States and Canada are served by APTA member systems.

## Overview

First and foremost, please let me state that APTA is unequivocally committed to safety: passenger and employee safety is the number one priority on our nation's commuter railroads. Since its inception, APTA and its predecessor associations have been vocal advocates and active instigators for safety improvements. In the mid-1990's, APTA developed the Passenger Rail Equipment Safety Standards (PRESS) program to develop safety standards for commuter rail cars. In fact, just last week the railroad industry's commitment to safety was heralded by Federal Railroad Administrator (FRA) Joe Szabo, who announced safety statistics citing that "since Fiscal Year (FY) 2004, train accidents and derailments have each declined 47 percent and highway-rail grade crossing accidents have declined 35 percent." And additionally, the FRA's "preliminary data indicates that FY 2013 was even safer than FY 2012, our safest year on record." With that said, we are always working to make commuter railroads safer.

Commuter rail safety has improved in recent years, but we continue to strive for superior safety. Commuter rail ridership has grown by 42% since 1990, going from just under 328 million trips then to more than 466 million trips in 2012, and safety on the nation's commuter systems has improved. Over the past 10 years, fatalities have declined from just above 0.9 per 100 million passenger miles to 0.5 per 100 million miles in 2011. While commuter rail operators will always seek to improve and enhance safety, it is clear that travel by commuter railroad is among the safest modes of travel in the U.S.

### Public Transportation Industry Safety and Initiatives

In similar testimony before this subcommittee last year, we were asked to address rail safety policy in the context of broader passenger rail legislative priorities. Public transportation generally, and commuter and passenger rail specifically, are among the safest modes of transportation. It is important for Congress and the general public to know that the people involved in the operations and management of commuter and passenger railroads, and public transportation systems in general, are completely committed to the safety of their systems, passengers and employees.

As noted, public transportation is one of the safest modes of transportation. In fact, public transportation has half the fatalities and only 40 percent of the injuries of automobile travel. According to analysis completed for the Transit Cooperative Research Program, public transportation is the safest mode for travel within a city. Public transportation's fatalities are 0.54 per 100 million passenger miles traveled, compared to 0.85 per 100 million passenger miles traveled for autos. According to the Centers for Disease Control, each day, 15 older adults die in car crashes and 500 are injured. They recommend the use of public transportation as a strategy to increase safety. Furthermore, for those under the age of 35, car crashes are the leading cause of death. Public transportation use can reduce exposure to high-risk activities, particularly for groups with higher than average auto accidents and fatalities.

### Industry Safety Programs

In terms of particular safety aspects, any particular technology or practice should be recognized as but one element of an overall integrated approach to system safety. An effective safety culture is more important than any one specific procedure or technology. It begins with the commitment of the organization and senior leadership, working in collaboration with employees and labor in adopting common safety goals and expectations. The transit and commuter rail industries have been leaders on safety improvements over a 20 plus year evolution during which a great deal of attention and effort has been directed toward development of standardized systems and approaches to the delivery of safe service and work environments.

As an example, all commuter rail agencies have developed Safety Management Program Plans, the framework of which is based upon APTA's Rail Transit Safety Audit Program. The APTA Safety Audit program is a voluntary, comprehensive program developed more than when a number of North American rail transit systems requested APTA to develop and implement a standardized format for rail system safety and to provide an auditing service that would enable a transit system to determine the degree to which the standardized elements for rail transit system safety were being addressed. By way of adapting existing industry best practices and system safety standards from the aerospace industry, the APTA Rail Safety Audit Program was inaugurated in 1989. This program was subsequently adopted in 1996 by the U.S. Department of Transportation Federal Transit Administration as the base guideline for its federal state safety oversight requirements.

The benefits derived from participating in the APTA Safety Management Program include adoption of standardized safety management practices, safety management processes for service

delivery and workplace safety, and mechanisms for continual improvement of system safety. Effective Safety Program Implementation includes policies and procedures on: Facilities Maintenance and Inspection; Vehicle Maintenance, Inspection and Repair; Rules and Procedures Review; Training and Certification; Emergency Planning and Response; Workplace Safety Program; Passenger and Public Safety; Rail Corridor Operational Study; and Environmental Management Programs. These are just a portion of the lengthy list of considerations involved in ensuring a safe system.

Peer Review Panels are also available to APTA members, which enables a transit system's general manager to request a team of transit operating industry professionals to perform a review of specific operating, security or safety problems or conditions with the intent to make corrective action recommendations. APTA provides direction and staff support to the panel during and immediately following the on-site review and also edits, with direction from panel chairperson and input from the entire panel, the final report which is then shared with the transit system.

### Standards Development

Additionally, industry developed standards (such as PRESS and others) are contributing greatly to ongoing safety improvement. APTA has written over 270 standards and recommended practices, 71 of which address particular safety needs for mainline rail equipment, and over 111 for rail transit alone. Standards help improve the safety of public transportation systems by addressing vehicle crashworthiness, passenger door systems, emergency lighting and evacuation, and new standards to improve the safety of vehicle interiors including seat attachment strength and safer workstation tables. APTA has initiated new efforts within its standards body to improve current standards on vehicle design affecting derailments and has initiated new studies to better understand the potential for derailments at slow operating speed. Standards also define safe operating practices, inspection and maintenance of equipment, train control maintenance requirements, electrical propulsion system design, catenary electrical distribution wire maintenance, and wheel and axle assembly procedures among many other areas of a general nature including cyber and physical security, railcar procurement, tunnel ventilation, and sustainability.

APTA also partners with the FRA, AAR and labor in developing rules to help design, build and operate safe transportation systems. In this regard, APTA is very active as an industry representative within the RSAC. Recently FRA and industry have collaborated on the development of language for new safety rules particular to high speed rail equipment. The public transportation industry and especially our commuter rail agencies will continue to maintain a strong emphasis on safety.

Finally, APTA continues to maintain active standing committees of the industry that meet on a regular basis to discuss current issues, effective practices and lessons learned through the following committees; Rail Transit Committee; Commuter Rail Committee; Rail Safety Committee; Commuter Rail Safety Committee; and the Risk Management Committee. APTA actively participates through its staff and industry representatives on the numerous FRA Rail Safety Advisory Committee working groups to address current and emerging safety issues. APTA maintains a close working relationship with the National Academies' Transportation Research Board to participate on its various safety-related research activities and to also distribute its resources out to our industry. APTA also maintains a close working relationship with the National

Transit Institute (based at Rutgers); the Transportation Safety Institute; the John A. Volpe Center (Cambridge, MA); and the Transportation Technology Center (Pueblo, CO), to actively participate on safety-focused research, training and testing. Issues pertaining to rail safety are highlighted in sessions at all APTA conferences. And, in liaison with support from the TSA, APTA manages and provides a daily security/ public safety information service through the Public Transit Information Sharing Analysis Center (PT-ISAC). As areas and issues in public transportation emerge, APTA addresses these issues through information sharing, teleconferences, webinars, industry tasks groups and dialogue with relevant stakeholders. Examples include; MAP-21; State of Good Repair/ Asset Management; Positive Train Control; federal NPRM's and ANPRM's. The bottom line: there is a constant dialogue and information sharing process within our industry on all aspect of safety and the practices, processes, and investments necessary to keep our riders, employees and communities safe.

### Positive Train Control (PTC)

As the members of this committee also know, the Rail Safety Improvement Act (RSIA) of 2008 mandated that positive train control (PTC) technology be implemented on passenger railroad and certain freight railroads by December 31, 2015, and it also authorized funding of \$250 million over five years to assist with implementation. APTA's commuter railroads support and are committed to the implementation of PTC.

As defined in the statute, a positive control system is a "system designed to prevent train-to-train collisions, over speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position." When the RSIA was drafted in 2008, there was no off the shelf technology capable of achieving these safety objectives for all railroads – as is still the case today. Yet many commuter railroads have long made use of collision avoidance systems that would have helped protect against certain accidents that have occurred in recent years. Since the enactment of RSIA, APTA and its commuter rail members across the country have aggressively pursued the funding and technology necessary to implement this safety mandate by the current statutory deadline. However, challenges beyond our control have presented obstacles to implementation.

APTA consistently supported the concept of positive train control PTC long before the RSIA, provided that proven technology, resources and radio spectrum necessary were available to put PTC into practice. We are working with our member railroads to meet the law's requirements that all of the nation's commuter railroads have federally approved systems that help protect against accidents. We urge the committee to focus on how to best install these still developing systems on an enormous and complex network of interconnected railroads in a way that maximizes all of an operator's safety considerations while efficiently moving toward implementation. Commuter systems provide important transportation in and around many of our metropolitan regions, and demand for service and ridership continues to grow.

### PTC Funding

In terms of funding, many commuter railroads are still feeling the pinch of the economic downturn, which resulted in decreased state and local revenues for transit agencies. Coupled with the absence of a long-term transportation authorization funding bill, many commuter railroads have had to make difficult funding prioritization decisions regarding the implementation of PTC over critical safety state of good repair projects. While such a decision may be without severe consequence for some commuter railroads, for other agencies, delaying state of good repair projects on legacy systems with infrastructure dating back to the early 1900's could have in significant safety implications.

A June 2013 survey of our commuter railroad agencies found that many commuter railroads have state of good repair (SGR) needs that far outweigh their capital budgets, even before including the additional costs associated with implementing PTC. More than one legacy system responded that its SGR backlog amounts to several billion dollars, while their available capital budget was being redirected to fund PTC implementation. Capital investments such as replacing bridges that are over 100 years old, rehabilitating otherwise outdated locomotives, upgrades to tracks, system safety, signal and communication systems will be deferred to fund PTC. These SGR costs are in addition to the costs associated with the implementation of PTC. The same survey found that of those who responded, their estimated costs to implement PTC had grown to \$2.75 billion. For publicly funded agencies who rely on federal, state and local funding, along with passenger fares, to fund their service, this number is staggering. As publicly funded commuter railroads continue to struggle financially and defer critical state of good repair safety projects in order to meet the PTC mandate, we request that Congress appropriate federal funding to cover 80 percent of commuter railroads costs to implement.

### PTC Technology Development

Of equal concern is that key components of the technology used to build a positive train control system are still largely under development, such as software upgrades and revisions, and roadway worker protection. Absent these essential elements, full implementation by 2015 will be impeded, even for those railroads that have secured the necessary funding. PTC is a system of subsystems overlaid on existing systems. Though commuter railroads are currently in the process of installing these systems, a one-size-fits-all approach to implementation does not exist. Each individual commuter railroad has its own unique and complex operating environment and a PTC system must be tailored to meet those operating requirements. As such, what works for one commuter railroad may not work for another. The absence of proven, off the shelf technology creates uncertainty about whether the new technology will work as intended, cause service degradations, or worse, result in service failures. Further, critics of implementation delays ascertain that sufficient time has elapsed for the technology to be properly developed. While progress has been made, there are real challenges associated with implementing a technology that remains under development and untested in some key areas. Providing a way to extend the deadline would allow for maturation of PTC technology to ensure its successful implementation.

### PTC Spectrum

Additionally, we remain concerned with the availability of radio spectrum necessary to meet interoperability requirements. The same June 2013 survey found that of 17 respondents, only three indicated they have spectrum. Of those three commuter railroads, two will be leasing spectrum and do not have a permanent solution, and the remaining commuter railroad has only been able to acquire partial coverage in the required territories. The APTA survey found many commuter railroads have attempted to secure spectrum on the secondary market, only to encounter issues such as questions about ownership and legal authority to sell, unavailability in required geographic areas, and cost prohibitive contractual requirements. We ask that Congress direct the Federal Communications Commission (FCC) to allocate adequate spectrum to publicly funded commuter railroads, at no cost, to ensure that core safety functions of PTC are implemented in a timely and efficient manner.

### PTC Towers and Antennas

A new obstacle to implementation relates to the ability of commuter railroads to construct towers and antennas necessary for PTC related train communications. The RSIA requires that passenger and freight railroads be able to communicate on a nationwide interoperable network. To achieve the statutory mandate, freight and passenger railroads will be installing tens of thousands of wayside poles located along a railroad's right of way. According to an FCC Public Notice, "because the poles will support antennas that will use radio spectrum licensed by the Commission, the Commission considers the installation of PTC infrastructure to be an FCC undertaking under the NHPA" (National Historic Preservation Act). As such, tower sites will be subjected to environmental, historic and tribal preservation regulations. The FCC facilitates compliance with this requirement through their Tower Construction Notification System (TCNS), an online system whereby entities can submit notice of their intent to construct towers and the FCC shares that information with the necessary parties.

It is our understanding that more than 20,000 antennas are required for PTC nationwide, however, the FCC is able to process only a mere fraction of that number on an annual basis. With tens of thousands of towers required to complete PTC installation, the FCC has suspended the tower construction process until a solution can be achieved. According to the FCC, exceptions will be made for certain commuter railroads to proceed with tower construction on a case by case basis depending upon the number of towers needed. This *ad hoc* process has led to confusion regarding who is excepted and for what reason. While some smaller commuter railroads will certainly have a significantly lower amount of towers that need to be constructed, other commuter railroads will be required to install a significant number of towers and no clarity has been provided by the FCC on the exact threshold of allowance for proceeding with their process.

There are also two misconceptions I would like to address regarding this issue. To be clear, commuter railroads are not receiving any preferential treatment from the FCC throughout this process. Other than being told that progress will occur on a case by case basis, APTA members

have received no guidance on who is to proceed and who is to wait for further notice. Further, the FCC has inaccurately implied that approval of towers under the normal process is not a significant problem for commuter railroads, due to the fact that the commuter railroads have fewer towers that need to be constructed than the freights. At this point in time most, if not all, commuter railroads that are required to install these structures (excluding tenant commuter railroads operating on freight owned lines, in which case the freight railroad is responsible for such work) are still in the design and preliminary engineering stage of PTC implementation, undertaking work such as radio propagation studies to determine spectrum frequency coverage and the number of required towers. Commuter railroads continue to experience the same tower construction issues as the freights and already precarious implementation schedules may be further extended for indeterminate periods of time while the FCC works out internal procedural issues.

### New RSAC Working Groups

The July 2013 Lac-Me’Gantic freight derailment that occurred in Quebec, Canada resulted in an Emergency Order and a Safety Advisory from the FRA regarding the securement of unattended trains and vehicles. The Safety Advisory included a set of recommendations to APTA, including recommendations to review with its commuter railroad members the circumstances of this particular derailment, requesting information on crew staffing requirements, requiring the removal of reverser levers to prevent unintended train movement and the reexamination and updating of safety and security plans for transportation of hazardous materials. There are portions of the Safety Advisory which do not apply to our members because either they have no freight operations on their line(s) or have no trains that transport hazardous materials. To comply with the FRA’s request, APTA surveyed its members and found that all of the appropriate reviews of information and evaluations had been conducted for those who responded to the survey. In terms of specifics regarding hazardous material transportation, generally this portion of the Safety Advisory does not apply to our members as only one railroad that responded directly operates freight service, or otherwise controls how freight trains operating on its lines are staffed. Some commuter railroads that share lines with freight operations that transport hazardous materials have also reported that the necessary reviews were conducted.

In terms of removing levers to prevent unintended train movement, in almost all cases APTA member reported that their operating rules require such removal or that all unattended equipment is required to be locked, or that unattended trains and equipment are not permitted on mainline track or mainline sidings outside of a yard or terminal. As an example, Metra in Chicago reports that employees are required to remove the reverser lever whenever the cab is unoccupied and all cabs must be secured when unoccupied.

Following the accident, the FRA also convened an emergency Railroad Safety Advisory Committee (RSAC) meeting in August 2013, and proposed three task statements to be undertaken by RSAC working groups. These included: Hazard Materials; Train Securement; and Minimum Train Crew Size. The FRA has advised the members of all three working groups that the working group effort must be complete and ready for transmittal to the Administrator by April 2014. APTA and its members are participating members of all three working groups.

### Cameras and Safety Features

APTA most recently polled its commuter railroad members in January on PTC and related safety issues. Of the 20 agencies that responded, we found that half have some type of cameras already installed on their locomotives and others stated that they are considering camera installations. Of the twenty respondents, seven have forward facing cameras and three have forward as well as inward facing cameras. A safety feature we found prevalent on many commuter railroads is an “alerter.” Alerter technology requires an engineer to acknowledge an alert by applying active pressure at frequent intervals, depending on the speed of the train, to indicate responsiveness. If no response is provided after a set amount of time, usually mere seconds, the brakes are applied to stop the train. Sixteen of the twenty respondents indicated the presence of alerters on their system. In addition, eight agencies responded affirmatively to using “recorders,” as a tool to evaluate employee train handling, in addition to its required regulatory purpose as a forensic tool after an incident. Recorders can be used as a tool to monitor engineer compliance with speed, train handling, use of throttle, brakes, horn and various other parameters. We also found that five responding agencies employ overspeed protections on their cab signaling system, a type of speed restriction that is automatically implemented when the train is above the permitted cab rate speed.

### Fatigue

Much is being done to address fatigue on commuter railroads. The RSIA of 2008 directs the Secretary of Transportation to promulgate regulations for certain railroads as specified in the statute, to prepare Risk Reduction Programs, one component of which shall be a fatigue management plan. APTA and its member railroads have actively participated in the FRA RSAC working groups to advance this consensus rulemaking. The industry awaits publication of the regulation, in order to know what will be the requirements that must be addressed.

Additionally the RSIA granted FRA the regulatory authority to establish hours of service limitations for train employees providing commuter and intercity rail passenger service. In developing these regulations, the Secretary was to “consider scientific and medical research related to fatigue and fatigue abatement, railroad scheduling and operating practices that improve safety or reduce employee fatigue.”

In 2009, FRA initiated a RSAC task statement and working group, and determined that certain research in the way of employee sleep diaries was needed as ground work for this effort, but such research involving humans required a lengthy federal approval process and at least a year of data collection and analysis. Due to industry concern that the statutory deadline might be missed (hence passenger railroads would inherit the freight hours of service requirements), the commuter railroads asked APTA to establish a task force, to which we invited the Association of American Railroads (AAR), the American Short Line and Regional Railroad Association (ASLRRA), Amtrak, rail labor representatives and FRA. The commuter railroads assessed themselves a fee totaling more than \$100,000 so that APTA could contract with a renowned fatigue researcher to start analyzing the actual work schedules of train employees in passenger service. Hundreds of actual work schedules were analyzed using an FRA approved bio-mathematical fatigue modeling tool.

Due to the scheduled nature of commuter passenger service, and the fact that most employees have the chance to sleep at home every night, the results of the modeling showed that most passenger schedules did not put the employees working those schedules at risk for fatigue. There were, however certain work schedules that exceeded the threshold, primarily those were overnight jobs and schedules that start later in the day and end late at night. These results are widely substantiated in the scientific and medical research. Another area that was of potential concern was the use of split shifts, where a crew may work one or two round trips during the morning commuter peak, then be released for several hours in the off peak, and return to operate one or two round trips in the evening commuter peak. Although the interim release period allows employees the opportunity to rest, nap, relax, and/or conduct personal business, often at their homes, the model assumed that no daytime rest occurred. These schedules generally did not evidence a risk for fatigue when modeled.

The final regulation, published in August 2011, requires all passenger railroads to review and assess all of their work schedules. If any schedules start and/or end outside of an approved window (determined through the modeling that was done during the development of the regulation), then the railroad must use an approved bio-mathematical model to determine the risk for fatigue. In some cases, the work schedule can be modified to reduce the risk of fatigue. Unfortunately, it is not possible to eliminate all overnight, early morning and late evening schedules, as some work (yard work, work trains) must be done during these hours. In that event, the railroad must develop a fatigue mitigation plan, and inform employees of the increased risk and tactics the employee can take to minimize fatigue when working these schedules. The regulation also limits the number of consecutive work days overall, with a more limiting number of consecutive work days when the schedule includes an assignment that is at higher risk of fatigue.

All affected railroads were required to develop and implement fatigue awareness training for all covered employees and their supervisors by December 31, 2012. At a minimum, refresher training is required every three years. The training must cover information on the physiological and human factors that affect fatigue; opportunities for identification, diagnosis and treatment of related medical conditions; alertness strategies; opportunities to obtain restful sleep; and the effects of abrupt changes in rest cycles.

Since the enactment of this regulation, passenger railroads have invested significant sums to acquire the approved modeling tool and related electronic crew scheduling and assignment programs; to enhance “quiet rooms” and interim rest facilities for employees who cannot return home; and to provide fatigue awareness training to employees and supervisors.

### Metro North Railroad

The commuter railroad industry works diligently to provide safe service to our riders. Accidents like those that have occurred on the Metro North Railroad (MNR) remind us that while commuter railroads are one of the safest modes of public transportation, we must remain ever vigilant and continue to make safety our top priority. As a result of the accident, the FRA issued Emergency Order 29, outlining the steps MNR is required to take to mitigate safety issues related to the

accident. Metro North has worked tirelessly with the FRA to ensure that the previous hazards are eliminated and has committed to take all necessary actions to ensure safe operations without disrupting the transportation needs of their passengers in the New York metropolitan region.

Although the National Transportation Safety Board (NTSB) is conducting a comprehensive accident investigation and analysis, MNR immediately initiated work on an action plan that identified safety deficiencies and how to address these issues. According to Metro North, the following steps are being taken:

- Critical curves/Moveable Bridges
  - MNR is continuing to implement signal-based speed solutions to enforce speed at identified curves and moveable bridges. MNR is working to complete these projects as expeditiously as possible and expects to issue a revised schedule that improves upon the time frames.
  - MNR has implemented a program approved by the FRA to promote closer communication between the engineer and conductor at critical curves and moveable bridges.
- Speed Compliance
  - MNR has surveyed all mainline track locations requiring a reduction of more than 20 miles per hour from the maximum authorized speed (MAS) and has reduced the MAS at each of these locations.
  - MNR has posted speed limit signs at each critical curve location.
  - MNR has completed 2,000 audits through its speed compliance program since December 10 and is in the process of enhancing the program.
- Alerters
  - Alerters will be installed in the remaining one-third of MNR's fleet that only uses dead man controls. This includes MNR's M-3 and cab cars. A statement of work has been developed with the vendor and PHW/Siemens. The new software is expected to be tested in February, with installation of the new software to begin in March, during the individual car's inspection cycles. Installation of alerters will be complete by the end of this year.
- Confidential Close Call Reporting System (C3RS)
  - MNR and Long Island Railroad (LIRR) had a conference call with the Volpe Center on December 18, 2013, regarding the implementation of C3RS. A kick-off meeting was held with the local unions and MNR management on January 7, 2014, and the FRA and Volpe will hold a Q&A and working session with the unions on January 22, 2014. It should be noted that C3RS cannot be implemented by MNR management unilaterally. Input from and approval of MNR's unions must be obtained before implementation.
- Safety Stand Down
  - MNR will hold its next quarterly safety stand down in late March.
- Positive Train Control (PTC)

- On December 18, MNR and LIRR met with their PTC systems integrator (a joint venture of Bombardier and Siemens) to discuss opportunities to expedite their PTC schedules.

Metro North continues to work with the FRA on the implementation of PTC.

In 2008, an accident occurred on the Southern California Regional Rail Authority (SCRRA) Metrolink in Chatsworth, California. In the wake of this accident, Metrolink committed itself to implementing Positive Train Control technology on its commuter railroad. Metrolink's PTC program calls for installing a back-office system (BOS), replacing the current computer-aided dispatch (CAD) system, installing on-board PTC equipment on 57 cab cars and 52 locomotives, installing systems to stop a train at 476 wayside signals, and implementing a six-county specialized communication network to link the wayside signals, trains and a new 24,000 square foot security enhanced building to house the command and control equipment and personnel to dispatch the railroad at all times. The Metrolink Operations Center (MOC) is the dispatching hub for rail providers in Southern California, including other passenger and freight carriers.

The estimated cost for developing, installing and deploying PTC on the Metrolink system including the expansion of the communication network to support the PTC System is \$216.3 million. Metrolink secured full funding via 30 grants from local, state and federal sources with the funding split at 50%, 42%, 9% respectively. Metrolink now has the ability to implement PTC on specific trains. The FRA has authorized Metrolink to operate PTC Revenue Service Demonstration (RSD) on BNSF territory using Wabtec's Interoperable Electronic Train Management System (I-ETMS). Wabtec's I-ETMS® PTC System was selected by the four Class One freight railroads and by Amtrak outside of the northeast corridor as well as Metra and Coaster. Metrolink's PTC service on BNSF track will be implemented on select trains on the Metrolink 91 Line (between Riverside-Downtown and just east of LA Union Station), Orange County Line (between Fullerton and just east of LA Union Station) and Inland Empire-Orange County Line (between San Bernardino and just east of Anaheim Canyon). PTC capability on Metrolink territory is expected to be available later this year, while the entire service area is anticipated to be complete well before the Rail Safety Improvement Act (RSIA) mandate of December 2015.

### Investment Needs and State of Good Repair

In June 2010, the Federal Transit Administration published a national state of good repair assessment in which it reported on the condition of all transit assets; including roadway and fixed-guideway modes, vehicles, and facilities such as maintenance buildings, stations, administrative buildings, and rights-of-way. The report estimated that the level of investment required to bring all U.S. transit assets – including the assets of all urbanized area and rural transit operators – into a state of good repair amounted to a national SGR backlog of \$77.7 billion. For commuter rail agencies, the SGR backlog was \$12.6 billion, and these estimates are believed to have grown since the FTA study was published.

The national SGR backlog does not include the estimated over \$2.75 billion necessary to implement PTC on more than 4,000 locomotives and passenger cars with control cabs and 8,500 track miles, nor the millions needed to purchase or lease radio spectrum to meet interoperability

requirements. Despite the tremendous cost, Congress has appropriated only \$50 million of the authorized \$250 million to assist publicly funded commuter railroads with implementing Positive Train Control.

As previously mentioned in this testimony, the billions of dollars in SGR backlog include investments that have significant operational and safety implications. For example, the Massachusetts Bay Transportation Authority (MBTA) in Boston, has 467 bridges that it maintains on its system. Keeping these bridges in good condition is critical for the MBTA to ensure safe operations. The Southeastern Pennsylvania Transportation Authority (SEPTA) in Philadelphia, has a current state of good repair backlog of \$5 billion and regional/commuter rail accounts for 61% (or \$3.05 billion) of this backlog. Regarding PTC implementation, SEPTA continues to be on track to meet the December 31, 2015 deadline, but has little to no flexibility with their timeline. To meet the mandate, SEPTA will ultimately expend \$320 million on the installation of PTC and its associated technologies, limiting the availability of capital resources for other critical state of good repair projects, such as bridge reconstruction and power substation rehabilitation and replacement. The Nashville Regional Transportation Authority (RTA) in Tennessee, has almost no discretionary capital funding, meaning plans for capital replacement, expansion, and maintenance programs will be deferred as the funding is redirected to PTC. The Trinity Railway Express (TRE) in the Fort Worth/Dallas, Texas area determined their annual SGR needs to be \$14 million, yet funding PTC will cause deferment of capital programs needed to maintain critical existing assets. Denton County Transportation Authority (DCTA) in Lewisville, Texas will delay much needed service expansion plans in order to fund PTC. The staggering amount of funding necessary to implement PTC is having a significant impact on the ability of our nation's commuter railroads to perform critical system safety state of good repair projects and expand their much needed transportation service into new areas. We ask that Congress and the Administration consider these costs and authorize and appropriate funding so that publicly funded commuter railroads can both implement PTC and attend to the massive backlog of critical system safety upgrades.

### Conclusion

In closing, we want to reiterate the long standing and continued commitment the public transportation and commuter rail industry has for advancing the safety of our riders, employees and communities. On behalf of APTA and its members, we appreciate the work that this committee has done to enhance safety on our nation's railroads. We look forward to continuing to work with you and your staff on this and many other common issues that face public transportation agencies.



**Committee on Transportation and Infrastructure  
U.S. House of Representatives**

**Bill Shuster**  
**Chairman**

**Washington, DC 20515**

**Nick J. Rahall II**  
**Ranking Member**

April 3, 2014

Christopher P. Bertram, Staff Director

James H. Zeig, Republican Staff Director

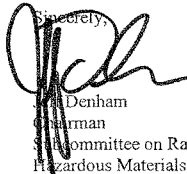
Mr. Michael Melaniphy  
President  
American Public Transportation Association  
1666 K St NW, Suite 1100  
Washington, DC 20006

Dear Mr. Melaniphy,

Thank you for your testimony before the Subcommittee on Railroads, Pipelines, and Hazardous Materials on February 26, 2014 concerning "Oversight of Passenger and Freight Rail Safety." I am pleased you appeared and testified on behalf of the American Public Transportation Association. The Subcommittee gained valuable insight from the information you provided at the hearing.

Enclosed please find additional questions for written responses for the record. The Subcommittee appreciates your written responses no later than April 18, 2014. Please provide an electronic version of your response via email to [Walker.Barrett@mail.house.gov](mailto:Walker.Barrett@mail.house.gov).

If you have any questions please contact Mike Friedberg of the Subcommittee at (202) 226-0727.

Sincerely,  
  
Bill Shuster  
Chairman  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials

Enclosures

**Committee on Transportation and Infrastructure  
Subcommittee on Railroads, Pipelines, and Hazardous Materials  
Hearing on “Oversight of Passenger and Freight Rail Safety”  
February 26, 2014  
Questions for the Record**

Questions from Rep. Denham:

1. If the passenger rails were to completely install all PTC infrastructure and software on their trains and tracks, but the freight rails had not done so, how would an incomplete freight system affect the passenger rails’ ability to implement their PTC system?
2. Could individual passenger lines operate PTC without neighboring lines being fully implemented, or does the whole passenger rail PTC system have to be implemented for PTC to work?
3. What effects would a government mandate of two-man crews in the cab have on commuter railroads?

Committee on Transportation and Infrastructure  
Subcommittee on Railroads, Pipelines, and Hazardous Materials  
Hearing on "Oversight of Passenger and Rail Safety"  
February 26, 2014  
Questions for the Record

Questions from Chairman Denham:

- 1. If passenger rails were to completely install all PTC infrastructure and software on their trains and tracks, but the freight railroads had not done so, how would an incomplete freight system affect the passenger rails' ability to implement their PTC system?**

Response: The response to this question depends on a number of factors, mostly related to which railroad is responsible for installing PTC on the tracks, and whether both freight and commuter railroads operate over shared track or the commuter railroad operates over track that is used exclusively for commuter rail service.

Both commuter railroads and freight railroads have been working together to implement PTC systems on both commuter operations and freight operations because a fully operational PTC system must protect against accidents for all of the trains that operate together on a line that is mandated for PTC installation. APTA has also noted that implementation on the entire rail network cannot occur at once. PTC systems are a new technology which will require installation, testing, and refinements before all of the covered system can benefit from these systems.

Both the commuter railroad and any freight railroads that operate over a line would need to fully install both hardware and software, on both trains and tracks, in order to achieve the full safety benefits of PTC.

Certainly, in areas where commuter railroads own the tracks and are responsible for installing both PTC track and train equipment, there would be some benefits. If freight rail did not operate over that track, the commuter railroad would get the full benefits of PTC on that track. However, the benefits to a commuter railroad would not include full PTC safety protection in cases where freight trains without PTC equipment operate over that rail line. In such cases, the non-PTC equipped freight train would be governed by non-PTC safety procedures while operating over that line and the commuter railroad would not receive all of the safety benefits of a fully integrated PTC system.

In areas where a freight railroad owns the track, and is thus responsible for installing PTC track equipment and software, a commuter train would not benefit from the PTC system installed on its trains until the host freight railroad installed PTC track equipment and software. In such cases, operating delays could also occur if the commuter train must leave PTC covered territory and has to stop to initialize non-PTC safety procedures before operating over the non-PTC track, and again repeating this

process before re-entering PTC covered territory. In general, much of the nation's commuter rail service is operated over lines owned by and/or shared with freight railroads, so this could be a substantial problem.

**2. Could individual passenger lines operate PTC without neighboring lines being fully implemented, or does the whole passenger rail PTC system have to be implemented for PTC to work?**

Response: Yes, individual lines could operate without neighboring lines being fully implemented. Similar to our response to question #1 on the impact of incomplete freight rail PTC implementation, commuter and passenger rail lines operating fully implemented PTC will not be precluded from operating if neighboring lines are not fully equipped with PTC infrastructure. The distinction is that any operation of PTC equipped vehicles over railroad right of way (ROW) which is not fully equipped with PTC wayside infrastructure will have operational impacts when entering and leaving the non-PTC equipped rail ROW.

APTA supports an implementation schedule which would allow for incremental completion of PTC on commuter rail systems as available technology, spectrum and financial resources permit. APTA believes that incremental implementation still provides for improved safety, but as progress continues to be made, some agencies will still require an extension to the December 31, 2015 statutory deadline. APTA believes that as agencies continue to make incremental progress, the Federal Railroad Administration will be able to provide conditional approval based on their evaluation of plans and good faith effort.

It will also be important for Congress and Federal transportation regulators and safety agencies to understand that any operations allowed to proceed over rail lines not fully equipped with PTC will also not be subject to the expected benefits of PTC. In other words, incomplete or partial implementation will mean incomplete or partial PTC benefits on those segments of the rail line.

**3. What effects would a government mandate of two-man crews in the cab have on commuter railroads?**

With very limited exceptions, commuter rail operations currently include two people on each train, including the engineer (train operator) and at least one other employee (conductor/fare inspector/customer service representative) who is trained in passenger emergency preparedness and available throughout the passenger areas of the train. When the Federal Railroad Administration (FRA) announced its intention to issue a proposed rule requiring two-person train crews on crude oil trains and establishing minimum crew size standards for most main line freight and passenger rail operations, it was APTA's understanding that the proposal for passenger trains would not require two persons in the operating cab but would accept the current practice of two persons on the train to meet the requirement. Under this scenario, the impact would be limited.

However, if the FRA regulation were to require two person crews in the commuter rail locomotive/operating cab, there would be significant cost and operational concerns for commuter railroads. Industry data from 2011 indicates that salaries, wages, and fringe benefits equate to over 60 percent of a commuter railroad's operational expenses.<sup>1</sup> A requirement to add an additional person to every commuter rail locomotive/operational cab could increase the labor costs by as much as 50 percent – a cost increase that many of our publicly funded commuter rail operations could not absorb. Additionally, commuter rail systems often require more than one year to train and qualify operating crew employees (as much as 2 years for engineers), and there would be an additional ongoing cost for periodic training and periodic re-certifications. We are unable to quantify this cost at this time, but we expect that it would also be a significant additional expense.

Commuter rail operations also utilize certain types of equipment (Electric Multiple Units (EMUs) and Diesel Multiple Units (DMUs)) that may not have adequate space in the operating cab for more than one person. Some of the nation's largest commuter rail operations utilize such equipment which would be incompatible with a two-person cab crew requirement. Current industry statistics estimate that there are over 2,600 EMU and DMU cars in the nation's commuter rail fleet.

The industry is not aware of any empirical evidence has been produced or published that indicates two-person crews provide added safety benefits, while there is evidence that an additional crew member in the locomotive cab can contribute to operator distraction, and potentially have a negative impact on safety.

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<sup>1</sup> American Public Transportation Association: 2013 Public Transportation Fact Book, Washington, DC, October, 2013, Table 23: Operating Expense by Mode and Object Class.

**QUESTIONS FOR THE RECORD  
SUBMITTED TO  
MICHAEL P. MELANIPHY  
PRESIDENT & CEO  
AMERICAN PUBLIC TRANSPORTATION ASSOCIATION**

**FROM  
THE HONORABLE CORRINE BROWN  
RANKING MEMBER  
SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY  
FEBRUARY 26, 2014**

**Question #1:**

The Federal Railroad Administration (FRA) has a voluntary Confidential Close Call program, which allows railroad carriers and their employees to report near-miss accidents to the FRA. The program provides a safe environment for employees to report unsafe events and conditions, and protects railroads from FRA enforcement for events reported within the program. It has helped many freight railroads improve safety on their system. FRA has urged all 28 commuter railroads to participate in the Close Call program. To our knowledge, out of those 28 commuter railroads, only New Jersey Transit has an agreement in place with FRA to participate in the Confidential Close Call Program. Others are in discussion with the FRA. What, if anything, is the American Public Transportation Association doing to encourage other commuter railroads to participate in the Close Call program?

APTA Response

As an industry association, APTA serves as a conduit for communication and sharing of information between the industry and its Federal agency partners, and among our members themselves. APTA provides a regular forum for Federal agencies such as the FRA to present information on their programs and priorities at conferences, workshops, committee meetings, teleconferences and webinars. With regard to the FRA's voluntary Confidential Close Call Reporting System (C<sup>3</sup>RS), APTA has provided forums on numerous occasions over the years, for FRA to present information on this program.

The FRA close call reporting program requires that "the railroad" and "rail labor representatives" sign an Implementing Memorandum of Understanding (IMOU) detailing how the C<sup>3</sup>RS will work at the designated site, and defining the rights, roles, and responsibilities of all parties involved. In cases where the transportation, track & signal maintenance, equipment maintenance and often dispatching are done by a contractor (someone else's employees), it is not clear how such an agreement can readily be made. In some cases, it would have to be a part of the contract procurement/renewal/negotiation process between the public agency and the contractor(s). In a number of instances, the contractor's employees are not represented by a labor organization, which would then require some other process to obtain employee consent. This also presents a question for the protections afforded to individual employees under a contracted work arrangement. Generally, the program was designed to work best in a Class I freight railroad structure, and may need modification to work in a small, contracted non-union environment.

Eight (8) APTA member commuter railroads directly operate service using their own employees (PATH, LIRR, MNR, SEPTA, NJT, UTA, NICTD, ARR). One APTA member commuter railroad (Metra) directly

operates some of its service and contracts out some of its service. Seventeen (17) APTA member commuter railroads contract for all of the service operated, nine of which have some or all of their service on a host railroad's tracks (the host may or may not be one of the contractors). One APTA member commuter railroad is not yet in operation (Denver), and one commuter railroad that contracts for all of its service is not an APTA member at the current time (New Mexico).

APTA will continue to collaborate with the FRA on priority safety programs and to assist our member railroads in evaluating the benefits, issues and considerations associated with voluntary reporting programs such as C<sup>3</sup>RS.

## **Question #2**

**Positive Train Control has been on the National Transportation Safety Board's (NTSB) Most Wanted List of transportation improvements for many years. What are you doing to help your members implement Positive Train Control?**

### APTA Response

Since the Rail Safety Improvement Act (RSIA) of 2008 was passed by Congress and signed into law, APTA has worked aggressively to help our commuter rail operating members understand and comply with the requirements of the law. Our commuter rail members have met regularly to share implementation experiences, we have continually worked with the Association of American Railroads, whose members often owned or shared track over which commuter railroads operate, and we have sought federal funding to assist with implementation on publicly-owned commuter railroads. APTA coordinated meetings between commuter railroads and congressional committees with jurisdiction over this issue as early as 2010, seeking federal funding to assist in the development and implementation of PTC technology, and federal legislation directing the Federal Communications Commission (FCC) to allocate necessary spectrum at no cost to publicly funded commuter railroads. As we have testified to the Committee, it became apparent as early as 2010, that challenges with spectrum, technology development, and funding might prevent commuter railroads from fully implementing PTC on all of the required systems by the 2015 deadline.

APTA has aggressively advocated for the needs of our commuter rail operators including participating in meetings with the U.S. DOT and FRA, the Federal Communications Commission (FCC), the NTSB, and congressional authorizing and appropriating committees. Ultimately, if resources such as funding and communications spectrum had been provided by Congress to meet the Federal mandate, our commuter rail agencies would have made greater progress toward full implementation.

As a membership association, APTA serves as an open forum for sharing of information and best practices, for the development of consensus-based industry standards, for the advancement of critical rail and transit research, and for communication with other industries and our Federal agency partners. Specifically with regard to implementation of PTC, APTA staff has participated in numerous technical meetings with the Class I freight railroads, AAR, and the various companies that have been involved in the design of the components, communications protocol, etc., and has reported back to the commuter railroads on these technical developments. These meetings pre-date the issuance of PTC regulations by FRA. APTA has co-sponsored two technical seminars in conjunction with AAR and ASLRRA, to discuss the technical development status and issues of PTC design and implementation; FRA has also been a participant in these seminars. APTA has also included PTC sessions at its relevant conferences and workshops every year, since the enactment of the statute. This includes a special half day workshop at

the APTA Rail Conference in Chicago in 2009. During meetings between APTA technical staff and freight railroad technical staff, it became apparent that most, if not all, of the tenant commuter railroads were unaware that the I-ETMS version of PTC will require even a tenant to establish and maintain a “back office server”. This led to discussions with one company engaged in PTC development, and the FRA, on the concept of a “hosted back office”. As a result, the aforementioned company received some funding from FRA, along with its own resources, to undertake a feasibility/“proof of concept” study showing that such a system would work. If feasible, several railroads could share the cost for the hosting and the ongoing programming maintenance, which otherwise would be a severe and added burden to the smaller contract operated agencies who have very limited in-house technical capabilities.

APTA will continue to work collaboratively with our Federal partners and with the freight rail industry to assist our members with implementation of PTC. We will continue to do all we can to improve public transportation safety and to seek the resources that our operating agencies need to fulfill their obligations under law and regulation.

**WRITTEN TESTIMONY OF JACK GERARD  
PRESIDENT, CEO OF AMERICAN PETROLEUM INSTITUTE  
HEARING ON  
“OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY”  
SUBCOMMITTEE ON RAILROADS, PIPELINES, AND HAZARDOUS MATERIALS**

Chairman Denham, Ranking Member Brown, and members of the subcommittee, thank you for the invitation to testify on the important and timely topic of enhancing rail safety.

My name is Jack Gerard, president and CEO of the American Petroleum Institute. API represents all segments of the oil and natural gas industry with more than 590 members who supply most of the nation’s energy.

The revolution in North American energy development has been made possible by technological breakthroughs in decades-old methods of energy development, which has set this nation on the path to energy security, a concept unthinkable just a few years ago.

The energy policies we choose today will determine if our nation will continue its march toward global energy leadership; a unique and once in a generation opportunity. America’s dramatic increase in domestic energy production has fundamentally altered the global energy markets and more broadly the geopolitical landscape for decades to come, all while providing a much needed boost to our economy.

In order to achieve our nation’s full potential as a global energy leader all of us have to work together to ensure that our energy infrastructure is capable of safely, reliably and efficiently transporting ever-increasing amounts of domestically produced energy, whether by truck, barge, pipeline, or the focus of today’s hearing, rail.

