

S. HRG. 113-376

**ENHANCING OUR RAIL SAFETY: CURRENT  
CHALLENGES FOR PASSENGER AND FREIGHT RAIL**

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**HEARING**

BEFORE THE

SUBCOMMITTEE ON SURFACE TRANSPORTATION  
AND MERCHANT MARINE INFRASTRUCTURE,  
SAFETY, AND SECURITY

OF THE

**COMMITTEE ON COMMERCE,  
SCIENCE, AND TRANSPORTATION  
UNITED STATES SENATE**

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

—————  
MARCH 6, 2014  
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ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

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**ENHANCING OUR RAIL SAFETY:  
CURRENT CHALLENGES FOR PASSENGER  
AND FREIGHT RAIL**

THURSDAY, MARCH 6, 2014

U.S. SENATE,  
SUBCOMMITTEE ON SURFACE TRANSPORTATION AND  
MERCHANT MARINE INFRASTRUCTURE, SAFETY, AND SECURITY,  
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,  
*Washington, DC.*

The Subcommittee met, pursuant to notice, at 11:04 a.m. in room SR-253, Russell Senate Office Building, Hon. Richard Blumenthal, Chairman of the Subcommittee, presiding.

**OPENING STATEMENT OF HON. RICHARD BLUMENTHAL,  
U.S. SENATOR FROM CONNECTICUT**

Senator BLUMENTHAL. Let me call this subcommittee meeting to order and begin by thanking Chairman Rockefeller, who may not be with us this morning, for the honor of taking over this assignment. It's a recent one for me and I want to thank Senator Warner for his excellent stewardship and leadership of this subcommittee. I hope to fill his shoes, in part, and thank my colleagues for joining me this morning: Senator Cantwell, Senator Heitkamp, Senator Hoeven, and of course, the Ranking Member, Senator Blunt, whose leadership on this issue is longstanding. And he and I look forward to an era of very close bipartisan work together as is characteristic of this committee and particularly this subcommittee in general.

Welcome to our witnesses. By way of warning, we have votes at 11:20. I'm told that there will be a single vote and then two voice votes. I'm hoping that we can take a brief break, ten, fifteen minutes, and then come back and resume the session this morning.

We are here this morning because of safety and reliability issues that deeply concern, in fact alarm, much of the American traveling public and much of the business community that relies on freight. The transportation of products and people is absolutely essential to our economy. It's the lifeblood of job creation and economic growth.

So we are at a critical period in the Nation's long and storied railroad history and we plan to have a series of hearings, this one being simply the first of a number and it was scheduled before I became Chairman, but I'm very glad that all of our witnesses could come back after the snowstorm required its postponement.

Obviously, there are severe consequences to failures in safety and reliability. We've seen them in Metro-North, the busiest railroad in the country, and the series of incidents have caused not

only delays in convenience, economic harm, but also injuries and fatalities. Injuries at the Bridgeport derailment and crash back in May, and then more recently, on December 1, at Spuyten Duyvil in the Bronx of New York where four people were killed and there were several injuries.

But the American public also may not realize, looking forward, the severe environmental consequences and economic costs that could result from repetitions of these failures in safety and reliability. And recently, in *The New York Times*, I saw a map. I'm going to ask that it be shown momentarily, as soon as it arrives, but clearly these failures can cause pollution problems, as well as other kinds of damages, to health and to safety in the general public.

We're going to focus on the responsibilities of railroads to make investments and improve policies and practices; change their cultures; and install new leadership, because this record has to be improved. We need to invest in the future of our railroads and these hearings and the work of this committee will explore what can be done, what must be done, to improve safety and reliability. But we're also going to focus on the responsibilities of our Federal agencies to oversee and scrutinize those practices and policies, and the leadership and management that has to come from our railroads.