Meaningful and lasting improvement in rail safety will only come from a holistic and collaborative approach to accident prevention, mitigation and response, and the oil and natural gas industry will continue to work with our colleagues in government, the rail industry and others on continual safety improvement.

The Memorandum of Understanding released last week between the railroad industry and the Department of Transportation, which outlines operational changes to improve rail safety, is an important step in our shared goal of improving the safety of America's freight rail system.

While it's true that 99.997 percent of hazardous materials transported by rail reach their destinations without incident ... the oil and natural gas industry is committed to getting to zero rail incidents. Because when it comes to safety the only number that matters is zero incidents.

Getting to zero will take the long-term commitment to working collaboratively with all stakeholders and applying all of our best science, research and real-world data in a thoughtful and deliberate manner.

Being a safe steward of our nation's energy resources and providing leadership in raising the bar on industry performance isn't new to the oil and natural gas sector. For 90 years, API has been the world leader in developing and improving equipment and operating standards – 600 and counting – for oil and natural gas through a collaborative process that involves all stakeholders, as well as government regulators. This process is accredited by the American National Standards Institute or ANSI, which is the same organization that accredits the government's national laboratories.

We have already assembled the best experts from our industry, the railroads, scientists and engineers and others to tackle some of the issues raised by the recent rail incidents involving the transport of crude oil. PHMSA also committed to join our effort to develop a comprehensive standard that addresses the classification of crude oil to ensure we are moving that product in the safest manner possible. This includes possible safety improvements for material characterization, transport classification and quantity measurement of crude oil based on the best available science and data.

This is part of our industry's longstanding commitment to safety. In 2011, the oil and natural gas industry helped lead the multi-industry effort that led to significant improvements in the design of tank cars. And we moved forward voluntarily with those improvements – so that this year we are now approaching 40 percent of the crude tank cars in use by our industry will exceed the current federal safety standard.

In the final analysis, the women and men of the rail and oil and natural gas industries, as well as the communities traversed by our nation's freight rails, deserve our laser focus on this challenge. Our potential as a global energy leader is rooted in our ability to safely transport our game-changing energy resources safely every time, be it by truck, barge, pipeline or rail.

We look forward to continuing to work with our colleagues in government, in the rail industry and with others to develop a long-term, holistic and comprehensive approach to rail safety that includes prevention, mitigation and response and moves us closer to what I think is our shared goal of zero rail incidents.

Thank you for your time and attention.

API Responses to Chairman Jeff Denham  
House Transportation and Infrastructure Committee  
Subcommittee on Railroads, Pipelines, and Hazardous Materials  
“Oversight of Passenger and Freight Rail Safety”  
February 26, 2014

**1. Mr. Gerard, what is your comment on the clarity of the Emergency Order issued by the Department of Transportation on February 25, 2014?**

The restated and amended emergency order is a significant improvement over the original EO. API members better understand DOT’s requirements.

**2. What is the interim economic impact of the Petroleum Industry of not having a final tank car rule?**

“EIA forecasts production from the United States and Canada to grow by a combined annual average of 1.4 million barrels per day in 2014.”<sup>1</sup> With that in mind, one could anticipate that transportation by rail will need to grow to carry the crude oil that does not have access to other modes of transportation (i.e., marine ships/barges or pipelines). The industry has not waited for DOT and has already invested billions of dollars in new, state-of-the-art CPC-1232 tank cars that are built to the consensus industry standard. However, anecdotal information suggests that companies are now hesitant to order new tank cars until there is a final DOT rule. The recent Transport Canada announcement that all pre-petition cars carrying crude oil and ethanol must be phased out within three years will further tighten the tank car market. Constraints on transportation and their negative impact on wellhead prices have been well documented. “Since the beginning of 2012, the price differential between crude oil produced in the Bakken region of the Williston basin, located mostly in North Dakota, and West Texas Intermediate (WTI) crude oil varied as a result of transportation constraints. Rapidly growing production in the Bakken coupled with lagging takeaway infrastructure (pipelines and rail capacity) contributed to Bakken prices that were as much as \$28 per barrel lower than WTI in early 2012.”<sup>2</sup> As wellhead prices decline, some prospects could become uneconomic to drill, potentially impacting U.S. crude oil production.

**3. With roughly 400,000 crude cars moving through the U.S. last year and multiyear backlogs for new tank cars, how much more demand is there to move crude that is currently possible? See response to question 2.**

**4. With domestic crude being such a boon for the economy in recent years, are we holding the market back with an insufficient tank car fleet?** To ensure there are no obstacles to the development of a sufficient tank car fleet, a proposed rule from PHMSA is needed to provide certainty to the marketplace. Companies considering exploring new areas that do not have access

<sup>1</sup> U.S. Energy Information Administration | Short-Term Energy Outlook April 2014 [http://www.eia.gov/forecasts/steo/pdf/steo\\_full.pdf](http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf)

<sup>2</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=10431>

to other modes of transportation need to know that they can get their product to market. They also need to know that they can plan and invest in tank cars appropriately without the fear that the requirements will change and they could be sitting on cars that may go unused or have to be scrapped.

**5. How much more crude could we potentially move in the next few years with market certainty of what the new tank car standard will be?** See previous responses.

**6. How are you working proactively and cooperatively with the rail industry, the government, and responders to enhance safety?**

API continues to work with all interested parties in a holistic way to prevent accidents, mitigate impacts if they occur and support emergency response. Specifically, we have been engaged in the following:

**Prevention**

- We participated on the FRA's Railroad Safety Advisory Committee to evaluate regulations affecting issues such as hazardous materials transportation by rail, definition of residue in empty cars, train crew size, and train securement.
- We are working with our colleagues in the rail industry to establish collaborative working groups to identify and address any other issues associated with the safe shipment of crude by rail.

**Mitigation**

- Since February, API has held bi-weekly meetings of the industry including PHMSA, railroads, petroleum, and tank car builders to develop a standard on the material characterization, transport classification, and quantity measurement of crude oil for the loading and unloading of railroad tank cars. Ultimately, this standard will provide the best processes for classifying, handling, and transporting crude oil. We expect to have a first ballotable draft in June of this year and we can provide updates to you and other interested parties as the content gets developed.
- While there appears to be some confusion around the collection of data, at least four of our member companies have provided data to PHMSA thus far. As I testified before your Committee in February, API has and will continue to encourage our members to provide data to PHMSA. We have received the same data that our members have given to PHMSA and we are compiling that data. Furthermore, specific to the Bakken region, the North Dakota Petroleum Council has contracted with the engineering and management consulting firm Turner, Mason & Company and an independent commercial laboratory to conduct quality assurance tests that will study the range and variability of Bakken crude oil qualities. Turner, Mason & Company will collect multiple samples from twelve different locations and six depots throughout the Williston Basin of North Dakota and Montana over a period of several weeks. The results of this study will be provided to API as part of the collaborative industry effort on crude oil transportation safety and an update will be provided at the Williston Basin Petroleum Conference in May. The results will also be provided to PHMSA as a complement to the proprietary data that individual companies are already sharing. Finally, we look forward to collaborating with PHMSA to review their crude oil quality data compiled through Operation Classification.

- Since 2009, we have collaborated with the Association of American Railroads (AAR) and a host of shipper associations including the American Chemistry Council, the Chlorine Institute, and the Renewable Fuels Association, and other shippers to determine the best packaging designs for our products. Since 2011, we have been building state-of-the-art tank cars (CPC-1232) to the industry consensus standard that exceeds federal regulations. PHMSA should complete and publish their interim final rule adopting the CPC-1232 industry standard for new tank cars and allow the use of cars built in good faith to those standards to remain in service for their useful life without major retrofits. As stated previously, this would provide certainty to the industry and provide a path for immediate action by PHMSA. Additionally, this rule will enable PHMSA to continue to work on a proposed rule on legacy DOT-111's and possible modifications for tank cars not yet built.
- We are continuing to meet with the shippers, tank car builders, and railroads to review the Railway Supply Institute's (RSI) proposal on new tank car design and retrofit of the legacy tank cars. We have also held multiple meetings with RSI and shipper organizations to determine the best approach to these issues. Additionally, we have met with the AAR to (1) review the model that is used to determine how tank car design impacts the probability of release of crude oil during a derailment and (2) we have invited AAR and RSI to participate in an integrated risk assessment that will holistically assess the risk of moving crude oil by rail.

Response

- API member companies are partnering with the carriers to conduct training as well as drills and exercises at various locations around the country. These efforts not only ensure better preparedness for an incident, but they also provide an education to responders and ensure consistency throughout the Nation.
- We are currently working to determine how to best share our expertise in emergency response and spill response from our core business in pipelines, marine and refineries with the railroads. We are exploring ways to expand these initiatives to ensure that this knowledge can be applied to a rail incident. For instance, API, together with the Association of Oil Pipelines, had previously partnered with the National Association of State Fire Marshalls (NASFM) to develop an on-line training module for a response to a crude release from a pipeline. We are currently working to add a module that focuses specifically on crude releases from rail.
- We are engaging with carriers on emergency response activities and are participating in training programs, exercises and drills and have joined Transportation Community Awareness and Emergency Response (TRANSCAER) program. TRANSCAER and other similar programs enhance readiness and support the ability of oil companies, carriers and representatives from the public sector (federal, state and local levels) to evaluate protocols and establish appropriate plans and procedures to effectively respond to a spill.

**7. Your testimony at the hearing noted that API is a standard-setting entity. When you say you are working on a classification standard for the industry when it comes to crude oil, what kind of standards are you setting and how will that help those who follow the standards to be safer?**

As is noted in #6 above, API is working with all stakeholders, including PHMSA, railroads, petroleum, and tank car builders, to develop a standard on the material characterization, transport classification, and quantity measurement of crude oil for the loading and unloading of railroad tank cars. This standard will include both lab and field testing techniques, will provide guidance on the documentation of measurement results, and will identify criteria for determining the frequency to sample and test crude oil. The Standard will cover the transfer of crude oil into and out of rail tank cars at marine, pipeline and transloading terminals, including cargo tank truck to rail tank car. We expect to have a first ballotable draft in June of this year.

**8. Could you also please elaborate on what API is doing with regard to emergency responder training?**

Please see the answer to #6 above.

**Questions issued by:** Democratic Members of the House Committee on Transportation and Infrastructure

**Responses from:** American Petroleum Institute

Q. You mention the need for a “holistic and collaborative approach” to rail safety. What do you mean by that?

A. We believe rail safety improvements must be developed using a **holistic, comprehensive, and systematic approach** that examines **prevention, mitigation, and response**. Safety solutions must be data-driven and produce measurable improvements to safety without creating new risks or inadvertently shifting the risks to other businesses or operations. To achieve this, collaboration is needed among government, shippers, railroads, and tank car builders.

Q. The DOT amended the Emergency Restriction and Prohibition Order that makes changes to the way petroleum products are tested and classified, as well as attempts to clarify what frequency and quality these tests should include. Do API members now have a good understanding of what is now required from them through this amended Order? Do you have any concerns with this Order?

A. The restated and amended emergency order is a significant improvement over the original EO. API members better understand what is now required from them.

Q. How is your association working with PHMSA to support its efforts to ensure that crude oil is classified and packaged properly through Operation Classification? What outreach has API done with its member companies to improve testing and classification?

A. API has already assembled top scientists, engineers, and the best experts from our industry, the railroad industry and others to **develop a standard for classifying**, handling, and transporting crude oil. **PHMSA is participating** in this process. API continues to encourage its members to share data with PHMSA.

Q. PHMSA has indicated that your members have been unwilling to provide detailed information about their testing and the results of their testing of crude oil to DOT. Why is that?

A. We have and will continue to encourage our members to provide data to PHMSA. We know at least three of our members have provided data to PHMSA thus far.

Q. Can you please elaborate on API’s efforts to work with the railroads to enhance emergency response training through the voluntary national outreach effort, TRANSCAER?

- A. API member companies are partnering with the carriers to conduct training as well as drills and exercises at various locations around the country. These efforts not only ensure better preparedness for an incident, but they also provide an education to responders and ensure consistency throughout the Nation.
- We are currently working to determine how to best share our expertise in emergency response and spill response from our core business in pipelines, marine and refineries with the railroads. We are exploring ways to expand these initiatives to ensure that this knowledge can be applied to a rail

**Questions issued by:** Democratic Members of the Subcommittee on Railroads, Pipelines and Hazardous Materials

**Responses from:** American Petroleum Institute

incident. For instance, API, together with the Association of Oil Pipelines, had previously partnered with the National Association of State Fire Marshalls (NASFM) to develop an on-line training module for a response to a crude release from a pipeline. We are currently working to add a module that focuses specifically on crude releases from rail.

- We are engaging with carriers on emergency response activities and are participating in training programs, exercises and drills and have joined Transportation Community Awareness and Emergency Response (TRANSCAER) program. These training programs enhance readiness and support the ability of oil companies, carriers and representatives from the public sector (federal, state and local levels) to evaluate protocols and establish appropriate plans and procedures to effectively respond to a spill.



**Testimony of John Tolman,  
Vice President and National Legislative Representative  
Brotherhood of Locomotive Engineers and Trainmen  
Before the House Committee on Transportation & Infrastructure  
Subcommittee on Railroads, Pipelines & Hazardous Materials  
Hearing on Oversight of Passenger and Freight Rail Safety  
February 26, 2014**

Good afternoon Chairman Denham, Ranking Member Brown, and Members of the Subcommittee. My name is John Tolman and I am the Vice President and National Legislative Representative of the Brotherhood of Locomotive Engineers and Trainmen, which is a Division of the Teamsters Rail Conference. On behalf of more than 37,000 active BLET members and over 70,000 Rail Conference members, I want to thank you for the opportunity to provide this Subcommittee with our views on freight and passenger rail safety.

Railroad safety is a complex need and goal that we all share. For more than 150 years, the BLET has worked with the industry, government and other labor unions to ensure that railroads provide for the safety of our members and the public. There are many issues encompassing the topic of rail safety, and I would like to take this opportunity to discuss several current, pertinent ones with you today.

Over the past several months, there have been a series of events in the railroad industry that have once again put rail safety back in the headlines. While the causes of many of these accidents have not been determined, there is heightened public concern about the overall safety of railroad operations in this country. As my testimony will show, several areas of continued concern also are implicated by these recent events.

Our perspective — and that of rail labor — differs significantly from that of the railroads on many, if not all, of these issues. Our vision doesn't come down from the board room or a business plan; rather, it comes up from the ranks of our hard working members work every day and every night on our nation's railroads. They are on the front lines of these operations and serve as the first responders to accidents. And for this reason we are uniquely positioned to provide good ideas regarding the types of changes that would make our industry safer.

The most important issue in our minds continues to be the implementation of Positive Train Control without further, blanket delays. PTC was mandated by the Rail Safety Improvement Act of 2008. The railroads will have had over seven years from the time the legislation was passed until it is supposed to be fully implemented at the end of next year. PTC is currently required to be installed on all Class I mainline track where TIH and PIH materials are transported, and on mainline track over which intercity or commuter rail passenger transportation is regularly provided.

PTC technology will prevent the most egregious and catastrophic accidents where hazmat or passenger trains are involved, protecting the public and railroad employees alike, and that's why it has been on the NTSB most wanted list since the early 1970s. Over the past 20 years, more than 70 of our members have been killed in the line of duty, and nearly 50 of those deaths would have been prevented by PTC.

The carriers have had ample time to prepare for the implementation of PTC. However, since it was mandated, the railroads have used a seemingly never-ending series of excuses for delaying the implementation of this life saving technology, and while there are challenges to its implementation, we believe that these could have been averted by more forward thinking by the railroads.

The lack of wireless spectrum is one of the reasons cited as justification for delay. Some railroads — including Caltrain, BNSF and SEPTA — had the foresight to purchase sufficient bandwidth for PTC, while others now complain about the challenges of doing so. Another recent

issue is the sudden appearance of approval problems for the wireless towers that will be placed on land owned by Native American Tribes. The Federal Communications Commission's recent streamlined approval process for this should mitigate this problem and, hopefully, there will be no further delays of this nature.

We fully understand the implementation of PTC is an expensive undertaking for many commuter railroads that are already strapped for cash. We would also support the idea of federal funding for the commuter agencies. However, if any extension is granted to either freight or passenger railroads, we believe certain time- and construction-sensitive benchmarks must be met, and we oppose a blanket extension of the December 31, 2015 deadline. And we reject the notion that PTC provides a justification for reducing crew size, as the railroads contend. To implement PTC as a pretext to reduce crew size would be taking a one step forward and two steps backwards. PTC is simply another safety overlay of operating systems in which trains will be kept apart in the majority of circumstances, but not in every circumstance.

While the implementation of PTC has the potential to positively impact the safety of railroad operations, BLET members — many of whom I hear from each and every day — feel that their greatest safety concern continues to be the often crushing levels of fatigue felt by many in the industry. I have testified before both this Subcommittee and the full Committee on several previous occasions, and discussed the problem of fatigue and its effect on risk in general and our members' safety and the public's safety in particular. It remains clear to me that the intent of the 2008 Rail Safety Improvement Act was to reduce fatigue in the industry. This should have been done by providing railroad operating employees with predictable schedules, calling windows and train line ups they can rely on so that they can plan their sleep accordingly. I continue to believe these and similar ideas will help to alleviate fatigue in the industry. Any legislation or regulation intending to reduce fatigue needs to examine ideas that are not only workable for the carriers but also for their employees, and must be based in science.

The majority of the nation's engineers in freight service — who operate side by side on the same tracks as passenger and commuter engineers — work unscheduled jobs. They are "on call" 24/7, 365 days a year and receive as little as an hour and half notice to report to work a twelve hour shift. Most times there is no predictability as to reporting time, and calls are made without regard to the fact that the engineer may have already been awake for twelve to sixteen hours waiting for the phone to ring.

Our members are professionals who want to go to work rested and ready to ensure their safety and the safety of the communities through which they operate. But in the current operating environment — because they do not know when they will be called to go to work — they simply cannot accomplish this goal. The changes made by the RSIA were well intentioned but reducing the number of hours of service to 276 did nothing to reduce fatigue and was not based upon sleep science. Instead, operational decisions by railroads, such as leaving crews at the away from home terminal for prolonged periods of time, has actually increased fatigue in some cases. And nearly 5½ years after enactment of the RSIA, the industry has yet to engage us in a serious discussion about predictably.

Simply put, fatigue has severe consequences across transportation modes. According to the NTSB, since 1990, fatigue has been cited as an accident cause nearly 200 times. In the railroad

industry the potential for a fatigue-related accident can be significantly mitigated by PTC, by predictable work schedules and adequate rest, and by alerters.

An alerter is a relatively inexpensive, low tech alarm that can automatically apply a train's brakes if the engineer is unresponsive to it. While alerters are in most locomotive cabs, there are many exceptions to their requirement within the existing regulations. For example, the control stand at which the locomotive engineer in the Metro North derailment was operating at did not have an alerter, while the locomotive at the other end of the train did have one. An alerter would have applied the brakes if that engineer did not react to it, and likely would have saved lives.

Another cab-related issue that also implicates security is the securement of locomotive cabs and controls. Since the June 2010 murder of a CSX conductor and the shooting of his engineer during a robbery in their locomotive cab in New Orleans, we have worked hard to develop an appropriate securement regulation that permits the locking of the cab from the inside and the outside, independently, and facilitates first responder ingress into a locked cab during an emergency. While that task as not yet been completed to our satisfaction, we will continue to pressure FRA and the industry to properly protect our members.

The recent publicity concerning rail safety is the result of several serious accidents involving the shipping of crude oil from the Bakken region, including the catastrophe that destroyed the downtown area of Lac Mégantic, Quebec, and the derailment, spill and fire that triggered evacuations in Casselton, North Dakota. Unprecedented levels of traffic and 80 to 100 cars per train, have strained railroad infrastructure and exhausted train crews who do more work with little or no advanced notice. Shorter train lengths would lessen the safety risks to the employees and the public.

We urge the Subcommittee not to lose sight of the overall rail safety picture by hyper-scrutinizing crude oil, because the causes of railroad accidents, for the most part, operate independently of cargo. In fact, the Casselton wreck was caused by a manifest freight train derailing in the path of the crude oil train. PTC and fatigue mitigation must continue to be our top two goals, as they mitigate risk as much for a crude oil train as for any other train.

That being said, I do want to address two specific subjects that have arisen during the debate over rail safety. The BLET has spent significant time and resources countering industry efforts to understaff train crews. The industry has even enshrined in its lexicon the oxymoronic term "one person crew." This issue — specifically, the proposed requirement that there be, at minimum, two individuals in the cab of all freight locomotives — is before your Subcommittee in the form of H.R.3040, which was introduced by Mr. Michaud last summer.

Now, the reality is that virtually all of America's freight trains already operate with two federally-certified crew members. So, then why the need to address this subject today? There are many tasks that must be performed by the crew on a freight train every day that one person just cannot accomplish alone, and a one person crew is not only unsafe, but it also is inefficient ... and can be deadly. The train that wiped downtown Lac-Mégantic off the map had been left standing unattended on a steep grade several miles outside the town because that was the only stretch of track that could accommodate the entire train without blocking any highway grade crossings.

The safest option was to secure the train on flat terrain much closer to the town after separating it into multiple pieces to keep the crossings open. However, that option was not available because the railroad operated the train with a one person crew, and it is physically impossible for a single person to both secure the train with hand brakes and test the securement by releasing the air brakes, as safe operating standards dictate. Therefore, it is time to enshrine this aspect of current railroad operations into law, as Canada's safety regulator did in reaction to the accident in Quebec.

Lastly, it seems to have become fashionable in some quarters to call for the installation of inward-facing cameras in the cabs of all locomotives, as a way to prevent railroad accidents and cure a host of other ills. The proponents of these cameras suggest that video surveillance of locomotive engineers and conductors in the workplace will somehow abate fatigue and foster rule compliance. However, it is absurd to suggest that inward facing cameras are a tool to reduce fatigue. In the absence of operational changes to reduce the likelihood that a locomotive engineer or conductor will be fatigued while operating a train, these cameras will do nothing but document the crewmember falling asleep. In fact, these cameras cannot and will not prevent a single accident, and will only create yet another source of distraction from the train crew's work tasks. More than a century of research establishes that monitoring workers actually reduces the ability to perform complex tasks, such as operating a train, because of the distractive effect of surveillance.

Nor do we believe such cameras have a significant future even as an investigative tool. We currently have event recorders on all locomotives that record all movements in the cab, from throttle, to speed, bell, whistle, alerter, brakes, to all movements of the train. There have been a handful of accidents in which the National Transportation Safety Board stated video would have been helpful because the other event recorder data did not answer all the questions raised during the investigation. Respectfully, however, those accidents were so horrific that it is unlikely the video data recorders would have survived for analysis. These cameras are merely "feel good" devices, which won't improve railroad safety one whit at the end of the day.

The professional men and women working on our nation's railroads serve on the front lines of this industry. We are dedicated to its safety and would like to be partners in improving it. Our organization and all the other railroad labor organizations are committed to working towards solutions for the complex and multi-faceted problems facing the industry, as we bring a unique body of experience and point of view to these problems. Thank you for allowing us the opportunity to share our perspective with you, and I look forward to answering your questions.

Responses of John P. Tolman, Vice President & National Legislative Representative of the Brotherhood of Locomotive Engineers & Trainmen, to questions for the record posed by The Honorable Corrine Brown:

1. **In your written testimony, you stated that the changes by the last reauthorization law “were well intentioned” but in the end the reduction in numbers of hours of service did nothing to reduce fatigue. Why is this? As the Committee looks towards reauthorizing the nation’s rail safety program, what would you need Congress to do to address crew fatigue so that we see real safety improvements?**

The Rail Safety Improvement Act was intended to reduce fatigue by providing predictability in work schedules, and while the RSIA made several great strides in do this on the passenger side, the freight side still needs a lot of work. The reason for this is in the difference in legislative language in the Act. On the freight side, the total hours of service in any month was capped at 276, which is a number not based on any science, and without mandating operational changes that would have provided for predictability in scheduling, the 276 number is essentially an arbitrary figure, that the railroads offered to pretend they were doing something. The freight end needs predictable schedules and/or calling windows. Freight locomotive engineers are on call for duty 24/7, they currently get an hour and one half to two hour calling time. They don't know if they are going to work at 2 a.m. or 2 p.m., and this produces a chronically fatigued work force. To fix these problems, we should have calling windows and/or predictable starting times, but the bottom line is predictable work times. The railroads also need to throw the attendance policies out the window. These policies put pressure on the operating employees to go to work even if they are fatigued or not, and there have been numerous cases of employees fired for missing work.

In order to fix this problem, Congress must act and make improvements to the law to ensure predictability. Things like scheduled service, improved train line ups, and improved call times would go a long way towards fixing the fatigue felt by many of our members. The train lineups are when an employee calls a recorded train lineup and the recording tells the listener where the trains are and when they are expected to go to work; however, our members tell us these are a absolute joke they are not updated and they are not reliable at all. If our members know when they are going to work, they can ensure that they are going to work rested because they are professionals.

2. **Please outline your concerns with the installation of inward- and outward-facing locomotive cameras.**

Inward facing cameras will do zero to improve the safety of the industry. The only thing they will do is to observe the behavior in the cab of a locomotive in case of an accident, and that is only if the accident is not catastrophic enough to enable the cab to remain structurally sound enough for the camera to be working at that time. As I said in my testimony, the only thing a camera will do is to record the train crew members not falling asleep. They will not prevent them from doing so in any meaningful way. This is not a safety device that is needed, it will not prevent accidents and it will not add not to investigate accidents. The locomotives on every train

in America have recording devices that record every movement in the locomotive, including throttle movement, all brake movements, bell, whistle, emergency braking. There are over 20 recording devices. Cameras will do nothing to enhance safety. There are, however, so many fundamental devices that should be on all locomotives in order to actually improve safety. One simple device is an alerter that responds to movements or lack thereof and applies the brake if a movement is not recorded. Locomotive engineers and trainmen work in small enclosed locomotive cabs where they stay in the same position for hours at a time without stopping. The camera is trained directly on them and they have no way to remove themselves from "being watched." There is no safety need for the employer to literally get in an employee's face with a camera and simply stare at their employees. The nature of the job is not analogous to other jobs on the railroad or outside the railroad industry where an employee may escape the camera's eye during lunch break.

**3. The FRA has tasked the Railroad Safety Advisory Committee (RSAC) to evaluate issues to strengthen the safety of transporting hazardous materials, including crude oil, by rail. What is your experience with the RSAC process?**

The BLET has participated in the RSAC for many years and has appreciated the opportunity to do so. Like any process in which consensus among stakeholder groups must be reached, it has not been a completely satisfying process. However, we believe that, in spite of our frustrations, the process is a good one and we always hope that our concerns will be addressed in it. The process can be slow at times and the industry is in most cases stands in opposition to any regulation that would be imposed by the Federal Railroad Administration ("FRA"). This has led to a long era of permissiveness in which "new regulations," are nearly always labeled as too burdensome to the industry simply because they did not exist before.

**4. With respect to two-man crews: How would that improve rail safety? Follow-up: I understand that through the Railroad Safety Advisory Committee (RSAC) that the Association of American Railroads (AAR) offered to use two-man crews until Positive Train Control was implemented. Is this true? If so, what is labor's response to this?**

First, it should be stated, that the overwhelming majority of freight operations in the United States and Canada on Class I Railroads are done with a minimum of two people on the crew. Two people on the crew of every locomotive means that there are two sets of eyes, two sets of ears, etc., in the cab. It provides safety redundancy in that it guards against having a single point of human failure or the failures or malfunctions of computers or machines. It helps to provide that operational needs are met in the safest possible manner. In my testimony, I cited the problems with the one person operation in the Quebec accident, in which the train had to be left on an incline in order for it to clear a crossing, as a single person cannot cut a train at a crossing alone. I also cited the courage of the train crew in North Dakota, in which they had the presence of mind to move the train in order to prevent a larger catastrophe. As I said, no person would get on a commercial airplane if they knew there was only one crew member in the cockpit, and yet, one person operations, often carrying deadly, hazardous materials, are still occurring on our nation's railroads. The Association of American Railroads is maintaining in RSAC Meetings on crew size that the implementation of Positive Train Control should usher in an era of single person crews because the rail industry is spending close to \$8 billion to install it. PTC will make

the industry safer, but when a crew member is laid off just to finance PTC, the employees who work on trains understand that would be one step forward and two steps back. FRA has published the duties of railroad employees and cognitive analyses of railroad engineers and conductors. PTC's mandate goes nowhere near fulfilling all of the tasks and safety duties satisfied by a particular crew member.

**5. In your testimony, you mention your opposition to an extension to the implementation deadline for Positive Train Control. What concerns do you have if this deadline is extended?**

Positive train control is a technology that was around for decades in some form before Congress mandated it nearly six years ago in the Rail Safety Improvement Act, and, in those decades before it was mandated, the railroads could have begun its widespread implementation, but chose not to do so, in spite of the safety redundancy the technology would provide. The NTSB has long asked for it, and the safety benefits are widely known, but little was done until there was an Act of Congress demanding its implementation. Since it was mandated, the railroads have continued to try to delay, using various methods, its implementation. The BLET acknowledges that there are some challenges to its widespread installation; however, any delay must be done on a case-by-case basis, with time constraints and benchmarks that show demonstrable results. Our main concern, if a blanket delay is allowed, is that this lifesaving technology will never be implemented. Any delay of PTC is simply another day that preventable, avoidable accidents could occur. We have had to endure too many fatalities in our industry that have been identified by the National Transportation Safety Board ("NTSB") as preventable accidents.

**6. An industry taskforce was created to look at the safety of rail tank cars transporting crude oil. I understand that there is no representative from rail labor on the taskforce. Workers are the ones who are loading and unloading these tank cars and are the first responders at these accident scenes. Would it be helpful to have a rail labor representative on the taskforce?**

I believe that it would be helpful for rail labor to have representatives of rail labor on the task force looking at the transportation of crude oil. Rail labor serves as the first responders to any accident on the railroad. We are the ones who can address the day to day operating challenges and our opinions and concerns should be heard and addressed by the task force. Without rail labor's presence, the people who put their lives on the line, and sometimes die will go unrepresented. Their perspective will not exist unless they are allowed to participate and provide their first hand knowledge to the task force.

**Responses of John P. Tolman, Vice President & National Legislative Representative of the Brotherhood of Locomotive Engineers & Trainmen, to questions for the record posed by The Honorable Michael Michaud:**

**Some have suggested that minimum crew levels should be left to the collective bargaining process. It seems to me this is much more than a labor issue, it is a public safety issue and thus requires government action. Would you agree?**

I wholeheartedly agree with that statement. We have addressed the crew size issue in negotiations, but the railroads challenge us on it. As we've stated before, most railroads in this country currently operate with at least two individuals on the crew in every locomotive and this arrangement has led to improvements in overall safety statistics. However, the railroads have long wanted to reduce crew size further and have made it an issue, both during negotiations and during the implementation of PTC. Safety redundancy is reached by both two people on every crew and with the implementation of PTC. They are not mutually exclusive and one tool for safety should not be implemented while another separate tool is cast aside simply for profit motive.

**You and the NTSB have identified crew fatigue as a critical cause of many accidents. Obviously PTC would help reduce fatigue related accidents. What else can be done to reduce crew fatigue?**

I have said time and again that the only way to reduce fatigue in the railroad industry is to provide predictable scheduling. If our members know when they are going to work, they can plan and get restful sleep. PTC will not address fatigue; however, it will mitigate the results of fatigue.

**Do you believe a blanket extension of the PTC implementation deadline is warranted? Or should we take a more limited approach with individual extensions granted only where absolutely necessary?**

Again, BLET wants Congress and FRA to enforce the deadline of December 2015, mandated in the 2008 Rail Safety Improvement Act of 2008. If railroads were granted an extension, it should be in limited cases, where railroads provide evidence of why they have let the clock run out on the deadline. Railroads that are given any extension should be given limited extensions with mandated benchmarks and a planned completion date. As I said, the railroads have had years to find a way to implement PTC. It could have been done many years ago for a fraction of the current projected cost. The costs projections will only rise with further implementation delays. They did not do so until they were ordered to by Congress. A blanket delay will only give them another excuse to delay in providing an important tool that will save lives.

TESTIMONY OF  
EDWARD R. HAMBERGER  
PRESIDENT & CHIEF EXECUTIVE OFFICER  
ASSOCIATION OF AMERICAN RAILROADS



BEFORE THE  
UNITED STATES HOUSE OF REPRESENTATIVES  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE  
SUBCOMMITTEE ON RAILROADS, PIPELINES,  
AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL SAFETY  
FEBRUARY 26, 2014

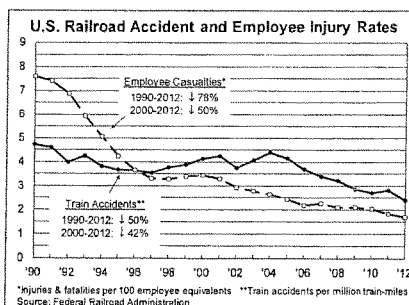
On behalf of the members of the Association of American Railroads, thank you for the opportunity to discuss rail safety. AAR members account for the vast majority of freight rail mileage, employees, and traffic in Canada, Mexico, and the United States. Amtrak and several commuter railroads are also members of the AAR. In my testimony below, I will discuss several important topics associated with rail safety, ways that railroads are working to advance safety in those areas, and steps we believe policymakers should take to promote rail safety.

### **Improving Safety Through Innovation and Investment**

For our nation's freight and passenger railroads, pursuing safe operations is not an option, it's a business imperative. Most importantly, it's the right thing to do. Railroads are not just faceless corporations from somewhere far away. Rather, your neighbors are our neighbors. No matter where you live, chances are good that current or former rail industry employees live close by. We have an obligation to operate safely for their benefit and for the benefit of all members of the communities we serve.

Unfortunately, several recent serious rail accidents in Canada and the United States have led some to question railroads' ability to operate safely. We are committed to restoring their confidence and demonstrating that nothing is more important to railroads than the safety of their employees, their customers, and the communities in which they operate.

The industry's commitment to safety is reflected in safety statistics from the Federal Railroad Administration (FRA). You might be surprised to know that, based on the three most common safety measures used by the FRA —



train accident rates, employee injury rates, and grade crossing collision rates — railroads had their safest year ever in 2012. And while final data for 2013 are not yet available, preliminary data indicate that, by these same measures, overall rail safety rates in 2013 were comparable to 2012. From 2000 to 2012, the train accident rate fell 42 percent, the rail employee injury rate fell 50 percent, and the grade crossing collision rate fell 44 percent, with 2012 seeing record lows in each of these categories.

According to data from the Bureau of Labor Statistics, railroads today have lower employee injury rates than other transportation modes (including trucks, water transportation, and airlines) and most other major industries, including agriculture, mining, manufacturing, and construction.



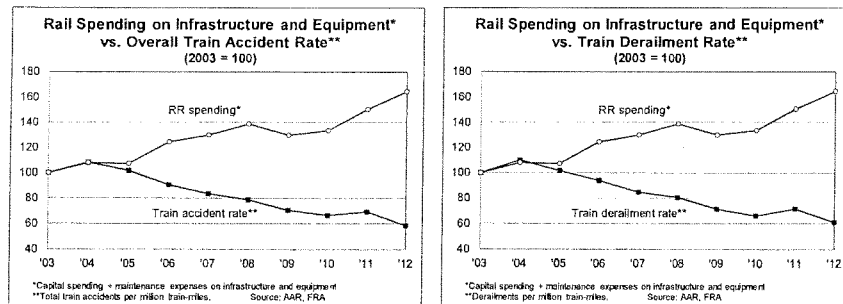
Available data also indicate that U.S. railroads have employee injury rates well below those of most major foreign railroads.

Railroads are proud that their overall safety record, as measured by FRA data, has been trending in the right direction for decades. That said, it is an unfortunate reality that rail accidents occur, despite railroads' stringent efforts to prevent them, and we know that some of those accidents have tragic consequences. Given the extent and complexity of rail operations — the railroad “factory floor” is outdoors and approximately 140,000 miles long — infrastructure and equipment sometimes fail and it is impossible to eliminate all risk of accidents. And while railroads respect and applaud the professionalism and attention to safety that rail employees bring every day to their jobs, human error continues to be a leading cause of accidents. Our goal

is to make rail accidents as rare as possible and, when accidents do occur, to minimize and mitigate their negative impacts.

One of the most important ways that railroads have reduced accidents is through significant and consistent investments back into their networks. In fact, in recent years, America's freight railroads have been reinvesting more private capital than ever before to renew, upgrade, and expand their infrastructure and equipment, including a record \$25.5 billion in 2012 and a comparable amount in 2013. Rail spending this year is expected to be even higher. The vast majority of these investments have improved rail safety directly or indirectly. In fact, for many of these investments, improving safety is the primary reason the investments are made.

Just from 2008 to 2012, Class I railroads spent nearly \$26 billion in capital expenditures on new crossties (77 million), new rail (2.9 million tons), and new ballast (nearly 61 million cubic yards). Over the same period, they spent billions of additional capital expenditure dollars on signal and communications systems, bridges and tunnels, and machinery. These and other capital investments, as well as the billions of dollars railroads spend on maintenance of their networks each year, have made railroads much safer. And as the following charts show, there is a clear correlation between rail reinvestments and rail safety improvements.



Virtually every aspect of rail operations is subject to strict safety oversight by the FRA. Among many other areas, railroads are subject to FRA regulation regarding track and equipment inspections; employee certification; allowable operating speeds; and the capabilities and performance of signaling systems. Hundreds of FRA personnel perform regular inspections of rail facilities and operations throughout the country. In many states, FRA safety inspectors are supplemented by state safety inspectors. Railroads are also subject to safety oversight by additional federal agencies, including the Occupational Safety and Health Administration, the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Department of Homeland Security.

#### **The Role of Safety-Enhancing Technologies**

At a basic level, railroading today seems similar to railroading 150 years ago: it still consists of steel wheels traveling on steel rails. This apparent similarity, however, masks a widespread application of modern technology and a huge variety of ongoing initiatives to research, test, and apply advanced technologies to yield the safety record of continuous improvement experienced by the railroad industry.

Many of these advancements were developed or refined at the Transportation Technology Center, Inc. (TTCI), the finest rail research facility in the world, in Pueblo, Colorado. TTCI is a wholly owned subsidiary of the AAR. Forty-eight miles of test tracks, highly sophisticated testing equipment, metallurgy labs, simulators, and other diagnostic tools are used to test track structure, evaluate freight car and locomotive performance, assess component reliability, and much more. The facility is owned by the FRA but has been operated (under a competitively bid contract with the FRA) by TTCI since 1984.

A few of the many examples of safety-enhancing rail technologies developed at TTCI or elsewhere that have come into widespread use or are in the process of being implemented include:

- *Wayside detectors* that identify defects on passing rail cars, including overheated bearings and damaged wheels, dragging hoses, deteriorating bearings, cracked wheels, and excessively high and wide loads.
- *Internal rail inspection systems* using induction or ultrasonic technology to detect internal flaws in rails which are caused by fatigue and impurities introduced during manufacturing.
- *Track geometry vehicles* that use electronic and optical instruments to inspect track alignment, gauge, curvature, and other track conditions. Processed data from track geometry cars can help railroads determine when track needs maintenance.
- *Ground-penetrating radar* that helps identify problems (such as excessive water penetration and deteriorated ballast) that hinder track stability.
- Because a relatively small share of freight cars cause an inordinately high percentage of track damage and have a higher than usual propensity to derail, TTCI is working on ways to use *optical geometry detectors* to identify poorly performing freight car trucks.<sup>1</sup>
- New automated detector systems are being tested and evaluated by TTCI to inspect the under carriage, safety appliances and freight car components using *machine-vision-based car inspection systems*.
- *Positive train control (PTC)* systems, designed to automatically stop or slow a train before certain accidents occur, are being developed and implemented. PTC is discussed more fully later in this testimony.

Railroads and their suppliers will continue to pursue these and other technological advances that make rail transportation safer and more secure.

Rail industry safety will also be enhanced by the Asset Health Strategic Initiative (AHSI), a multi-year rail industry program that will apply information technology processes to improve the safety and performance of freight cars and locomotives across North America. In a nutshell, AHSI aims to improve safety and reduce costs across the rail industry by addressing mechanical service interruptions, inspection quality, and yard and shop efficiency. It is based on the

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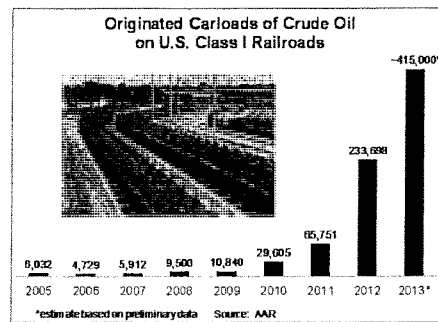
<sup>1</sup> In terms of rail cars, “truck” refers to the complete four-wheel assembly that supports the car body.

recognition that improving asset health means more than just focusing on railcar and locomotive repair. Rather, it encompasses the entire rolling stock health cycle, incorporating prevention, detection, planning, movement, and repair.

#### The Transportation of Crude Oil and Other Hazardous Materials by Rail

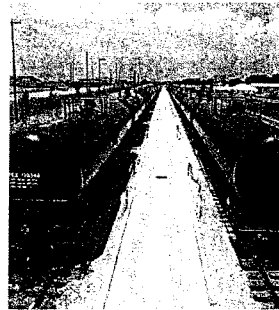
Although most commodities carried by rail pose little or no threat to anyone or anything, some commodities are classified as hazardous. Today, U.S. railroads transport around two million carloads of hazardous materials per year. “Toxic inhalation hazard” (TIH) materials — gases or liquids, such as chlorine and anhydrous ammonia, that are especially hazardous if released into the atmosphere — are a subset of hazardous materials. In 2010 (the most recent year for which data have been tabulated), U.S. railroads carried some 77,000 TIH carloads. Hazardous materials account for around 6 percent of rail carloads; TIH materials account for around 0.3 percent.

Railroads have seen dramatic increases in demand to transport crude oil in recent years, and today crude oil is the highest-volume hazardous material carried by U.S. railroads. As recently as 2008, U.S. Class I railroads originated just 9,500 carloads of crude oil. By 2012, carloads had surged to nearly 234,000. Final numbers for 2013 aren’t in yet, but we estimate that crude oil originations on Class I railroads in 2013 were around 415,000 carloads. In 2013, crude oil accounted for about 1.4 percent of total carloads on Class I railroads, up from just 0.03 percent in 2008.



The huge increase in rail crude oil volume is a function of the massive, salutary development of North American oil resources in recent years, especially “shale oil.” U.S. crude oil production peaked in 1970 at 9.6 million barrels per day, but by 2008 it had fallen to 5.0 million barrels per day as depletion of older fields outpaced new production. Over the past couple of years, however, technological advances in the extraction of shale oil, along with relatively high crude oil prices, have led to sharply higher U.S. crude oil production. The Energy Information Administration (EIA) states that production rose to an average of 6.5 million barrels per day in 2012 and 7.5 million barrels per day in 2013. Barring unforeseen circumstances, deposits of crude oil in shale formations across the country will continue to be developed. As a result, the EIA projects that U.S. crude oil production will increase to 8.5 million barrels per day in 2014 and 9.3 billion barrels per day in 2015.

Assuming for simplicity that a rail tank car holds about 30,000 gallons (714 barrels) of crude oil, the approximately 415,000 carloads of crude oil originated by Class I railroads in 2013 equal around 811,000 barrels per day, or about 11 percent of U.S. crude oil production.



The development of shale oil represents a tremendous opportunity for our nation to move closer to energy independence. The widespread benefits this would entail include reduced reliance on oil imports from unstable countries whose interests do not necessarily match up well with our own; increased economic development all over the country; thousands of new well-paying jobs; tens of billions in savings in our nation’s trade deficit every year; and substantial amounts of new tax revenue for governments at all levels. Rail has a critical role in delivering these crucial benefits to our country.

Railroads share the deep concern of members of this committee and the public at large regarding the safe transport of crude oil. From 2000 through 2013, during which U.S. railroads originated approximately 825,000 carloads of crude oil, 99.97 percent of crude oil carloads arrived at their destination without a release caused by an accident. That said, railroads continue to look for ways to be safer. As the tragic accident last year in Quebec showed, and as reinforced by recent oil spills in North Dakota and Alabama, more work must be done to ensure public confidence in the transportation of crude oil by rail.

Working cooperatively with government agencies, our customers, our employees, and our suppliers, we're applying what we've learned over the past few years as rail crude oil traffic has surged to help ensure that our nation is able to safely and reliably utilize the tremendous national asset that domestic crude oil represents. This will be a true team effort involving shared responsibility among everyone involved in crude oil production, delivery, and consumption.

Railroads have long been doing their part — including taking actions that go beyond what legislation and regulations require — to maximize safety. The industry will continue to take steps to further improve safety.

#### Modifying Rail Industry Procedures to Enhance Crude Oil Safety

To enhance the safety of crude oil movements, railroads are voluntarily making operational modifications for trains carrying large amounts of crude oil. These modifications are the result of consultations with Secretary Foxx and other officials at the U.S. Department of Transportation (DOT), Administrator Szabo at FRA, Administrator Quarterman at PHMSA, and other government policymakers. Railroads share their vision for making a safe rail network even safer, and we're pleased that we were able to work together to pinpoint new operating practices that enhance the safety of moving crude oil by rail.

First, *routing*. Several years ago, the FRA, PHMSA, the Transportation Security Administration, the Federal Emergency Management Agency, and the railroads jointly developed the Rail Corridor Risk Management System (RCRMS), a sophisticated statistical routing model designed to aid railroads in analyzing and identifying the overall safest and most secure routes for transporting TIH materials. The model uses a minimum of 27 risk factors — including hazmat volume, trip length, population density along the route, availability of alternate routes, and emergency response capability — to assess the overall safety and security of rail routes. The FRA regularly audits railroads' use of the RCRMS. Major railroads have agreed that, no later than July 1, 2014, they will begin using the RCRMS for trains carrying at least 20 carloads of crude oil.

Second, *speed restrictions*. Back in August 2013, railroads self-imposed a 50-mph speed limit for trains carrying 20 or more carloads of crude oil. Beginning no later than July 1, 2014, if a train is carrying at least 20 cars of crude oil and at least one of those cars is an older “DOT-111” car (these cars are discussed further in the next section), that train will travel no faster than 40 mph when travelling within one of the 46 nationwide “high threat urban areas” designated by the Department of Homeland Security.<sup>2</sup> In addition, railroads will continue to work with communities through which crude oil trains move to address, on a location-specific basis, concerns that the communities may have.

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<sup>2</sup> In the United States, FRA regulations specify that freight rail trackage be classified into one of six track “classes” based on track quality. The class of a section of track determines the maximum FRA-allowable speed for that section. Freight train speed on “excepted” and “Class 1” track cannot exceed 10 mph; on Class 2 track, 25 mph; on Class 3 track, 40 mph; on Class 4 track, 60 mph; and on Class 5 track, 80 mph. In practice, it is common for railroads, for a variety of reasons, to operate at speeds lower than the FRA maximum. (For example, U.S. freight trains rarely, if ever, exceed 70 mph, even on the best Class 5 track.) If a track’s class does not permit 40 or 50 mph crude oil trains, those trains will travel no faster than the FRA limit. Our understanding is that, on U.S. Class 1 railroads, most of the trackage on which trains with large amounts of crude oil travel are Class 4 or 5 tracks.

Third, *inspections*. Comprehensive FRA regulations dictate the various kinds of inspections railroads are required to perform and how often. A full description of the full range of inspections that railroads undertake is beyond the scope of this testimony, but suffice it to say that the FRA-mandated inspection regime is comprehensive and thorough.

New FRA regulations regarding inspections for internal rail defects will become effective on March 25th. Railroads have agreed that, going forward, for main line tracks on which trains carrying at least 20 carloads of crude oil travel, they will perform at least one more internal rail inspection each calendar year than the new FRA regulations require. In addition, railroads will conduct at least two comprehensive track geometry inspections each year on main line routes over which trains with 20 or more loaded cars of crude oil are moving.<sup>3</sup> The FRA regulations do not require railroads to perform comprehensive track geometry inspections.

Fourth, *defect detectors*. Railroads will make sure that specialized track side “hot box” detectors are installed at least every 40 miles along routes with trains carrying 20 or more cars containing crude oil.<sup>4</sup> These detectors help prevent accidents by measuring if wheel bearings are generating excessive heat, which is a warning that the bearings are in the process of failing.

Fifth, *braking*. By April 1, 2014, railroads will make sure that trains operating on main line tracks carrying at least 20 carloads of crude oil are equipped either with distributed power locomotives (i.e., locomotives placed in locations other than the front of the train) or with two-way telemetry end-of-train devices. These technologies allow train crews to apply emergency brakes to both ends of the train simultaneously in order to stop the train faster.

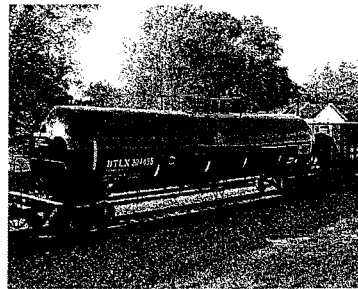
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<sup>3</sup> Track geometry includes such parameters as track gauge, curvature, alignment, profile, and the cross level of the two rails. Track geometry inspections are generally performed by sophisticated stand-alone cars that use a variety of sensors, measuring systems, and data management systems to create a representation of the track being inspected.

<sup>4</sup> There may be cases where safety considerations (e.g., a track located on a grade) might dictate otherwise. In these cases, detectors will be installed as close to 40 miles as conditions allow.

### Enhancing Tank Car Safety

While railroads pursue continuous improvement in safe operations, it's important also for tank car standards to evolve to mitigate the consequences of an incident when one occurs. Crude oil and thousands of other products are transported by railroads in tank cars. The total North American tank car fleet consists of about 335,000 cars. Railroads themselves own less than 1 percent of these cars; nearly all are owned by rail customers and leasing companies. The dozens of distinct types of tank cars are differentiated by characteristics (pressure or general service, insulated or non-insulated, how much they can carry, and so on) that make them suitable or not suitable for carrying particular commodities. Approximately 228,000 tank cars are so-called "DOT-111" general service tank cars. These cars are considered the workhorses of the tank car fleet. Approximately 92,000 DOT-111 cars are used to transport crude oil or other flammable liquids.



In the United States, federal regulations pertaining to tank cars are set by PHMSA. Transport Canada performs a similar role in Canada. In addition, the AAR Tank Car Committee sets industry standards regarding how tank cars used in North America are designed and constructed. These standards are often above and beyond federal standards. The Tank Car Committee is comprised of railroads, rail car owners, rail car manufacturers, and rail hazmat customers, with active participation from the U.S. DOT, Transport Canada, and the National Transportation Safety Board (NTSB).

The rail industry has been aggressively searching for ways to improve tank car safety. For example, in March 2011, the AAR petitioned PHMSA to adopt more stringent requirements for new tank cars used to transport certain types of hazardous materials, including crude oil. These tougher standards called for more puncture resistance through the use of a thicker tank car shell or a jacket, extra protective “head shields” at both ends of tank cars, and additional protection for the fittings on the top of a car that enable access to the inside of the car.

In July 2011, after it had become clear that PHMSA approval of the AAR’s proposal was not imminent, the Tank Car Committee adopted what the AAR had proposed to PHMSA as the basis for new industry standards for tank cars used to carry ethanol or crude oil. The new standards, referred to as “CPC-1232,” apply to new tank cars ordered after October 1, 2011. To date, around 18,000 tanks cars have been built to this tougher CPC-1232 standard.

More recently, in November 2013, the rail industry called on PHMSA to adopt standards even more stringent than CPC-1232 for new tank cars used to transport crude oil and ethanol. The November 2013 proposal also called for aggressively retrofitting or phasing out of tank cars (including CPC-1232 cars and the older DOT-111 cars) used to transport crude oil or ethanol. The November 2013 proposal recognizes that input is needed from shippers and tank car manufacturers to determine the precise parameters of a phase-out program and to identify the retrofits that should be required.

Since the November 2013 proposal, the rail industry has continued to evaluate what other standards might be appropriate to make tank cars used to transport certain commodities, including crude oil, more robust. For example, railroads now support strengthening tank cars used to transport crude oil with thicker, 9/16th inch shells.<sup>5</sup> Railroads also would require that

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<sup>5</sup> Some railroads also support 9/16th inch tank car shells for freight cars carrying ethanol.

tank cars be equipped with jacket and thermal protection, as well as full-height head shields, top fittings protections, and bottom outlet handles that will not open in a derailment.

Through these additional standards and other means, railroads are continuing to work with other stakeholders to enhance rail safety and provide certainty to all stakeholders. These efforts reflect the rail industry's long-standing belief that the safety of crude oil by rail is a shared responsibility among all stakeholders in the crude oil supply chain.

The concept of shared responsibility also applies to accurate and timely determinations as to the chemical characteristics of the crude oil railroads are asked to transport. Under federal regulations, the entity "offering" the crude oil to the railroad for transport (e.g., the oil producer) is responsible for properly classifying the oil based on its level of hazard.

#### **Improving Emergency Response: Partnerships with First Responders and Shippers**

The railroads have extensive emergency response functions, which work in cooperation with federal, state and local governments, especially since 9/11. Sharing important information about shipments is part of that. Upon request, railroads provide appropriate local authorities with a list of the hazardous materials, including crude oil, transported through their communities. It is simply not true, as one sometimes hears, that railroads refuse to provide this type of information.

Significantly, more than 25 years ago, the AAR established what is now the Security and Emergency Response Training Center (SERTC), a world-class facility in Pueblo, Colorado, that is operated by TTCI. The SERTC has provided in-depth hazmat emergency response training to more than 50,000 emergency responders and railroad and chemical industry employees.

In addition, as part of their regular operations, railroads and communities develop and evaluate emergency response plans and train more than 20,000 emergency responders each year. Through their own efforts and the Transportation Community Awareness and Emergency

Response Program (TRANSCAER), railroads will continue to work closely with emergency responders in the communities they serve so that damage caused by train accidents can be minimized.

In addition to their other ongoing emergency response training efforts, last week the AAR announced that the railroads will provide \$5 million by July 1 of this year to develop a specialized crude-by-rail training and tuition assistance program for local first responders. The funds will be used to design a curriculum at TTCI specifically devoted to crude oil emergency response, to provide tuition assistance for an estimated 1,500 first responders to travel to TTCI for training, and to provide additional training to local emergency responders closer to home.

By July 1, 2014, railroads will also develop an inventory of resources for emergency responders along routes over which trains with 20 or more cars of crude oil operate. This inventory will include locations for the staging of emergency response equipment and contacts for the notification of communities. When the inventory is completed, railroads will provide the DOT with information on the deployment of the resources and will make the information available upon request to appropriate emergency responders.

Finally, it is sometimes claimed that railroads bear no costs for cleanup of oil spills and that the entire response burden falls on local responders. That's not true. Emergency responders have control of railroad accidents in which crude oil (or any other hazardous material) is spilled, but railroads often provide the resources for mitigating the accident. As noted above, railroads have emergency response plans in place to mobilize the labor and equipment necessary to mitigate accidents. Railroads also reimburse local emergency agencies for the costs of materials the agencies expend in their response efforts.

### **Positive Train Control**

All of you already know that the Rail Safety Improvement Act of 2008 (RSIA) requires passenger railroads and U.S. Class I freight railroads to install a nationwide positive train control (PTC) network by the end of 2015 on main lines used to transport passengers or TIH materials. Specifically, PTC as mandated by Congress must be designed to prevent train-to-train collisions; derailments caused by excessive speed; unauthorized incursions by trains onto sections of track where maintenance activities are taking place; and the movement of a train through a track switch left in the wrong position.

Positive train control is an unprecedented technological challenge. A properly functioning PTC system must be able to determine the precise location, direction, and speed of trains; warn train operators of potential problems; and take immediate action if the operator does not respond to the warning provided by the PTC system. For example, if a train operator fails to begin stopping a train before a stop signal or slowing down for a speed-restricted area, the PTC system would apply the brakes automatically before the train passed the stop signal or entered the speed-restricted area.

Because of the magnitude of the tasks to be completed, railroads have been devoting massive resources to the PTC effort. They've retained more than 2,200 additional signal system personnel to implement PTC, and to date have collectively spent some \$4 billion (of their own funds) on PTC development and deployment. Class I freight railroads expect to spend that much again — approximately \$8 billion in total — before development and installation is complete. Hundreds of millions of dollars will be spent each year after that to maintain the system.

Despite railroads' best efforts, due to PTC's complexity and the enormity of the implementation task, and the fact that much of the technology and engineering applications PTC requires simply did not exist when the PTC mandate was passed and have had to be developed

from scratch, much work remains to be done. The task is made particularly complex by the need to ensure that PTC systems are fully interoperable<sup>6</sup> across all of the nation's major railroads, and that the many potential failure points and failure modes in PTC systems are identified, isolated, and corrected — all without negatively affecting the safe movement of freight and passengers by rail throughout the country.

Railroads also face serious non-technological barriers to timely PTC implementation. One such challenge involves regulatory barriers to the construction of antenna structures that are part of the PTC system. To make a long story short, the railroad industry has worked with the Federal Communications Commission (FCC) for years to license the wireless spectrum necessary for PTC. The rail industry was thus surprised to learn just last year that the FCC would require railroads to submit the poles that support PTC antennas for historic preservation and tribal review. Unlike for other structures installed on railroads' right-of-way, the FCC's process for wayside poles would require railroads to provide information (height, location, etc.) on each of the estimated 22,000 PTC antenna structures yet to be installed to historic preservation officers within state governments and Native American tribes so that the states and tribes can determine if the installations will negatively impact areas of historic, cultural, or religious significance. For each antenna, the required information, along with a notice of the antenna's construction, must be provided to the historic preservation officer in the state where the antenna is to be installed and to any Native American tribe in the United States that has expressed interest in the location.

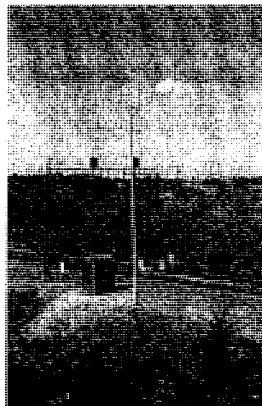
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<sup>6</sup> Interoperability means that the PTC system on any railroad's locomotives can seamlessly interface with the systems of any other railroad.

The notification and evaluation process uses the FCC's "Tower Construction Notification System" (TCNS). It quickly became clear that the TCNS process is woefully inadequate for a deployment on the scale of PTC and in the time frame mandated by the RSIA. In fact, shortly after railroads began using the TCNS, the FCC asked them to stop using it while the agency developed a process for PTC. That was around ten months ago.

On January 8, 2014, FCC staff indicated that the railroads could restart putting certain PTC-related antenna structures through the TCNS, but only for certain limited locations. Within two weeks, the railroads had begun submitting applications into TCNS. To date, hundreds of applications have been made, but the railroads are not optimistic that these applications will be cleared quickly. Their experience with the FCC's evaluation process for non-PTC structures has been that it takes three to five months to clear a single location.

After nearly a year of discussion among various parties, during which the installation of wayside antennas ceased, on January 29, 2014, the FCC proposed what it calls a "streamlined" process for these reviews. Based on our examination of the FCC's January 29 proposal, we do not believe it will lead to a material reduction in the substantial and excessive delays associated with antenna installation. Even in cases where a tribe or multiple tribes, upon being sent exact antenna site locations by a railroad, cannot identify any specific historic or cultural area or property that could potentially be impacted, under the FCC's "streamlined" review process, a tribe can still demand a comprehensive review of all antenna sites, including cultural resources reports, field work, and ethnographic studies. This extends well beyond what is expected and



An example of a PTC antenna structure near other railroad signals.

required under the historic preservation rules. Further, the proposed process fails to establish firm deadlines by which the FCC will resolve disputes regarding sites.

Included as an appendix to this testimony is a copy of the AAR's recent comments on the FCC's "streamlined" proposal. As the AAR comments make clear, the FCC has ample authority to exempt all PTC-related infrastructure no taller than seventy-five feet located on the railroad right-of-way and not immediately proximate to a known historic property. If the FCC decides not to pursue an exemption, the AAR comments explain that a streamlined PTC process should truly expedite the historic review process, provide deadlines on the resolution of the approval process, and encompass all railroads' PTC infrastructure on the right-of-way.

The bottom line is that without further changes to the FCC approval process, the timeline for ultimate deployment of PTC will be delayed significantly. The 2013 construction season was lost for PTC wayside antennas. A new review process at the FCC will not be in place until at least April of this year. If that process takes several months to clear locations, the 2014 construction season will also be in jeopardy. Railroads will continue to work with the FRA and the FCC in good faith to try to find a workable solution to this issue.

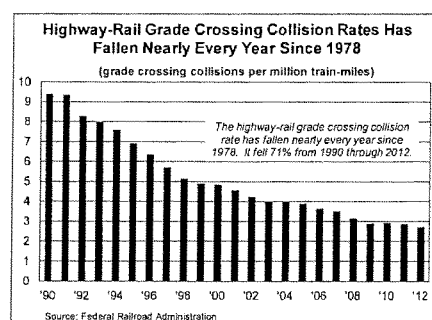
Railroads have been working extremely hard to meet the 2015 PTC deadline, and they will continue to aggressively pursue PTC implementation. However, due to both the eight-month construction moratorium imposed by the FCC and the remaining PTC regulatory uncertainty, as well as the challenges associated with PTC development and installation faced by individual freight railroads and commuter rail lines, we respectfully suggest that the current PTC implementation deadline for the successful implementation of an interoperable nationwide PTC system will need to be extended. Extending the deadline would allow railroads, the FRA, and

others to make sure PTC is done right.<sup>7</sup> In the meantime, incremental PTC implementation would continue, meaning that the safety benefits of PTC would be coming on line.

### Highway-Rail Grade Crossings and Trespassers

Collisions at grade crossings, along with incidents involving trespassers on railroad rights-of-way, are critical safety problems. These two categories typically account for 95 percent of rail-related fatalities. Although these incidents usually arise from factors that are largely outside of railroad control, and even though highway-rail crossing warning devices are properly considered motor vehicle warning devices there for the benefit of motorists, not trains, railroads are committed to efforts aimed at further reducing the frequency of crossing and trespasser incidents.

Much success has already been achieved, including in recent years. From 2000 through 2012, the number of grade crossing collisions fell 44 percent, injuries associated with collisions fell 23 percent, and fatalities fell 45 percent. The grade crossing collision rate has fallen nearly



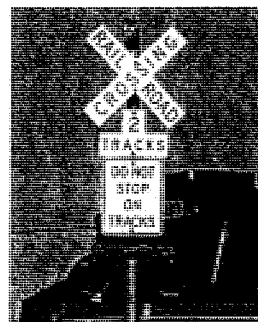
every year since 1978. And because total exposure (train-miles multiplied by motor vehicle-miles) has risen sharply over time, the reduction in crossing incidents and casualties per unit of exposure has been even higher.

<sup>7</sup> Some of you may have seen an article in the January 29 *Washington Post* on delays to the Washington metro's new "Silver Line." The article points out that the line's automatic train control system has delayed the completion of the project for months and still is not working correctly. The metro's train control system is many orders of magnitude less complex than what freight railroads are implementing. Still, the metro's problems offer a clear example of why the rail industry — and policymakers — should be very concerned with PTC implementation and the importance of making sure that such a complex system operates as intended, no matter how long it takes. Unlike the Washington metro, railroads do not have the luxury of simply not operating a new line.

America's freight railroads spend hundreds of millions of dollars each year to maintain and improve grade crossings. They also:

- Cooperate with state agencies to install and upgrade warning devices and signals, and bear the cost of maintaining them in perpetuity.
- Help pay to close unneeded crossings.
- Support Operation Lifesaver, a nationwide non-profit organization that educates the public about the need for proper behavior at grade crossings and on railroad property. (See below for more on Operation Lifesaver.)
- Work with law enforcement and others to keep grade crossings safe.
- Solicit assistance from the public. In June 2012, the FRA issued a final rule requiring railroads to install signs at grade crossings with telephone numbers the public can use to alert railroads to unsafe conditions.

Under the federal "Section 130" program, \$220 million in federal funds are divided among the states each year for installing new active warning devices, upgrading existing devices, and improving grade crossing surfaces. Several years ago, FRA noted that the Section 130 program "has helped prevent over 10,500 fatalities and 51,000 nonfatal injuries." Those figures are surely much higher now.



Without a budgetary set-aside like the Section 130 program, grade crossing needs would fare poorly in competition with more traditional highway needs such as highway construction and maintenance. Indeed, one of the primary reasons the Section 130 program was created in the first place was that highway safety — and especially grade crossing safety — traditionally received low funding priority. The surface transportation bill signed into law on July 6, 2012 continues dedicated funding for this important program for two more years and will mean more injuries averted and more lives saved. We respectfully suggest that the next surface transportation bill should likewise include dedicated funding for the Section 130 program.

The vast majority of grade crossing collisions are the result of motorists' actions. Consequently, grade crossing accidents can best be reduced through a mix of education, engineering, and enforcement.

An organization that deserves special commendation for its efforts to educate the public about the dangers of grade crossings and trespassing on railroad rights-of-way is Operation Lifesaver. Operation Lifesaver, a non-profit whose mantra is "look, listen, and live," started in Idaho in 1972 and now has chapters in the 48 contiguous states, Alaska, and the District of Columbia. Operation Lifesaver's presenters, many of whom are current or retired rail industry employees, have provided free safety presentations to millions of Americans, including school children, driver's education students, business leaders, truck drivers, and bus drivers. I urge you to generously fund this important educational organization.

Railroads also believe that grade crossing safety should be part of commercial driver's license educational curricula.

Education alone is not enough to reduce the number of tragic grade crossing accidents — engineering and enforcement actions are also critical. Railroads support research regarding the effectiveness of innovative types of warning devices, such as four quadrant gates. Because maximum safety can be realized if crossings are eliminated, the closing of crossings (and, where appropriate, grade separation) is the ultimate engineering improvement. In that regard, we recommend that Congress consider measures that would help incentivize grade crossing closures. Finally, there should be tough penalties for grade crossing traffic violations.

Grade crossing safety is only part of the public safety challenge. Trespassing is another area of concern. It is an unfortunate reality that too many people inappropriately use railroad property for short cuts, recreation, or other purposes, sometimes with tragic results. Railroads

are engaged in ongoing efforts with Operation Lifesaver and others to educate the public that, for their own safety, they should stay off rail property.

In that regard, in early April 2014, Operation Lifesaver and the AAR will be launching a national public safety campaign called “See Tracks? Think Train” to educate people about safe behavior around railroad tracks and at grade crossings. One of the major aims of the campaign is to counter the misguided notion that people will always be able to hear or see an oncoming train and will be able to move out of the way in time. The campaign is fully integrated with TV, print, radio, and billboards, as well as a new campaign web site. The campaign will be actively promoted by Operation Lifesaver regional coordinators and by Class I railroads.

#### **Safety and Passenger Rail**

In the United States, freight railroads provide the foundation for most passenger rail. Around 70 percent of the miles traveled by Amtrak trains are on tracks owned by freight railroads, and dozens of commuter railroads operate, or plan to operate, at least partially on freight-owned corridors. In addition, most of the high-speed and intercity passenger rail projects under development nationwide plan to use freight-owned facilities.

Freight railroads agree that passenger railroading can play a key role in alleviating highway and airport congestion, decreasing dependence on foreign oil, reducing pollution, and enhancing mobility. But safety has to come first when it comes to passenger trains sharing track or rights-of-way with freight trains. Among other things, this means that in some cases — depending on train speeds and frequency, track standards, and other factors — separate tracks for passenger and freight trains might be needed. Safety would be enhanced if these separate tracks were sufficiently far apart to minimize the likelihood that a derailment on one track could foul an adjacent track and lead to a collision involving freight and passenger trains.

### Railroads and Fatigue

Railroads want properly rested crews — it's not in a railroad's best interest to have employees who are too tired to perform their duties properly. That's why railroads have long been working to find innovative, effective solutions to fatigue-related problems. Combating fatigue in the rail industry is a shared responsibility: employers need to provide an environment that allows employees to rest during off-duty hours, and employees must set aside time when off duty to obtain the rest they need.

Because factors that can result in fatigue are multiple, complex, and frequently intertwined, there is no single solution, and efforts to combat fatigue should be based on sound scientific research, not on anecdotes or isolated events. That's why railroads and their employees are pursuing a variety of scientifically-based fatigue countermeasures. Not every countermeasure is appropriate for every railroad, or even for different parts of the same railroad, because circumstances unique to each railroad influence the effectiveness and practicality of specific countermeasures. That said, individual railroads have been using the following countermeasures (among others) to help combat fatigue:

- Offering *fatigue education programs* for employees and their families. Education is critical, since the effectiveness of fatigue initiatives depends on the actions of employees while off duty. Employees must make appropriate choices regarding how they spend their off-duty time, and education is important in encouraging sound decision making.
- Increasing the minimum number of *hours off duty* and providing *more predictable calling assignments* and rest opportunities between shifts.
- Focusing, when possible, on *returning crews home* rather than lodging them away from home and making away-from-home lodging more rest-inducing.
- Allowing employees to *request an extra rest period* when they report off duty if they feel excessively fatigued.
- Devising systems (including web sites, e-mails, pagers, and automated telephone systems) to *improve communication* between crew callers and employees.
- Allowing employees who have been off work more than 72 hours (*e.g.*, on vacation) to begin their first shift in the morning rather than the middle of the night.

- Encouraging confidential *sleep disorder screening and treatment*.

**Conclusion**

Railroads understand that improving safety is a never-ending process, and they are committed to working cooperatively with you, policymakers, rail industry employees, suppliers, customers, and others to find practical, effective ways to make this happen.

APPENDIX

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of	)	
	)	
Comment Sought on Draft Program Comment to	)	WT Docket No. 13-240
Govern Review of Positive Train Control	)	
Facilities under Section 106 of the National	)	
Historic Preservation Act	)	

**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

Louis P. Warchot  
Senior Vice President-Law  
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**EXECUTIVE SUMMARY**

Congress has mandated that a nationwide Positive Train Control (“PTC”) network be fully operational on the nation’s passenger and freight railroads by December 31, 2015. As part of satisfying this statutory mandate, the railroads must install approximately 22,000 wayside poles and other PTC-related infrastructure on the national railroad rights of way. However, nearly ten months after the Federal Communications Commission (“FCC” or “Commission”) promised a solution to expedite the historic preservation review of these facilities—during which time all review was suspended and the entire 2013 construction season lost—the draft Program Comment offers little that would permit the timely deployment of these poles. The Association of American Railroads (“AAR”) continues to feel strongly that the best solution to address the need for expedited, comprehensive historic preservation review of PTC wayside facilities remains an exemption from review for all PTC-related infrastructure no taller than seventy-five feet located on the railroad rights of way and not immediately proximate to a known historic property.

If the FCC declines to seek such an exemption, the Commission should adopt a Program Comment that truly expedites the historic preservation review process for such facilities, imposes firm deadlines on the resolution of the approval process, and ensures that all railroads can benefit from these revisions—which the current draft Program Comment does not accomplish. Specifically, although the draft Program Comment provides for a conditional exemption for State Historic Preservation Officer review, it:

- Will not apply to any PTC-related infrastructure deployed by at least three of the seven Class I railroads;
- Continues to anticipate time-consuming, pole-by-pole Tribal review;
- Does not offer definitive deadlines for the resolution of review by Tribal Nations;

- Allows Tribes to make automated information requests which have the effect of delaying approval;
- Shifts the burden, properly assigned to Tribes, to the railroads to identify historic properties of cultural and religious significance to Tribal Nations;
- Requires the time-consuming and costly preparation of cultural resource reports that would not be helpful to many Tribal Nations, and that are not required by the existing historic preservation review process; and
- Allows Tribal Nations to require monitoring and/or alternative excavation techniques for potentially every PTC-related deployment site nationwide with no evidentiary showing of the likelihood of the presence of cultural resources.

As provided in the rules of the Advisory Council on Historic Preservation (“ACHP”), program comments are intended to preclude case-by-case review of undertakings. In contrast, the draft Program Comment anticipates the separate review by Tribal Nations of each of the 22,000 PTC-related wayside facilities that must be deployed by the railroads pursuant to a Congressional mandate. Moreover, the proposed historic review process does not provide firm deadlines for the resolution of Tribal consultation, which in the experience of the railroads can take as long as nine months—for *each pole*. The process outlined in the draft Program Comment would not only foreclose the industry from meeting the PTC implementation deadline imposed by Congress, but almost certainly lengthen the deployment process well beyond 2015.

The FCC has the authority to establish firm deadlines for Tribal Nation review, and should do so. Specifically, agencies need only provide a Tribal Nation a “reasonable opportunity” to identify concerns regarding historic properties, and other agencies have imposed decisive deadlines on matters of Tribal consultation. The AAR appreciates the intent behind the conditional exemptions from State Historic Preservation Officer review that the FCC has included in the draft Program Comment, but remains concerned that, as drafted, the Program Comment does not represent a significant improvement over the Commission’s existing Tribal

review process, and in some ways is more onerous. Neither process is suitable for the review of a critical, time-sensitive public safety initiative with the broad, national scope of PTC.

The ACHP's rules do not require that the historic preservation review process be exhaustive, but simply that Federal agencies make a "good faith and reasonable" effort to identify historic properties and "take into account" the effects of their undertakings on such properties. The PTC-related wayside facilities that must be deployed are not 300 foot towers being dug into undisturbed land, but small poles closer in height to standard utility poles already ubiquitous in the urban and rural landscape, and located on the railroad rights of way in soil that has been subject to repeated disruption for, in some cases, well over a hundred years. Importantly, facilities located on the railroad rights of way that have previously been put through the existing historic preservation review process were ultimately found to have no effects on any historic properties, and there is no reason to believe that any of the remaining PTC-related wayside installations will be any different. The draft Program Comment wrongly turns the historic review process on its head and creates a presumption that every site proposed for PTC deployment should be considered a historic property unless shown otherwise by the railroads. In fact, the burden lies on Tribal Nations to establish, through evidence supporting a high probability of the presence of archeological artifacts, that a historic property exists that should be the subject of consultations and, if needed, mitigation.

Finally, while the railroads are prepared to work closely with the FCC, Tribal Nations, State Historic Preservation Officers, and other stakeholders to address concerns regarding previously constructed PTC facilities, resolution of this issue should not be a precondition for arriving at a workable Section 106 process that permits the timely installation of the thousands of remaining wayside structures required for nationwide PTC deployment. The focus of the FCC,

and the draft Program Comment, should be on fulfilling its obligation under the ACHP's rules and enabling the expedited, programmatic review of all PTC-related facilities located on the railroad rights of way.

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the Matter of	)	
	)	
Comment Sought on Draft Program Comment to	)	WT Docket No. 13-240
Govern Review of Positive Train Control	)	
Facilities under Section 106 of the National	)	
Historic Preservation Act	)	
	)	
	)	

**COMMENTS OF THE ASSOCIATION OF AMERICAN RAILROADS**

**I. INTRODUCTION**

The Association of American Railroads (“AAR”)<sup>1</sup> respectfully submits these comments in response to the Public Notice (“*Public Notice*”) released by the Wireless Telecommunications Bureau of the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceeding.<sup>2</sup> In the *Public Notice*, the FCC seeks comment on the draft Program Comment<sup>3</sup> to govern review of Positive Train Control (“PTC”) wayside facilities under Section 106 of the National Historic Preservation Act (“NHPA”).<sup>4</sup>

The AAR continues to feel strongly that the best solution to address the need for expedited, comprehensive review of PTC wayside facilities remains an exemption from State

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<sup>1</sup> The Association of American Railroads (“AAR”) is a voluntary non-profit membership organization whose freight railroad members operate 82 percent of the line-haul mileage, employ 95 percent of the workers, and account for 97 percent of the freight revenues of all railroads in the United States. More information on the AAR is available at our website, <https://www.aar.org/Pages/Home.aspx>.

<sup>2</sup> *Comment Sought on Draft Program Comment to Govern Review of Positive Train Control Facilities under Section 106 of the National Historic Preservation Act*, WT Docket No. 13-240, Public Notice, DA 14-97 (rel. Jan. 29, 2014) (“*Public Notice*”).

<sup>3</sup> See *Public Notice* Attachment A (“*Draft Program Comment*”).

<sup>4</sup> See *Public Notice* at 1; 16 U.S.C. § 470v.

Historic Preservation Officer (“SHPO”) and Tribal review for all PTC-related wayside facilities no taller than seventy-five feet located on the railroad rights of way that are not immediately adjacent to any previously recorded historic properties, as detailed in the AAR’s previous comments on the PTC Scoping Document.<sup>5</sup> In the alternative, the Commission should modify the draft Program Comment to truly expedite the Section 106 review process, and ensure that all railroads can benefit from these modifications.<sup>6</sup> As currently drafted, the Program Comment provides beneficial exemptions regarding SHPO review, but fails to significantly address the existing deficiencies in the FCC’s Section 106 Tribal review process. In particular, a request for additional information by a Tribal consulting party can eliminate all deadlines for the resolution of review. Moreover, the structure of the draft Program Comment inverts the normal Section 106 process by requiring that the railroads supply consulting Tribal Nations with information regarding historic properties of potential cultural and religious significance to those Tribes. Neither the Commission’s existing historic preservation review mechanism, nor the process outlined in the draft Program Comment, is suitable for the review of a critical, time-sensitive public safety initiative with the broad, national scope of PTC.

## **II. THE DRAFT PROGRAM COMMENT WILL NOT EXPEDITE THE CURRENT SECTION 106 REVIEW PROCESS**

After waiting nearly ten months for the release of a streamlined solution to the existing historic review process from the FCC, the railroads are disappointed that the draft Program Comment offers no appreciable improvements regarding the Tribal review process. Instead, like

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<sup>5</sup> See Comments of the Association of American Railroads, *Comment Sought on Scoping Document for Development of a Proposed Program Comment to Govern Review of Positive Train Control Facilities under Section 106 of the National Historic Preservation Act*, WT Docket No. 13-240 (filed Nov. 15, 2013) (“AAR Scoping Document Comments”).

<sup>6</sup> The AAR’s recommendations for modifying the draft Program Comment are set out in the attached Appendix.

the existing Section 106 review mechanism, the draft Program Comment is poorly suited to expedite review of large scale time sensitive infrastructure projects such as PTC, and in particular lacks clear deadlines for the resolution of application review. The Program Comment, as drafted, would fail to provide the relief needed for the railroads to initiate the deployment of approximately 22,000 PTC-related wayside facilities to satisfy the Congressional public safety mandate, and will delay the installation of PTC past the Congressionally mandated 2015 deployment deadline.

In May 2013, at the FCC's request, the railroads suspended the submission of applications for Section 106 review for PTC wayside infrastructure while the Commission developed a "streamlined" solution for historic preservation review processing, effectively putting all PTC infrastructure deployment in the railroad rights of way on hold.<sup>7</sup> While the AAR appreciates the FCC's efforts to adopt a Program Comment to address PTC deployment, the historic preservation review process outlined in the draft Program Comment will take at least as long, if not longer, than the existing mechanism to review applications for PTC-related wayside deployment.

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<sup>7</sup> With the permission of the FCC, since May 2013 some railroads have submitted some requests for approval using the established Tower Construction Notification System ("TCNS") process for the review of small base station towers that would otherwise qualify as undertakings covered by the draft Program Comment. On January 8, 2014, the FCC reopened TCNS on a limited basis in a Beta test format for the filing of PTC-related wayside facilities applications batched in groups of no more than twenty contiguous sites located within a single county in areas that were subject to discussion with Tribal Nations at meetings in Rapid City, South Dakota and Tulsa, Oklahoma in fall 2013. See Letter from Jeffrey Steinberg, Deputy Chief, Spectrum and Competition Policy Division, Wireless Telecommunications Bureau, Federal Communications Commission to Timothy Strafford, Assistant General Counsel, Association of American Railroads at 1-2 (Jan. 8, 2014) ("Steinberg Letter"). Several of the railroads have submitted applications for review for PTC-related facilities in the weeks since, and other railroads are engaged in the process of preparing submissions under this interim program. There have been increasing indications, however, that numerous Tribal Nations will not review applications for PTC-related wayside facility installations under the interim program.

***A. The Existing Section 106 Process Cannot Expedite the Processing of Large Deployments such as PTC***

The current FCC historic preservation review process, which is set out in the Nationwide Programmatic Agreement (“NPA”),<sup>8</sup> suffers from several shortcomings that have an especially significant negative impact on PTC deployment:

- The Tower Construction Notification System (“TCNS”) process is not suited for the review of relatively large numbers of applications submitted at the same time;
- There are no deadlines to provide a backstop for the resolution of Tribal review, and Tribal Nations may make automated information requests that have the effect of delaying approval;
- Consultative fees charged for Tribal review and monitoring are not transparent; and
- The process places an undue burden on consultative stakeholders to review applications for facilities with *de minimis* effects on historic properties, as evidenced by the lack of findings of significant impact or complaints with respect to historic reviews of wayside facilities completed to date.

The FCC has acknowledged that “[p]arties seeking to deploy wireless infrastructure often face processes they must complete prior to construction that can take long periods of time and impose significant expense.”<sup>9</sup> The TCNS process was not designed for the approval of relatively large numbers of applications at the same time. The precipitating factor in the FCC’s decision in May 2013 to halt the submission of PTC-related wayside infrastructure was the breakdown of the

<sup>8</sup> See 47 C.F.R. Part 1, App. C—Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process (“NPA”).

<sup>9</sup> *Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies; Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting; Amendment of Parts 1 and 17 of the Commission’s Rules Regarding Public Notice Procedures for Processing Antenna Structure Registration Applications for Certain Temporary Towers; 2012 Biennial Review of Telecommunications Regulations*, WT Docket No. 13-238, WC Docket No. 11-59, RM-11688 (terminated), WT Docket No. 13-32, Notice of Proposed Rulemaking, 28 FCC Rcd 14238, 14240 ¶ 3 (2013) (“*Wireless Tower Siting NPRM*”).

TCNS process following the submission of 280 applications by a railroad.<sup>10</sup> As the NPA provides that TCNS is the most definitive means for an applicant to ensure it has made contact with all relevant Tribal Nations, the failure of TCNS to accommodate the submission of several hundred applications at a time poses an obvious challenge for the processing of the 22,000 pending PTC wayside facilities.

More critically, the existing Section 106 process does not include deadlines to provide a backstop for the resolution of Tribal review, and Tribal Nations may make automated requests for additional information that can have the effect of postponing the resolution of approval for months after submission. In practice, although the NPA was implemented to improve the historic review process and streamline the approval of communications towers, the railroads have found that Section 106 review for an application typically takes at least five or six months from submission to approval, and can take as long as nine months.<sup>11</sup> While the NPA provides clear deadlines in cases where a Tribal Nation expressly disavows any interest in consultation, the FCC has taken the position that the Section 106 review process also allows a Tribal Nation to make automated requests for information to supplement the submission packet, and that each such request essentially “stops the clock” on Tribal review. The submission of an application packet often triggers an apparently automatic request for additional information from Tribal

<sup>10</sup> See Letter from Theodore K. Kalick, Senior U.S. Regulatory Counsel, Canadian National Railway, to Stephen G. DelSordo, Federal Preservation Officer, Federal Communications Commission at 6 (May 9, 2013) (“Kalick Letter”), attached to AAR Scoping Document Comments.

<sup>11</sup> Similarly, Verizon recently conducted a survey of its Distributed Antenna System (“DAS”) projects, and found that the average time to complete a review was 84 days, with poles requiring approval from multiple Tribal Nations potentially taking much longer. For example, Verizon reports that a DAS installation on the roof-top of a building in Pennsylvania with no historic effects required consultations with nine Tribal Nations, and the last response was received 126 days after the Tribal review process was initiated; while the installation of a similar small antenna in Cleveland, Ohio was approved by the SHPO in 37 days, but took 150 days to receive approval from all Tribal Nations contacted through TCNS. See Comments of Verizon and Verizon Wireless, *Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies et al.*, WT Docket No. 13-238, WC Docket No. 11-59, RM-11688, WT Docket No. 13-32 at 9 (filed Feb. 3, 2014) (“Verizon NPRM Comments”).