And I must say right at the beginning that I have been disappointed and disturbed by some of the delays and failures in rule-making and oversight and scrutiny that has been imposed on these railroads. With seven rules left to finalize from a law passed in 2008, the Railroad Safety Act of 2008 still has not been implemented years later. And some of those rules are past their deadline in the time that's been given to implement them. Rules delayed means safety denied and that is unacceptable and intolerable.

And so, part of what we're going to do here is make sure that we impose accountability on Federal agencies. I understand that there have been steps in the right direction. The recent voluntary operating practices announced by the Department of Transportation, that relate to rail safety regarding freight, particularly on speed, rerouting, certain kinds of inspections of content of those freight cars, are very welcome, but they are voluntary. And again, legal standards have to be imposed and followed so that they truly protect the public.

I understand that recently, Operation Classification and unannounced inspection indicated that 11 of 18 samples were not assigned correctly. Eleven of 18 samples of crude oil, to be transported through the United States, simply on a random inspection, done voluntarily under Operation Classification by PHMSA, showed that there are significant lapses.

So I think that we need to make sure that the regulatory agencies are not victims of regulatory capture as happened, for example, in the financial industry in 2008. We saw the consequences; they affected not only Wall Street but Main Street. The focus affected by that regulatory laxity were severely harmed financially and their lives changed forever; so too, in Canada, in North Dakota, in New York, and Connecticut. The costs can be in lives as well as dollars.

We have a responsibility to do better. This hearing will also look at ways, and future hearings as well, that we can prioritize Federal dollars for infrastructure. Members of this subcommittee have indicated, and I have as well, very directly and pointedly that we need more investment in infrastructure and the ways to do it, whether it's an infrastructure bank, a railroad trust fund, are going to be part of an effort that we will have ongoing and part of legislation that, I hope, will be introduced within the next months.

And again, we're going to work in a very bipartisan way to reach conclusions that can actually also achieve passage because we need bipartisan work on rail transportation. There's nothing Republican or Democratic about it. And the effort to prevent laxity, lethargy in enforcement begins here, but so does the effort to achieve greater investment. And in that bipartisan spirit, I'm going to turn to our Ranking Member, Senator Blunt.

**STATEMENT OF HON. ROY BLUNT,  
U.S. SENATOR FROM MISSOURI**

Senator BLUNT. Well, thank you Chairman Blumenthal. And after a week as Chairman, you're already having a major hearing and off to quite a start and I look forward to our opportunity to work together on this committee.

I also want to thank Senator Warner for his leadership and his continued interest in these areas and for taking time to be here today on what he and I thought was an important topic when we originally decided we needed to have a hearing on this. And again, thanks to you for following through on that and I look forward to our opportunity to work together.

I want to thank all of our witnesses for coming today. We have six people: four government witnesses, two private sector witnesses. Obviously, this is a topic that has significant implications and involves both the government and the private sector finding ways to work together. I know I join you in being pleased that our colleagues from North Dakota, Senator Hoeven and Senator Heitkamp, have—while not on the Committee—have joined us today and will be functioning as if they were acting members of this committee. And certainly, they may understand these issues better than anybody else on the Committee; certainly as well as anybody else understands.

There's certainly no doubt that the recent rail accidents involving trains transporting crude oil have brought new questions of rail safety and transporting this product to the forefront. The central issues we are grappling with here is how our infrastructure can keep up with the national and global needs that we have, specifically the infrastructure we're talking about today; rail infrastructure and the twenty-first century demand. We're talking about, the new demand we're talking about on that infrastructure is energy.

There's no doubt that infrastructure is a critical component of our economy. Again to mention Senator Warner, he and I were and are co-sponsoring two pieces of legislation that would add just tools to the toolbox. I think all of us have talked about this many times; the infrastructure challenge is so big, it's hard to imagine putting more things in that toolbox than we can use because there are so

many different ways to do, as you just suggested, Mr. Chairman, what needs to be done.

Quality transportation is, of course, vital to connect people and connect products with each other. The Energy Information Agency projects that world energy consumption will grow by 56 percent between now and 2040. They also project that crude oil production will be at 8.5 million barrels a day in the United States by the end of this year; 8.5 million barrels is 3.5 million barrels higher than we were producing in 2008. And so, obviously this is a part of our energy economy that has grown dramatically and we expect it to continue to grow. We need to look today—one of the things we'll be looking at is clearly what impact that has had on rail.

In 2012, Class I railroads moved more crude oil than ever; over 230,000 carloads. Now, that's up from 9,500 carloads just 4 years ago. And those are numbers that, the kind of numbers I have a hard time repeating later because I'll think surely I didn't, even though I'm the one reading this information, surely I didn't read that right. In four years, we've gone from 9,500 carloads of crude oil on rail to 230,000 carloads of crude oil on rail. And obviously, a dramatic change both in our energy profile, but also in how we're moving that energy around.

Now one of the things that obviously benefits from that is the ability to send those carloads to a different place than a fixed pipeline might send them. But I think, again back to infrastructure, whether it's increasing pipeline capacity, rail capacity, how we deal with that, that's just going to be an important part of the foreseeable future for us unless we walk away from the energy opportunity we have.

This examination of where we are needs to be balanced. It needs to understand everything from tank car design, to rail infrastructure, to rail safety. And I think, when you look at the panel here today, we clearly are prepared to talk about all of those things and to look at how we classify hazardous materials. And back to the Chairman's comments; how that classification is working and how it needs to work better.

It's also important that we have somebody here from the Federal Communications Commission to talk about positive train control. Positive train control can only happen if you can have the information you need to have and that can only happen if you have the towers sited that need to be sited. And this is a topic I brought up with Chairman Wheeler in this room when he was testifying in his nomination hearing. I think I also brought it up with two other members of the Commission that have recently been added when they were testifying.

And now, how are we going to solve this tower siting problem and is it possible to do that in a way that meets the deadline of the law? And, my personal belief is that if the answer is no, it's not possible. So what are we going to do about that?

The private sector companies have invested substantially in time and resources and rail safety. Rail safety is at a higher level than it has ever been, but what do we want to talk about today is what do we still want to do? I know Mr. Szabo, particularly with a lifetime of time spent in this industry, could probably tell us better than anybody else. I may ask him to later. What's happened in the

30 years you've been doing this? And if you look at the derailment numbers and all the other numbers, there is dramatic improvement. And what do we still need to do to make that even better?

But I think it's important we understand how far we've moved in just the last few years. And Chairman, again, thank you for holding this hearing and I look forward to working with you as the Chairman of this subcommittee.

Senator BLUMENTHAL. Thanks, Senator Blunt.

I'd like to ask Senator Warner, since by all rights you should have been here if the hearing had taken place when it was supposed to, whether you'd like to make any opening statement.

**STATEMENT OF HON. MARK WARNER,  
U.S. SENATOR FROM VIRGINIA**

Senator WARNER. I will be very, very brief in mine. And I really appreciate your courtesy for having me back, and Senator Blunt as well, we had a great working relationship during my tenure. I want to thank all the witnesses. I would have gotten this in right under the wire as I moved off the Committee but for the snowstorm.

And, you know, I think there's enough, particularly on the tanker car safety, enough economic opportunity, enough money being made that we've got to be able to figure out a solution set here. And I want to give special kudos to Senator Heitkamp who basically gave me tanker car safety 101 and 102 for about an hour and a half one day and taught me a lot about this, both the challenges that we face and the fact that, you know, there's got to be a collaborative way. And particularly appreciate the focus from industry.

I know there has been great progress since we started this. I also just want to echo, again, since I will get this done in under a minute or I'll never be invited back, echoing what Senator Blunt said. There's got to be a way. There's enormous asset value created by these thousands and thousands of towers. I've said, in my previous life, I would take that obligation off of all the railroads if I could have the revenue stream but we've got to find a way that the FCC can license this in an efficient and effective and expeditious manner or we're not going to get the rail safety that I know the Chairman and the Ranking Member want.