Nations served by TCNS, putting these applications in an administrative limbo with no clear path to resolution. In many cases more than one Tribal Nation expresses interest in consultation on a potential deployment site, giving rise to multiple opportunities for delay, but information requests on the part of only one Tribal Nation can significantly extend the duration of the approval process. As Verizon noted recently regarding this general problem with the current Section 106 process, “[i]f even one tribe does not respond to a notification or fails to render a determination about the effects of a project, the entire project will be delayed by a minimum of 60 days, but many times...the time is far longer.”<sup>12</sup>

The current Section 106 process also involves highly variable and unforeseeable costs for applicants to gather data in response to Tribal requests, as well as to pay Tribal consultative and monitoring fees. Verizon reports that the cost for a consultant’s report can be as much as \$4700 per installation site, which does not include the cost of Tribal consultation fees and additional studies or tests.<sup>13</sup> For a proceeding of the scale of PTC, consultative fees add up quickly. After submitting fewer than 300 poles to the FCC for historic review processing, one railroad received requests from various Tribal Nations for the payment of consultation fees totaling \$338,000, or \$1,203 on average per site.<sup>14</sup> The lack of transparency regarding potential consultative fees and inability to predict the extent of information requests that will be made results in a difficult budgeting process for applicants for historic preservation review.

One of the most challenging aspects of the FCC’s existing Section 106 process is it places serious burdens on Tribal Nations as consulting parties as well as on the applicants. As

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<sup>12</sup> *See id.* at 20.

<sup>13</sup> *See id.* at 9.

<sup>14</sup> *See* Kalick Letter at 6. More recently, a railroad submitting applications using the Beta TCNS process was informed by a consulting Tribal Nation that its fees for clearing PTC-related infrastructure would be double the fees for reviewing non-PTC infrastructure.

the NPA contains few exclusions, Tribes are required to review large numbers of applications with limited resources, even when the proposed facilities are likely to have little or no potential impact on any historic property of cultural and religious significance to any Tribal Nation. For example, the United South and Eastern Tribes (“USET”) has described how Tribal Nations struggle under the annual burden of reviewing hundreds of communications tower applications, not to mention the added burden of having to review applications for 22,000 PTC-related wayside facilities.<sup>15</sup> The lack of exemptions in the current process for the deployment of infrastructure that will pose no or a *de minimis* risk of adverse effects on historic properties increases the burden on all applicants and stakeholders, including Tribal Nations, in the PTC-related infrastructure review process.<sup>16</sup> Based on the railroads’ previous experiences with Section 106 review, however, the vast majority of communications infrastructure similar in size and location to the PTC-related wayside facilities are ultimately found to have no or minimal effect on historic properties, and so require no further assessment prior to implementation. The FCC should draw from its lengthy history of overseeing the clearance of structures similar to PTC-related facilities without the need for mitigation measures, and draft the Program Comment to avoid increasing the amount of historic preservation review that will ultimately end with a finding of no effects on historic properties.

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<sup>15</sup> See Reply Comments of USET, *Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process*, WT Docket No. 03-128 at 2 (filed Sept. 8, 2003).

<sup>16</sup> See *Save Our Heritage, Inc., et al., v. FAA*, 269 F.3d 49, 58 (1st Cir. 2001) (affirming that an agency can exclude undertakings from both environmental and historic preservation review based on a finding of a *de minimis* effect on the human environment); see also *See Wireless Tower Siting NPRM*, 28 FCC Rcd at 14243 ¶ 11; see also Comments of the Association of American Railroads, *Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies et al.*, WT Docket No. 13-238 *et al.* at 13-17 (filed Feb. 3, 2014) (“AAR Wireless Tower Siting Comments”) (discussing authority of the FCC to exclude wayside deployments from historic preservation review based on a finding of *de minimis* effect).

***B. The Process Outlined in the Draft Program Comment Will Not Provide the Needed Relief***

The draft Program Comment was intended to address the deficiencies in the current historic review process regarding the expeditious review of PTC-related infrastructure, and the proposed SHPO exemptions will improve and expedite this side of the review process. The process outlined in the draft Program Comment, however, suffers from the following specific problems:

- The revised process will not apply to any PTC-related infrastructure deployed by at least three of the seven Class I railroads;
- While the reformed TCNS submission process purports to offer administrative convenience, it continues to anticipate time-consuming, pole-by-pole Tribal review as opposed to clearance of larger sections of track;
- Like the existing historic preservation review process, the draft Program Comment does not offer definitive deadlines for the resolution of Tribal review;
- Tribal Nations may continue to make automated information requests which have the effect of delaying approval;
- The addition of new required documents, including cultural resource reports, will increase the time needed to prepare applications for submission as well as the time needed for Tribal Nations to review applications, and producing such information is an inefficient and costly exercise as not all Tribal Nations have asked for such documentation; and
- The proposed process allows Tribal monitoring and/or alternative excavation techniques upon request for every pole deployment, without requiring any evidentiary showing of the probability of the presence of cultural resources, instead of as mitigation techniques where necessitated.

The draft Program Comment will not apply to all railroads' PTC-related wayside infrastructure. Although the railroads have previously shared their deployment plans with the FCC, the dimensions of the foundations that are set as the maximum limit for PTC-related facilities in the draft Program Comment are exceeded by at least three railroads.<sup>17</sup> The FCC and industry alike are not well served by a Program Comment that fails to encompass such a large number of PTC-related wayside facilities in its provisions.

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<sup>17</sup> See Section IV *infra*.

Without batched review of applications, the draft Program Comment is of limited utility.

In the draft Program Comment, the FCC provides that it may, at its discretion, permit the batched submission of applications for review of PTC-related infrastructure into TCNS. However, the Commission clarifies that any batching of submissions “is for administrative convenience and is not intended to affect the level of review.”<sup>18</sup> Under the ACHP’s rules, a Program Comment is intended to be used “[w]hen effects on historic properties are similar and repetitive or are multi-State or regional in scope,” and Program Comments previously approved by the ACHP generally preclude case-by-case review of undertakings.<sup>19</sup> While the convenience of batched *submission* may be minimally useful in reducing the work of submitting thousands of separate PTC-related applications into TCNS, the failure of the Program Comment also to provide for batched *review* of PTC-related infrastructure effectively dooms the utility of the proposed process.<sup>20</sup> Other than the mild and, as the FCC acknowledges, purely administrative convenience of being able to enter groups of PTC-related wayside facilities applications, rather than having to enter each application separately, the batching provision offers no advantages to the railroads, and will not have any impact on the way Tribes will conduct their review.

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<sup>18</sup> See *Draft Program Comment* at 7.

<sup>19</sup> See 36 C.F.R. § 800.14(b)(1); see also, e.g., Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges, 77 Fed. Reg. 68790, 68791 (2012) (providing for programmatic, rather than site-by-site, review of undertakings affecting highway bridges).

<sup>20</sup> Moreover, the FCC has failed to address continuing technical shortcomings with the TCNS process. According to conversations with FCC staff, the only change made to TCNS since its use for PTC-related facilities was suspended in May 2013 has been an expansion in the number of characters that can be entered in the one available free text field (the address field). It is not clear that the design issues that caused the FCC to instruct the railroads not to use TCNS have been resolved. Further, in its January 8, 2014 limited reopening of TCNS on a test basis, the FCC requested that the railroads provide more robust information packages beyond that currently required and submit them into TCNS. See Steinberg Letter at 2. While the railroads have complied by accompanying their applications with a supplemental information package, they have continued to receive automated responses from Tribal Nation requesting more information. This has created confusion, as it is unclear whether or not the submissions have been reviewed, and raises concerns that a similar provision in the draft Program Comment will not be effective in shortening the period for Tribal review.

The draft Program Comment does not include definitive deadlines for the resolution of Tribal review. Although the draft Program Comment facially offers some helpful shortened deadlines (sixty days to forty days) for Tribal Nations to determine that they are not interested in further consultation regarding a specific application, this small benefit is greatly outweighed by the fact that—like the existing Section 106 process—it does not include definitive deadlines for the resolution of Tribal review. Instead, Tribal Nations are permitted to follow up receipt of a submission package with requests for additional information, with no limit on the time to review information packages once provided. The ability to respond to an application with additional information could render the shortened forty day period meaningless, as review in fact could last indefinitely.

The draft Program Comment’s deadline for dispute resolution of sixty days, “unless the FCC determines additional time is necessary,” is similarly ineffective. Indeed, in the railroads’ experience, even with significant additional time, the FCC has been unable to resolve a much smaller number of disputes involving TCNS entries of non-PTC rail infrastructure. The FCC is not adequately staffed now to resolve disputes between various stakeholders, and there is no reason to believe that it could satisfy a sixty day deadline when faced with the review of thousands of entries.

Although the draft Program Comment takes the unprecedented step of requiring the default submission of a cultural resource report for each PTC-related location prior to any request by a Tribal Nation, the utility of this provision is questionable if Tribal Nations have no deadlines for the review of such information. In the railroads’ experience, preparation of the full list of required information documents, including cultural resource reports, will take from four to six weeks *per installation*. If adopted as drafted, the Program Comment could eliminate the

possibility of the deployment of any PTC-related infrastructure in 2014 for some railroads, as clearances could come too late in the construction season to arrange for work crews before the winter season begins. No benefit will be gained if applicants are required to expend considerable resources to provide such studies upfront if such submissions are not required by a particular Tribal Nation or are not reviewed expeditiously. Moreover, such a provision effectively inverts the Section 106 process by placing the burden of identifying historic properties of cultural and religious significance to Tribal Nations on the railroads.<sup>21</sup>

The draft Program Comment does not require an evidentiary showing prior to monitoring and/or alternative excavation. The draft Program Comment establishes the ability of Tribal Nations to request monitoring and/or alternative excavation techniques on request, with no evidentiary showing. This is a backwards approach to the Section 106 review process. Under the NPA, Tribal consultation is a two-part process. First, consultation is intended to ascertain whether any historic property of cultural and religious significance might be located within the Area of Potential Effects (“APE”). Second, if a determination is made that any such a historic property exists, consultation should attempt to reach an agreement on the presence or absence of effects on that property.<sup>22</sup> Only at this second stage would mitigation such as monitoring or alternative excavation techniques be necessary. In contrast, the draft Program Comment suggests that before a Tribal Nation has even ascertained that any historic property exists that could be subject to direct or visual effects from the PTC-related deployment, that Tribe can require that *all* sites be subject to monitoring or to alternative excavation. In fact, with no evidentiary showing, under the draft Program Comment any potentially interested Tribal Nation

<sup>21</sup> See NPA at Section VI.D.1.b (providing that applicants “shall gather information *from* Indian tribes...to assist in identifying Historic Properties of religious and cultural significance to them”) (emphasis added).

<sup>22</sup> See NPA at Section IV.G.

can require monitoring for any site even if a railroad has voluntarily commissioned a field study by a Secretary of the Interior-qualified professional archeologist who has made a determination that no archeological historic properties exist within the APE.<sup>23</sup> The draft Program Comment also does not address the logistics of coordinating the potentially dozens of Tribes who could claim an interest in sending a monitor to observe the installation of a particular site, including the challenge of organizing and scheduling deployments and ensuring the safety of all track-side personnel.

As discussed in Section IV below, to request monitoring or alternative excavation methods as a form of mitigation, a Tribal Nation should first be required to establish—based on its own records, historical documents, or specific cultural resources—that a historic property of cultural and religious significance exists within the relevant APE. As currently drafted the Program Comment establishes the entire national railroad rights of way as a historic property, subject to blanket mitigation. The railroad rights of way, which have been operated for up to 175 years, have been subject to significant, heavy construction and maintenance associated with railroad operations. At a maximum height of seventy-five feet, the PTC-related wayside facilities would be considerably smaller than standard communications towers, and would be closer in height to standard utility poles that are already ubiquitous in the urban and rural landscape. Due to the high level of previous disturbance on the railroad rights of way, and the small scale of the PTC-related wayside facilities, the likelihood of existing cultural resources that could be affected by PTC-related wayside infrastructure deployment and require any form of mitigation is minimal.<sup>24</sup> The railroads continue to be open to mitigation in any situation where a

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<sup>23</sup> See *id.* at Section VI.D.2.

<sup>24</sup> The NPA provides that to assess potential effects on historic properties, applicants should consider factors such as “topography, vegetation, known presence of Historic Properties, and existing land use.”

Tribal Nation expresses a specific concern regarding a historic property and provides evidence to support this concern.

### III. THE PROGRAM COMMENT PROCESS DOES NOT REQUIRE THAT ALL IMPACTS ON HISTORIC PROPERTIES BE AVOIDED

The draft Program Comment does not need to guard against any potential impact to any unknown historic property. Congress did not intend that the Section 106 process be exhaustive. As the Commission has previously noted, the NHPA “contemplates a balancing of the likelihood of significant harm against the burden of reviewing individual undertakings” and “does not require perfection in evaluating the potential effects of an undertaking in every instance.”<sup>25</sup> Specifically, Section 106 and the ACHP’s rules require that federal agencies “take into account” the effect of their undertakings on historic properties, and engage in a “good faith and reasonable effort” to identify historic properties.<sup>26</sup> The standard of review for undertakings under the Section 106 process “is not one of perfection but one of reasonableness, taking into account both the likelihood that adverse effects will not be considered in some instances and the overall benefits to be obtained from streamlining measures.”<sup>27</sup>

One of the main reasons that the historic preservation review process outlined in the NPA provides for few exclusions is that the type of communications infrastructure that its drafters envisioned was considerably more intrusive on the human environment than PTC-related facilities. The FCC’s environmental and historic preservation review rules were developed at a

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*See NPA* at Section VI.E. In the case of deployment of PTC-related facilities on railroad rights of way, the number of known Historic Properties will be minimal, all vegetation has long been cleared from the ballasted track bed, and the land has been in use for the industrial deployment of rail lines for decades, and in many cases for over a century.

<sup>25</sup> Nationwide Programmatic Agreement Regarding the Section 106 National Historic Review Process, *Report and Order*, 20 FCC Rcd 1073, 1087 ¶ 35 (2004) (“*NPA R&O*”).

<sup>26</sup> *See* 16 U.S.C. § 470f; 36 C.F.R. § 800.4(b)(1).

<sup>27</sup> *NPA R&O*, 20 FCC Rcd at 1082 ¶ 21.

time when wireless infrastructure deployment generally meant the construction of a single 300 foot communications tower that loomed over a previously undeveloped greenfield.<sup>28</sup> In contrast, the wayside facilities that will be deployed by the railroads to enable PTC deployment will be considerably smaller, located in areas that have been subject to extensive soil disturbance and are used continuously for rail transportation purposes, and pose *de minimis* risk of negative effects on the human environment.<sup>29</sup>

As previously discussed, the railroads have seen firsthand that the overwhelming majority of wayside facilities similar in size to PTC-related deployments ultimately are determined by consulting parties to have no effect on any historic property, or to have such a *de minimis* effect that no mitigation is necessary. In fact, similarly-sized facilities on the railroad rights of way that have been processed by the railroads to date have been cleared without a finding of adverse impact. The FCC should give heavy weight to the lack of historic preservation concerns raised regarding all PTC-related facilities located on the railroad rights of way to date. Ultimately, the railroads are caught between two statutory mandates—the need to conduct historic preservation review and the need to satisfy the Congressional mandate for nationwide PTC deployment to meet significant national safety objectives. The AAR asks the FCC to use its considerable discretion in drafting the Program Comment to ensure that these statutory imperatives can be reconciled, so that PTC deployment may move forward. The current draft Program Comment will not accomplish this goal.

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<sup>28</sup> See *Wireless Tower Siting NPRM*, 28 FCC Rcd at 14243 ¶ 11; see also AAR Wireless Tower Siting Comments at 6-8.

<sup>29</sup> See AAR Wireless Tower Siting Comments at 11 (discussing the location of undertakings along transportation corridors as a critical factor in the ACHP's prior approval of categorical exclusions from Section 106 review).

**IV. THE PROGRAM COMMENT SHOULD ENCOMPASS ALL PTC-RELATED FACILITIES, IMPOSE FIRM DEADLINES, EMPHASIZE TRIBAL RESPONSIBILITY TO IDENTIFY HISTORIC PROPERTIES, AND PROVIDE FOR LIMITED MONITORING**

The AAR continues to feel strongly that the best solution to address the need for expedited Section 106 review of PTC-related infrastructure remains an exemption from SHPO and Tribal review for all wayside facilities no taller than seventy-five feet located on the railroad rights of way that are not immediately adjacent to any previously recorded historic properties.<sup>30</sup> Because of their small size, minimal area of direct and indirect impact, and location on previously disturbed industrial rail corridors, the potential effects of PTC-related facilities on historic properties are foreseeable and minimal or not adverse. The FCC has broad authority pursuant to the NHPA and the ACHP's regulations to seek a program alternative that would exempt most PTC-related wayside facilities from Section 106 review.<sup>31</sup>

If the FCC declines to adopt a general exemption for all PTC-related wayside infrastructure, it should draft the Program Comment to provide a process that is superior to the existing Section 106 application submission and review procedures. As an initial matter, the Program Comment should be drafted to provide relief to all railroads, and to exclude all PTC-related facilities located on the railroad rights of way from SHPO review. To initiate Tribal consultation, the only information (other than that required by the current TCNS process) that the railroads should have to submit is detailed maps that will allow Tribal consultants to determine whether the PTC-related facilities would have the potential to affect known historic properties of cultural and religious significance. These maps could be submitted through TCNS, or provided directly to interested Tribal Nations. Once the consultative process is initiated, the Program

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<sup>30</sup> See AAR Scoping Document Comments at 11-13.

<sup>31</sup> See *id.* at 18-24.

Comment should provide strict, binding deadlines to ensure that the application review will be resolved in a finite period. The failure to meet such deadlines should be construed as a lack of interest in further consultation. Requests for monitoring by Tribal Nations should only be granted on a showing of evidence that a historic property could be affected by the proposed deployment, with a limit of one monitor per work crew. More details of the AAR's proposed revisions to the draft Program Comment are provided in the attached Appendix.

Failing to make the recommended revisions to the draft Program Comment included below will almost certainly risk the loss of most, if not all, of another construction season this year and, in turn, the inability of the railroads to meet the end of 2015 deadline for nationwide PTC deployment mandated by Congress. According to FCC staff, the Commission plans to submit the draft Program Comment to the ACHP in March 2014, which should result in final approval of the Program Comment in late April or early May 2014.<sup>32</sup> Based on this timeline, and given the length of time needed for the preparation of cultural resource reports and other materials mandated by the current draft Program Comment, the railroads would not be able to submit their first applications for PTC-related wayside deployments until late June 2014. Even under the best circumstances as provided under the draft Program Comment, no PTC-facility would be likely to be approved for construction until forty days after submission—or mid-August 2014. Any request for additional information by a Tribal Nation would have the effect of significantly pushing back even these best-case scenario deployment dates, and could result in at least some railroads being unable to deploy any PTC-related facilities in 2014.

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<sup>32</sup> The ACHP has forty-five days from the date of receipt of the draft Program Comment to act on that program alternative by either adopting it, declining to comment, seeking additional information, or asking for an extension. *See* 36 C.F.R. § 800.14(e)(5).

Although the Tribal Nation consultative process is not the only factor the railroads must take into account when planning for PTC deployment, delays in approval have already significantly compromised, and will continue to negatively impact, the rest of the construction and implementation process, including ordering and receiving PTC equipment and arranging for contractors for deployment services. For tracks on the northern plains in particular, the deployment season is normally limited by inclement weather by the early fall, and uncertainty regarding when approval for deployment could come will result in the inability to sign contracts to secure work crews before cold weather makes construction impossible. Being unable to deploy PTC wayside facilities in 2014 will also have a profound, negative impact on the testing of PTC systems, and will push back the training and certification of railroad employees on PTC equipment, which must take place before general deployment.

The Program Comment Should Apply to All PTC-Related Facilities. As drafted, the Program Comment is limited to infrastructure situated in a railroad rights of way supporting either a wayside antenna or base station that is no taller than seventy-five feet (including antenna), requires a foundation no deeper than fifteen feet, and creates a foundation hole not in excess of fifteen inches in diameter.<sup>33</sup> PTC-related infrastructure that falls outside of these categories must rely on the Section 106 review process established under existing FCC regulations and procedures. As has been previously disclosed to the FCC, at least three of the seven Class I railroads plan to deploy PTC-related facilities using a foundation hole that will exceed the fifteen inch diameter provided in the draft Program Comment. Rather than make the Program Comment process unavailable for almost half of the affected railroads, the AAR

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<sup>33</sup> See *Draft Program Comment* at 5.

believes that the FCC can minimize ground disturbance by refining its definition of covered facilities.

While the diameter of poles deployed by most railroads will be approximately fifteen inches, at least one of the railroads will be deploying PTC wayside facilities using an augered foundation that is eighteen inches in diameter, with a disturbance diameter of up to twenty inches, while two other railroads will be using foundations that will be wider than those contemplated in the Program Comment but also very shallow, requiring a foundation that is less than six feet deep. The FCC can revise its constraints regarding foundation dimensions to include the deployment plans of all railroads without giving rise to any increased risk of adverse effects on historic properties. To ensure that no eligible PTC-related infrastructure is excluded from the Program Comment process, the FCC should clarify that foundation deployments should either have a disturbance diameter of no more than twenty inches with a foundation depth of no more than fifteen feet, *or* an open excavation of any size with a foundation less than six feet deep. Such a provision will allow all of the railroads to rely on the Program Comment while not increasing any potential impact to the human environment.

Tribal Nations Should Be Encouraged to Exclude Counties from Section 106 Review. As drafted, the Program Comment would exclude from SHPO review facilities constructed in existing railroad rights of way where similar structures already exist in the same vicinity.<sup>34</sup> The AAR appreciates this helpful exclusion. However, the Program Comment would provide no parallel exclusion from review by Tribal Nations, despite the fact that Tribes and SHPOs share similar historic preservation concerns.<sup>35</sup> The AAR believes that Tribal Nations should be able to designate areas, such as counties, for which they are not interested in consultation, and to provide

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<sup>34</sup> See *id.* at 6.

<sup>35</sup> See *id.*

those designations to the railroads as an effective exemption from review.<sup>36</sup> To clarify this provision, the FCC should draft the final Program Comment to exclude from Tribal Nation review all PTC-related wayside facilities that have been designated as including no historic properties of cultural or religious significance.

Applicants Should Not Be Required to File Cultural Resource Reports with Their Application. The draft Program Comment provides that applicants seeking to use the FCC's revised historic review process must submit a cultural resources report, prepared by a professional who meets the relevant standards in *The Secretary of the Interior's Professional Qualifications Standards*, with their application.<sup>37</sup> The FCC acknowledges that ordinarily applicants are not required to provide such reports as part of their TCNS submissions, but suggests that requiring such a submission is necessary to expedite the Tribal review process, as Tribal Nations "often request a cultural resources report" on receiving an application via TCNS. The AAR believes that rather than asking the railroads to spend the extensive time needed to prepare a cultural resource report for each PTC-related pole or facility, when Tribal Nations are already facing the challenge of reviewing thousands of pole applications, the resources of all stakeholders would be better spent preparing and reviewing the detailed maps which are also required. Such maps provide all information needed to assess whether a particular deployment will have a potential effect on a known historic property of cultural and religious significance to that Tribal Nation.

The requirement of Tribal consultation under Section 106 is based on the presumption that Tribal Nations are better suited to identify historic properties of cultural and religious

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<sup>36</sup> See *NPA* at Section VI.B (providing that a SHPO or Tribal Historic Preservation Officer "may specify geographic areas in which no review is required for direct effects on archeological resources or no review is required for visual effects").

<sup>37</sup> See *Draft Program Comment* at 8.

significance to that Tribe than are applicants or Federal agencies. For this reason, a Federal agency's duty under the NHPA and the ACHP's rules is to seek and consider information regarding historic properties from Tribal Nations. As the NPA notes, the purpose of preliminary communications between an applicant and Tribal Nation is "to ascertain whether Historic Properties of religious and cultural significance to the Indian Tribe...may be affected by the undertaking and consultation is necessary."<sup>38</sup> There is no corresponding requirement that the agency, or an applicant, convey all known or suspected information to the Tribes.<sup>39</sup> Moreover, many of the required contents of the cultural resources report as provided in the draft Program Comment do not relate to Tribal interests at all, such as "[i]nformation on Federal lands...along or under tracks" and "[o]wnership of tracks on or near Federal lands, including direct ownership or lease arrangements," and so will be of limited utility in assessing whether a historic property of cultural and religious significance to a Tribe might be affected.<sup>40</sup> For the railroads, the resources needed to assemble cultural resources reports for each PTC-related facility will be overwhelming. As discussed above, on average, the preparation of such a report takes anywhere from one month to six weeks prior to submission per installation.<sup>41</sup>

The railroads are also concerned that although the submission of cultural resource reports for each PTC-related facility is intended to expedite review, the draft Program Comment provides a mechanism for Tribal Nations to respond to the receipt of such reports with additional information requests. At least one railroad that has taken advantage of recent permission to

<sup>38</sup> *NPA* at Section IV.G; *see also NPA* at Section VI.D.1.b.

<sup>39</sup> *See Slockish v. U.S. Federal Highway Admin.*, 2012 WL 3637465 \*9 (D.Or, June 19, 2013).

<sup>40</sup> *See Draft Program Comment* at Appendix.

<sup>41</sup> In addition, the FCC staff have expressed concerns that the resources of the Tribal Nations are already stretched thin by the need to review nearly 22,000 applications, and at recent consultative meetings in Rapid City, South Dakota and Tulsa, Oklahoma some Tribal representatives stated that they preferred not to receive such reports, and lacked the resources to review such submissions.

resume limited submission of PTC-related infrastructure in TCNS has had a cautionary experience.<sup>42</sup> Despite submitting a supplementary information package that contained many of the documents described in the draft Program Comment, the railroad continued to receive automated responses from Tribal Nations requesting the submission of an information package. As the railroad had, in fact, submitted such a package, it was impossible to know if the package had been reviewed, what additional information these Tribal Nations might need, or how the railroad was to make a determination regarding how to supplement its submission. If Tribal Nations can respond to a cultural resource report with requests for additional information that can lead to infinite delays in approval, there are no efficiencies gained by generating such reports in advance of Tribal requests. The FCC should draft the Program Comment to eliminate the ability of Tribal Nations to respond to an application with an automated request for additional information.

Deadlines. One of the most fundamental problems with the existing Section 106 review process is the lack of clear and finite deadlines for approval. The draft Program Comment shortens the potential approval period from approximately sixty days to forty days, but does not the fundamental problem of unlimited consultative review by Tribal Nations.

As drafted, the Program Comment provides that if an applicant has not received a response from a Tribal Nation twenty days after the application was submitted via TCNS, provided the applicant has attempted at least one follow-up communication during that period, the railroad may ask the FCC to send a letter to the Tribal representative.<sup>43</sup> The FCC will send this letter within five days of the request, and if the Tribal Nation does not respond within fifteen

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<sup>42</sup> See generally Steinberg Letter (describing the Beta TCNS submission process).

<sup>43</sup> See *Draft Program Comment* at 10.

days, it will be deemed to have no interest in consultation.<sup>44</sup> The AAR believes that an approximately forty day period for the approval of PTC-related infrastructure is appropriate, and supports this general timeline provision.

However, there are many circumstances under which the Tribal review process is essentially open-ended. Notably, during the initial twenty day period, a Tribal Nation may ask for additional information. If the railroad provides such information, the draft Program Comment provides no deadline during which the Tribal Nation must complete the review. If the Tribal Nation and the railroad disagree about any aspect of this request, after attempting to resolve their differences in fifteen days the parties may bring their disputes before the FCC. The draft Program Comment does not provide any timeline for the ultimate resolution of such a dispute by the FCC. Similarly, although the FCC pledges to resolve all disputes regarding a submission that requires further review, or a closer examination, within sixty days, it caveats this provision by noting that it can take additional time to resolve the dispute if it determines this is necessary.

Given the narrow questions and largely uniform nature of the PTC-related wayside facilities for review, the AAR believes that all disputes regarding any PTC-related pole should be definitively resolved within thirty days. Based on the detailed maps supplied by the railroads, a Tribal Nation should be able to make a determination regarding the likelihood of historic properties of cultural and religious significance at each pole location within that time period. Moreover, the FCC has ample authority to impose firm deadlines on Tribal Nations for the completion of Section 106 review. The ACHP's rules provide that an agency need only provide

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<sup>44</sup> *See id.*

a Tribal Nation a “reasonable opportunity” to identify concerns regarding historic properties,<sup>45</sup> and the 2000 Executive Order establishing guidelines for consultation and coordination with Tribal Nations provides that agencies must only establish procedures that allow for “timely input” by Tribal officials.<sup>46</sup> Other agencies have imposed firm deadlines on Tribal Nations,<sup>47</sup> and in rare challenges courts have affirmed that “agencies...[may] set deadlines as needed in order to ensure the timely and proper disposition of matters” before them.<sup>48</sup>

If a Tribal Nation makes a determination, accompanied by an evidentiary showing, that a historic property could be affected by a particular PTC-related facility, it should be able to request the presence of a monitor during installation or an alternative excavation method (*see discussion below*). If the Tribal Nation finds that there is no such historic property of cultural and religious significance, or that it will not be affected by the undertaking, the deployment of PTC-related infrastructure should be allowed to proceed. The failure of a Tribal Nation to respond to an application, or to meet any consultative deadline, should be construed as an expression by that Tribe that it has no interest in review of the proposed facility.

Appropriate Limits Should Be Established for Tribal Monitoring and Requests for Alternative Excavation. The draft Program Comment provides that “a Tribal Nation may request

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<sup>45</sup> 36 C.F.R. § 800.2(a)(4).

<sup>46</sup> Executive Order 13175: *Consultation and Coordination with Indian Tribal Governments*, 65 Fed. Reg. 67249 (2000). Courts have found that an agency may prescribe any reasonable perimeters for Tribal consultation, as long as it abides by those guidelines. *See, e.g., Lower Brule Sioux Tribe v. Deer*, 911 F.Supp. 395, 397 (D.S.D. 1995) (finding that an agency could have satisfied its obligation with even “perfunctory” consultation, as long as this was in accordance with that agency’s policies).

<sup>47</sup> *See, e.g.,* 25 C.F.R. § 262.3(b)(1) (providing that a Tribal representative reply to a request for information in thirty days); 25 C.F.R. § 262.8(e) (allowing a government official to act if a Tribal government has not responded to a request in fifteen working days); 43 C.F.R. § 7.7(a) (requiring notice of “at least” thirty days to a Tribe prior to the issuance of a permit that “may result in harm to, or destruction of, any Indian tribal religious or cultural site on public lands”).

<sup>48</sup> *Fallon Paiute-Shoshone Tribe v. U.S. Bureau of Land Management*, 455 F.Supp. 2d 1207, 1220 (D.Nev. 2006).

to monitor construction at *any or all sites* within a batched submission.”<sup>49</sup> The AAR believes that providing pole-by-pole monitoring as a default will entirely defeat the purpose of the Program Comment, which is to provide broad, systematic relief for the deployment of all PTC-related wayside facilities. Allowing individual monitoring of all PTC-related poles represents no improvement over the current Section 106 review process. Monitoring, as a form of mitigation, should only be invoked if the Tribe “provides evidence that supports a high probability of the presence of intact archeological Historic Properties within the APE for direct effects.”<sup>50</sup> Any disputes arising from the submission of such evidence, including the sufficiency of such evidence, and any disputes regarding whether requests for mitigation or alternative excavation methods should be honored, should be resolved by the FCC within fifteen business days.

Where monitors have been shown to be appropriate, for safety reasons the Program Comment should clarify that a maximum of one monitor will be allowed per railroad work crew.<sup>51</sup> The AAR believes that the most comprehensive approach to monitoring would be the formation of a pool of professionals who satisfy the Secretary of the Interior’s Professional Qualification Standards. Both the railroads and Tribal Nations should be able to contribute monitors to this pool. The railroads would then draw from this group of approved monitors to accompany work crews installing any PTC-related wayside infrastructure for which a Tribal Nation had provided evidence of potential archeological impact. Any disputes regarding the

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<sup>49</sup> See *Draft Program Comment* at 11 (emphasis added).

<sup>50</sup> See *NPA* at Section VI.D.2.d.

<sup>51</sup> The AAR notes that the draft Program Comment does not provide criteria to govern the coordination of monitors and work crews. Such criteria are critical to ensure that PTC deployment can go forward as scheduled even if, for example, an appointed monitor fails to appear at a work site on a scheduled deployment date. Standard criteria are also necessary to ensure the safety of work crews and monitors on the job site. If the ACHP adopts a Program Comment that includes provisions for monitoring, the FCC should also finalize a list of required working criteria that would ensure that monitoring does not slow the PTC deployment process, or endanger the safety of that deployment.

selection of a monitor for areas of interest for more than one Tribal Nation should be submitted to the FCC, and resolved within fifteen days. The largely uniform historic preservation interests of all Tribal Nations will be well-represented by a Secretary-qualified monitor, and providing for a single monitor will avoid inevitable scheduling delays and safety concerns that will arise if each interested Tribe is entitled to deploy a monitor to each PTC-related wayside site.

As a related concern, the AAR disagrees with the provision in the draft Program Comment that provides that a railroad must honor any request by a Tribal Nation to use an excavation method other than screwing in of the pole or auger drilling “[w]here necessary to ascertain the presence of archeological resources.”<sup>52</sup> The railroads have invested significant resources in PTC deployment, which includes making a determination regarding the type of foundation and make-up of crews needed to effect this major public safety infrastructure project. Because of the significant financial cost and strain on resources, and safety risks, a request for monitoring or alternative excavation should only be acted upon with a showing by the Tribal Nation that a known historic property of cultural and religious significance exists within the APE, and that the PTC-related wayside facility could negatively affect such a property absent mitigation.

**V. THE SECTION 106 REVIEW OF PREVIOUSLY CONSTRUCTED PTC FACILITIES SHOULD BE RESOLVED SEPARATELY**

The final section of the draft Program Comment addresses previously constructed PTC facilities, and provides that in order to “benefit from the efficiencies” of the revised historic review procedures, a railroad must provide complete responses to all information requests from the FCC regarding previously constructed PTC facilities. The railroads fully intend to comply, in a timely manner, with all FCC requests. Since Congress first imposed the PTC mandate, the

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<sup>52</sup> See *Draft Program Comment* at 11.

railroads have been trying to implement an important public safety mandate as quickly as possible, with no intent to circumvent existing rules or processes.<sup>53</sup> The railroads have always believed that there would be no significant environmental impact or impact on any historic properties from the deployment of infrastructure on its rights of way. While the railroads are prepared to cooperate with the FCC and the Tribal Nations to address concerns regarding previously constructed PTC facilities, to the extent the draft Program Comment suggests otherwise, resolution of those matters cannot be a condition for a workable Section 106 process that permits the timely installation of the thousands of remaining wayside structures required for PTC.

## VI. CONCLUSION

Rather than representing a streamlined solution to the existing historical review process, the proposed Program Comment would perpetuate the extensive delays that are characteristic of that process. In particular, the lack of definitive deadlines for the resolution of Tribal consultation only perpetuates problems already inherent in the FCC's Section 106 process. The AAR continues to believe that given the low probability of significant environmental or historic impact, as evidenced by the experience of the railroads with the Section 106 process to date, the FCC should seek an exemption from Section 106 review for all PTC wayside facilities no more than seventy-five feet in height that are located on the railroad rights of way and not within or immediately adjacent to a known, previously recorded historic property. Absent an exemption

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<sup>53</sup> In the draft Program Comment, the FCC references Section 110(k) of the NHPA, which provides that an agency should not grant a license to an applicant who intentionally significantly adversely affected a historic property. *See id. (citing 16 U.S.C. § 470h-2(k))*; *see also NPA* Section X. The railroads object to any implication that their actions regarding the previously constructed facilities represented an "intentional" attempt to violate Section 106 or any of the FCC's environmental or historic preservation review rules.

for all PTC deployment, the FCC should revise the draft Program Comment to encompass all PTC-related facilities, impose clear deadlines for the resolution of applications, emphasize Tribal responsibility to identify historic properties, and provide for monitoring and alternative excavation methods only as a form of mitigation when the potential for adverse effects has been established.

Respectfully submitted,

By: */s/ Michele C. Farquhar*

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February 12, 2014

### Appendix

#### Summary of the AAR's Proposed Program Comment Process for PTC

*The AAR continues to believe that the best solution to address the need for expedited, comprehensive Section 106 review of PTC deployment is an exemption for all such facilities no more than seventy-five feet in height that are located on the railroad rights of way and not within or immediately adjacent to a known, previously recorded historic property. If the FCC believes that a Program Comment is necessary, the AAR recommends that the Commission adopt the historic review process outlined below.*

- General
  - The Program Comment creates an optional alternative process to the existing FCC Nationwide Programmatic Agreement (NPA)
  - Rather than relying on the Program Comment process, in the alternative railroads may use the existing Section 106 process outlined in the NPA, or may enter into arrangements or agreements with Tribal Nations governing the review of all PTC facilities
- Applicability
  - Includes all PTC-related facilities located in the railroad rights of way
  - Such facilities must not:
    - Be taller than 75 feet (including antenna);
    - Result in a foundation hole that has a disturbance diameter of more than 20 inches with a foundation depth of more than 15 feet, *or* an open excavation of any size with a foundation more than 6 feet deep; or
    - Be situated outside the railroad rights of way
  - For all other cases, including collocations, Section 106 review will be conducted under existing FCC regulations and procedures
  - The Program Comment does not govern any Section 106 responsibilities agencies other than the Commission may have with respect to those agencies' federal undertakings, but the Program Comment may be adopted by other Federal agencies to satisfy their obligations under Section 106
  - The Program Comment does not apply on Tribal lands unless a Tribal Nation elects to adopt its provisions and in so doing follows the process set forth in Section I.D of the FCC NPA
- Exclusions from Section 106 review
  - All PTC-related facilities (as defined above) that are similar to nearby existing structures within the existing railroad rights of way, provided the location is not within the boundaries of a known historic property, and including those areas designated by Tribal Nations as not of consultative interest; and
  - Effects on the rails and the track beds themselves
- Applicant submission package
  - May either use TCNS and E106 (where applicable)
  - May batch the submission of poles by county
    - Batched submissions will be accompanied by a detailed map providing locations

- The submission of a cultural resources report, field survey and/or ethnographic survey is discretionary
- Area of Potential Effects (APE)
  - Presumed ¼-mile APE for visual effects
  - Linear APE recommended
- Tribal Nations Review
  - Scope of review: Tribal Nations will review the maps submitted by the railroads to determine whether a facility site is located within a known area of cultural and religious interest
  - Compensation: Tribal Nations may request compensation for the review of applications consistent with the scope described above
    - For areas determined by the FCC to have a high probability of the presence of intact archeological Historic Properties within the APE for direct effects and for which a Tribal Nation has requested a monitor, the Tribal Nation may request compensation for the monitor provided that the monitor meets the criteria described below
  - Tribal Nations may request compensation for the review of applications consistent with ACHP guidance, including recovery of expenses to retain additional human resources to review submitted maps for known areas of cultural and religious interest
  - Applicants shall ask Tribal Nations whether any clarification regarding the provided maps is needed within 20 days of submission
    - The ability to use the automated response in TCNS to request additional information will be disabled for the Program Comment process
  - If a Tribal Nation does not respond to the TCNS submission within 20 days, within which applicant has attempted at least one follow-up contact:
    - The applicant may ask the FCC to send a letter and/or e-mail to the Tribal Nation's designated cultural resources representative seeking a response
    - The FCC will send this letter or e-mail within 5 business days of the applicant's request
    - If the Tribal Nation does not respond within 15 business days after the FCC has mailed its letter or e-mail, it will be deemed to have no interest in review of the proposed facility
  - For those Tribal Nations that have notified the FCC that they may generally be considered uninterested in TCNS submissions if they do not respond within a specific time period of 30 days or less, without any need for follow-up contact, the usual process applicable to those Tribal Nations shall apply
  - If a Tribal Nation feels that the information provided by the applicant (e.g. Google Earth overlays on U.S. Geological Survey maps) is insufficient, the Tribal Nation may appeal directly to the FCC, which will resolve any disputes within 15 business days
  - The FCC will resolve all other disputes between the applicants and Tribal Nations (other than disputes regarding the monitoring process; see below) within 30 business days of a request from either or both parties to intervene
  - The FCC has full discretion to intervene in Section 106 review at any point in the process

- SHPO Review
  - Applicant shall ask SHPO whether additional information is needed no later than seven days after submission
  - SHPO review should be completed within 30 days of submission pursuant to the procedures in the FCC NPA
- Addressing Adverse Effects
  - Processes in the FCC NPA for avoidance, minimization and mitigation continue to apply
  - If a Tribal Nation fails to meet any consultative deadline, as discussed above, it will be deemed to have no interest in reviewing the proposed facility
  - A Tribal Nation may request to monitor construction at any site for which it provides to the FCC evidence that supports a high probability of the presence of intact archeological Historic Properties within the APE for direct effects
    - The sufficiency of such evidence will be determined by the FCC within 15 business days of its submission by the Tribal Nation
  - Only one monitor will be staffed per track crew, and the monitors will be taken from a pool, created by the applicants and Tribal Nations, of professionals who meet the Secretary of the Interior's Professional Qualification Standards
    - Tribal Nations may be compensated for Tribal monitors who meet the Secretary of the Interior's Professional Qualification Standards and that are used for such mitigation
    - Any disputes relating to the selection of monitors shall be referred to the FCC, which will make a decision within 15 days



**Committee on Transportation and Infrastructure  
U.S. House of Representatives**

**Bill Shuster**  
Chairman

Washington, DC 20515

**Nick J. Rahall, Jr.**  
Ranking Member

April 3, 2014

Christopher P. Bertram, Staff Director

James H. Zonia, Democrat Staff Director

Edward R. Hamberger  
President and Chief Executive Officer  
Association of American Railroads  
425 3rd St SW, Suite 1000  
Washington, DC 20024

Dear Mr. Hamberger,

Thank you for your testimony before the Subcommittee on Railroads, Pipelines, and Hazardous Materials on February 26, 2014 concerning "Oversight of Passenger and Freight Rail Safety." I am pleased you appeared and testified on behalf of the Association of American Railroads. The Subcommittee gained valuable insight from the information you provided at the hearing.

Enclosed please find additional questions for written responses for the record. The Subcommittee appreciates your written responses no later than April 18, 2014. Please provide an electronic version of your response via email to [Walker.Barrett@mail.house.gov](mailto:Walker.Barrett@mail.house.gov).

If you have any questions please contact Mike Friedberg of the Subcommittee at (202) 226-0727.