Thank you, sir.

Senator BLUMENTHAL. Thank you very much, Senator Warner.

Let me begin the questioning before we have to leave for votes. And I'm delighted that we have a great turnout this morning. So we're going to begin with 5 minutes apiece to each of the Senators.

Mr. Szabo, what can you tell us about so far of the results of the Operation Deep Dive look into Metro-North?

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

Mr. SZABO. So you want a Q&A before opening statements, Mr. Chairman.

Mr. CHAIRMAN. I'd be happy to have any statements that any of the witnesses may have.

Mr. SZABO. OK, opening statements.

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

Over the past decade, train accidents/derailments have declined by 47 percent; highway grade crossing accidents are down 35 percent; and employee fatalities have dropped by 59 percent. Meanwhile, intermodal freight traffic has surged toward a new record. Amtrak ridership has reached all-time highs. While rail became the fastest growing mode of public transportation, new records in safety have been achieved four out of the past 5 years, and preliminary data indicates all-time best for Fiscal Year 2013. Better than Fiscal Year 2012, previously our safest year on record.

But we owe it to the public to always do better. That's what we expect out of ourselves at FRA, and it's what we expect out of the industry that we regulate. So let me share with you my vision for driving the next generation of rail 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 mitigate risk well in advance of an accident. And third is ensuring predictable and reliable funding for rail in order to improve infrastructure through capital investments and develop new safety technologies through robust research and development.

Our enforcement program is based on the strategic use of data. By using statistical modeling, we allocate our resources and execute our national inspection plan. It's a disciplined approach that has been the foundation of the dramatic drop in accidents over the past decade. We also learn from every accident and identify root causation to further eliminate risk and identify the need for additional regulation.

In December, we initiated Operation Deep Dive; a comprehensive look at Metro-North's entire operation. And we'll share with you our report in a couple of weeks after we've analyzed all the data. We've got a target date of March 17.

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

The Rail 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 1 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 advance 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 Call Reporting. While our data-based oversight and enforcement program has produced tremendous results, this data comes from accidents that have already occurred. Through Close Call Reporting it allows us to gather this data before, before an accident happens, 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 mitigation plan to reduce risk. This push, over and above our traditional oversight and enforcement, will help us drive continuous safety improvement. But the sooner we put rail on par with other transportation, with the source of dedicated and predictable funding, the sooner we will achieve the next generation of safety.

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

Mr. Chairman, I'd also like to thank you, personally, for the work you did in helping FRA secure additional resources, additional employees, for Fiscal Year 2014. That's a great first step for us. It's going to help us better in our enforcement program.

And I look forward to any questions that you have.

[The prepared statement of Mr. Szabo follows:]

PREPARED STATEMENT OF HON. JOSEPH C. SZABO, ADMINISTRATOR, FEDERAL RAILROAD ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

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 FY 2013 indicating it will be even better than FY 2012's record.

Since FY 2004:

- 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.

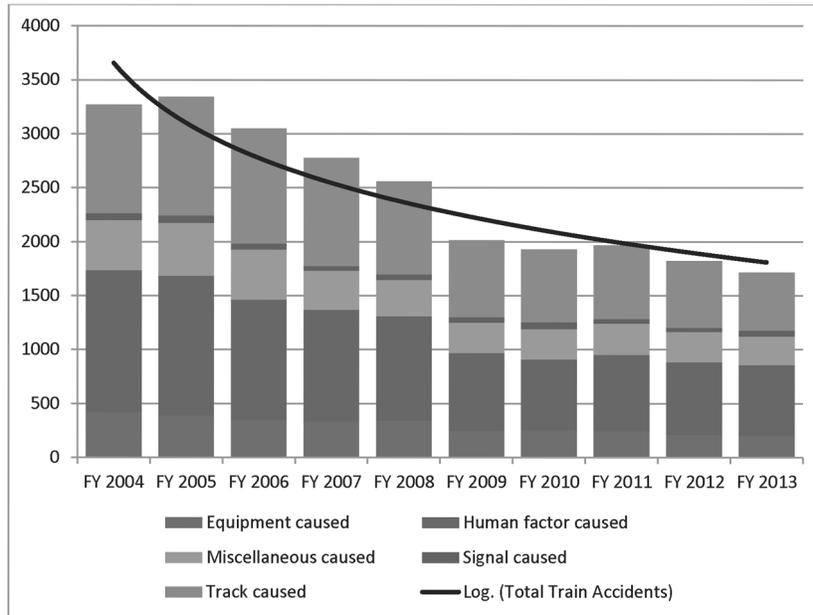
RSIA mandated that FRA, as the Secretary's designee, complete an unprecedented 42 tasks, including final rules, guidance documents, model State laws, studies, and reports as well three types of annual reports and hundreds of periodic accident reporting audits.

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

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

\*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
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 non-compliance with Emergency Order 29.
- 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

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

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, 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. After analyzing their plans and suggestions, on February 20, 2014, Secretary Foxx sent a letter to the Association of American Railroads (AAR) with a list of actions to be voluntarily taken immediately by industry to dramatically improve the safety of railroads transporting crude oil and the communities they move through. AAR President and CEO Edward Hamberger signed the agreement that same day, and individual railroads are signing on subsequently. The letter from Secretary Foxx listed eight commitments:

1. By July 1, subscribers will apply HAZMAT routing analysis to trains with 20 or more tank cars loaded with petroleum crude oil (Key Crude Oil Trains). The routing analysis utilizes a computer model to analyze 27 risk factors to determine the safest and most secure route for the product to travel.
2. By July 1, subscribers will adhere to a speed restriction of 50 mph for all Key Crude Oil Trains, and 40 mph in high-threat urban areas if they are using a DOT 111 tank car.
3. By April 1, subscribers will equip all Key Crude Oil Trains on main track with distributive power locomotives or an operative two-way telemetry end of train device to achieve benefits in braking speed and substantially reducing the kinetic energy in trains to prevent pile ups.
4. Effective March 25, subscribers will perform at least one internal rail inspection and two track geometry inspections more than is required by current regulations every calendar year on Key Crude Oil Train routes.
5. By July 1, subscribers will begin installing wayside defective bearing detectors every 40 miles on Key Crude Oil Train routes to prevent equipment-caused accidents.
6. 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.
7. 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. facility in Colorado with a training program fully developed by July 1.
8. Subscribers will continue to work with communities on Key Crude Oil Train routes to address location-specific concerns.

A copy of the full agreement is included with this testimony. This agreement is an important step in improving the safety of crude oil transportation by rail. FRA will continue to use its regulatory authority to address this issue and act accordingly to maintain public safety and confidence.

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 con-

duct 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**

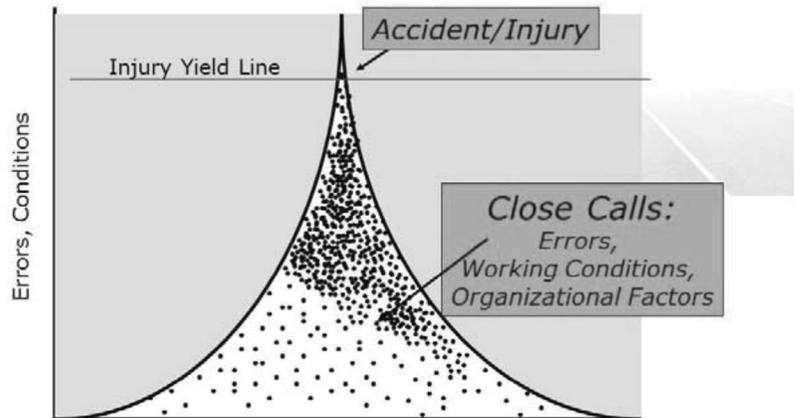
Continuous safety improvement requires a multi-faceted approach. The next level of safety will come from advancing proactive safety-based programs that analyze risks, identify hazards, and put in place customized plans to eliminate those risks.