Sincerely,  
  
John D. Benham  
Chairman  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials

Enclosures

**Committee on Transportation and Infrastructure**  
**Subcommittee on Railroads, Pipelines, and Hazardous Materials**  
**Hearing on “Oversight of Passenger and Freight Rail Safety”**  
**February 26, 2014**  
**Questions for the Record**

Questions from Rep. Denham:

1. There has been much made of polar vortexes and extreme cold weather throughout the country this year, what effects do polar vortexes have on tracks and rail road operations?
  - a. What steps have railroads taken to ensure they combat the effects of extreme weather on their operations and the safety of the movements?
2. AAR has stated that given the low probability of significant environmental or historic impact, the FCC should seek an exemption from Section 106 review for all PTC wayside facilities no more than seventy-five feet in height that are located on the railroad rights of way and not within or immediately adjacent to a known, previously recorded historic property. The FCC seems to be pursuing a different location-by-location approach. How much will the alternate approach recommended by the FCC delay the installation of this important safety technology?
3. Could you explain your members’ position on inward facing cab cameras? What are the benefits?
4. Some argue a second crew member is necessary to provide redundancy, in other words, avoid a single point of failure. What is your response to this argument?
5. Is there any data showing a decrease in safety of one-person crew operations or, alternatively, an increase in safety specifically because of operations using two-person crews?

**Committee on Transportation and Infrastructure**  
**Hearing on "Oversight of Passenger and Freight Rail Safety"**  
**February 26, 2014**  
**Questions for the Record**

Questions from Rep. Denham

1. What steps have railroads taken to ensure they combat the effects of extreme weather on their operations and the safety of the movements?

**Answer.** Extreme winter weather this year has been exceptionally harsh. There have been a number of extraordinary impacts that this year's weather has had on the rail network, particularly on freight trains:

- As it gets colder, the length of trains must be shortened, sometimes by more than 50%. In simple terms, this means that it takes more trains, crews and locomotives to haul the same volume of freight.
- Because, at low temperatures, air pressure decreases, it takes longer for trains to stop and they must be operated at slower speeds, further congesting the network.
- Where there is snowfall, one must add more power to trains and also shorten them further.
- Because roads in communities are frequently blocked by snow and ice, especially in larger terminals and cities, it becomes much more difficult for crews to get to work at all, or at least to get to work in a timely manner. Inevitably, this leads to train cancellations and delays.
- As snow accumulates over the winter, it becomes increasingly difficult to clear yards and keep them functioning.
- In cold weather, track switches may freeze in one position. This happens especially frequently in terminals. This requires that the ice be removed, usually by hand, or that the railroad stop using one set of tracks with the result that there is less ability to sort freight and keep it moving.
- Train crews, mechanical people and maintenance-of-way employees who are used to support snow removal are not available to operate ordinary train service. Again, this fosters delays.

During ordinary winters, there is usually time between storms to do some clean-up. Railroads typically ensure that their winter staffing levels are adequate to deal with these problems. However, that was not the case this year due to the shortened intervals between storms. Once the bad weather started in January, there was never time to actually get things back to near normal before the next storm began. This only began to ease up in late March and early April. It has been compounded by the fact that the severe weather occurred unusually far south this year, so that the geography needing relief was much larger. In the past, these southern regions have served as “relief values” for rail traffic during northern disruptions. That outlet was not generally available much of this winter.

2. How much will the alternate approach recommended by the FCC delay the installation of PTC safety technology?

**Answer.** The FCC elected to draft a program comment for consideration by the Advisory Council on Historic Preservation (“ACHP”). The railroad industry argued to the FCC that the FCC should recommend to the ACHP that a program comment exempt most PTC wayside infrastructure from Section 106 review under this standard. Such an approach would not require the FCC to pursue a rulemaking under its own rules. This approach would ensure that Tribal Nations and the State Historic Preservation Offices would be able to focus their attention on those poles that are most likely to implicate historic preservation concerns, while not causing unreasonable delay to PTC deployment. Unfortunately, the draft program comment that the FCC submitted to the ACHP created a process based on the FCC’s existing location-by-location approach and, if adopted by the ACHP, would not streamline the review process in a meaningful way.

While the railroad industry would not have been able to make the 2015 deadline even if there had been no delay attributable to the FCC, the delay in installation of the antennas has set back the timeline for rolling out PTC. Last May, AAR projected that by December 31, 2015, the industry would have rolled out PTC on 40 percent of the route mileage required to be equipped with PTC. AAR has now reduced that December 31, 2015, projection to 20 percent of the PTC route mileage and lacking a date certain by which approval to install PTC antennas will be granted, the industry cannot make any additional projections.

3. Could you explain your members' position on inward facing cab cameras? What are the benefits?

**Answer.** While AAR does not have a formal position on inward facing cameras, the rail industry is uniformly supportive. The NTSB, among other organizations, believes that inward facing cameras can help ensure that operating crews are properly performing their jobs, e.g., not using cell phones for personal use.

4. Some argue a second crew member is necessary to provide redundancy, in other words, avoid a single point of failure. What is your response to this argument?

**Answer.** In our view, PTC, which railroads are under a Congressional mandate to install at a cost of some \$8 billion, provides more effective redundancy than a second crew member.

5. Is there any data showing a decrease in safety of one-person crew operations or, alternatively, an increase in safety specifically because of operations using two-person crews?

**Answer.** A number of non-Class I's use one-person crews for mainline operations. AAR has examined FRA's accident database from 2003 to 2012 and cannot identify a single mainline accident that occurred with a one-person crew that would have been avoided by the presence of a second crew member.

**THE HONORABLE CORRINE BROWN  
RANKING MEMBER, SUBCOMMITTEE ON RAILROADS, PIPELINES,  
AND HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL  
SAFETY  
FEBRUARY 26, 2014**

**QUESTIONS FOR THE RECORD  
TO  
MR. ED HAMBERGER, PRESIDENT  
ASSOCIATION OF AMERICAN RAILROADS (AAR)**

*Q. Often rail cars change in transportation so the shipping paper provided by the train crew at the scene of an accident may no longer be accurate. What are your members doing to ensure the accuracy and availability of train consist information to emergency responders?*

A. At the most fundamental level, railroad personnel have information with them in the locomotive cab that includes what that train is carrying and basic emergency response information about hazardous materials in that train. The conductor is responsible for maintaining the accuracy of the standing order of the train consist to reflect the pick-up and set-off of railcars while the train is in transit. Train crews are provided documentation for all cars in their trains as well as scheduled pick-ups. If the train crew is not available, railroads can and do provide the same information through their operations control centers. This data can be shared either by fax or by email.

In addition, by the end of this year, railroads hope to have in place an operational web-based system covering all the major freight railroads that will allow emergency responders to input the identification number of a particular rail car and immediately determine the commodity contained in that car, its hazard class, its four-digit UN identification number, whether the car is loaded or empty, the handling railroad, the handling railroad's emergency contact phone number, and emergency response information associated with the commodity.

Railroads also work closely with chemical manufacturers through the Chemical Transportation Emergency Center (Chemtrec). Founded in 1971, Chemtrec offers a round-the-clock, state-of-the-art communications center staffed by trained and experienced emergency service specialists. Chemtrec seamlessly and immediately links on-scene emergency responders with a network of thousands of chemical experts, transportation companies, and medical experts. A call to Chemtrec is often the first call for help during hazmat incidents. Chemtrec is available to help in any type of hazmat-related incident, not just rail-related incidents. In the event of a major rail

hazmat incident, railroads often provide Chemtrec with train commodity data (including shipper, consignee, and descriptions of any hazardous materials on the train) so that the information can be shared quickly with federal, state, and local responders.

*Q. An industry task force was created to look at the safety of rail tank cars transporting crude oil. I see that there is no representative from rail labor on the task force. Would you consider adding a rail labor representative to the task force?*

A. If you are referring to the AAR Tank Car Committee, you are correct about the composition of its membership. AAR stated in its February 26 testimony, "...the AAR Tank Car Committee is comprised of railroads, rail car owners, rail car manufacturers, and rail hazmat customers..."

The fact is that the AAR Tank Car Committee traces its origins to the Master Car Builders' Association in 1903. The American Railway Association revised and issued industry tank car specifications in 1925, and they were adopted by the Association of American Railroads in the 1930's.

According to its formal charter, the AAR Tank Car Committee is responsible for the development and publication of mandatory specifications for the design, construction, maintenance and safe operation of all tank cars used for rail transportation of commodities in North America. The Committee is also responsible for reviewing applications for construction, conversion, alteration or repair of tank cars for compliance with federal regulations, for reviewing proposed changes in those regulations, and for approving the use of tank cars for commodity services other than those that have been specifically authorized.

In discharging its responsibilities, the Committee:

- Considers and approves (subject to conformance with DOT, Transport Canada, and AAR requirements) proposed applications for construction, alteration, repair or conversion of tank cars.
- Considers and approves (subject to conformance with DOT and Transport Canada regulations) all proposed revisions to the AAR Specifications for Tank Cars (M-1002).
- Certifies and registers facilities engaged in: fabrication, alteration, conversion, repair and qualification of tank cars; manufacture, reconditioning, repair or test of service equipment; removal and replacement of service equipment and gaskets; installation, qualification and repair of interior linings and coatings for materials corrosive to the tank.
- Monitors tank car performance trends through close coordination with shipper/car owner interests, and initiates responsive actions such as Circular Letters, Maintenance Advisories, and Early Warnings letters to address potential problems, as necessary.

In addition to railroad hazardous materials experts, the Tank Car Committee includes representatives from shipper/car owner organizations, tank car builders, and chemical industry associations. These non-railroad members contribute specialized commodity knowledge and technical expertise to enable the Committee to properly and effectively discharge its responsibilities.

In terms of the panel's composition, the Committee gives the highest priority to candidates with specific experience in car engineering, car maintenance, or other related railroad industry experience. Experience in areas associated with tank cars is strongly preferred.

*Q. Why are so many of the new crude oil safety initiatives only triggered when trains carrying 20 car loads of crude are involved? Does 20 represent the highest risk trains?*

A. These initiatives follow the long-standing industry practice embodied in AAR Circular OT-55, which specifies recommended railroad operating practices for the transportation of hazardous materials. OT-55 presently applies to 20 car loads or intermodal portable tank loads of any combination of hazardous materials. These trains can present elevated levels of risk due to the greater volume of hazardous materials being transported and the potential for carloads of hazardous materials to be grouped together in a train.

*Q. AAR has had an evolving opinion on retrofitting the DOT-111 tank cars. Can you discuss where AAR is on retrofit?*

A. AAR supports retrofitting existing cars and an aggressive phase-out schedule for cars that cannot meet retrofit requirements. Common to all cars in flammable liquid service should be a high-flow capacity pressure relief device or a combination of thermal protection and an appropriately sized pressure relief device and configuration of the bottom outlet handle to prevent it from opening in an accident. Input is needed from shippers and tank car manufacturers to determine the precise parameters of a phase-out program and to identify the retrofits that should be required. The phase-out program must take into account factors such as manufacturing capacity, the demand for next generation tank cars, shop capacity for any retrofits that will be undertaken, and the number of DOT-111 cars that need to be phased out of flammable liquid service.

*Q. What is the AAR doing to encourage railroads to participate in the FRA voluntary Confidential Close Call program?*

A. AAR has served on the Confidential Close Call Steering Committee since the program's inception. AAR has assisted FRA in crafting a model memorandum of understanding for the program. AAR keeps the freight rail industry informed on a regular basis about the opportunities presented by the program and its current participants. Having said this, I would be remiss if I failed to observe that some railroads believe that other safety tools may provide even greater advantages than the Confidential Close Call reporting program.

**THE HONORABLE MICHAEL MICHAUD  
MEMBER, SUBCOMMITTEE ON RAILROADS, PIPELINES, AND  
HAZARDOUS MATERIALS  
HEARING ON OVERSIGHT OF PASSENGER AND FREIGHT RAIL  
SAFETY  
FEBRUARY 26, 2014**

**QUESTIONS FOR THE RECORD  
TO  
MR. ED HAMBERGER, PRESIDENT  
ASSOCIATION OF AMERICAN RAILROADS (AAR)**

*Q. Are you familiar with a 2010 DOT report titled, "Transportation of Hazardous Materials: Insurance, Security and Safety Costs?" One of its findings was that while some large rail carriers would like additional insurance coverage, the private insurance markets will not offer it to them.*

A. While not acquainted with this specific report, freight railroads are well familiar with the considerable challenges associated with obtaining adequate insurance coverage for the transportation of hazardous materials. AAR acknowledges that rail transportation is the safest and most secure surface transportation mode for moving such materials. We also agree that many hazardous materials play a vital role in the national economy. Finally, we understand that railroads are considered "common carriers" by the Surface Transportation Board. However, from the railroads' perspective, the overriding issue is that there is a corresponding need for the industry to be able to take into account and protect itself against the increased risk and potentially ruinous liability exposure associated with transporting hazardous materials. The conundrum is that the insurance levels necessary to cover these catastrophic risks are unavailable in the private insurance marketplace.

*Q. With only about \$25 million in insurance coverage, and accident costs in the hundreds of millions, the MM&A declared bankruptcy. In all likelihood, taxpayers will end up footing the bill. How do we prevent that from happening again? How can we ensure that railroads can both afford and acquire sufficient insurance coverage?*

A. Freight railroads would welcome a discussion about a possible legislative solution that would have as an objective requirements for all involved stakeholders, e.g. railroads, shippers, and car owners, to maintain specified levels of insurance for a rail incident involving hazardous materials along with overall limitations on liability, much as the Price Anderson Act provides for the

nuclear industry. If there is a public interest need for hazardous materials to be transported by rail, there would appear to be a corresponding public interest need for the railroads to be protected against the potentially enormous exposure uniquely associated with the transportation of such materials.

**METROLINK.**

Southern California Regional Rail Authority

March 11, 2014

The Honorable Jeff Denham, Chairman  
 House of Representatives Transportation and Infrastructure Subcommittee on  
 Railroads, Pipelines and Hazardous Materials  
 1730 Longworth House Office Building  
 Washington D.C. 20515

Dear Chairman Denham:

On behalf of the Southern California Regional Rail Authority (Metrolink), I would like to applaud your leadership and that of Ranking Member Corrine Brown and the committee members for scheduling a hearing on rail safety titled "Oversight of Passenger and Freight Rail Safety." We believe it is essential to hold hearings of this nature to bring transparency, accountability, and greater awareness on the progress of rail safety in the country. This letter is submitted with the request it be included for the record of such hearing held on February 26, 2014.

Metrolink is strongly committed to enhancing safety and has demonstrated to be a rail safety leader in our industry. Metrolink has taken significant steps to be the safest railroad in the country by making strategic investments to our system. Here is an overview of the safety enhancements implemented on Metrolink's system:

**Safety Culture**

Metrolink is dedicated to promoting a strong culture of safety. Fundamental to fostering safety is creating an environment that is informed, encourages reporting and learning, and is flexible and just. Together, these elements create a culture in which we can provide the safest service to our customers and work place for our employees.

**Positive Train Control**

In February 2014, Metrolink became the first commuter rail system to implement Positive Train Control (PTC) technology in revenue service demonstration along our 91 Line to Riverside County, California. We are very proud of our achievement and are committed to implementing PTC on our entire rail network in advance of the 2015 federal mandate established in the Rail Safety Improvement Act of 2008. Metrolink has maintained its unwavering commitment to PTC because it saves lives.



One Gateway Plaza, Floor 12 Los Angeles, CA 90012 T (213) 452.0200

metrolinktrains.com

Letter to Chairman Denham  
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**Inward and Outward Facing Video Cameras**

Metrolink was the first railroad system in the nation - passenger or freight - to install inward-facing cameras, demonstrating its ongoing commitment to passenger and rail safety innovation. In addition, Metrolink will be utilizing the new Locomotive Digital Video Recorder (LDVR) System, which includes three cameras per locomotive -- an outward-facing camera to record activity in front of the train and two inward-facing cameras to record the control panels and human activities inside the locomotive cab. The LDVR also captures ambient audio transmissions associated with the visual images. The purpose of the cameras is to promote and enhance safety and security for the general public and Metrolink and contractor employees, and assist in incident investigations.

**Guardian Fleet**

Metrolink operates a fleet of 137 passenger cars that are equipped with technology developed by the Volpe National Transportation Systems Center intended to keep passengers safe. These cars are the safest cars available and include structurally enhanced zones to absorb, balance and dissipate energy from an impact. The passenger compartments have been structurally enhanced and have elevated compartments for the train engineers for greater protection and improved visibility.

**Grade Crossing Program**

To reduce the risk of train collisions with vehicles and pedestrians, Metrolink is implementing extensive sealed corridor treatments and grade crossing improvements. These improvements were implemented on 51 crossings in Orange County, California alone. This \$88 million project constitutes one of the longest continuous railroad Quiet Zones in the United States. Plans for additional crossing improvements are underway, along other critical points along our rail system.

**Rail System Safety Certification Program**

Metrolink, in partnership with the University of Southern California (USC) Viterbi School of Engineering, has designed and instituted an advanced Rail System Safety Certification Program. This collaboration is an industry first and will pioneer efforts to standardize system safety leadership principles. The safety education program will leave Metrolink managers with an in-depth knowledge that will enhance their skills so they can better understand how to reduce risk. The curriculum has been developed with consultation from labor unions, regulatory agencies, and industry leaders. The course began in 2011 and has been expanded to front line employees and contractors.

**Summer Safety Focus 2013 Awareness Campaign**

In 2013 Metrolink launched a campaign to promote safety and encourage people to "Be Track Smart" by minimizing distractions around tracks and stations. The campaign consists of a special train wrap and materials featuring the agency's safety mascot, SMARTY.

**Security Tiger Team**

The Metrolink Tiger Team is focused on identifying and testing cutting edge technology that can enhance safety and security on the rail network. For example, the team is exploring cameras that would enhance safety on the railroad crossings, utilize video analytics and intrusion detection along rights of way.

Letter to Chairman Denham

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We urge Congress to provide the necessary funding to invest in critical rail safety infrastructure and programs. We would also like to work with Congress to address the challenges that create obstacles for passenger and freight railroads in meeting rail safety obligations. Please contact us if you have any questions.

Sincerely,

*Larry McCallon for*

Larry McCallon  
Chair, Metrolink Board of Directors

*Michael P. DePallo*

Michael P. DePallo  
Chief Executive Officer



CENTER for BIOLOGICAL DIVERSITY

January 9, 2014

January 9, 2014

The Honorable Mark Warner, Chairman  
Senate Subcommittee on Surface Transportation and  
Merchant Marine Infrastructure, Safety and Security Committee  
475 Russell Office Building  
United States Senate  
Washington, DC 20510

The Honorable Roy Blunt, Ranking Member  
Senate Subcommittee on Surface Transportation and  
Merchant Marine Infrastructure, Safety and Security Committee  
260 Russell Office Building  
United States Senate  
Washington, DC 20510

The Honorable Jeff Denham, Chairman  
House Subcommittee on Railroads, Pipelines, and Hazardous Materials  
1730 Longworth Office Building  
United States House of Representatives  
Washington, DC 20515

The Honorable Corrine Brown, Ranking Member  
House Subcommittee on Railroads, Pipelines, and Hazardous Materials  
2111 Rayburn Office Building  
United States House of Representatives  
Washington, DC 20515

Dear Senator Warner, Senator Blunt, Rep. Denham, and Rep. Brown:

On behalf of the Center for Biological Diversity and our more than 15,000 members and activists in the Northeast, we are writing to you today to ask for your urgent attention to a growing threat to the human and natural communities of the Lake Champlain area, the Adirondacks, and the Hudson River watershed. This threat is the rail transport of highly flammable, explosive North Dakota Bakken crude oil. In the wake of multiple train derailments in the last six months that have included enormous conflagrations of burning crude, millions of gallons of oil spilled into nearby water bodies, and horribly, in a single accident, dozens of mortalities, it is time for high-level oversight and intervention.

We ask for you to call for a moratorium on the rail shipment of Bakken crude in New York specifically, as well as the northeastern United States more broadly. We further ask for you to call for an in-depth review of all the risks posed by rail shipment of Bakken crude oil, including threats to the environment and public safety. While this assessment is conducted, Bakken crude oil must not be allowed to continue to flow through the "moving pipelines" that our railroad

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routes have become. These tracks bisect our villages and towns, pass near our urban centers, cross our water sources, and in some places, literally dangle over the iconic lakes and rivers that make this part of the world a beautiful and special place to live.

At the present moment, hundred-car trains are carrying the same volatile cargo<sup>1</sup> southward along the western shore of Lake Champlain and to the Port of Albany that just last week exploded in the fiery derailment of a train at Casselton, North Dakota,<sup>2</sup> and two days ago prompted the evacuation of a New Brunswick town following a derailment and fire.<sup>3</sup> Trains are also converging on Albany and the Hudson River Valley from west-east rail lines, and these also bear the same incendiary crude that has been involved in five major rail accidents since last summer. Plans are in the works to further escalate the amount of Bakken crude moving through upstate New York, as Albany and the Hudson River corridor become a major transportation funnel for oil shipped from the western United States and Canada to East Coast refineries.<sup>4</sup> As much as one-quarter of the shale oil being produced in North Dakota may now be moving by rail to the Port of Albany.<sup>5</sup>

In addition to the derailment at Casselton last week, and Tuesday's train wreck in New Brunswick, in early November a train carrying 2.7 million gallons of Bakken crude derailed in Pickens County, Alabama.<sup>6</sup> The ensuing explosion sent flames 300 feet into the air and oil spilled into a wetland feeding the Tombigbee River.<sup>7</sup>

And on July 6 last year, one of the worst train accidents ever in North America occurred at Lac-Mégantic, Quebec. A 72-tanker<sup>8</sup> train carrying Bakken crude carcened, unmanned, into town in the middle of the night, killing 47 people and incinerating the downtown area. Roughly 1.6 million gallons of crude oil spilled from the train, some of it reaching the lake that served as the focal point for this popular tourist town. Oil has been found as far as 74 miles downstream from the spill site.<sup>9</sup>

<sup>1</sup> Anderson, Eric. "Warning issued for crude oil: Agency says Bakken shale variety fire risk may be higher." *Albany Times Union*, Jan. 2, 2014. <http://www.timesunion.com/business/article/Warning-issued-for-crude-oil-5109728.php#photo-5674154>

<sup>2</sup> Nunez, Christina. "N.D. Oil Train Fire Spotlights Risks of Transporting Crude," *National Geographic Daily News*, Dec. 31, 2013, <http://news.nationalgeographic.com/news/energy/2013/12/131231-north-dakota-oil-train-fire/>

<sup>3</sup> Ho, Solarina. "Evacuation Ordered as Train Carrying Crude Oil Derails, Catches Fire 35 Miles From Caribou." *Bangor Daily News*, Jan. 7, 2014. <http://bangordailynews.com/2014/01/07/news/world-news/evacuation-ordered-as-train-derails-catches-fire-in-new-brunswick/?ref=latest>

<sup>4</sup> Anderson, Eric. "Hudson Valley's Crude Pipeline: Rail Traffic for Oil Delivery to East Coast Refineries through Albany Area is Rising." *Albany Times-Union*, Feb. 28, 2013. <http://www.timesunion.com/business/article/Hudson-Valley-s-crude-pipeline-4318641.php>

<sup>5</sup> Anderson, Eric. "Oil Shipments are Albany-bound: North Dakota Crude Will Be Shipped by Rail to Port, Loaded on Barges." *Albany Times-Union*, Aug. 8, 2012. <http://www.timesunion.com/business/article/Oil-shipments-are-Albany-bound-3773979.php>

<sup>6</sup> Karlamangla, Soumya. "Train in Alabama Oil Spill Was Carrying 2.7 Million Gallons of Crude." *Los Angeles Times*, Nov. 9, 2013. <http://articles.latimes.com/2013/nov/09/nation/la-na-nn-train-crash-alabama-oil-20131109>

<sup>7</sup> "Train carrying oil derails, explodes in Alabama." *Al Jazeera America*, Nov. 8, 2013, <http://america.aljazeera.com/articles/2013/11/8/train-carrying-oil-derailsexplodesinalabama.html>

<sup>8</sup> McNish, Jacqui and Grant Robertson. "The Deadly Secret Behind the Lac-Mégantic Inferno." *The Globe and Mail*, Dec. 3, 2013. <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/the-hazardous-history-of-the-oil-that-levelled-lac-megantic/article15733700/?page=all>

<sup>9</sup> Beaudin, Monique. "Lac-Mégantic Oil Spill Even Worse Than First Feared, Investigation Shows." *Montreal Gazette*, Oct. 22, 2013.

Nationwide, crude-by-rail shipments increased 44 percent just between 2012 and 2013, according to the Association of American Railroads.<sup>10</sup> Over the last five years the number of rail carloads of crude oil has increased by 40 times in the United States.<sup>11</sup>

Some of the most scenic, ecologically important and historically significant landscapes and water bodies in the Northeast are now also at risk from the rapid escalation of crude oil transport out of the Bakken fields. Since 2012 rail transport of crude oil along the Canadian Pacific line in eastern New York has increased dramatically. In the last two years, the “Port of Albany has become a major transshipment point for Bakken crude.”<sup>12</sup> In addition to crude oil shipments on the Canadian Pacific line, CSX Transportation and Burlington Northern Santa Fe also ship Bakken crude by rail through the Albany area.<sup>13</sup> Plans are in the works for a new rail yard and tanker car offloading facility downstream of Albany on the west bank of the Hudson River at New Windsor, New York. Oil is already moving by rail on the CSX line along the Hudson, to northern New Jersey. Industry plans include expansion of a second rail line to accommodate as many as five tanker trains a day.<sup>14</sup>

The Center for Biological Diversity is deeply concerned that the enormous increase of crude-by-rail transport along Lake Champlain and the Hudson River is not receiving adequate scrutiny with regard to its environmental and public health and safety risks. As a conservation organization we are very worried about the threat of a crude oil spill into Lake Champlain, one of the great ecological jewels of the Northeast. Also at risk are numerous wetlands, smaller streams and rivers, including, of course, the Hudson River itself. Many of these water bodies are home to sensitive aquatic life, as well economically valuable sport fisheries. The Lake Champlain Basin is regionally significant for its diversity of plants and wildlife; it supports some of the richest wetland complexes in the Northeast.<sup>15</sup> Likewise, the upper Hudson River watershed is host to regionally significant habitat for anadromous fish and globally rare tidal freshwater wetland communities and plants. The Hudson River also supports other significant fish and wildlife species, including multiple state and federal listed species.<sup>16</sup>

We believe that railway transport of Bakken crude needs much broader oversight as a matter of public safety. The mayor of Casselton, North Dakota stated after the Dec. 30 train wreck: “There have been numerous derailments in this area. It's almost gotten to the point that it looks like not if

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<http://www.montrealgazette.com/news/Mégantic+spill+even+worse+than+first+feared+investigation+shows/9063521/story.html>

<sup>10</sup> Nunez, “N.D. Oil Train Fire...”

<sup>11</sup> Lavelle, Marianne. “Oil Train Tragedy in Canada Spotlights Rising Crude Transport by Rail.” July 8, 2013, National Geographic Daily News, <http://news.nationalgeographic.com/news/energy/2013/07/130708-oil-train-tragedy-in-canada/>

<sup>12</sup> Anderson, “Warning issued...”

<sup>13</sup> Ibid.

<sup>14</sup> Anderson, “Hudson Valley’s Crude Pipeline...”

<sup>15</sup> Lake Champlain Basin Program. 2012. *State of the Lake and Ecosystems Indicators Report*.

[http://sol.lcbp.org/biodiversity\\_preserving-biodiversity-in-basin.html](http://sol.lcbp.org/biodiversity_preserving-biodiversity-in-basin.html)

<sup>16</sup> “Significant habitats and habitat complexes of the New York Bight Watershed: Upper Hudson River Estuary.” [http://library.fws.gov/pubs5/web\\_link/text/upp\\_hud.htm](http://library.fws.gov/pubs5/web_link/text/upp_hud.htm)

we're going to have an accident, it's *when*. We dodged a bullet by having it out of town, but this is too close for comfort."<sup>17</sup>

Among the towns and small cities the Canadian Pacific line passes through are Plattsburgh, Westport, Port Henry, Whitehall, Fort Edward, and Saratoga Springs. After the disasters at Casselton, Pickens County, Alabama and Lac-Mégantic, it is more than prudent to ask: What is the risk of allowing Bakken crude to travel by rail through these communities in upstate New York and down along the Hudson River? Should these pass-through towns have a say in this recent, dramatic change in the use of the rail routes that go through them? What hazards do derailments, spills and explosive fires like those seen in multiple locations in the last year pose to local residents, plants and wildlife, as well as our air and water?

Late last week in response to the recent spate of blazing derailments of trains carrying Bakken crude, the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a rare safety alert,<sup>18</sup> stating that crude oil produced in the Bakken region may be more flammable and therefore more dangerous than other types of crude oil. The alert included a reminder to emergency responders that light sweet crude, such as that from the Bakken region, has a flash point of below 73° F, and therefore "pose[s] significant fire risk if released from the package in an accident." PHMSA is in the process of doing further testing of Bakken crude, to determine other characteristics such as corrosivity and hydrogen sulfide content. In the meantime PHMSA is reiterating regulatory requirements for proper classification and labeling of crude oil shipments.

Unfortunately PHMSA's alert does nothing to reduce the risk of another disastrous derailment of a train carrying Bakken crude. Whereas the recent North Dakota and Alabama wrecks occurred outside of populated areas and resulted in no human injuries, the consequences of a derailment in another, more settled area could be equally catastrophic as the Lac-Mégantic incident. And whether a derailment occurs in a town or in a rural area, spilled crude threatens surface and groundwater sources, wetlands, streams, rivers, and lakes, and other sensitive wildlife habitats.

A ban on transport of hazardous substances was instituted in Lac-Mégantic following the July 6 derailment and destruction of the village downtown.<sup>19</sup> Rather than wait for a similar disaster to befall some North Country hamlet or heavily populated area of the Capital District or Hudson River Valley, we ask for a cessation of transport of hazardous Bakken oil. We believe such a moratorium is a necessary precaution until such time as a meaningful, thorough review of the risks posed by crude-by-rail shipment of Bakken oil can be conducted. We ask for you to call for a halt to Bakken crude oil shipments on the Canadian Pacific line between the Canadian border and Albany, in New York, and on other rail lines coming into New York State. We ask that rail transport of Bakken crude oil anywhere else in the Northeast also be put on hold.

In closing, we wish to make clear that the danger of transporting Bakken crude by rail is only one risk among many posed by our society's dependence on fossil fuel energy. The escalation of fossil fuel extraction, transport, and use, however and wherever it is done, is an overarching

<sup>17</sup> "N.D. Oil Train Fire Spotlights Risks of Transporting Crude," Dec. 31, 2013,

<http://news.nationalgeographic.com/news/energy/2013/12/131231-north-dakota-oil-train-fire/>

<sup>18</sup> [http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1\\_2\\_14%20Rail\\_Safety\\_Alert.pdf](http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/1_2_14%20Rail_Safety_Alert.pdf)

<sup>19</sup> "Rail activity to resume Wednesday through Lac-Mégantic, Que." *Toronto Sun*, Dec. 16, 2013.

<http://www.torontosun.com/2013/12/16/rail-activity-to-resume-wednesday-through-lac-megantic-que>

danger that places people and species around the globe at risk by releasing more greenhouse gases into our atmosphere and further destabilizing our climate. Climate change is harming us all, and will not be solved by making safer tanker cars, or building pipelines instead of sending oil by rail. We here in the Northeast are currently experiencing an acute symptom of a much larger problem. The symptom at hand is the high risk of explosive crude-oil train derailments. This must be addressed, and we are asking for your help in this matter.

Ultimately, however, the danger of moving flammable Bakken crude by rail in the Northeast must be seen within the greater context of our ability as a society to shift to a low-carbon, lower impact energy and economic system. .

Thank you very much for your timely attention to this urgent matter of human safety and environmental health.

Sincerely,

A handwritten signature in black ink, reading "Mollie Matteson". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Mollie Matteson, Senior Scientist  
Northeast Office, Center for Biological Diversity

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Written Testimony for the Record by David O. Willauer  
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Submitted to:  
U.S. House of Representatives Committee on Transportation and  
Infrastructure, Subcommittee on Railroads, Pipelines, and Hazardous  
Materials

On March 28, 2014

For Hearing on Oversight of Passenger and Freight Rail Safety,  
Held February 26, 2014

### About IEM

IEM would like to thank Chairman Denham, Ranking Member Brown, and Members of the Subcommittee for the opportunity to submit this testimony for the record. We appreciate the Subcommittee's willingness to discuss pressing safety issues facing the Nation's rail infrastructure, and to promote increased safety and security during a time of unprecedented chemical and crude oil shipments resulting from increases in domestic oil production.

Founded in 1985, IEM is a global security consulting firm whose core business is helping government agencies and the private sector prepare for, respond to, and recover from all types of emergencies and disasters—from terrorism and other technical hazards to catastrophic natural disasters. IEM has eight years of experience in passenger and freight rail transportation preparedness and emergency planning, as well as experience conducting statewide regional hazardous materials studies. In 2005, IEM worked with a major public transit system to develop the very first multi-modal mass transit Emergency Operations Plan (EOP) that was compliant with State and Local Guidance 101. Since then, we have worked with a number of other transit agencies on similar plans, and have analyzed HazMat transportation risk in 102 U.S. counties. This testimony draws from our experience, as well as groundbreaking research IEM has conducted to develop a method for assessing regional and statewide hazardous materials through coordination with the private sector. This method has enabled local emergency and land-use planners to make significant progress in risk mitigation and emergency preparedness.

### Introduction

The most pressing issues facing the Nation's rail and highway networks are well known to this Subcommittee. These include the transportation of higher volumes of crude oil via rail, the flammability of Bakken crude, the need for investments in safer rail cars, and the growing risks posed to densely populated and rural areas by crude oil and other hazardous materials.

This last issue is of particular concern for IEM because we assist communities across the Nation in assessing risk, planning, and preparing for all types of hazards. In working with local governments, IEM has found that first responders are often unaware or uninformed about the types, volumes, and even presence of toxic, reactive, and volatile chemicals traveling by sensitive and critical infrastructure, such as schools, nursing homes, and through densely populated residential areas. Likewise, first responders and local officials are not able to fully assess and reduce the risks posed by hazmat transportation.

Although Congress, Federal agencies, and the private sector have already taken steps to assess risk through regulatory requirements, there is a gap in the current risk management regime. Existing Federal regulations require chemical facilities to conduct risk assessments and have a variety of plans, including Environmental Protection Agency (EPA) Risk Management Plans (RMPs), Tier II hazardous chemical inventory, and the Toxic Release Inventory (TRI), as well as the Department of Homeland Security (DHS) Chemical Facility Antiterrorism Standard (CFATS) requirements, among others. These risk assessments and plans identify the emergency response capabilities of chemical facilities and the local communities surrounding them, but seldom reference any capabilities, risks, or potential incidents beyond the immediate area. In other words, the current regulatory framework is intensely focused on facility-based risks and

planning. However, these plans do not address the transportation risks and are often written in isolation or without meaningful coordination with local governments and first responders.

Emergency response to a hazmat release or spill outside the jurisdiction of a facility is left to local first responders, followed by state-sponsored regional hazmat teams and contractors. In this era of “all-hazards planning,” first responders plan to respond to all hazards, including chemical incidents. Unfortunately, most local first responders do not know which chemicals would result in the worst impact on health and safety and as a result, are not able to build capabilities for appropriately responding to incidents involving hazardous chemicals. Other first responders may comprehend the risk, but lack the resources necessary to take action.

### **Overarching Issues**

Two overarching issues emerge from IEM’s experience working with state and local governments and first responders to improve hazmat preparedness. First, there is an abundance of risk information available from the Federal Government and the private sector, but it either does not reach local first responders, or is not presented in a way that local first responders can understand and implement. In other words, the information currently available is not actionable. As a result, most first responders are left with little to no knowledge of the hazardous materials passing through their local communities by motor carrier, rail, pipeline, and barge, as well as the risks these hazardous materials pose.

Local Emergency Planning Committees (LEPC) are largely volunteer organizations designed to bring the whole community together to solve problems using an all-hazards approach. IEM has found that many LEPCs are simply overwhelmed by the number of chemicals used in manufacturing and industry, and even the most active LEPCs typically meet quarterly or less often. This limits their capacity to manage complex issues such as transportation risk and safety. Additionally, LEPCs do not have the resources to prioritize and analyze chemical risks.

There is also the problem of access. As public entities, LEPCs must operate in compliance with public meeting laws and maintain a public record. The highly sensitive nature of hazardous materials risk information often prevents public discussion—and dissemination—of proprietary or other sensitive information. This is especially true when collecting or disseminating information that may be associated with the DHS Chemical Facility Anti-Terrorism Standards (CFATS) programs, similar state-level programs, and Risk Management Planning (RMP) program data. Restrictions involving data access and a “need to know” have restricted access of critical chemical information to local officials who need it in order to properly plan for known threats and hazards.

The second issue is much more complex, and solving it will require coordination between regulatory agencies and industry. Railroads play an active role in helping local communities prepare for hazmat incidents in North America. This includes providing railroad staff and rail cars for training and exercises. Some carriers provide multiple levels of response planning, including system-wide emergency response plans, local emergency response plans, “playbooks” that provide information on specific commodities, and geographic response plans (such as along a river corridor). When requested, most railroads will provide emergency managers with the top hazardous materials transported through their county or city.

Until recently, most of these hazmat emergency response efforts have not focused on crude oil transport for two reasons. First, only within the past two years has crude oil been transported in large volumes in the U.S. and Canada. Second, crude oil was not considered as hazardous as other shipments. The recent discovery of the volatility of Bakken crude oil has changed this perception. Today, railroads transporting large volumes of crude oil are actively updating their plans at different levels to respond to this new risk. While facilities are required to prepare emergency response plans, railroads are not required to do so. In addition, the Federal Railroad Administration (FRA) is not required to review these plans. Therefore, all railroad emergency response planning is currently voluntary, and the level of emergency response activity varies among railroads.

In addition, the sheer complexity of the many planning requirements under Federal statute and regulations for “chemicals” is overwhelming for local officials, first responders, and planners. Below is a list of some of these overlapping planning requirements and programs:

- **EPCRA** (Emergency Planning and Community Right-to-Know Act) has a local focus on planning, but the focus has shifted to the new “all-hazards” guidance despite statutory Environmental Protection Agency (EPA) requirements to the contrary
- **RCRA** (Resource Conservation and Recovery Act) is facility-based and transportation plans are based on EPA regulated waste streams generated by facilities
- **SPCC** (Spill Prevention Control and Countermeasure) plan is for smaller petroleum storage facilities regulated by the EPA for inland waters and United States Coast Guard (USCG) for coastal waters
- **FRP** (Federal Response Plan) for large petroleum storage and transfer facilities regulated by the EPA for inland waters and USCG for coastal waters
- **RMP** (Risk Management Program) for facilities with regulated substances that have the potential for off-site consequences regulated by the EPA and OSHA for on-site with three increasingly stringent planning requirements (program levels 1 to 3) dependent on type of industry and scale of operation
- **CFATS** (Chemical Facility Anti-Terrorism Standard) DHS program that is largely facility performance-based
- **NCP** (National Contingency Plan) largely a Federal and state plan that gives authority to Federal On Scene Coordinators (FOSCs) to protect the environment in a rapidly evolving mission environment
- **NRF** (National Response Framework) is organized by function, roles, and responsibilities for all the major players for each Emergency Support Function (ESF)
- **FIFRA** (Federal Insecticide, Fungicide, and Rodenticide Act) is focused on the use of EPA regulated chemicals by manufacturers, shippers, suppliers, applicators, and even homeowners
- **Safety and Security Plans** under Title 49 CFR, Part 172, subpart I, prescribe the requirements for the development and implementation of plans to address security risks related to the commercial transportation of hazardous materials regulated by the Pipeline and Hazardous Materials Safety Administration (PHMSA)

All of these plans and requirements use different languages to describe similar things. Some of them place planning responsibility on the shipper, the responsible party, the generator, or the

LEPC. Even when local hazmat planners can obtain the data generated by these regulatory requirements, they typically do not have adequate resources to fully vet and accommodate the identified risks. Land-use and transportation planners often do not know this information is available to them or how to integrate the data they do find into urban planning. As a result, schools, nursing homes, hospitals, and many other sensitive, critical, and vulnerable structures are constructed within the downwind hazard zones of chemical facilities and adjacent to hazardous material transportation corridors, as evidenced by the Québec and West Texas incidents.

### **Recommendations**

From IEM's vantage point, there is much that industry and regulatory agencies could do to clarify, simplify, and realign definitions, regulations, programs, and data collection in a manner that supports hazard identification, risk assessment, and hazard communication. The following are just a few of the steps that could be taken to solve the overarching issues presented in this testimony.

- Railroads could file system-wide emergency response plans with the FRA (currently, this is only voluntary). These plans could include emergency contact information, notification procedures, protocols for transmitting hazmat, and provide details to incident commanders during emergencies, as well as a list of emergency assets positioned along rail corridors. Railroads could also benefit from ensuring their emergency assets are communicated to other railroads with track rights in identified areas.
- Planning requirements could be updated with more current emergency planning concepts. For example, current data available from any source (Federal, state, or otherwise) is insufficient to identify transportation routes for extremely hazardous substances (EHS). Information about facilities is available, but information about transportation routes, volumes, frequencies, and mode are not.
- Federal agencies use many different regulatory terms for chemicals including: hazardous substance, hazardous chemical, extremely hazardous substance, regulated substance, and hazardous material. Different Federal agencies also use similar terms that have different meanings. For example, a "Tier II" facility identified in the EPA EPCRA program has an entirely different meaning than a "Tier II" facility under the DHS CFATS program. Local governments would likely benefit from the adoption of common terms at the Federal level, as well as one set of joint public/private planning requirements, and common certifications that ensure that risk, rather than hazard, is addressed. These requirements could then be integrated into a comprehensive data system that supports analysis, planning, assessment, and decision-making at all levels.
- Federal agencies could work together to create a unified hazmat data and plans clearinghouse that expands on the DHS Homeland Security Infrastructure Program (HSIP) data set. This would enable emergency managers to access relevant data from the appropriate Federal agencies.

- Federal agencies could combine all Federal release reporting into a common system modeled after the Center for Disease Control (CDC) National Toxic Substances Incident Program (NTSIP). Currently, release reporting occurs through PHMSA (release from facility or transportation-related hazmat incidents), the EPA (releases at RMP facilities since the CAA in 1990), and the CDC (releases reported through the NTSIP).

**Conclusion**

IEM applauds this Subcommittee's efforts to promote freight and passenger rail safety. The challenges facing the Nation's transportation sector in 2014 are significant, but the tools and resources to address many of the current challenges are already available. We encourage the Subcommittee to consider ways to recalibrate the current risk assessment regime, and to explore the feasibility of coordinating mechanisms and steps like those presented in this testimony to improve coordination across all sectors and levels of government. This action is important to accurately assess risk, address vulnerabilities, and ensure the safety and security of the Nation's rail infrastructure and its communities in 2014 and beyond.

Witness Statement of Bruce Bennett  
(Submitted for the Hearing Record)  
President of Stage 8 Locking Fasteners  
San Rafael, California

Before the

Subcommittee on Railroads, Pipelines, and Hazardous Materials

U.S. House Committee on Transportation and Infrastructure

Regarding

Oversight of Passenger and Freight Rail Safety

February 26, 2014

Mr. Chairman and Ranking Minority Member:

Thank you very much for including my statement in the official record of this oversight hearing.

Stage 8 Locking Fasteners is a small business located in San Rafael, California. The company has been designing and manufacturing only locking systems for standard and custom fasteners for a wide range of industrial application for 30 years. These industrial applications include power generation and distribution, automotive, construction equipment, farm machinery, and military applications to include critical applications on the Family of Medium Tactical Vehicles (FMTV). Railroad applications of Stage 8 Locking systems include locomotive components, critical track fasteners for crossings, switches and other components. All Stage 8 locking systems are designed to improve safety while increasing reliability.

I would like to address a railroad safety issue that could ultimately affect the lives and safety of thousands of people. From 2001 through 2010, the Federal Railroad Administration reported that there were some 8,092 derailments on US railroads. The third largest cause was mechanical problems with the wheel sets. The remainder were caused by track defects, signal failures, miscellaneous and human factors. My company, Stage 8 Locking Fasteners, has worked closely with the Wheels, Axels, Bearings, and Lubrication (WABL) Committee of the American Association of Railroads (AAR) on an important safety device, a new Roller Bearing Cap Screw Locking Plate, which has been approved as an alternative to the standard locking plate. We have developed this system to prevent future derailments caused by loose roller bearings, focusing on the failure modes of freight car and passenger car wheel sets. We found through testing that vibrations associated with railroad use regularly loosened fasteners (e.g. nuts and bolts) in railway rolling stock, track and bridge structures. As a result, we have developed a safety system that ensures against cap screw fastener loosening and the resulting bearing failure. Roller Bearing Cap Screws are an important safety device which, when kept tight, significantly decrease failures of Roller Bearing components and derailments.

In 2011, Stage 8 made two very impressive “hands-on” demonstrations of their new safety system to individuals in the Offices of the Federal Railroad Administration (FRA), specifically in the Motive Power and Equipment Division within the Office of Safety Assurance and Compliance, as well as to the Deputy Associate FRA Director. The end result of those meetings was the recognition that the safety solution presented to them was indeed an “excellent solution” in preventing future derailments. However, in both meetings, the FRA claimed “their hands were tied” because they had no regulatory power to influence the disposition of this type of equipment and that it was the job of the railroad industry to police their own.

We are aware that the AAR has adopted a Manual of Standards (industry voluntary standards), designed to ensure safe operation of railroads and rail cars. One of its standards does mandate the torque values when applying the cap screws on the various end caps, on freight car wheels, and additionally mandates the breakaway torque, that should be there, when they remove the wheels for servicing. It is highly questionable the extent to which rail car companies are complying with the maintenance and replacement policies under this AAR voluntary industry standard. The FRA currently mandates that cars be removed from service if an end cap screw is loose, however it is my understanding that there is currently no way to check for loose cap screws prior to failure, and that this requirement is currently not enforced or enforceable. Our new Cap Screw Locking System provides for visual inspection which, at a glance, tells if the cap screw remains properly torqued.

This safety locking system would prevent future derailments caused by roller bearing failure due to loosening cap screws, focusing on the failure modes of freight rail cars, as well as passenger cars. One of the company’s experts – who was previously a Mechanical Design Engineer in the Mechanical Department of the Southern Pacific Transportation Company -- spent the majority of his time analyzing the causes of derailments. He found that vibrations associated with railroad use regularly loosened fasteners (e.g. nuts and bolts) in railway rolling stock, track and bridge structures. As a result, years later the President and Founder of Stage 8 developed a safety system that would ensure against fastener loosening and derailments from premature rollerbearing failure caused by those loose fasteners.

The Roller Bearing Manufacturers Engineering Committee (RBMEC) reports that 23% of all bearing Failure Progression Modes (FPM) are coded 'LO' for loose. The Stage 8 Cap Screw Locking system (CSLS) prevents loose roller bearings and provides a significant safety improvement. Canadian National Railroad internal MD-11 reports further support this data.

Stage 8 subjected its safety locking system to a rigorous field test over the period from October 2010 to July 2013. Present at the test were John Hyde and Gerry Kubicka from Stage 8, Dr. Todd Snyder representing WABL, Dwight Porter, Justin Schrewsberry and shop personnel from Progress Rail. Attached is a summary of the test results. The highlights of the results are highly significant:

- Stage 8 and WABL conducted the tests over 150,000 miles hauling coal from Wyoming to Missouri.
- An equal number of wheel sets were equipped with the Stage 8 Cap Screw Locking Systems (CSLS) and compared to the legacy cap screw locking systems installed on the other wheel set on the same truck.
- Twenty Nine percent of the wheel sets equipped with the standard locking plates were removed from service within 30 days prior to the residual torque tests due to various failure reasons and were therefore not available for testing – classified as failed and removed.
- No Stage 8 wheel sets were taken out of service, for any reason, during the over 150,000 mile test period.
- All of the wheel sets equipped with the Stage 8 Cap Screw Locking System retained 100% of the initial torque applied
- Only 20% of the wheel sets equipped with the legacy cap screw locking system retained over 90% of the initial torque applied.
- 74% of the wheel sets equipped with the legacy system retained between 50% and 90% of the initial torque applied.

- 7% of the wheel sets equipped with the legacy cap screw locking system suffered total failure.

The cost-benefit analysis of this technology demonstrates how this safety system could save the railroad industry millions of dollars. The analysis states:

The overall cost to the railroad industry of wheel sets due to loosening roller bearing components was a staggering \$223,590,820 in 2010 based on the number of wheel sets changed and the \$1,940 cost per wheel set. According to a 2009 University of Illinois Engineering Department study, derailments caused by loosening resulted in additional annual costs of \$6.2 million. Derailment costs are not included in this analysis; however, the safety improvements of the CSLS must be taken into consideration when analyzing the overall advantages of the CSLS.

It is estimated that installation of the CSLS will be completed on the entire fleet of 1,363,423 freight cars over a period of seven years, at a cost of \$30,930,225 per year. This cost would be offset by the savings of \$38,580,735 in the first year alone, resulting in the return of the initial investment plus \$7,650,511. The overall net savings over the first seven years averages \$607.61 per car for each and every car in the fleet. The end result is an annual return of \$7 for every \$1 invested in equipping a car with the CSLS.

In March of 2011, Stage 8 presented this system to engineering experts in the Federal Rail Administration's Motive Power & Equipment Division of the Office of Safety Assurance and Compliance. The FRA officials assured us our safety system was an "excellent solution" to the problem and would certainly prevent future derailments due to loose bearings. However, notwithstanding the merits of our safety system, the Office of Safety Assurance and Compliance then informed us that the FRA could do nothing to ensure the railcar industry takes a hard look at this life-saving technology.

We are astounded that a Federal agency charged with the responsibility of ensuring the safety of freight and passenger rail transportation admits to not having sufficient regulatory authority to take appropriate measures to prevent train derailments and cannot enforce existing regulations requiring the removal of wheel sets when they do not function properly.

In the best interests of railroad safety, I would request that, in developing any broad rail safety legislation that legislative authority be included in the bill instructing the Federal Railroad Administration to commence in a rulemaking that would incorporate the current AAR safety standards as part of the agency's mandatory rules to enable the FRA to enforce these standards. Railroad companies and companies that own and operate freight and passenger rail cars would be required to comply with specific torque values for the end cap screws at installation and during service where it is most needed to ensure against premature or catastrophic failure, and upon removal.

I would also like to request that reports and studies substantiating the nature of the problem addressed in my testimony and attached to my statement also be included in the hearing record.

# Analysis of Causes of Major Train Derailment and Their Effect on Accident Rates

Xiang Liu, M. Rapik Saat, and Christopher P. L. Barkan

Analysis of the causes of train accidents is critical for rational allocation of resources to reduce accident occurrence in the most cost-effective manner possible. Train derailment data from the FRA rail equipment accident database for the interval 2001 to 2010 were analyzed for each track type, with accounting for frequency of occurrence by cause and number of cars derailed. Statistical analyses were conducted to examine the effects of accident cause, type of track, and derailment speed. The analysis showed that broken rails or welds were the leading derailment cause on main, yard, and siding tracks. By contrast to accident causes on main tracks, bearing failures and broken wheels were not among the top accident causes on yard or siding tracks. Instead, human factor-related causes such as improper use of switches and violation of switching rules were more prevalent. In all speed ranges, broken rails or welds were the leading cause of derailments; however, the relative frequency of the next most common accident types differed substantially for lower-versus higher-speed derailments. In general, at derailment speeds below 10 mph, certain track and human factor causes—such as improper train handling, braking operations, and improper use of switches—dominated. At derailment speeds above 25 mph, those causes were nearly absent and were replaced by equipment causes, such as bearing failure, broken wheel, and axle and journal defects. These results represent the first step in a systematic process of quantitative risk analysis of railroad freight train safety, with an ultimate objective of optimizing safety improvement and more cost-effective risk management.

Train accidents cause damage to infrastructure and rolling stock as well as service disruptions, and may cause casualties and harm the environment. Accordingly, improving train operating safety has long been a high priority of the rail industry and the government. Train accidents occur as a result of many different causes; however, some are much more prevalent than others. Furthermore, the frequency and severity of accidents also varies widely, depending on the particular accident cause (1–3). Efficient allocation of resources to prevent accidents in the most cost-effective manner possible requires understanding which factors account for the greatest risk, and under which circumstances. Assessment of the benefits and costs of strategies to mitigate each accident cause can then be evaluated and resources allocated so that the greatest safety improvement can be

achieved for the level of investment available. This paper presents statistical results representing the first step in a systematic process of quantitative risk analysis and risk management for railroad freight train safety.

## APPROACH

The approach taken in this research is to conduct detailed analysis of the train accident data supplied by the railroads to FRA of the U.S. Department of Transportation. FRA regularly publishes statistical summaries of these data; however, the results are generally presented at a highly aggregated level. Further insights are possible by analyzing the results in more detail and considering other statistical approaches. In addition, there are various metrics that can be used to assess train safety. The effectiveness of specific risk reduction strategies needs to be understood when the cost-effectiveness of research, development, and implementation of new strategies is considered. Consequently, in the final section of this paper a preliminary sensitivity analysis of several groups of accident causes is conducted to understand how changes in practice or failure prevention technology might affect the overall accident rate. The results enable objective comparison of different approaches that could be used to inform decision making by industry and government concerning which research, development, or implementation strategies to invest in.

## DATA SOURCES AND ANALYSIS

FRA requires railroads to submit detailed reports of all significant accidents or incidents associated with railroad train operation. It is useful to review briefly the FRA databases in the larger context of railroad safety and analysis, including how the databases relate to one another and the hierarchical organization of the train accident database, which is the subject of the research described in this paper. These databases can be considered at increasing levels of detail as follows: type of incident (corresponding to particular FRA databases) and, within the database on train accidents, by track type, accident type, and accident cause.

## FRA DATABASES

FRA maintains three major databases, each related to a different aspect of train operating safety: train accidents, employee casualties, and railroad and highway grade crossing incidents. A particular

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DOI: 10.3141/2289-20

reportable event may require that reports be submitted to any or all of these, alone or in combination, depending on the circumstances. Of principal interest for the research described in this study is the first database describing the circumstances, physical characteristics, and other information related to damage to rolling stock and infrastructure. Within this database the interest lies in the type of track—main, siding, yard, or industry—that an accident occurred on. At the next level down, interest is focused on the type of accident, that is, derailment, collision, or various other types. Finally, within each of these track and accident types the particular cause of the accident and other circumstances, notably derailment speed, are the focus of interest.

#### Event Category and Corresponding FRA Database

The Rail Equipment Accident/Incident Report (REAIR) form (FRA F 6180.54) is used by railroads to report all accidents that exceed a monetary threshold of damages to infrastructure and rolling stock. [The form accounts for damage to on-track equipment, signals, track, track structures, and roadbed. The reporting threshold is periodically adjusted for inflation and increased from \$7,700 in 2006 to \$9,400 in 2011 (4).] FRA compiles these reports into the rail equipment accident (REA) database, which records rail equipment accident data dating back to 1975. In addition to the REAIR, the Highway–Rail Grade Crossing Accident/Incident Report (FRA F 6180.57) and Death, Injury, or Occupational Illness Summary (FRA F 6180.55a) are the other two principal eponymous railroad accident and incident reporting forms. A single accident may require more than one report, depending on its circumstances. For example, if a train accident occurs that results in damages to track and equipment exceeding the threshold, an FRA F 6180.54 report must be submitted, and if the accident involved a highway user at a highway–rail crossing, regardless of impact, a Form FRA F 6180.57 must also be completed. All casualties resulting from a reportable rail equipment accident, in addition to being recorded on Form FRA F 6180.54, must also be reported individually on Form FRA F 6180.55a (4). This study used data exclusively from the FRA REA database. Depending on the nature of one's interest in train accident analysis, additional useful information may be found in the other databases and these databases can be linked to pursue additional questions not possible with a particular database alone (5).

#### FRA Rail Equipment Accident Database

The FRA REA database records railroad, accident type, location, accident cause, severity, and other information important for accident analysis and prevention. This paper focuses on Class I freight railroads (operating revenue exceeding \$378.8 million in 2009), which account for approximately 68% of U.S. railroad route miles, 97% of total ton-miles transported, and 94% of the total rail freight revenue (6). In addition to analysis of the number of freight trains derailed due to various causes, consideration of statistics on the number of cars derailed and the circumstances of their derailment is necessary because accident severity varies among different accident causes. To understand the effect of various derailment prevention strategies, first there is a need to quantify how much different accident causes contribute to derailment risk and also how accident characteristics affect the risk.

#### ACCIDENT BY TRACK TYPE

Four types of tracks are recorded in the FRA REA database—main, siding, yard, and industry tracks. These track types are used for different operational functions and consequently have different associated accident types, causes, and consequences. Train accidents are categorized into derailment, collision, highway–rail grade crossing accident, and several other less frequent types. When there is more than one type of accident, the type of accident that occurred first would be designated for all reports related to it. For example, a derailment caused by a collision would be classified as a “collision.” Highway–rail grade crossing accidents in the REA database include only those that occur at the highway–rail interface and involve at least one highway user (4).

FRA-reportable freight train accident data for Class I railroads for the period 2001 to 2010 were compiled to show the number of FRA-reportable accidents, the average number of cars derailed per accident, and the total number of cars derailed by accident type and track type (Table 1). Train derailment was the most common type of accident on each track type, and train collision was the least frequent (excluding highway–rail grade crossing accidents on siding, yard, and industry tracks). Ninety-eight percent of highway–rail grade crossing accidents occurred on main track and accounted for 20% of all types of Class I main-line train accidents. By definition, these accidents exceeded the FRA reporting threshold for damages, but often did not result in a derailment (5). Accident severity is defined in this study as the number of cars derailed per accident and varies by track type and accident type. Train derailments on main and siding tracks had a greater average accident severity than did other types of accidents and tracks. Highway–rail grade crossing accidents had fewer cars derailed per accident because many reportable highway–rail grade crossing accidents resulted in no derailment (5).

Total number of cars derailed accounts for accident frequency and severity. The majority of cars derailed on Class I freight railroads were derailed as a result of train derailments. Derailments on main and siding tracks accounted for 65% of freight train accidents and correspondingly 87% of the cars derailed on all types of track.

It is evident that the distribution of accident types varied by track type. For example, 98% of highway–rail grade crossing accidents occurred on main tracks, whereas far fewer occurred on yard tracks. A chi-square test was used to examine the association between track type (main, siding, yard, and industry) and accident type (derailment, collision, highway–rail grade crossing accident, and other) by accident frequency. The chi-squared test showed that the accident frequency distributions of different accident types varied by track type ( $\chi^2 = 1,054$ ,  $df = 9$ ,  $P < .01$ ). This result was significant even when only derailment and collision were included in the analysis ( $\chi^2 = 68$ ,  $df = 3$ ,  $P < .01$ ). The association between accident type and track type implies that different track types have different accident cause distributions, which will be discussed in the following sections. Train collisions and highway–rail grade crossing accidents have been analyzed in other recent studies, so this research focused on train derailments (5, 7, 8).

#### TRAIN ACCIDENT CAUSE

FRA train accident cause codes are hierarchically organized and categorized into major cause groups—track, equipment, human factors, signal, and miscellaneous. Within each of these major cause groups, FRA organizes individual cause codes into subgroups of

**TABLE 1 Accident Frequency, Accident Severity, and Car Derailment by Accident Type and Track Type, Class I Freight Railroads, 2001–2010**

Track Type	Accident Type				All Accident Types
	Derailment	Collision	Highway–Rail	Other	
Number of Freight Train Accidents					
Main	4,439	302	1,343	590	6,674
Yard	2,848	355	12	378	3,593
Siding	436	23	4	40	503
Industry	369	21	6	49	445
All	8,092	701	1,365	1,057	11,215
Average Number of Cars Derailed per Accident					
Main	8.4	3.3	0.5	1.0	5.9
Yard	4.7	1.5	0.8	1.4	4.0
Siding	5.7	3.7	0.0	1.2	5.2
Industry	4.3	1.0	1.3	0.5	3.7
All	6.8	2.3	0.5	1.1	5.2
Total Number of Cars Derailed					
Main	37,456	989	609	580	39,634
Yard	13,363	527	9	511	14,410
Siding	2,477	85	0	47	2,609
Industry	1,593	22	8	23	1,646
All	54,889	1,623	626	1,161	58,299

related causes, such as roadbed and track geometry, within the track group and similar subgroups within the other major cause groups. A variation on the FRA subgroups developed by Arthur D. Little, in which similar cause codes were combined into groups on the basis of expert opinion, was used (9, 10). The Arthur D. Little groupings are similar to FRA's subgroups but are more line-grained, thereby allowing greater resolution for certain causes. For example, FRA combines broken rails, joint bars, and rail anchors in the same subgroup, whereas the Arthur D. Little grouping distinguishes between broken rail and joint bar defects. These groups were used to analyze cause-specific derailment frequency and severity. The cause groups are ranked in descending order by number of derailments and total number of cars derailed, respectively. The former metric pertains to derailment frequency, whereas the latter accounts for derailment frequency and severity. Different ranking methods may lead to different safety improvement prioritization decisions.

#### TRAIN DERAILMENTS

Derailments are the most common type of train accident in the United States, and preventing them has long been a focus of the rail industry and the government (1–3, 9–25). Most previous studies have focused on main-line derailments, with less research published on yard and siding derailments. The derailment-cause distribution on main lines differs from distributions on yard or siding tracks, in part because of the different nature of operations in these two settings. Understanding the top causes affecting train derailment occurrence and number of cars derailed on different tracks provides additional insight into the development, evaluation, prioritization, and implementation of accident prevention strategies given a specific set of operating conditions.

#### Derailments on Main Tracks

Although serious incidents can and do occur on yard and siding tracks, the focus of this research is on main-line derailments because of the higher speeds and longer consists typical of main-line operation. The greater mass and speed mean that the force and potential impact in regard to property damage, casualties, and environmental effects are all correspondingly greater. An analysis of derailment causes was conducted to compare the relationship between frequency and severity by derailment cause. Accounting for severity is important because derailments in which more cars are involved are likely to be more damaging and more costly, have a greater likelihood of involving a hazardous materials car if any are in the consist, and if derailed they are more likely to suffer a release (1). In addition to type of track, accident severity, as measured by number of cars derailed per accident, also varies by accident cause (Table 2). Accident severity is affected by a variety of factors, including train length (2, 16, 20), derailment speed (1–3, 13, 16, 17, 20, 25), point of derailment (POD) (the position of the first car in the train that is derailed) (2, 16), and other factors (11, 12). A number of studies have investigated the parametric relationships between accident cause and certain contributing factors affecting train derailment severity (2, 13, 16). The number of derailments and total number of cars derailed are directly related to train derailment rate and car derailment rate, respectively. The former represents the likelihood that a train is involved in a derailment and the latter the likelihood of an individual car derailing. Both rates are useful in risk assessment depending on the question being addressed (2, 3, 9, 13, 17, 19–25). The importance of either statistic can be used to rank the importance of a particular accident cause, and these were used to investigate the association between the two ranking methods (Table 2). A Spearman's rank correlation test showed that the two ranking methods were significantly related

TABLE 2 Derailment Frequency and Severity by Accident Cause on Class I Main Lines, Sorted by Frequency

Cause Group	Description	Derailments		Cars Derailed		Average Number of Cars Derailed per Derailment
		Number	Percentage	Number	Percentage	
08T	Broken rails or welds	665	15.3	8,512	22.7	12.8
04T	Track geometry (excluding wide gauge)	317	7.3	2,057	5.5	6.5
10E	Bearing failure (car)	257	5.9	1,739	4.6	6.8
12E	Broken wheels (car)	226	5.2	1,457	3.9	6.4
09H	Train handling (excluding brakes)	201	4.6	1,553	4.1	7.7
03T	Wide gauge	169	3.9	1,729	4.6	10.2
01M	Obstructions	153	3.5	1,822	4.9	11.9
05T	Buckled track	149	3.4	1,891	5.0	12.7
04M	Track-train interaction	149	3.4	1,110	3.0	7.4
11E	Other axle or journal defects (car)	144	3.3	1,157	3.1	8.0
03M	Lading problems	134	3.1	791	2.1	5.9
07E	Coupler defects (car)	133	3.1	771	2.1	5.8
13E	Other wheel defects (car)	129	3.0	668	1.8	5.2
09E	Sidebearing, suspension defects (car)	126	2.9	816	2.2	6.5
10T	Turnout defects: switches	118	2.7	601	1.6	5.1
11H	Use of switches	104	2.4	407	1.1	3.9
06E	Centerplate or carbody defects (car)	98	2.3	507	1.4	5.2
01H	Brake operation (main line)	95	2.2	881	2.4	9.3
12T	Miscellaneous track and structure defects	80	1.8	687	1.8	8.6
01T	Roadbed defects	67	1.5	665	1.8	9.9
07T	Joint bar defects	66	1.5	1,040	2.8	15.8
10H	Train speed	61	1.4	403	1.1	6.6
09T	Other rail and joint defects	56	1.3	1,132	3.0	20.2
19E	Stiff truck (car)	55	1.3	365	1.0	6.6
05M	Other miscellaneous	54	1.2	422	1.1	7.8
15E	Locomotive trucks, bearings, wheels	50	1.1	177	0.5	3.5
18E	All other car defects	47	1.1	248	0.7	5.3
06T	Rail defects at bolted joint	46	1.1	927	2.5	20.2
12H	Miscellaneous human factors	44	1.0	377	1.0	8.6
02T	Nontraffic, weather causes	43	1.0	331	0.9	7.7
02H	Handbrake operations	41	0.9	177	0.5	4.3
20E	Track-train interaction (hunting) (car)	40	0.9	419	1.1	10.5
05E	Other brake defect (car)	37	0.9	187	0.5	5.1
08E	Truck structure defects (car)	35	0.8	265	0.7	7.6
07H	Switching rules	30	0.7	198	0.5	6.6
02E	Brake rigging defect (car)	27	0.6	148	0.4	5.5
01E	Air hose defect (car)	19	0.4	148	0.4	7.8
01S	Signal failures	17	0.4	121	0.3	7.1
17E	All other locomotive defects	13	0.3	155	0.4	11.9
11T	Turnout defects: frogs	11	0.3	97	0.3	8.8
08H	Mainline rules	11	0.3	56	0.1	5.1
16E	Locomotive electrical and fires	10	0.2	28	0.1	2.8
04E	UDE (car or locomotive)	8	0.2	86	0.2	10.8
03H	Brake operations (other)	4	0.1	47	0.1	11.8
05H	Failure to obey or display signals	4	0.1	23	0.1	5.8
04H	Employee physical condition	3	0.1	41	0.1	13.7
06H	Radio communications error	3	0.1	13	0.0	4.3
14E	TOFC-COFC defects	2	0.0	2	0.0	1.0
03E	Handbrake defects (car)	1	0.0	2	0.0	2.0
	Total	4,352	100	37,456	100	8.6

NOTE: UDE = undesired emergency (brake application); TOFC = trailer on flat car; COFC = container on flat car.

(Spearman  $\rho = 0.95$ ,  $P < .01$ ). Certain derailment causes, notably broken rails or welds, are the most frequent when using either metric; consequently, efforts to prevent these high-frequency, high-severity accidents receive considerable attention.

Derailment frequency and severity (average number of cars derailed) were plotted against one another, with frequency on the abscissa and severity on the ordinate (Figure 1). The graph is divided into four quadrants on the basis of the average derailment frequency and severity along each axis. The graph enables easy comparison of the relative frequency and severity of different causes. Those causes in the upper right quadrant are most likely to pose the greatest risk because they are both more frequent and more severe than the average.

- Broken rails or welds,
- Wide gauge,
- Buckled track,
- Obstructions, and
- Main-line brake operation.

Four other cause groups that are notable because of their high frequency of occurrence are

- Track geometry (excluding wide gauge),
- Bearing failure (car),

- Broken wheels (car), and
- Train handling (excluding brakes).

Three other cause groups are notable because of the high average severity of the resultant derailments and because they all have related causes:

- Rail defects at bolted joints,
- Other rail and joint defects, and
- Joint bar defects.

These three causes, along with the related cause group, broken rails or welds, are of particular interest, because when combined they accounted for almost 20% of all derailments and more than 30% of all derailed cars on Class I main lines (Table 2).

#### Derailments on Siding and Yard Tracks

As discussed above, main track derailments are likely to be the most serious, but understanding the causes of derailments on siding and yard tracks is worthwhile because certain causes and solutions may apply to both. A chi-square test was conducted to compare the distributions of derailment frequency by the top 20 main-line derailment causes on main, yard, and siding tracks. The distribution of

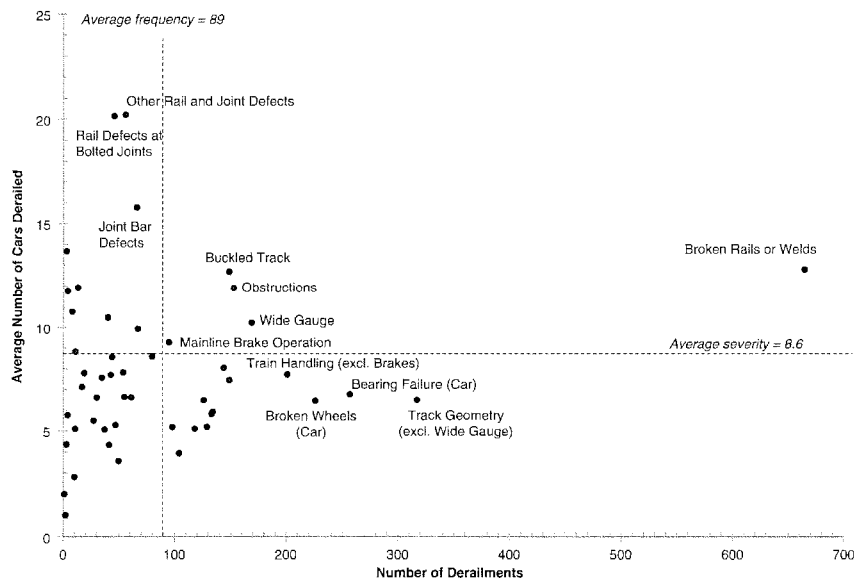


FIGURE 1 Frequency and severity graph of Class I main-line freight train derailments, 2001–2010.

TABLE 3 Top 10 Accident Causes of Freight Train Derailments by Track Type: Number of Derailments

Freight Train Derailments						
Rank	Main		Siding		Yard	
	Cause Group	Percentage	Cause Group	Percentage	Cause Group	Percentage
1	Broken rails or welds	15.3	Broken rails or welds	16.5	Broken rails or welds	16.4
2	Track geometry (excluding wide gauge)	7.3	Wide gauge	14.2	Use of switches	13.5
3	Bearing failure (car)	5.9	Turnout defects—switches	9.7	Wide gauge	13.5
4	Broken wheels (car)	5.2	Switching rules	7.7	Turnout defects—switches	11.1
5	Train handling (excluding brakes)	4.6	Track geometry (excluding wide gauge)	7.2	Train handling (excluding brakes)	6.7
6	Wide gauge	3.9	Use of switches	5.8	Switching rules	6.2
7	Obstructions	3.5	Train handling (excluding brakes)	3.5	Track geometry (excluding wide gauge)	3.6
8	Buckled track	3.4	Lading problems	2.3	Miscellaneous track and structure defects	3.4
9	Track–train interaction	3.4	Roadbed defects	2.1	Track–train interaction	3.1
10	Other axle or journal defects (car)	3.3	Miscellaneous track and structure defects	2.1	Other miscellaneous	3.0

derailment causes varied significantly by track type ( $\chi^2 = 1,780$ ,  $df = 38$ ,  $P < .01$ ). Tables 3 and 4 show the top 10 accident causes by derailment frequency and total number of cars derailed, respectively, on different track types.

Comparison of main tracks with yard and siding tracks using either metric, derailment frequency or number of cars derailed, reveals that broken rails or welds were the leading derailment cause on all

three track types. However, by contrast to main tracks, bearing failures and broken wheels were not among the top accident causes on yard and siding tracks, probably because of lower operating speeds. Instead, human factor–related causes such as improper use of switches and violation of switching rules were more prevalent. Misaligned switches caused 14% of yard derailments, and this cause has received particular attention in recent years. The higher incidence

TABLE 4 Top 10 Accident Causes of Freight Train Derailments by Track Type: Number of Cars Derailed

Freight Cars Derailed Because of Train Derailments						
Rank	Main		Siding		Yard	
	Cause Group	Percentage	Cause Group	Percentage	Cause Group	Percentage
1	Broken rails or welds	22.7	Broken rails or welds	23.2	Broken rails or welds	19.3
2	Track geometry (excluding wide gauge)	5.5	Wide gauge	13.8	Wide gauge	18.2
3	Buckled track	5.0	Turnout defects—switches	10.4	Use of switches	10.0
4	Obstructions	4.9	Track geometry (excluding wide gauge)	6.2	Turnout defects—switches	9.8
5	Bearing failure (car)	4.6	Use of switches	4.8	Train handling (excluding brakes)	7.7
6	Wide gauge	4.6	Switching rules	4.0	Miscellaneous track and structure defects	4.2
7	Train handling (excluding brakes)	4.1	Train handling (excluding brakes)	3.5	Switching rules	3.9
8	Broken wheels (car)	3.9	Obstructions	3.0	Track geometry (excluding wide gauge)	3.3
9	Other axle or journal defects (car)	3.1	Buckled track	2.8	Track–train interaction	3.2
10	Other rail and joint defects	3.0	Brake operation (main line)	2.7	Brake operation (main line)	2.7

of switch-related derailments in yards and sidings compared with main lines is probably due to the greater number and more frequent use of turnouts on these tracks and thus the greater likelihood of error. Another consequence of the more frequent use of switches is the greater prevalence of switch defects. Switch defects caused approximately 10% of derailments on yard and siding tracks, but only 3% on main lines. The reason for this is probably twofold: the more frequent use of switches on these types of tracks subjects them to greater exposure and thus more opportunity to cause a derailment, and because of their heavy use, the switches are subject to more wear and tear and consequently faster deterioration. The switch points are typically the most vulnerable parts of switches, so their protection and lubrication, along with improved wheel profile and truck steering performance, may offer means to prevent switch-defect derailments (26–28). Another difference between main tracks compared with yard and siding tracks is that wide gauge accounted for 14% of derailments on siding and yard tracks but for only 4% on main lines. Again, this difference is probably due to the lower speed characteristic of yard and siding tracks but with a different explanation: the lower operating speed permits greater tolerances in the

track gauge standards, and therefore these tracks may be more prone to this type of derailment (29).

#### EFFECT OF DERAILMENT SPEED

So far this paper has considered accident and track type as factors affecting the likelihood that a train or rail car will derail, but another important parameter affecting derailments is train speed at the time of derailment. Indeed, speed may be a contributing factor to some of the differences cited above. Common sense demands that speed is a factor affecting derailment severity, and previous research has established several qualitative and quantitative relationships between derailments and speed (1). The top 10 accident causes of main-line train derailments were sorted into different groups, corresponding to the FRA track class speed ranges, and compared, again by derailment frequency and number of cars derailed (Figure 2) (29).

In all speed ranges, broken rails or welds were the leading cause of derailments; however, the relative frequency of the next most common accident types differed substantially for lower versus

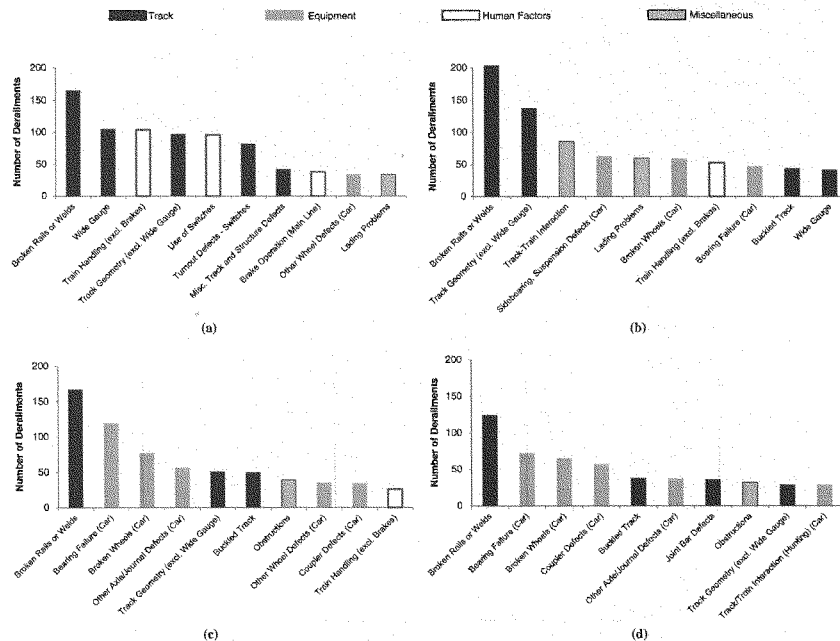


FIGURE 2 Number of freight train derailments by speed and accident cause on Class I main lines: (a) derailment speed 0–10 mph, (b) derailment speed 10–25 mph, (c) derailment speed 25–40 mph, and (d) derailment speed 40–80 mph.

higher speed derailments. At speeds below 10 mph, certain track-related and human factor-related causes occurred more frequently than equipment-related causes. But at derailment speeds greater than 25 mph, human factors accidents such as improper train handling, braking operations, and improper use of switches were almost completely absent, replaced by equipment causes, such as bearing failure, broken wheel, and axle and journal defects. The derailment frequency distribution for 49 main-line accident causes and three derailment-speed groups (<10 mph, 11–25 mph, and >25 mph) were compared in a chi-square analysis, and the results were significant ( $\chi^2 = 1,192$ ,  $df = 96$ ,  $P < .01$ ), indicating an association between accident cause and derailment speed.

#### ACCIDENT PREVENTION STRATEGY

To gain insights into the potential safety benefits of strategies to reduce various types of derailments, a sensitivity analysis was conducted (Figure 3, *a* and *b*). An estimation was done to determine by what percentage main track train and car derailment rates would be reduced in the event that certain accident causes were reduced or eliminated. Four of the leading main-line accident causes were considered: broken rails or welds (08T), track geometry defects (04T), bearing failure (10E), and broken wheels (12E). There are a number of approaches in practice or being developed that may address these. Broken rail preventive measures include rail inspection, rail grinding, rail repair,

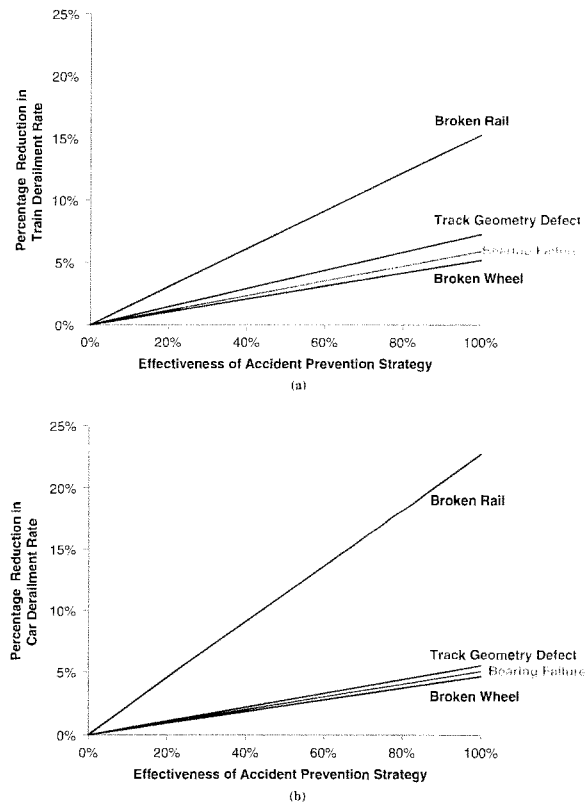


FIGURE 3 Percentage reduction in derailment rates by derailment prevention strategy: (a) train derailment rate reduction and (b) car derailment rate reduction.

and renewal (30). Track geometry inspection and maintenance are often based on some measurable indices, such as the track quality index (31, 32). Wayside and onboard detection systems aim to identify and inform railroads and car owners about the need to remove or repair rolling stock defects before they cause an accident. Hot bearing detectors and wheel impact load detectors are commonly used to detect problems with those components (33, 34). Nevertheless, these techniques and technologies are not 100% effective in eliminating all the accident causes they are intended to prevent, and research and development are ongoing to further develop their capability. The effectiveness of an accident prevention strategy is defined here as the percentage of the maximum safety benefit it might potentially realize. The sensitivity analysis helps illustrate the relevant potential safety benefit that might be realized if technologies or techniques were implemented with varying degrees of effectiveness. For example, broken rails or welds caused 15.3% of train derailments and 22.7% of cars derailed (Table 2); thus, if all broken-rail-related causes were eliminated, train and car derailment rates would decline by a corresponding amount. Even if only 50% of broken rails or welds could be prevented, the prevention would result in a larger percentage reduction in train and car derailment rates than would any of the other accident prevention strategies at 100% effectiveness.

The effects of different accident prevention strategies may not necessarily be independent of one another. For example, improved wheel condition can reduce dynamic loading of track, thereby reducing track defect rates, and vice versa. The interactive damage forces between track and equipment have been discussed in previous studies (35, 36). Resor and Zarembski proposed an engineering model to estimate the change in relative damage to track and equipment given the change in impact load (35). With the use of their model, it was estimated that a 1% reduction in impact load would result in a 1.3% reduction in damage to track and a 0.6% reduction in damage to wheels and axles. Nevertheless, the authors are unaware of any research that quantifies the reduction in track and equipment damages, with the corresponding reduction in accident probability. Further research is needed to understand better what the possible interactive effects are, how to quantify them where they exist, and what their effects are on accident rate estimation and safety policy evaluation. For purposes of illustration, independence of individual derailment prevention strategies was assumed in the sensitivity analyses presented here. To the extent that interactive effects among different accident prevention strategies reduce the safety benefits due to another, the analyses here may slightly overstate the benefit of a particular derailment cause prevention measure if other related measures were implemented.

This paper focuses on developing an analytical framework to understand the relative importance of different accident causes under various operating conditions. The analyses presented here are just the first step in a risk-based approach to derailment prevention. The implementation costs of different risk reduction measures may be affected by the effectiveness of technology, extent of implementation, installation and maintenance practices, and many other factors. Schafer and Barkan estimated \$900 per track mile as the annual cost for ultrasonic and geometric track inspection and \$1,900 per track mile for rail grinding on one Class I railroad (30). Robert et al. reported a total cost of \$86 million for implementing wayside detectors in the United States from 1994 to 2008 (37). However, the proportion of the costs directly related to safety improvement is not well understood and further study is required. An additional complexity is that safety improvement activities may affect operational efficiency differently in different time periods. For example, track maintenance may cause

train delay in the short term but improve efficiency in the long term by reducing the potential service disruptions due to accidents.

Further research is needed to understand the relationship between accident rates and occurrence in regard to accident frequency and corresponding traffic exposure. This research will enable a better comparison of the accident risk under different operating conditions, such as main lines versus yard tracks. The next step is to quantify the benefits and costs of specific risk reduction measures, thereby allowing integration of the multiple trade-offs involving safety, efficiency, and cost. In that way, interactive effects between strategies can be accounted for, and the optimal combination of investment strategies selected for any given level of financial resources.

## CONCLUSIONS

Accident cause distribution varies by accident type, track type, and speed. Derailments are the most common type of train accident on each track type, and the majority of cars derailed are due to train derailments. Track and equipment failures are the primary causes of train derailments on main tracks, whereas the use of switches and switching rules has a substantial effect on derailment frequency on siding and yard tracks. Some accident causes tend to occur more frequently at higher speeds, whereas others are more likely at lower speeds. The interactive effects of derailment speed and accident cause affect train accident frequency and severity.

The safety benefits of accident prevention strategies were evaluated according to the percentage reduction in train and car derailment rates. Prevention of broken rails or welds is expected to yield a larger percentage reduction in train and car derailment rates than other accident prevention strategies. However, the cost-effectiveness of this and other accident prevention strategies must be properly compared to select the most efficient means of improving railroad train operating safety. Ultimately these strategies should be considered as part of an integrated framework to optimize investment that maximizes safety benefits and minimizes risk.

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The Railroad Operational Safety Committee peer-reviewed this paper.

## STAGE 8 ROLLER BEARING CAP SCREW COST BENEFIT ANALYSIS

The purpose of this analysis is to determine the cost effectiveness of the Stage 8 Roller Bearing Cap Screw Locking System (CSLS).

In this analysis it is estimated that the CSLS will be installed on the entire fleet of freight cars under a period of 7 years, or approximately 14.3% per year. The installation of CSLS will cause a significant decrease in setouts caused by loosening roller bearing components, resulting in a return of the initial investment in just under one year and ever increasing savings over the remaining useful life of each wheel set.