- **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 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:

<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/PRIIA%20305%20DocSpec%20and%20other%20NGEC%20Documents/305%20PRIIA%20Tilt%20presentation.pdf>



## C<sup>3</sup>RS Identifies Precursors to Accidents



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.
  - 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.

<sup>3</sup>"Positive Train Control: Implementation Status, Issues, and Impacts"—<http://www.fra.dot.gov/Elib/Details/L03718>

## APPENDIX 1

**FRA Rulemakings Completed as of March 5, 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.

**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)*).

<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.

<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*.

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*).
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.

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

### Map of the Metro-North System



Senator BLUMENTHAL. Thank you. Thank you very much, Mr. Szabo.

I'm going to interrupt because the votes have been called. We should have a ten-minute recess and we'll come back and resume. Thank you.

[Pause.]

Senator BLUMENTHAL. Thank you all for your patience. Please proceed.

#### STATEMENT OF HON. CYNTHIA L. QUARTERMAN, ADMINISTRATOR, PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Ms. QUARTERMAN. Good morning. Chairman Blumenthal and Ranking Member Blunt, members of the Subcommittee, Senators Heitkamp and Hoeven, 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 for Secretary Foxx, for the Department of Transportation, PHMSA, and all of its sister modes. We all work diligently to protect the American people and the environment from hazardous material transportation incidents.

As you know, energy production in the United States has markedly increased. 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 2013, approximately 600,000 barrels per day of oil produced in North Dakota were transported by rail; going from less than 11,000 carloads in 2009 to close to 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 regulatory and non-regulatory methods to, in the first instance, prevent incidents from occurring by putting in place necessary operational controls and improving track integrity to lessen the likelihood of an incident. In 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 guidelines and rulemakings; participate in rail safety committees and public meetings; enhance inspection and enforcement; and coordinate with 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 with DOT inspectors performing unannounced inspections and testing crude oil samples to verify that the materials were being properly characterized and classified for transportation.

In January, 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 oil. The Secretary identified some actions the department was considering and challenged those industries to take such preventive and mitigative steps immediately.

To date, the call to action has been a success for safety. We've received firm commitments from 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 alternate routes, improve braking, improve crude oil testing and classification, and improve emergency responder preparedness and training.

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

As I've stated earlier, PHMSA is committing to improving transportation safety and I believe our comprehensive approach to addressing safety is working. Our aggressive first step and continuing focus on this issue will help to prevent and mitigate incidents 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 continue 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 Committee may have.

[The prepared statement of Ms. Quarterman follows:]

PREPARED STATEMENT OF HON. CYNTHIA L. QUARTERMAN, ADMINISTRATOR, PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Good morning Mr. Chairman, Ranking Member, 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.