In order to arrive at individual car costs and benefits it is first necessary to examine the freight car fleet as a whole. According to the AAR there were 1,363,423 freight cars in service in 2010.

According to the Car Repair Billing Committee, a total of 775,969 wheels were removed in 2010. This is estimated to be 581,977<sup>(1)</sup> wheel sets utilizing the formula provided by the WABL Committee. The 581,977<sup>(1)</sup> wheel sets changed out amounts to approximately 14% of the entire fleet, and depending on ton mile increases over the next few years, expected at 2% <sup>(2)</sup> per year, the entire fleet will be replaced in from 5 to 7 years. Of the 581,977<sup>(1)</sup> wheel sets, 80,877<sup>(3)</sup> were removed for wheel wear leaving a total of 501,099 <sup>(3)</sup> wheel sets removed for other reasons. The Roller Bearing Manufacturers Engineering Committee report of September 2005 (attached) estimated that 23% of the wheels changed during 2003 to 2004 were due to loosening roller bearing components. We believe that number to be consistent in the following years. We have extrapolated to reflect 115,253 wheel sets were removed due to loosening roller bearing components in 2010.

The 2010 costs involved in of the 115,252 wheel sets removed due to loosening roller bearing components are as follows:

Wheel set change out costs (industry figures-average)	\$1940
Train Delay and set out/pickup allowance (10%)	<u>\$40</u>
Total Average Cost per Wheel Set	\$1940

The overall cost to the railroad industry of wheel sets due to loosening roller bearing components was a staggering \$223,590,820 in 2010 based on the number of wheel sets changed and the \$1,940 cost per wheel set. According to a 2009 University of Illinois Engineering Department study, derailments caused by loosening resulted in additional annual costs of \$6.2 million.

Derailment costs are not included in this analysis; however the safety improvements of the CSLS must be taken into consideration when analyzing the overall advantages of the CSLS.

It is estimated that installation of the CSLS will be completed on the entire fleet of 1,363,423 freight cars over a period of seven years, at a cost of \$30,930,225 per year. This cost would be offset by the savings of \$38,580,735 in the first year alone, resulting in the return of the initial investment plus \$7,650,511. The overall net savings over the first seven years averages \$607.61 per car for each and every car in the fleet.

- (1) WABL equation ;  $775,969 \text{ wheels} \times 1.5 / 2 = 581,977 \text{ wheel sets}$
- (2) Projected increase in ton mileage of 2% per year (DOT projects 61% increase in ton miles from 2010 to 2040)
- (3) Wheel sets changed as per WABL, Why Made information in 2010

## Industry Wide Wheel Offset Cost Information for 2012 based on 2010 numbers

2010 Wheel offsets from WABL				
	Wheels	X	/	Wheel Sets Footnote #1
total wheels removed 2010 Estimate	775,969	1.5	2	581,977
Wheels removed for wheel wear 2010 Estimate	107,836	1.5	2	80,877
Wheels removed for all non-wheel wear reasons 2010	668,133			501,100
Percent due to loosening (0.23) - per RBMC	153,671			115,253

### Cost of Wheel Set Changouts

	Footnote	2012 projected*
Total Wheel set Changouts		605,256
Changouts due to Loosening	#2	139,209
Cost of Changout per Wheel Set (Due to loosening)	#3	\$1,940
Total cost per year of Changouts due to loosening wheel sets		\$270,065,147
Cars in Service 2010	#4	1,363,423
Average cost per year of loosening wheel sets per car		\$198
Average cost over 7 years per car		\$1,387

Footnotes: 1) Wheel Sets rebuilt as per AAR, CRBC WABL in 2010  
 2) AS per RBMC 23% of wheel set rebuilds are necessary due to loosening.  
 3) Average cost is between \$1800 and \$2000 each plus a delay burden of \$40 train delay, setout and pickup allowance  
 4) As per AAR  
 \* Projected increase in ton mileage of 2% per year as per AAR

Industry Wide Cost Benefit utilizing Stage 8 Roller Bearing Cap Screw Locking System Projected for 2012 - 2019									
		Cars in Service (2010)		1,363,423					
		End Cost per Car		\$11.85					
		Locking system cost		\$11.85					
		7 Year Roll-out							
note		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total 7 Years
Established cost without upgrading to Stage 8 System		\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$1,890,456,028
Cost of Set back due to loosening @ 23% of total chargeouts with upgrade		\$231,484,412	\$192,903,676	\$154,332,941	\$115,742,206	\$77,161,471	\$38,580,735	\$0	\$810,195,441
Gross savings with upgrade		\$38,580,735	\$77,161,471	\$115,742,206	\$154,322,941	\$192,903,676	\$231,484,412	\$270,065,147	\$1,080,260,988
Cost of Locking system @ rate of 14.3% total cars per year	1	\$10,030,225	\$32,476,716	\$34,100,573	\$35,805,601	\$37,395,681	\$39,475,675	\$41,440,419	\$251,834,150
Net savings over base year		\$7,650,511	\$44,684,735	\$81,641,633	\$118,517,340	\$155,507,795	\$192,008,736	\$228,615,688	\$828,426,437
Average annual cost per car of loosening Wheel Sets:		\$169.78	\$141.46	\$113.19	\$84.89	\$56.59	\$28.30	\$0.00	
Net Savings Per Car (average entire fleet)		\$5.61	\$32.77	\$59.88	\$86.93	\$113.91	\$140.83	\$167.68	

Notes:

1

A 5% annual increase of cost of materials is assumed

2

As per ISMAC 23% of wheel set rebuilts are necessary due to loosening.

Notes:

1 A 5% annual increase of cost of materials is assumed

2 As per RMC 23% of wheel set rebuilds are necessary due to loosening



*The World's Best Locking Fastener*

August 8, 2011

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Federal Railroad Administration  
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Washington, DC 20590

Cap Screw Locking System for Freight Car Wheel Sets Petition for  
Rulemaking

Requesting Issuance of a Standard for the Adoption of the Cap Screw  
Locking System (CSLS) as the Standard System for Clamping and  
Retaining Bearings on Railroad Freight Cars

PETITIONER, Stage 8 Locking Fasteners has been designing and manufacturing locking systems for standard and custom fasteners for a wide range of industrial applications for 25 years. These industrial applications include power generation and distribution, automotive, construction equipment, farm machinery, and military applications to include critical applications on the Family of Medium Tactical Vehicles (FMTV). Railroad applications of Stage 8 locking systems include locomotives and critical track fasteners for crossings, and switches. All Stage 8 locking systems are designed to improve safety while increasing reliability.

PETITIONER files this petition for rulemaking with the Administrator of the Federal Railroad Administration (FRA) pursuant to 49 C.F.R. Part 211, requesting the issuance of a mandatory standard that sets procedures for maintaining the prescribed torque and clamp load on freight car wheel sets for railroad tapered roller bearing "End Cap Screws".

**Background**

Vibrational loosening of fasteners in railway rolling stock, track and bridge structures has occurred every day since the first turn of the first steel wheel, and those effects were evident in the Track-Train Dynamics and TDOP (Truck Design Optimization Project) studies, especially in suspension components. The dynamic environment of railroad tapered roller bearings is particularly difficult when one considers the effects of truck hunting, vertical bounce, low speed high center-of-gravity rock and roll, and overloaded

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vehicles. The consequences of bearing failure are significant, and have justified the installation of multi-million dollar thermal and acoustic failure detection systems.

The causes of roller bearing failures directly resulting from cap screw loosening is difficult to assess. The AAR car repair billing why-made codes do not provide a sufficient level of detail to pinpoint the contribution of cap screw loosening, and are dependent on the accuracy of reporting. Stage 8, through industry associates and colleagues, conducted an analysis of over 140,000 railcars under private ownership, but the results were inconclusive because of the vagueness of the codes. For similar reasons, the roller bearing manufacturers implemented the Failure Progression Modes (FPM) reporting system to ensure more consistent and relevant setout reporting. The following is an extract from the BRENCO Technical Forum website:

'During the mid 1980s, bearing setouts were predominantly loose bearing failures driven by poor stack clamp conditions. Changes to American Associations of Railroads rules regarding seal cap screw O-rings, mounting torque levels, and fitted applications in combination with manufacturer changes to bore tolerances, end cap designs, and cap screw conditions helped to drive the percentage of loose bearing failures from higher than 40% of all hot box setouts in 1988 to less than 25% in 2002'. See attachment 1, Bearing Clamping and Retention Investigation.

Although that is a significant improvement, 25% failure rate is still an expensive number to the industry. Even with the increased detail of the FPM system, it is still difficult to assess the percentage contribution of loose cap screws to this failure rate. Still, one can make educated guesses based on information provided in the chart extracted directly from the BRENCO Technical Forum website. See attachment 2, 1993-2003 Verified Setouts by FPM.

The Schlake Mini Symposium from April 2009 describes the University of Illinois study on derailments and provides an insight into overall causes and the severity of derailments. Of particular note is the \$47 million economic impact to the railroad industry in equipment and track damage not to mention the economic impact of goods not reaching their prescribed destination as scheduled. Of note, this \$47 million is not included in the detailed economic analysis provided later in this petition. While a precise number has not been assigned to derailments caused by loose or failed end cap screws leading to a bearing failures it is unquestionably in the millions of dollars not to mention the safety implications caused by such failures. See attachment 3, Potential Impact of Automated Condition Monitoring on Unit Train Performance.

#### **Securing the End Cap Screw**

The Cap Screw Locking System consists of 4 pieces: a locking plate with 3 bend-over tabs per cap screw lock, and 3 locking retainers. The locking plate is manufactured from the exact same material as the existing AAR locking plate, namely AISI 1010, 45-75 Rockwell B hardness. The Locking Retainer Rings have a 12 point double hexagonal internal configuration, designed to engage the points of the cap screw hex head, and is

identical to the interior configuration of a hex head socket. The outer configuration of the Locking Retainer Rings has 13 notches, designed to align and interface with the bend-over tabs of the locking plate. The key to the patented design of the locking system is the **Locking Retainer Rings**, which have been designed to engage the locking plate tabs without any movement of the cap screws after they have been properly torqued. The angular difference between the 12 internal points and the 13 external notches allows the Locking Retainer Ring to be rotated so that any position of the cap screw hex head can be locked into the locking plate tabs. If the initial placement of the Locking Retainer Ring over the cap screw hex head does not align the notches with the locking plate tabs, the ring can be rotated until the tabs align with the notches. It takes very few attempts of aligning these rings for a technician to determine how much a ring needs to be rotated after the initial application. Once the ring is aligned, the three tabs are bent into their respective notches to secure the ring. The tabs can be bent with a screwdriver or hammer, and only need to be bent enough to prevent the Locking Retainer Ring from coming off. See attachment 4 Picture of Cap Screw Locking System.

The difference between the bend-over tabs of the Stage 8 locking plate vs. the standard AAR locking plate is that the Stage 8 bend-over tabs resist the counter-clockwise loosening rotation of the cap screws in shear (in conjunction with the Locking Retainer Ring), whereas the standard locking plate bend-up tabs resist the movement of the hex head points in bending. The difference in performance is substantial. For the purpose of a bench test the cap screws were finger tightened into a nut, with no further torque applied, and the locking plate tabs were applied. In this manner, the torque wrench would only measure the breakaway torque (i.e. the torque of the locking mechanism that resists counter-clockwise loosening rotation). The cap screws on the standard locking plate were arranged to allow the tabs to be bent flat against 2 of the hex head flats, to maximize the breakaway torque of the bend-up tab method. After approximately 50 attempts, the standard AAR locking plate bend-up tabs provided a breakaway torque value normally between 10-15 ft-lbs, with an occasional measurement of 20 ft-lbs. The breakaway torque of the **Cap Screw Locking System (CSLS)** consistently registered in excess of 150 ft-lbs. An application of 200 ft-lbs produced a slight deformation of the tabs, but did not defeat the locking mechanism, which remained in place.

#### **Field Test**

The field test for the CSLS was performed over the period from October 2010 to May 2011. The freight cars utilized were coal cars belonging to Ameren Energy which were run in excess of 50,000 miles hauling coal from Wyoming to Ameren's power plants in Missouri. An equal number of wheel sets equipped with the CSLS were compared to the standard cap screw locking systems installed on the other wheel set on the same truck. The cars were removed from service and tested at the Ameren Power Plant in Rush Island Missouri. Tests were conducted by Stage 8 personnel assisted by a maintenance crew and a supervisor from Midland Railway and overseen by the General Executive Coal Delivery from Ameren. Residual Torque was measured on each of the CSLS cap screws and the standard cap screws utilizing a CDI Multitorq Torque and Analyzing System that was calibrated just prior to testing.

A graph is attached which indicates by percentages the residual torque on the cap screws with the CSLS and compares them with the corresponding standard cap screws and locking plates. 29% of the wheel sets equipped with the standard locking plates were removed from service within 30 days prior to the residual torque tests due to various reasons and were therefore not available for testing. The removed wheel sets are represented on the charts as failed and removed. No Stage 8 wheel sets were taken out of service, for any reason, during the over 50,000 mile test period.

The procedure used for the tests was designed to measure the residual torque on each of the Cap Screws after the locking mechanisms were disengaged. This measurement was taken as the torque wrench was applied in a positive direction-clockwise until the slightest movement was recorded. The maximum amount of torque applied was measured by the Multitorq electronic system, displayed on the screen and recorded.

The results are summarized below and in the corresponding graph as a percentage of required torque to maintain clamp force at installation of End Caps as outlined in the A.A.R. Field Manual of Standards and Recommended Practices, Class F; 420 ft/lbs +/- 4%.

CSLS:                   86% retained 100% of the initial torque values  
                           10% retained 95%-99%  
                           5% retained 90%-94%

Overall 100% of the CSLS retained in excess of 90% of the original torque applied.

Standard Plates:    10% retained 100% of the initial torque values  
                           5% retained 90%-95%  
                           29% retained 80%-89%  
                           10% retained 70%-79%  
                           5% retained 60%-69%  
                           10% retained 50%-59%  
                           5% retained less than 50%

29% of the wheel sets were removed from service prior to the torque tests. See attachment 5, Stage 8 Caps Screw Locking System Performance Versus Standard Locking Plates.

Percentage totals may exceed 100% due to rounding

#### **Economic Analysis/Benefits**

The analysis estimates that the CSLS will be installed on the entire fleet of freight cars over a period of 7 years, or approximately 14.3% per year. The installation of CSLS will cause a significant decrease in setouts caused by loosening roller bearing components, resulting in a return of the initial investment in less than one year and provides increasing savings over the remaining useful life of each wheel set.

To arrive at individual car costs and benefits it is necessary to examine the freight car fleet as a whole. According to the AAR there were 1,363,423 freight cars in service in 2010.

According to the Car Repair Billing Committee, a total of 775,969 wheels were removed in 2010. This is estimated to be 581,977(1) wheel sets utilizing the formula provided by the American Association of Railroads Wheel Axle Bearing and Lubrication Committee (WABL). The 581,977(1) wheel sets changed out amounts to approximately 14% of the entire fleet, and depending on ton mile increases over the next few years, expected at 2% (2) per year, the entire fleet will be replaced in from 5 to 7 years. Of the 581,977(1) wheel sets, 80,877(3) were removed for wheel wear leaving a total of 501,099 (3) wheel sets removed for other reasons. The Roller Bearing Manufacturers Engineering Committee report of September 2005 (See attachment 6) estimated that 23% of the wheels changed during 2003 to 2004 were due to loosening roller bearing components. We believe that number to be consistent in the following years. We have extrapolated to reflect 115,253 wheel sets were removed due to loosening roller bearing components in 2010.

The 2010 costs involved in of the 115,252 wheel sets removed due to loosening roller bearing components are as follows:

Wheel set change out costs (industry figures-average)	\$1940
Train Delay and set out/pickup allowance (10%) but not included in the analysis because of the large variance in actual train derailment.	<u>40</u>
Total Average Cost per Wheel Set	\$1980

The overall cost to the railroad industry of wheel sets due to loosening roller bearing components was a staggering \$223,590,820 in 2010 based on the number of wheel sets changed and the \$1,940 cost per wheel set. According to a 2009 University of Illinois Engineering Department study, derailments caused by loosening resulted in additional annual costs of \$6.2 million.

Deraillment costs are not included in this analysis; however the safety improvements of the *CSLS* must be taken into consideration when analyzing the overall advantages of the *CSLS*.

Installation of the *CSLS* will be completed, on the entire fleet of 1,363,423 freight cars, over a period of seven years, at a cost of \$30,930,225 per year. This cost would be offset by the savings of \$38,580,735 in the first year alone, resulting in the return of the initial investment plus \$7,650,511. The overall net savings over the first seven years averages \$607.61 per car for each and every car in the fleet.

(1) WABL equation ;  $775,969 \text{ wheels} \times 1.5 / 2 = 581,977 \text{ wheel sets}$

(2) Projected increase in ton mileage of 2% per year (DOT projects 61% increase in ton miles from 2010 to 2040)

(3) Wheel sets changed as per WABL, Why Made information in 2010

**Summary**

While marginal improvement have been made to prevent the loosening of end cap screws current deficiencies arguably cost the railroad industry almost a quarter billion dollars a year not including the cost of derailments and risk of personal injury. Field tests have demonstrated that after a side by side test of the current system used to secure end cap screws and the Cap Screw Locking System vast improvement can be achieved. End cap screw loosening can virtually be eliminated by standardizing the use of the Cap Screw Locking System on the nations freight car fleet. Analysis has also demonstrated that the installation of the CSLS on the entire freight car fleet not only pays for itself in the first year but also save the railroad industry an additional \$820,000,000.00 over a seven year period. More importantly the overall safety improvements to the nations fright car fleet by using the CSLS are immeasurable. See attachment 7.

**Proposed Rule**

Any mechanical locking mechanism shall require 100 ft lbs of reverse torque in order to defeat the locking mechanism's resistance to loosening of the End Cap Screws. A visual inspection of the locking mechanism while in service must enable the inspector to ascertain that the mechanism has in fact retained the cap screws in their original position thereby retaining the original torque and clamp load.

WHEREFORE, Petitioner request that the FRA grant the Petition and take further action necessary to insure the requested standard by appropriate rulemaking procedures.

Sincerely,



Bruce Bennett, President

Index of Attachments for Stage 8 Petition

Attachment Number:

1. Bearing clamping and Retention Investigation.
2. Failure Progression Mode Verified Setouts (1993-2003).
3. Potential Impact of Automated Condition Monitoring on Unit Train Performance.
4. Description of the Proposed Stage 8 Cap Screw Locking system.
5. Caps Screw Locking System Performance v. Standard Locking System.
6. Bearing Failure Mode Results.
7. Industry Wide Cost Benefit Analysis Utilizing Cap Screw Locking System.

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Samuel R. Williams

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1989-01-16

## THE TIMKEN COMPANY

## Bearing Clamping and Retention Investigation

Introduction:

Clamping and retention of the Timken "AP" bearing on the railroad axle journal is a function of radial interference fit of the bearing components and the axial clamping force supplied by cap screw tension from properly torqued cap screws. This is a review of investigations for improvements in bearing retention.

Cap Screw Seal Rings:

Laboratory tests at The Timken Company determined that under extreme tolerance conditions, a significant amount of cap screw torque was required to compress the cap screw seal rings. This meant that only a portion of the applied cap screw torque was available as clamping force on the bearing. In other words, a properly mounted assembly could enter service with an initial clamping condition equivalent to very low cap screw torque.

The apparent solution was to remove cap screw seal rings. However, their original intent of eliminating the possibility for water ingress around the cap screw heads required further investigation. A review of AAR data on parts replacement for water etching showed no significant difference comparing the period before cap screw seal rings to the period since their adoption by AAR.

To confirm that water ingress would not occur, a laboratory test was conducted at The Timken Company. An "AP" bearing assembly was mounted on an axle stub and placed in a 160°F oven for 28 hours. The heated assembly was then placed vertically under a 1/4" diameter stream of water which was directed at the center of the axle end cap from a height of 12" for ten minutes. Subsequent inspection revealed no ingress of water.

This work provided the confidence for us to work through the Roller Bearing Manufacturers' Engineers Committee (RBMEC) to recommend elimination of cap screw seal rings. The Wheels, Axles, Bearings and Lubrication (WABL) Committee of AAR accepted this recommendation and application of cap screw seal rings was prohibited after May 1, 1988. Thus, one factor in bearing clamping and retention has been improved.

Cap Screw Lubrication:

The second subject of investigation was cap screw lubrication. Friction, both under the cap screw head and at the threads, is a factor in the relationship between applied cap screw torque and resulting cap screw tension. The tension in the three cap screws provides the clamping force on the bearing.

Laboratory tests were conducted at The Timken Company to compare dry cap screws and a variety of lubricants. The results are summarized

Attachment 1

in Table 1. Several conclusions can be drawn from these data:

1. No additional lubrication is required on new cap screws.

The residual oil coating provided by the cap screw manufacturer for rust protection, provides the highest cap screw tension of the lubricants tested.

2. Used cap screws that are cleaned and qualified for reuse by inspection should be lubricated before reuse.

The dry cap screw condition resulted in the lowest tension values and the greatest variation as expected due to high friction. Lubrication will also provide rust protection.

3. Any lubricant that is convenient can be applied to qualified used cap screws.

The heavier oil tested, SAE 30, appears to provide less variation in tension values as expected due to the higher viscosity oil creating a thicker lubricant film. However, the actual cap screw tension values for the light and heavy oils tested are not significantly different.

4. Any method that is convenient for applying lubricant to qualified used cap screws is acceptable.

It is important that the threads and underside of the cap screw head be lubricated. The method of application; brush, spray, dip and drain, etc. is not important.

#### Cap Screw Torque:

The third subject for investigation is cap screw torque. If cap screw tension is increased, will cap screw yielding or stretch cause loss of the initial tension?

The previous test work shows that the "new" cap screw condition results in the highest tension values. Experience shows that cap screw stretch is not a problem and therefore, lubricating used cap screws should not cause a problem.

The yield point for an SAE Standard, Grade 2 cap screw is specified as 36,000 psi minimum, equivalent to 27,500 pounds tension in a 1-1/8" cap screw. The Timken Company specifies higher properties for cap screws purchased for use in "AP" bearings. Six cap screws were selected for tensile testing to determine the yield point, which ranged from 57,000 pounds tension (74,700 psi) to 60,000 pounds tension (78,600 psi). This work confirms that cap screw stretch will not be a problem. The highest tension measured under torque from Table 1, is 32,540 pounds which is only 57 percent of the lowest yield point measured.

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Samuel R. Williams

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p.3

For comparison, the yield point for an SAE Standard, Grade 5 cap screw is specified as 74,000 psi minimum, equivalent to 56,800 pounds. Therefore, the Grade 2 cap screws tested, actually exceed the yield point for a Grade 5 cap screw.

On the basis of this work, we conclude that existing cap screw torque values should not be changed.

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THE TIMEN COMPANY

1989-01-16

TABLE 1

CAP SCREW TENSION VERSUS LUBRICATION

1-1/8" - 7UNC-2A x 2-1/2" Long  
SAE Grade 2 Cap Screw

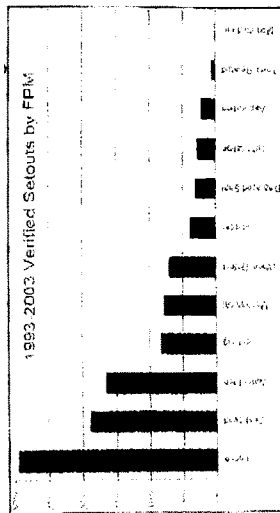
Torqued to 390 lbf-ft.

Tensile Load Measured by Load Cell,  
10 Cap Screws for Each Condition

<u>Condition</u>	<u>Tension - lbf.</u>			<u>Range</u>
	<u>Min.</u>	<u>Max.</u>	<u>Avg.</u>	
1. As Received	28,000	32,540	30,520	4,540
2. Dry	19,160	24,380	21,260	5,220
3. Light Oil	26,040	30,620	28,020	4,580
4. Heavy Oil	25,560	27,800	26,580	2,240

1. Lubricated by manufacturer, Rust Veto FE-20, 10% in water at 130-140°F.
2. Cleaned with trichlorethane
3. Freeall - Deep Penetrating Oil
4. SAE 30

0049/jd



Of the 12 categories listed, at least 8 of these categories MAY be caused in some percentage by loose cap screws. From these data, and from Stage 8's knowledge of industry issues (especially suspension components), we decided to go forward in the development of our proposed cap screw locking system, proposed herein. The current trend toward 125 ton equipment looks a lot like the transition from 70 ton equipment to 100 ton in the 1970's.

Difficulties are not a part of


Attachment 2 (REVISED)

ILLINOIS - RAILROAD ENGINEERING

## Potential Impact of Automated Condition Monitoring on Unit Train Performance

Mini-Symposium – Steve Potter  
2 April 2009

Bryan Schlake, Chris Barkan, and Riley Edwards  
University of Illinois at Urbana-Champaign  
Railroad Engineering Program



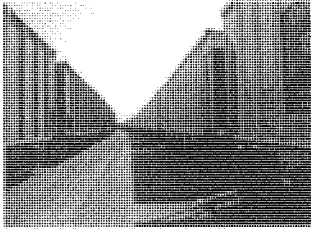

ILLINOIS

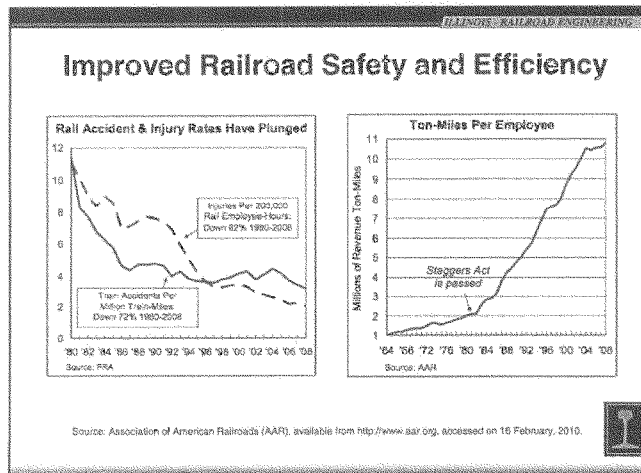
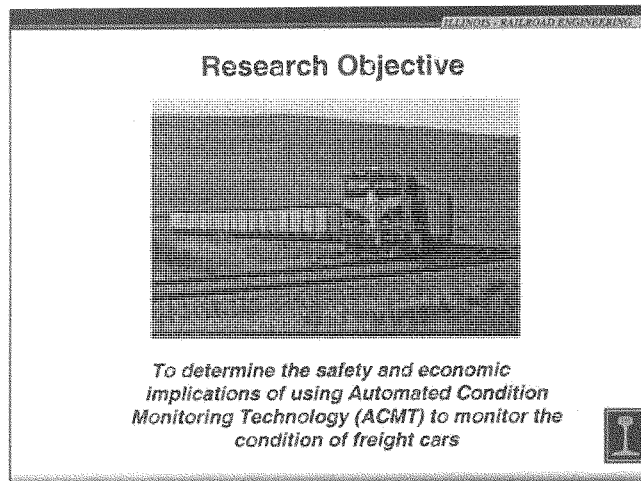
RAILROAD ENGINEERING PROGRAM

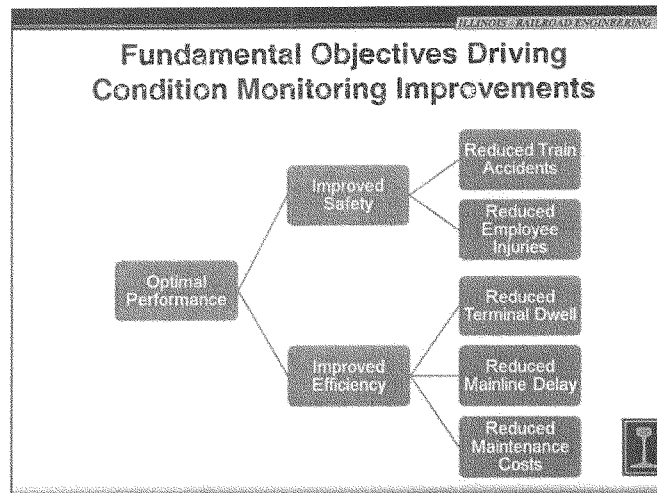
ILLINOIS - RAILROAD ENGINEERING

### Presentation Outline

1. Objective
2. Motivation
3. Background
4. Methodology
5. Results
6. Conclusions
7. Future Work

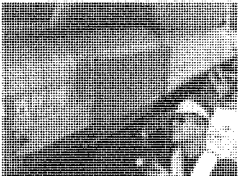
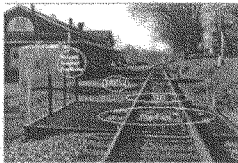




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### Railcar Condition Monitoring

- Condition Monitoring vs. Railcar Inspection
- Preventive Maintenance vs. Corrective Maintenance
- Condition-based maintenance (CBM) is a "form of preventive maintenance based on vehicle performance and/or parameter monitoring" (Lagnebäck)
- Current railroad inspection is designed for CBM but limited by human perception and insufficient record keeping
- Inspections must accurately monitor and record a railcar's true condition, before the benefits of CBM can be realized

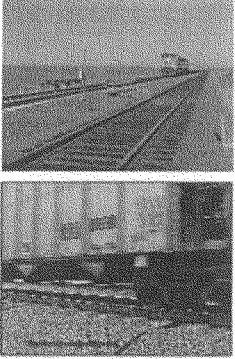
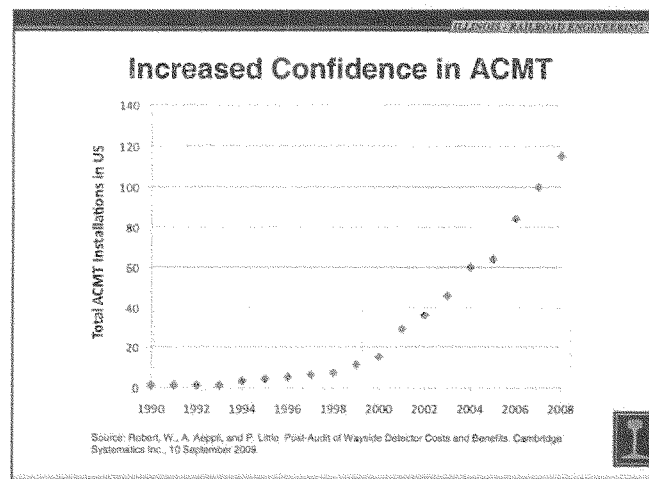



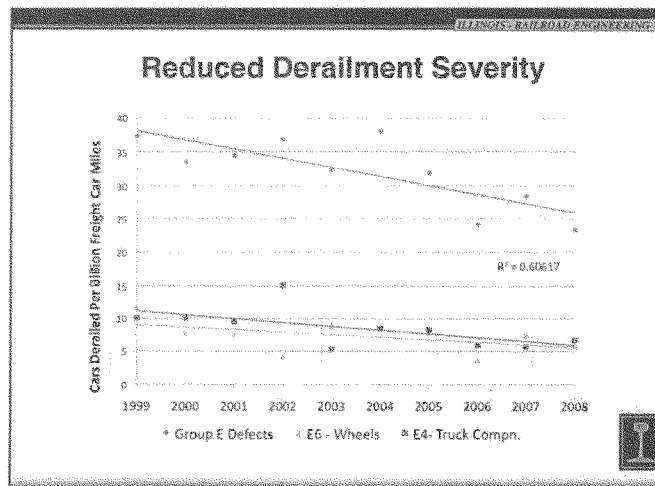
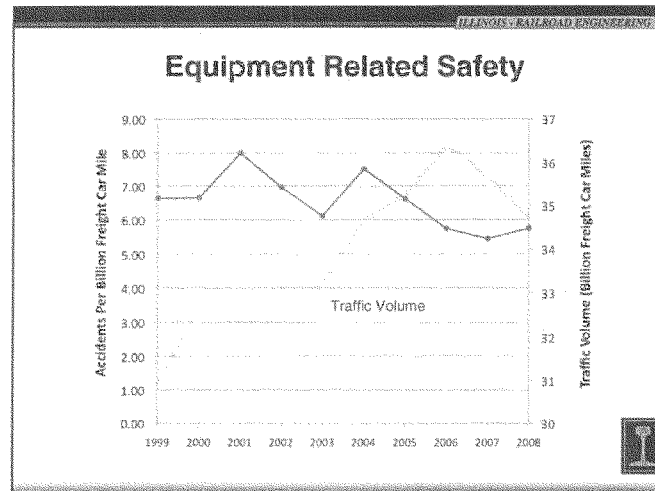
Lagnebäck, R. Evaluation of wayside condition monitoring technologies for condition-based maintenance of railway vehicles. Licentiate Thesis, Luleå University of Technology, Luleå, Sweden, 2007.

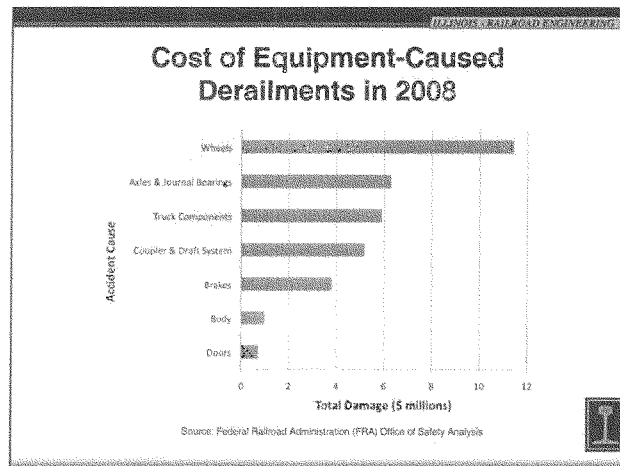
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### Automated Condition Monitoring Technology (ACMT)

- Dragging Equipment Detectors
- Hot Bearing Detector
- Acoustic Bearing Detectors
- WILDs; Wheel Impact Load Detectors
- Hunting Truck Detectors
- Truck Performance Detectors
- Hot / Cold Wheel Detectors
- Wheel Profile Monitoring
- Vehicle Overload / Imbalance Detector
- Low Air Hose Detectors
- Ultrasonic Wheel Defect Detection
- Machine Vision (MV) Inspection

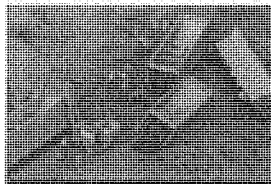




ILLINOIS RAILROAD ENGINEERING

### Cost of Equipment Related Derailments


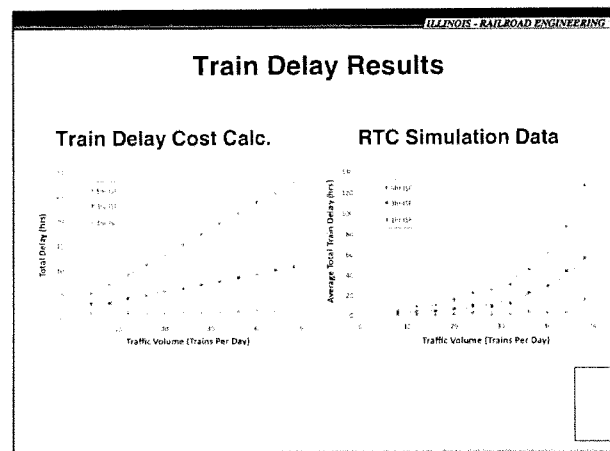
- The four largest US Class I railroads suffered over \$400 million in track and equipment damages from 1999-2008
- Average of \$183,000 per accident
- 49 injuries during this time frame (~5 per year)
- Approximately \$43,700 per car derailed (2010 dollars)
- An average of 4.9 cars derail per equipment-related accident
- Based on an average of 220 accidents per year, this results in over \$47 million annually



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### Cost of Train Delay

- Rail capacity research has gained increased attention as traffic volumes have risen over the last decade
- In 2006, UIUC developed a train delay cost calculator (TDCC) to determine the economic impact of broken rail derailments and service failures
- UIUC has recently used Rail Traffic Controller (RTC) from Berkley Simulation Software to analyze the impact of train type heterogeneity on railway capacity
- In the current study, the TDCC is compared to RTC simulations to assess the potential economic impact of equipment-related in-service failures
- The scope was limited to unit coal traffic on a single-track route

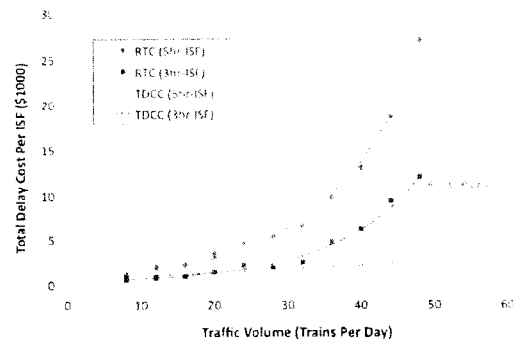



### Delay Cost Calculation

- Total Cost = (Total Delay Time)\*(Delay Cost)
- Delay cost figure involves four components: car cost, locomotive cost, fuel cost, and crew labor cost.
- A recent estimation of delay cost was about \$213 per train-hour for an average train on the US rail network (69.2 cars and 2.7 locomotives per train).
- For the current study, we assumed 115 cars and 3 locomotives per train, which increased the delay cost to \$215 per train-hour.
- This estimate does not include the shipment delay cost based on the revenue per car, so actual costs may be much higher.



### Train Delay Cost Comparison



## Conclusions

- US Class I Railroads suffer derailment costs on the order of \$50 million per year due to equipment-related train accidents and train delay costs due to in-service failures appear to be significant as well
- Train delay costs may be significantly greater than previously estimated, especially under high traffic volumes
- Although car derailment rates have decreased in recent years, there is still potential for additional cost savings as a result of improved railcar maintenance
- Rail transportation safety and efficiency is directly related to the effectiveness of railcar condition monitoring
- Increased implementation of ACMT has the potential to reduce the frequency and severity of in-service failures



## Future Work

- Development of a risk metric for determining the risk associated with specific railcar component defects
- Assess the extent to which ACMT will impact the risk associated with in-service failures so that efforts can be appropriately directed to prevent the maximum amount of in-service failure
- Conduct additional RTC simulations using realistic route characteristics to determine the length of the "shockwave" created by an in-service failure
- Evaluate the costs associated with the implementation of AIT including purchase, installation, and maintenance costs as well as the institutional costs of technology integration





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### Acknowledgements

- Bill GeMeiner & Gary Haddock, Union Pacific Railway
- Tom Guins, AAR
- Mark Dingle, University of Illinois at Urbana-Champaign
- Chaz Gross, University of Illinois at Urbana-Champaign



The Lord Jesus

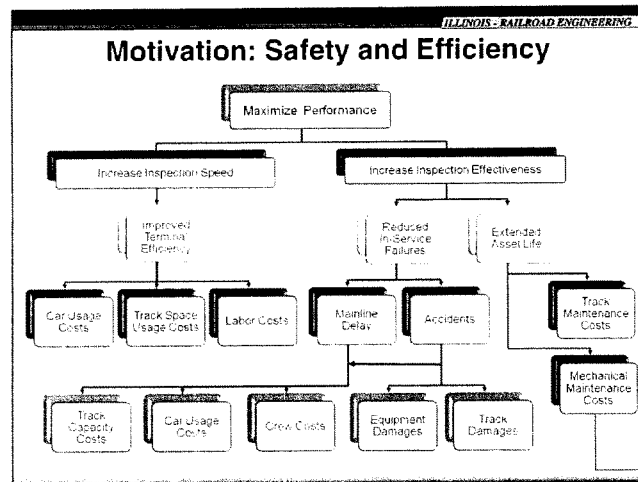
Research sponsored by a Graduate Research Fellowship from CN



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### Questions / Comments?





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### Train Delay Cost Calculator

$$C = Tx + \sum_{n=1}^m (T - nt)x$$

where,


$C$  = total train delay cost for multiple trains

$T$  = total delay time for service interruption

$x$  = cost of delay per train-hour

$m$  = number of following trains delayed =  $T/t$  (rounded to the nearest integer)

$t$  = hours per train arrival =  $144.16 / ANMGT$  (annual gross tonnage in millions, using 16,445 tons per coal train)



### RTC Dispatch Simulations

Route Characteristics	Train Characteristics
254 miles long	Unit Coal Trains
10 miles between control points	115 cars
8,000 ft signaled sidings	6,325 ft, 16,445 tons per train
2.5-mile signal spacing	0.78 HP / Trailing Ton
3-block, 4-aspect signaling	3 SD70 4,300 HP Locomotives
0% grade and curvature	Maximum Speed: 50 mph

- The train make-up for this simulation consisted entirely of unit coal trains, and 1, 3, and 5-hour service interruptions were included, representing equipment-related in-service failures



### Failure Costs for a Typical In-Service Failure (1.5 hrs)

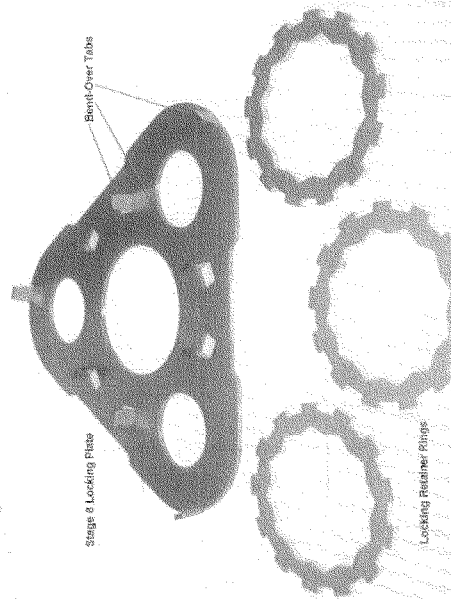
Traffic Volume (Trains Per Day / ANMGT)	TDCC	RTC
Low (8/48)	\$ 322.43	\$ 171.72
Medium (24/144)	\$ 429.75	\$ 845.34
High (48/288)	\$ 644.62	\$ 5,397.52

- Industry surveys suggest there may be as many as 10,000 mainline in-service failures per year among US Class I railroads
- Delay cost of in-service failures appears to be significant in comparison to the damage costs associated with equipment-related derailments



#### DESCRIPTION OF THE PROPOSED STAGE 8 CAP SCREW LOCKING SYSTEM

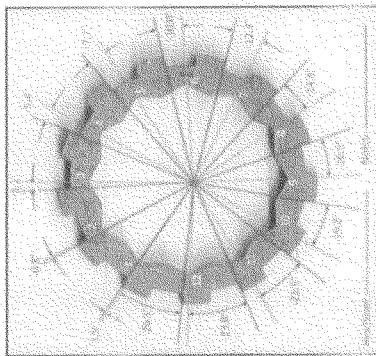
The Stage 8 Cap Screw Locking System consists of 4 pieces: a locking plate with 3 bend-over tabs per cap screw lock, and 3 locking retainers. The locking plate is manufactured from the exact same material as the existing AAR locking plate, namely AISI 1010, 45-75 Rockwell B hardness.