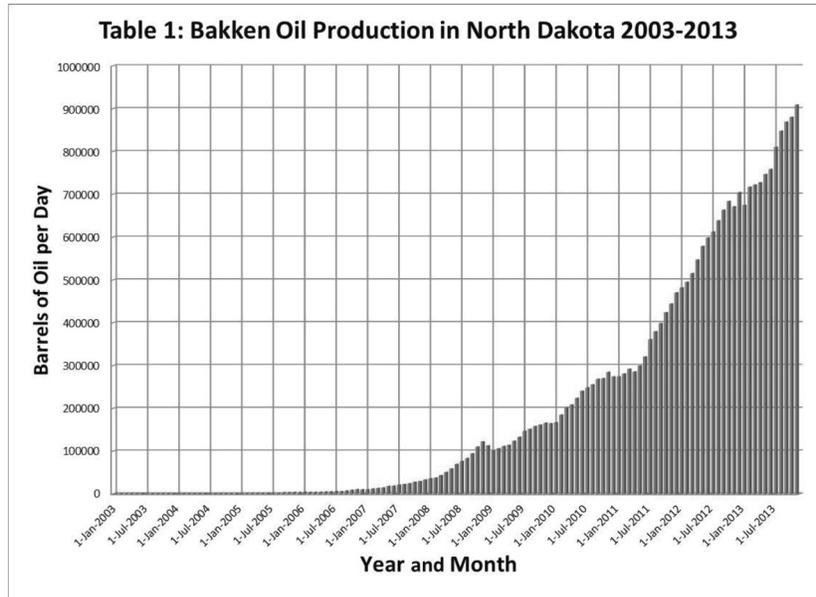
Safety is the top priority for Secretary Foxx, everyone at PHMSA, and the other modes in the U.S. Department of Transportation (DOT). PHMSA continues to work diligently to protect the American people and the environment from the risks of hazardous materials transportation by all modes, including rail. 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 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 by Rail**

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 square 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 it is 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>

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



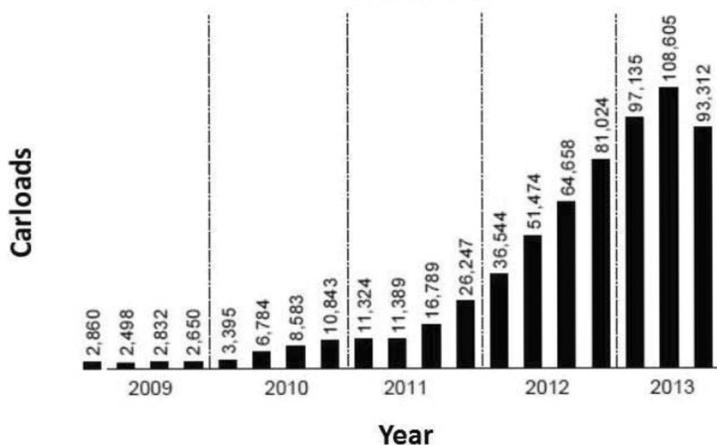
Approximately 71 percent of all oil produced in North Dakota, or around 800,000 barrels per day, was transported by rail in November 2013, according to the North Dakota Public Service Commission.<sup>2</sup> Corresponding with increased production, the volume of crude oil moving by rail has quadrupled in less than a decade (See Table 2—a Class I railroad is a railroad 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 percent, and train accidents involving a hazardous materials release are down 16 percent between 2003 and 2012.<sup>4</sup>

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

<sup>3</sup> The Surface Transportation Board Website 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

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

**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 crude oil occurred in the town of Lac-Mégantic, Quebec. The train, which was 4,701 feet long and weighed 10,287 tons, was not properly secured and rolled down a descending grade, subsequently derailing near the center of Lac-Mégantic. The locomotives separated from the train and came to a stop about a 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. Transport Canada is currently investigating the accident, with the assistance of the National Transportation Safety Board (NTSB) and DOT.

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 DOT 111 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 NTSB is currently investigating the accident, with the assistance of DOT.

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, with the assistance of DOT.

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 with and training of hazardous materials stakeholders, including the public, hazardous materials transporters, and emergency responders.

## II. Comprehensive Approach to Prevent and Mitigate Rail Hazardous Materials Accidents and Incidents

PHMSA's safety mission involves working 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 mitigating the risks posed by the bulk transport of hazardous materials by rail. Specifically, PHMSA, in coordination with 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 implement 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 materials, including 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 the material. 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 an advanced notice of proposed rulemaking, 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. To date, PHMSA and FRA have not received any requests to design a car that deviates from the January 25, 2011 approved design.