The Locking Retainer Rings have a 12 point double hexagonal internal configuration, designed to engage the points of the cap screw hex head, and is identical to the interior configuration of a hex head socket. The outer configuration of the Locking Retainer Rings has 13 notches, designed to align with the tabs of the bend-over tabs of the locking plate.

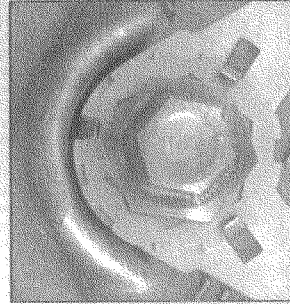
The key to the patent pending design of the Stage 8 locking system is the Locking Retainer Rings, which have been designed to engage the locking plate tabs without any movement of the cap screws after they have been properly torqued. The angular difference between the 12

internal points and the 13 external notches allows the Locking Retainer Ring to be rotated so that any position of the cap screw hex head can be locked into the locking plate tabs. If the initial placement of the Locking Retainer Ring over the cap screw hex head does not align the notches with the locking plate tabs, the ring can be rotated until the tabs align with the notches. please note the diagram depicting this relationship.



The angular relationship between the hex point and the left edge of the notch varies by  $2.3^\circ$  for each of the 12 hex points. If (rarely) none of these positions exactly aligns the hex points and tabs, then the ring can be flipped over to provide 12 more alignment possibilities. With 24 positions, that means that any arrangement of the cap screw hex head can be aligned within  $1.15^\circ$  of the locking plate tabs. Design tolerances guarantee a fit.

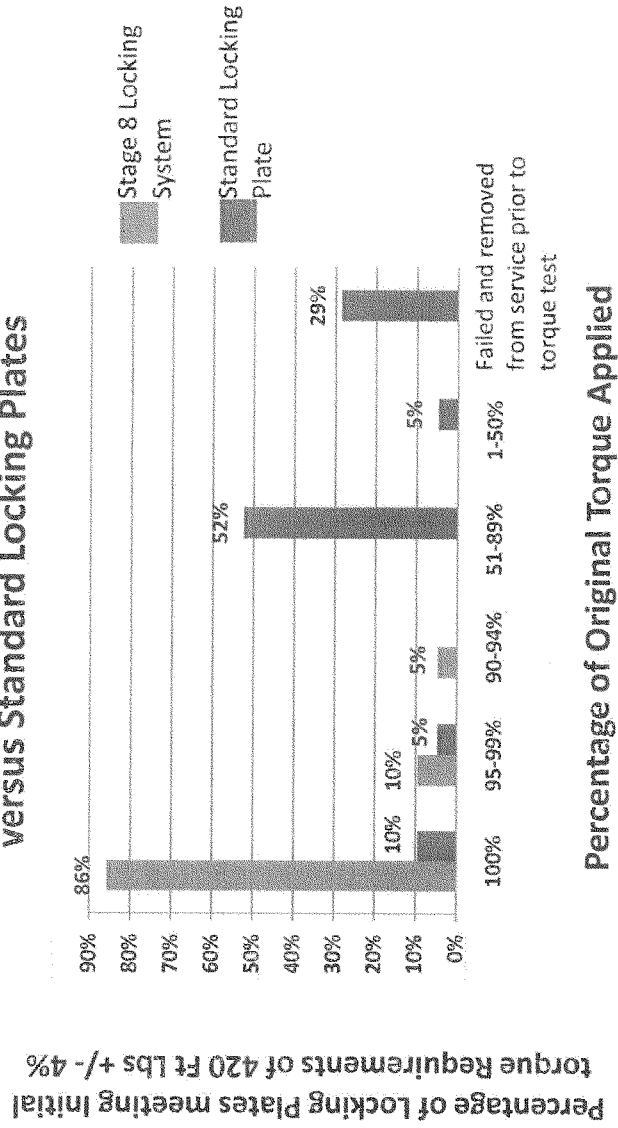
It takes very few attempts of aligning these rings for a technician to determine how much a ring needs to be rotated after the initial application. One sees the position of the notch relative to the locking plate tab, and gets a feel of how much, and in which direction, the ring needs to be rotated. Once the ring is aligned, the three tabs are bent into their respective notches to secure the ring. The tabs can be bent with a screwdriver or hammer, and only need to be bent around the edge to prevent the Locking Retainer Ring from coming off.



The Locking Retainer Ring design is a variation of the Stage 8 Spindle Nut Locking System, which uses the same notched washer type of locking system to secure automotive hub bearings and industrial drive shaft bearing assemblies. There have been tens of thousands of applications without a single failure.

The picture on the right depicts a properly installed Locking Retainer Ring with the band over tabs engaged in the aligned slots.

### Stage 8 Cap Screw Locking System Performance versus Standard Locking Plates



Attachment 5

## Bearing Failure Mode Results from Confirmed Hot Bearings

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>Ave.</u>	<u>Yrs.</u>
Loose Components	26%	27%	23%	20%	23%	14.8
Water Etch	13%	20%	18%	25%	20%	12.9
Wheel Defect	16%	13%	13%	13%	13%	9.5
Spalled Components	10%	9%	14%	15%	13%	8.6
Bearing Destroyed	17%	9%	12%	11%	12%	11.3
Mechanical Damage	7%	9%	7%	4%	6%	9.2
Lubrication Breakdown	4%	5%	3%	3%	4%	8.3
Displaced Adapter	4%	5%	3%	5%	4%	7.8
Displaced Seal	4%	3%	2%	2%	3%	6.5
Truck Related	0%	0%	5%	2%	2%	3.2
Application Defect	0%	0%	0%	1%	0%	5.1
Manufacturer's Defect	0%	0%	0%	1%	0%	2.7

322

Industry Wide Cost Benefit utilizing Stage 8 Roller Bearing Cap Screw Locking System Projected for 2012 - 2019									
		Cars in Service (2010)		1,863,423					
		Tire Caps per Car		\$19.85					
		Locking System cost		\$19.85					
		7 Year Roll-out							
note	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total 7 Years	
Established cost without upgrading to Stage 8 System	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$270,065,147	\$1,890,456,028	
Cost of Set outs due to loosening @ 23% of total change out with upgrade	\$231,484,412	\$192,903,676	\$154,122,941	\$115,742,206	\$77,161,672	\$38,580,735	\$0	\$810,195,441	
Gross savings with upgrade	\$38,580,735	\$77,161,671	\$115,742,206	\$164,137,941	\$192,903,676	\$231,484,812	\$270,065,147	\$1,080,760,588	
Cost of Locking system @ rate of 14.3% total cars per year	\$10,930,225	\$12,476,236	\$14,100,573	\$15,805,001	\$17,595,881	\$19,475,675	\$21,449,499	\$251,834,150	
Net savings over base year	\$7,650,511	\$44,684,735	\$81,641,633	\$118,517,340	\$115,307,795	\$192,908,736	\$238,615,648	\$818,426,437	
Average annual cost per car caused by loosening roller bearing Wheel Set:		\$169.78	\$141.48	\$113.15	\$84.89	\$56.59	\$28.39	\$0.00	
Net Savings Per Car (Average entire fleet)		\$5.61	\$32.77	\$59.88	\$86.93	\$111.91	\$140.83	\$167.68	

Notes:

1 A 5% annual increase of cost of materials is assumed

2 A 5 per RBMC 23% of wheel set change outs are necessary due to loosening.

Notes:

- 1 A 5% annual increase of cost of materials is assumed
- 2 A 5% per RBMC 23% of wheel set change out is necessary due to loosening.

## Attachment 7

7/28/2011



THE SECRETARY OF TRANSPORTATION  
WASHINGTON, DC 20590

February 20, 2014

The Honorable Edward R. Hamberger  
President and Chief Executive Officer  
Association of American Railroads  
425 Third Street, SW  
Washington, DC 20024

Dear Mr. Hamberger:

Thank you for joining me and our team at the U.S. Department of Transportation (DOT) last month to discuss safety issues associated with the transportation of crude oil by rail within the United States. DOT and the Association of American Railroads (AAR) both recognize that the United States has experienced a significant growth in the quantity of petroleum crude oil being shipped by rail in recent years. The rapid increase in the production and transportation of crude oil requires additional vigilance for the continued safe movement of this commodity by all stakeholders involved, including both the rail industry and the Federal Government. After all, nothing is more important for all involved than safety.

Over the last month, DOT and AAR have been engaged in productive discussions regarding additional measures that AAR and its member railroads can take to further enhance the safe transportation of crude oil by train. My leadership team informs me that AAR and many of its member railroads (Railroad Subscribers) are willing to make the commitments described below. The purpose of these commitments is to address safety concerns that have been raised regarding the rail transportation of crude oil by increasing track and mechanical inspection frequency beyond that required by current regulations; conducting routing analyses using 27 factors set forth in Federal regulations to assess the safest and most secure routes; establishing speed restrictions;<sup>1</sup> and utilizing braking systems which reduce the kinetic energy (or pile up effect) of trains in the event of derailments.

DOT continues to evaluate all aspects of crude oil transportation. As we work to gather and evaluate data expeditiously, we will continue to be guided by our safety imperative and will engage all stakeholders as additional measures are proposed. Until such time, the commitments below, taken together, will start to further enhance safety immediately.

<sup>1</sup> As it assesses the need for additional safety enhancements for the transportation of crude oil by rail, DOT, in collaboration and consultation with all its stakeholders, will endeavor to gather data regarding the impacts of additional or different speed restrictions on the railroad network. Such data will assist DOT in evaluating the potential effects of speed limits on safety, throughput of the railroad network, and operations (including those of passenger trains).

Proposed AAR and Railroad Subscribers Commitments

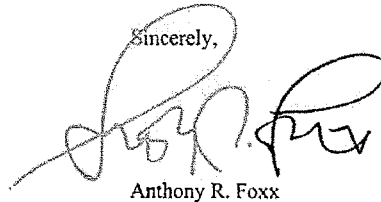
1. By no later than July 1, 2014, Railroad Subscribers will apply any protocols developed by the rail industry to comply with the existing route analysis requirements of 49 C.F.R. § 172.820(c) – (f) and (i) to the movement of trains transporting 20 or more loaded railroad tank cars containing petroleum crude oil (Key Crude Oil Trains).
2. Railroad Subscribers commit to continue to adhere to a speed restriction of 50 mph for any Key Crude Oil Trains. By no later than July 1, 2014, Railroad Subscribers will adhere to a speed restriction of 40 mph for any Key Crude Oil Train with at least one “DOT Specification 111” tank car loaded with crude oil or one non-DOT specification tank car loaded with crude oil while that train travels within the limits of any high-threat urban area as defined by 49 C.F.R. § 1580.3. For purposes of these commitments, “DOT Specification 111” tank cars are those cars that meet DOT Specification 111 standards but do not meet the requirements of AAR Circular CPC-1232 or any new standards adopted by DOT after the date of this letter.
3. By April 1, 2014, Railroad Subscribers will equip all Key Crude Oil Trains operating on main track with either distributed power locomotives or an operative two-way telemetry end of train device as defined by 49 C.F.R. § 232.5.
4. Effective March 25, 2014, a Railroad Subscriber will perform at least one additional internal rail inspection than is required by 49 C.F.R. § 213.237 (c) each calendar year on main line routes it owns or has been assigned responsibility for maintaining under 49 CFR § 213.5 over which Key Crude Oil Trains are operated. A Railroad Subscriber also will conduct at least two track geometry inspections each calendar year on main line routes it owns or is responsible for maintaining under 49 CFR § 213.5 over which Key Crude Oil Trains are operated.
5. By no later than July 1, 2014, a Railroad Subscriber will commence installation and will complete such installations as soon as practicable of wayside defective bearing detectors at least every 40 miles along main line routes it owns or has been assigned responsibility for maintaining under 49 CFR § 213.5 over which Key Crude Oil Trains are operated unless track configuration or other safety considerations dictate otherwise.
6. Effective upon execution of these commitments by AAR and Railroad Subscribers, AAR and Railroad Subscribers will commence the development of an inventory of emergency response resources along routes over which Key Crude Oil Trains operate for responding to the release of large amounts of petroleum crude oil in the event of an incident. This inventory will include locations for the staging of emergency response equipment and, where appropriate, contacts for the notification of communities. Upon completion of the inventory, the Railroad Subscribers will provide DOT with access to information regarding the inventory and will make relevant information from the inventory available to appropriate emergency responders upon request.

7. Railroad Subscribers individually will commit in the aggregate a total of approximately \$5 million to develop and provide a hazardous material transportation training curriculum applicable to petroleum crude oil transport for emergency responders and to fund a portion of the cost of this training through the end of 2014. One part of the curriculum will be for local emergency responders in the field; and more comprehensive training will be conducted at the Transportation Technology Center, Inc., (TTCI) training facility in Pueblo, Colorado. AAR will work with emergency responders in developing, by July 1, 2014, the training program that meets the needs of emergency responders.
8. Railroad Subscribers will continue to work with communities through which Key Crude Oil Trains move to address on a location-specific basis concerns that the communities may raise regarding the transportation of petroleum crude oil through those communities and take such action as the Railroad Subscribers deem appropriate.

If AAR and any of its member railroads are willing to publicly agree to these commitments, I ask that you and such Railroad Subscribers sign the attached acknowledgement, the terms of which shall be incorporated in this letter. Please return a copy of the AAR's executed acknowledgement to me at your earliest convenience. Also, please provide my office with an executed acknowledgement for each subscriber.

DOT appreciates AAR's ongoing commitment to raising the safety bar. For our part, we continue to explore ways to enhance the safe transportation of crude oil and other flammable liquids by rail (e.g., more accurate classification of the hazards posed, speed restrictions, more stringent tank car standards) to ensure the safety of the American people.

Sincerely,

A handwritten signature in black ink, appearing to read "Anthony R. Foxx", is written over the word "Sincerely,".

Anthony R. Foxx

## ACKNOWLEDGEMENT AND AGREEMENT

Effective on the date set forth below, the Association of American Railroads (AAR) hereby agrees to the "Commitments" as set forth in the attached Letter dated February 20, 2014 from Secretary Anthony R. Foxx to Edward R. Hamberger (Commitments) subject to the following terms.

The AAR's Agreement to such Commitments shall remain in effect until: (1) the Commitments are terminated by the AAR upon 90 days written notice; or (2) a change in an applicable statute or Federal regulation occurs that supersedes or conflicts with any Commitment applicable to the AAR or any Railroad Subscriber as that term is used in the attached Letter, in which case this Agreement will terminate immediately as to the affected Commitment.

The modification of any Commitment shall only be effective upon written acknowledgment and agreement by the AAR.

Nothing in this Acknowledgement and Agreement precludes the AAR from exercising its legal rights, including those in connection with safety regulation matters.

On behalf of the Association of American Railroads

By: 

Title: President & Chief Executive Officer

Date: February 21, 2014

SEAN PATRICK MALONEY  
1849 DELANCEY, NEW YORK  
  
COMMITTEE ON AGRICULTURE  
COMMITTEE ON TRANSPORTATION  
AND INFRASTRUCTURE

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-3215

1529 LONGWORTH HOUSE OFFICE BUILDING  
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123 CHANDLER ST., 2ND FLOOR  
NEWBURGH, NY 12550  
(845) 561-1229

December 2, 2013

Deborah A. P. Hersman  
Chairman  
The National Transportation Safety Board  
490 L'Enfant Plaza, SW  
Washington, DC 20594

Dear Chairman Hersman:

I write you today to express my grave concern regarding the tragic derailment of a Metro North train that occurred on December 1, 2013 near the Spuyten Duyvil station in the Bronx borough of New York. This is the worst MTA accident in over 20 years, claiming the lives of four people, including two of my constituents, and injuring dozens more.

The National Transportation Safety Board was set up to conduct expert and complete independent investigations of major transportation disasters. I appreciate your quick response following the incident and your immediate dispatch of investigators to the scene. In the wake of this tragedy, I urge you to conduct a thorough and expeditious investigation to determine the cause of this horrific accident.

Just one crash is one too many, and unfortunately, this is the MTA's fifth major safety incident this year. I encourage the National Transportation Safety Board to conduct a comprehensive examination surrounding the cause of this tragic incident, and recommend additional training, infrastructure, maintenance and safety standards, to be implemented across the entire Metro North system.

Additionally, I urge you to immediately address any MTA safety deficiencies identified as a result of this investigation. Please do not hesitate to issue recommendations before the completion of the final investigation report. We must protect the hundreds of thousands of riders that travel on the Metro North system each day. Their safety is too important to wait.

I thank you for your consideration of this matter and await your prompt response.

Sincerely,



Sean Patrick Maloney  
Member of Congress

**Congress of the United States**  
Washington, DC 20515

January 31, 2014

Administrator Joseph C. Szabo  
Federal Railroad Administration  
1120 Vermont Ave NW  
Washington, DC 20005

Administrator Cynthia L. Quarterman  
Pipeline and Hazardous Materials Safety Administration  
U.S. Department of Transportation  
1200 New Jersey Ave., SE  
Washington, DC 2059

Dear Administrator Szabo and Administrator Quarterman,

We write to urge the Pipeline and Hazardous Material Safety Administration (PHMSA) to expedite its ongoing rulemaking to improve the transport of hazardous material by rail, including the DOT-111 tank car. Further, we request that both PHMSA and the Federal Railroad Administration (FRA) review the adequacy of existing railway tank cars and safety regulations, particularly with regard to hazmat shipments, and then implement stronger regulations where necessary. As the shipment of hazardous material by rail continues to rise, we believe it is necessary for your agencies to take these steps.

Since November 2012, major passenger and freight rail accidents have occurred in New Jersey, Connecticut, Maryland, Quebec, New York, Missouri, New Mexico, and North Dakota, among others. While the causes and circumstances of these accidents varied, too many resulted in loss of life. We are concerned that a significant number involved DOT-111 tank cars exploding, burning, or otherwise leaking their hazardous contents with devastating human and environmental consequences, and prompting the evacuation of nearby population centers.

In light of these incidents, and as shipments of crude oil continue to increase, we cannot understate the importance of PHMSA expediting its rulemaking to improve tank car safety and the widely used DOT-111 tank car. The National Transportation Safety Board (NTSB) first highlighted the design flaws of DOT-111 tank cars more than twenty years ago. Since then, the NTSB has recommended several improvements, including tank head shields, top and bottom fitting protections, and more puncture resistant shells.

In 2011, the railroad industry voluntarily committed to enhanced safety standards for newly built tank cars. However, to our knowledge these newer cars have yet to be crash tested. We urge your agencies to conduct these tests as soon as possible in order to ensure the new cars' crash worthiness and help finalize safer design standards. We also encourage you to consider retrofitting, phasing out, or restricting the use of older tank cars for the shipment of certain hazardous materials.

Improved tank car standards are only part of the solution. We were encouraged to learn that following a recent meeting convened by Secretary Foxx, the railroad and petroleum industry will explore voluntary steps to improve the safety of crude oil shipments. While this is a

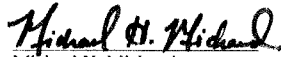
positive first step, we believe the recent series of accidents call for a more thorough review of rail safety regulations, and where necessary, mandatory improvements.

For example, last week the NTSB issued three new recommendations to improve the transportation of crude oil by rail. The agency's recommendations included: 1) expanded route planning for hazardous materials in order to avoid populated and other sensitive areas; 2) an audit program to ensure rail carriers have adequate emergency response capabilities to address worst-case scenarios; and 3) an audit program to ensure that shipments of hazardous materials are properly classified. We believe your agencies should take prompt action on these recommendations.

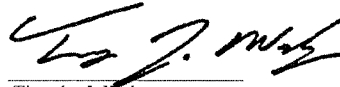
In addition, we request that your agencies consider improved signaling and communications between trains to avoid collisions, enhanced speed restrictions for hazmat shipments, and measures to fully train and prepare local emergency responders for accidents.

Your agencies are in a unique position to provide this review and take immediate action to improve public safety around the country. Upon identifying any regulatory deficiencies, we encourage you take prompt action to address the issue. Thank you for your attention to these requests. If you have questions or need any additional information please do not hesitate to contact our offices.

Sincerely,



Michael H. Michaud  
Member of Congress



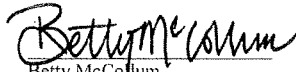
Timothy J. Walz  
Member of Congress



Peter A. DeFazio  
Member of Congress




Chellie Pingree  
Member of Congress



Betty McCollum  
Member of Congress



Ron Kind  
Member of Congress



Collin C. Peterson  
Member of Congress

cc: Secretary Anthony Foxx, U.S. Department of Transportation  
Chairman Deborah Hersman, National Transportation Safety Board

MICHAEL H. MICHAUD  
2ND DISTRICT MAINE

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**Congress of the United States**  
**House of Representatives**  
**Washington, DC 20515**

August 13, 2013

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RANKING MEMBER

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HAZARDOUS MATERIALS  
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SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

The Honorable Jeff Denham  
Chairman  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials  
Committee on Transportation and Infrastructure  
B-376 Rayburn House Office Building  
Washington, D.C. 20515

The Honorable Corrine Brown  
Ranking Member  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials  
Committee on Transportation and Infrastructure  
592 Ford House Office Building  
Washington, D.C. 20515

Dear Chairman Denham and Ranking Member Brown:

I write to respectfully request hearings on the issues of railway safety, particularly regarding the transportation of hazardous materials, and railroad liability insurance. As you know, the Railway Safety Improvement Act of 2008 (RSIA) will need to be reauthorized this Congress, and while the railroad industry's safety record has generally improved since RSIA's enactment, several recent major rail accidents have highlighted the fact that further safety improvements can and must be made. Before our Committee considers legislation to reauthorize RSIA, I believe it is imperative that we fully examine the industry for safety improvements.

On July 6, 2013, a runaway train carrying crude oil operated by Montreal, Maine & Atlantic Railway (MMA) derailed in Lac-Megantic, Quebec, which is just 10 miles from my district. Subsequent explosions and fires took nearly fifty lives, destroyed a significant portion of the town, and caused extensive environmental damage.

Prior to the derailment, the nearly mile long train had been operated by a single-person crew before it was left unattended on the main line track for the night with the locomotive running. Last week in the derailment's aftermath, faced with hundreds of millions in cleanup costs and only \$25 million in insurance coverage, MMA filed for bankruptcy. The economic impact of this decision is currently being felt by businesses throughout Maine, as well as the MMA employees in my district. While the accident investigation is still ongoing, it is clear that a similar tragedy could have occurred in Maine had the train been parked just a few miles further down the track.

Unfortunately, the Lac-Megantic accident is not an isolated incident, as Maryland, Missouri, and Connecticut have also seen major rail accidents this year alone. While our economy depends on the shipment of hazardous materials by rail, these incidents highlight the fact that as rail traffic continues to grow, Congress, regulators, and the industry must make safety our highest priority.

Specifically, I request that the Subcommittee hold safety hearings to review minimum crew standards, positive train control, DOT-111 tank car design standards, and procedures for securing trains carrying hazardous materials. Furthermore, I urge the Subcommittee to examine the availability and adequacy of railroad liability insurance. When rail accidents do occur, we must

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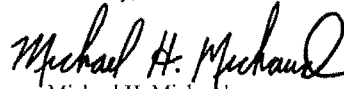
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ensure that those responsible have sufficient coverage for recovery costs, rather than leaving the victims or taxpayers to foot the bill.

Railroad safety is an issue that impacts all our districts. I appreciate your consideration of this request and hope that we can work together to improve railway safety.

Sincerely,

  
Michael H. Michaud  
Member of Congress

ELIZABETH H ESTY  
5TH DISTRICT CONNECTICUT

COMMITTEE ON  
TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON  
HIGHWAYS AND TRAVEL

SUBCOMMITTEE ON  
RAILROADS, PIPELINES AND HAZARDOUS MATERIALS

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September 26, 2013

The Honorable Jeff Denham  
Chairman  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials  
B-376 Rayburn House Office Building  
Washington, DC 20515

The Honorable Corrine Brown  
Ranking Member  
Subcommittee on Railroads, Pipelines, and  
Hazardous Materials  
B-376 Rayburn House Office Building  
Washington, DC 20515

Dear Chairman Denham and Ranking Member Brown:

Yesterday, the Metro-North Railroad's New Haven line was severely disrupted after a problem arose in Mt. Vernon, N. Y., where a Con Edison cable supplying power to the railroad suddenly failed. The severe harm caused may last weeks. Furthermore, it follows in the wake of recent tragedies on the New Haven line that, when combined with this outage and recent interruptions across the country, demand a renewed commitment to improve rail safety and reliability. Out of respect for those harmed, and the passengers whose livelihoods depend on this service, I request that the Rail Subcommittee hold a hearing to investigate deficiencies in our energy infrastructure and safety practices that threaten the reliability of rail service.

This is not a parochial issue. The last several months have witnessed numerous rail service disruptions with negative consequences cascading across state boundaries. Yesterday's failure of one high-voltage cable harmed not only the line's 125,000 daily commuters, their workplaces, and families, it also delayed Amtrak service along the entire Northeast corridor. Restoration of service is estimated to take up to three weeks – during which time, tens of thousands of passengers must find other ways to go to work or to school. Our already overcrowded roads, Interstate 95 in particular, have limited capacity to absorb these travelers.

Industry redundancies exist for the specific purpose of ensuring safe, reliable service. For instance, the Mt. Vernon sub-station providing power to the New Haven line typically features a second cable. However, in this instance, the second cable had been removed as part of equipment upgrades and scheduled repairs. This raises several legitimate questions I believe the Rail Subcommittee should investigate, including:


- What challenges prevent current redundancies from ensuring safe, reliable rail transit?
- What steps are necessary to maintain the energy infrastructure requisite to power mass transit while protecting against moments of unacceptable vulnerability?
- How do current risks, and the federal resources we devote to protect against them, compare to previous eras?

As the increased ridership along the Northeast Corridor indicates, more and more Americans now look to rail to meet their transit needs. It is an engine for economic growth in Connecticut, bearing a terrific return on investment. As a member of the Rail Subcommittee, I therefore stand

ready and willing to assist in finding expert witnesses capable of identifying the steps we can take to protect against future breakdowns and delays like the one now hampering businesses and workers across the entire region.

As we face fiscal challenges and an increasingly constrained budget, we must not allow the benefits accrued from the growing popularity of passenger rail systems to be threatened by neglect or disinvestment. Commuters in Connecticut, and those all across America, deserve better.

Sincerely,

  
Elizabeth H. Esty  
Member of Congress

cc: The Honorable Bill Shuster, Chairman, Committee on Transportation & Infrastructure  
The Honorable Nick Rahall, Ranking Member, Committee on Transportation & Infrastructure

**Congress of the United States**  
**Washington, DC 20515**

December 6, 2013

The Honorable Bill Shuster  
 Chairman  
 Committee on Transportation and  
 Infrastructure  
 2165 Rayburn House Office Building  
 Washington, DC 20515

The Honorable Nick J. Rahall, II  
 Ranking Member  
 Committee on Transportation and  
 Infrastructure  
 2163 Rayburn House Office Building  
 Washington, DC 20515

The Honorable Jeff Denham  
 Chairman  
 Subcommittee on Railroads, Pipelines, and  
 Hazardous Materials  
 B-376 Rayburn House Office Building  
 Washington, DC 20515

The Honorable Corrine Brown  
 Ranking Member  
 Subcommittee on Railroads, Pipelines, and  
 Hazardous Materials  
 2111 Rayburn House Office Building  
 Washington, DC 20515

Dear Chairmen Shuster and Denham and Ranking Members Rahall and Brown:

We write out of grave concern for public safety, given the deadly derailment on the Metro-North Railroad's Hudson Line on December 1<sup>st</sup>. This shocking incident is made all the more tragic by the fact that it was likely preventable. When combined with this year's other rail safety incidents, it creates the perception of an unacceptably dangerous status quo. We therefore request that the Committee on Transportation and Infrastructure, or the Subcommittee on Railroads, Pipelines, and Hazardous Materials, hold a hearing focused specifically on rail safety as soon as possible.

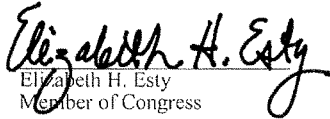
As you know, the Rail Safety Improvement Act of 2008 (Public Law 110-432, Division A) expired on October 1, 2013, leaving our nation's rail safety program in need of reauthorization. In light of recent accidents, it's important that we take time to evaluate the program and consider whether existing safety measures should be strengthened. This is a dire matter to our constituents. According to the Federal Railroad Administration, the following Metro-North accidents in our states of Connecticut and New York have caused 5 deaths and approximately 129 injuries this year alone:

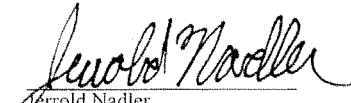
- May 17<sup>th</sup> passenger train derailment and train-to-train collision in Bridgeport, CT;
- May 28<sup>th</sup> fatal roadway worker accident in West Haven, CT;
- July 18<sup>th</sup> CSX derailment at Spuyten Duyvil, Bronx, New York;
- December 1<sup>st</sup> derailment at Spuyten Duyvil, Bronx, New York.


These concerns extend far beyond Metro-North or even passenger rail, as the deadly tank car explosion in Lac-Mégantic, Quebec, made clear in July. Of the Subcommittee's seven hearings held this session, none have focused primarily on rail safety. Out of respect for rail employees


and passengers everywhere, especially those harmed last Sunday, we urgently request that the Committee or Subcommittee hold a hearing to investigate what steps can be taken to prevent such tragedies from happening again.

Sincerely,

  
Elizabeth H. Esty  
Member of Congress

  
Jerrold Nadler  
Member of Congress

  
Tim Bishop  
Member of Congress

  
Sean Patrick Maloney  
Member of Congress

PETER A. DeFAZIO  
4TH DISTRICT, OREGON  
  
NATURAL RESOURCES  
RANKING MEMBER  
  
TRANSPORTATION AND  
INFRASTRUCTURE  
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AVIATION  
HIGHWAYS AND TRANSIT  
RAILROADS



**Congress of the United States**  
**House of Representatives**

January 7, 2014

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The Honorable Bill Shuster  
Chairman  
House Committee on  
Transportation & Infrastructure  
2165 Rayburn House Office Building  
Washington, DC 20515

The Honorable Nick J. Rahall II  
Ranking Member  
House Committee on  
Transportation & Infrastructure  
2163 Rayburn House Office Building  
Washington, DC 20515

The Honorable Jeff Denham  
Chairman  
House Subcommittee on  
Railroads, Pipelines & Hazardous Materials  
B-376 Rayburn House Office Building  
Washington, DC 20515

The Honorable Corrine Brown  
Ranking Member  
House Subcommittee on  
Railroads, Pipelines & Hazardous Materials  
2251 Rayburn House Office Building  
Washington, DC 20515

Dear Chairmen Shuster and Denham and Ranking Members Rahall and Brown:

The recent derailment and resulting fire on a train carrying crude oil near Casselton, North Dakota, is just the latest in a string of accidents that call into question the safety of rail cars carrying hazardous materials. That's why I am writing to request that the House Transportation and Infrastructure Committee hold a hearing as soon as possible to examine the safety of our nation's rail cars, specifically DOT-111 tank cars that are used to transport crude oil.

For years the safety of DOT-111 tank cars has been a concern of the National Transportation Safety Board (NTSB). According to a March 2012 letter from the Chairman of the NTSB to the Administrator of the Pipeline and Hazardous Materials Safety Administration (PHMSA), "DOT-111 tank cars have a high incidence of tank failures during accidents. Previous NTSB investigations that identified the poor performance of DOT-111 tank cars include a May 1991 safety study as well as NTSB investigations of a June 30, 1992, derailment in Superior, Wisconsin; a February 9, 2003, derailment in Tamaroa, Illinois; and an October 20, 2006, derailment of an ethanol unit train in New Brighton, Pennsylvania."<sup>1</sup> But, it was a derailment in Cherry Valley, Illinois, on June 19, 2009, that led NTSB to make the following safety recommendations to PHMSA in that same March 2012 letter:

- Require that all newly manufactured and existing general service tank cars authorized for transportation of denatured fuel ethanol and crude oil in Packing Groups I and II have enhanced tank head and shell puncture resistance systems and top fittings protection that exceeds existing design requirements for DOT-111 tank cars. (R-12-5)
- Require that all bottom outlet valves used on newly manufactured and existing non-pressure tank cars are designed to remain closed during accidents in which the valve and operating handle are subjected to impact forces. (R-12-6)

THIS STATIONERY PRINTED ON PAPER MADE WITH RECYCLED FIBERS

- Require that all newly manufactured and existing tank cars authorized for transportation of hazardous materials have center sill or draft sill attachment designs that conform to the revised Association of American Railroads' design requirements adopted as a result of Safety Recommendation R-12-9. (R-12-7)<sup>ii</sup>

The number of carloads of oil being shipped by rail has increased dramatically in recent years as a result of increased oil production from the Bakken region; and, just last week, PHMSA issued preliminary guidance indicating "that the type of crude oil being transported from the Bakken region may be more flammable than traditional heavy crude oil."<sup>iii</sup> Despite a significant increase in the number of shipments and the likelihood that shipments are more hazardous than previously thought, the safety of the majority of the rail cars carrying these shipments has not increased.

In March 2011, the American Association of Railroads petitioned PHMSA to request that it adopt new standards developed by AAR's North American Tank Car Committee for packing group I and II hazardous materials, which includes DOT-111 crude oil. AAR decided to go ahead and adopt these standards in July 2011 and all new tank cars ordered after October 2011 meet these higher standards. Currently 25 percent of the tank cars used to move crude oil met the AAR standards, but the other 75 percent of tank cars do not. PHMSA has not yet developed its own standards or adopted those created by AAR. Meanwhile, no action has been taken to retrofit existing cars or phase out the current fleet of cars which have an average life span of 30 to 40 years.

In September of 2013, PHMSA issued an advanced notice of proposed rulemaking to improve the safety of rail tank car transportation. It is my understanding that PHMSA is currently going through comments it received and has begun an economic and policy analysis of potential regulatory actions. But, a rulemaking process will take months, if not years and I don't think Congress should wait. The Federal Government must ensure that the rail cars being used to ship crude oil from the Bakken region will keep the crude oil contained, controlled and the public protected when accidents inevitably occur.

That's why I am requesting that the committee hold a hearing to further examine this issue. Thank you for your consideration of this request.

Sincerely,



PETER DeFAZIO  
Member of Congress

<sup>i & ii</sup> Deborah Hersman, Chairman of National Transportation Safety Board to Cynthia Quarterman Administrator, Pipeline and Hazardous Materials Safety Administration, March 2, 2012

<sup>iii</sup> Pipeline and Hazardous Materials Safety Administration--Safety Alert, "Preliminary Guidance from OPERATING CLASSIFICATION," January 2, 2014



**Committee on Transportation and Infrastructure**  
**U.S. House of Representatives**

**Bill Shuster**  
**Chairman**

Washington, DC 20515

**Nick J. Rahall, Jr.**  
**Ranking Member**

Christopher F. Bertram, Staff Director

January 15, 2014

James H. Zele, Democrat Staff Director

The Honorable Jeff Denham  
 Chairman  
 Subcommittee on Railroads, Pipelines and Hazardous Materials  
 U.S. House of Representatives  
 Washington, DC 20515

Dear Chairman Denham:

As Democratic Members of the Subcommittee, we write to respectfully request a hearing on rail safety. Over the last several months, there have been several deadly train incidents which warrant this Subcommittee's immediate attention. In fact, several Democratic Members of the Transportation and Infrastructure Committee have written letters dating back to August 2013 requesting a hearing on rail safety, yet a review of Committee activities shows that we have not held one rail safety hearing this Congress. At the same time, the Committee has failed to reauthorize the Rail Safety Improvement Act of 2008 (Public Law 110-432, Division A), which authorizes funding for the nation's rail safety program, including the Federal railroad safety inspections and investigations program. That expired at the end of Fiscal Year 2013.

When this Committee crafted the Rail Safety Improvement Act of 2008, a number of deadly train collisions involving passengers and, separately, poison-by-inhalation hazardous materials had occurred. Those incidents as well as other safety concerns led to the inclusion of several provisions in the Act, and while the Federal Railroad Administration's (FRA) data shows that the overall number of train accidents has declined since enactment of the Act, several serious incidents warranting our Subcommittee's review have occurred. These include:

- A January 7, 2014, incident in northwest New Brunswick, Canada, not far from the U.S. border, where a Canadian National (CN) freight train derailed 16 of its cars, five containing crude oil from western Canada and four containing liquefied petroleum gas. The derailment caused a massive fire and a huge plume of black smoke that forced at least 150 people from their homes near the village of Plaster Rock.

The Honorable Jeff Denham  
January 15, 2014  
Page 2

- A December 30, 2013, incident in Casselton, North Dakota, where a BNSF train hauling grain derailed and blocked a neighboring track. A crude oil train traveling in the opposite direction struck the derailed cars, causing massive explosions and a significant post-crash fire. The incident prompted the Pipeline and Hazardous Material Safety Administration (PHMSA) to issue a safety warning that crude from North Dakota's Bakken Shale "may be more flammable" than other oil types. On the same day, a Union Pacific train struck a BNSF train in Keithville, Louisiana, which according to FRA was likely due to an improperly lined switch.
- A December 1, 2013, derailment in Spuyten Duyvil, Bronx, New York, involving a Metro-North passenger train. Four passengers were killed and another 63 injured, making it the deadliest train accident within New York City since 1991.
- A November 30, 2013, derailment in Bayard, New Mexico, involving a Southwestern Railroad runaway freight train. The locomotive and six cars derailed, resulting in the rupture of the locomotive fuel tank and three fatalities.
- A July 18, 2013, derailment in Spuyten Duyvil, Bronx, New York, involving a CSX freight train traveling on Metro-North's system. Ten of the train's cars derailed and blocked tracks on Metro-North's Hudson line.
- A July 6, 2013, derailment in Lac-Mégantic, Quebec, just a few miles from the Maine border, involving a runaway train carrying crude oil. The train was operated by U.S.-based Montreal, Maine & Atlantic Railway. Subsequent explosions and fires resulted in the death of nearly 50 lives, annihilated a significant portion of the town, and caused extensive environmental damage.
- A May 28, 2013, incident in West Haven, Connecticut, involving a Metro-North passenger train that struck and killed a Metro-North maintenance-of-way employee who was part of a roadway work group conducting a railroad maintenance and construction project. According to the National Transportation Safety Board's (NTSB) preliminary investigation, the roadway work group had established exclusive track occupancy work limits on a controlled main track in order to conduct their work. A separate railroad grade crossing incident and explosion near Baltimore, Maryland, occurred just one day later.
- A May 17, 2013, derailment in Bridgeport, Connecticut, of an eastbound Metro-North passenger train. About 20 seconds after the derailment, a westbound Metro-North passenger train on the adjacent track struck the derailed train. As a result of the incident, over 50 people were transported to hospitals, and several million dollars in property damage occurred. According to the NTSB, broken compromise joint bars were found at the accident scene.

The Honorable Jeff Denham  
January 15, 2014  
Page 3

- A November 30, 2012, incident involving a Conrail freight train that derailed seven tank cars traveling over a moveable bridge spanning Mantua Creek in Paulsboro, New Jersey. Four tank cars, three containing vinyl chloride and one containing ethanol, came to rest in Mantua Creek. One of the derailed tank cars was breached and released approximately 20,000 gallons of vinyl chloride into the creek and surrounding area.

Again, we urge the Subcommittee to hold a hearing immediately on rail safety. We believe the hearing should, at a minimum, include representatives from the NTSB, FRA, PHMSA, the rail industry, and rail labor. Thank you in advance for consideration of this request.

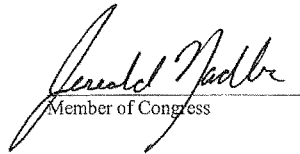
Sincerely,



CORRINE BROWN  
Ranking Member  
Subcommittee on Railroads, Pipelines and Hazardous Materials



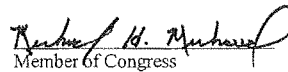
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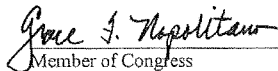
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Member of Congress



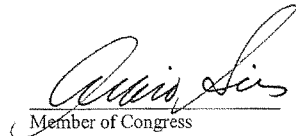
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Member of Congress



Member of Congress

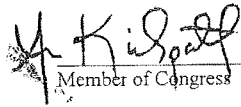


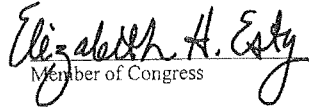
Member of Congress

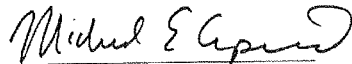


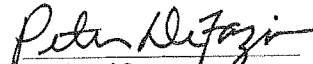
Member of Congress

The Honorable Jeff Denham  
January 15, 2014  
Page 4

  
Member of Congress

  
Member of Congress

  
Member of Congress

  
Member of Congress

cc:

The Honorable Bill Shuster  
Chairman  
Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

The Honorable Nick J. Rahall, II  
Ranking Member  
Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

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RICK LARSEN  
2ND DISTRICT, WASHINGTON

**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-4702

COMMITTEES:  
TRANSPORTATION  
AND INFRASTRUCTURE

ARMED SERVICES

January 23, 2014

The Honorable Bill Shuster  
Chairman, House Transportation and Infrastructure Committee  
2165 Rayburn House Office Building  
Washington, DC 20515

The Honorable Nick J. Rahall, II  
Ranking Member, House Transportation and Infrastructure Committee  
2163 Rayburn House Office Building  
Washington, DC 20515


Dear Chairman Shuster and Ranking Member Rahall:

I respectfully request that the House Transportation and Infrastructure Committee hold an oversight hearing on the issue of trains carrying crude oil.

Several recent tragic incidents involving trains carrying crude oil in North America compel Congress to take an active role in ensuring our communities are safe. I am particularly concerned about this issue because many trains carrying crude oil pass through communities in my District on their way to refineries in Northwest Washington.

Thank you for your consideration of this request. I appreciate your continued commitment to safety and I look forward to continuing to work with you on this issue.

Sincerely,



Rick Larsen  
Member of Congress  
Washington State, 2<sup>nd</sup> District