Following the publication of the PHMSA final 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 PHMSA and 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 de-

<sup>5</sup> See *Federal Register* <http://www.gpo.gov/fdsys/pkg/FR-2010-05-14/pdf/2010-11414.pdf>

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

<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.

railment of tank cars carrying crude oil classified as Packing Group I and II, or 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	263,000	Optional	STDP set 165 psig Optional Reclosing Requirement	7/16 inch Minimum	TC-128B or ASTM A516-70 Steel	Optional	Not Required; Optional
DOT Approved 286K Car (76 FR 4250)	Attached During Transportation	286,000	Half Height	STDP set 165 psig Optional Reclosing Requirement	7/16 inch-TC-128B or 1/2 inch-ASTM 516-70	Normalized TC-128B or ASTM 516-70 Steel	Yes	Not Required; Optional
AAR Petition 1577 (Non-Jacketed)	Attached During Transportation	286,000	Half Height	STDP set 165 psig Reclosing Requirement	1/2 inch-TC-128B or 9/16 inch-ASTM 516-70	Normalized TC-128B or ASTM 516-70 Steel	Yes	Not Required; Optional
AAR Petition 1577 (Jacketed)	Attached During Transportation	286,000	Full Height <sup>2</sup>	STDP Set 165 psig Reclosing Requirement	7/16 inch-TC-128B or 1/2 inch-ASTM 516-70	Normalized TC-128B 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 STDP=Start to Discharge Pressure								

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, initiated 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 draft ANPRM addressed several Petitions for Rulemaking submitted by industry and recommendations issued by the NTSB.<sup>10</sup> The draft 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 draft 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. In response to this additional information, PHMSA published an ANPRM on September 6, 2013,<sup>11</sup> which addressed all of the petitions and NTSB recommendations related to rail safety, including tank car and operational standards for flammable liquids.

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 addition to the rulemaking activity by PHMSA, DOT took additional regulatory action following the Lac-Mégantic derailment. On August 7, 2013, FRA, in coordination with PHMSA, issued an emergency order<sup>12</sup> addressing 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 emergency order addressed the leading factors identified in preliminary findings in the Lac-Mégantic

<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>

<sup>12</sup> See *Federal Register* <https://federalregister.gov/a/2013-19215>

investigation, and PHMSA and FRA are conducting field inspections and investigations to monitor compliance with the emergency order.

On February 25, 2014, the Department issued another emergency order<sup>13</sup> to improve the safe transportation of crude oil by rail. The emergency order requires those who offer crude oil for transportation by rail to ensure the product is properly tested and classified in accordance with Federal Hazardous Materials Regulations. All Class III crude oil shipments must now be designated as Packing Group I or II, thereby requiring the use of a more robust tank car. (Previously some Class III crude oil shipments were allowed to be designated as Packing Group III.) As our efforts in testing crude oil samples have uncovered evidence of misclassification, the emergency order highlights the importance of properly testing and classifying crude oil prior to shipping to ensure the product is being transported in containers that are designed to safely store the hazardous material while in transit.

#### *Non-regulatory efforts*

Concurrent with FRA's August 7, 2013 emergency order, PHMSA and FRA published a joint Safety Advisory<sup>14</sup> that 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 Safety 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>15</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 FRA, who will forward the recommendations to PHMSA for further evaluation.

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, manufacturers, and repair facilities; and shippers and customers of hazardous materials by rail, as well as participants from PHMSA, 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>16</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>17</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>18</sup> This Safety 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 August 7, 2013 emergency order and the August 7, 2013 joint Safety Advisory. FRA has initiated a focused effort to

<sup>13</sup> See DOT website: <http://www.dot.gov/briefing-room/dot-issues-emergency-order-requiring-strictier-standards-transport-crude-oil-rail>

<sup>14</sup> See *Federal Register* <https://federalregister.gov/a/2013-19211>

<sup>15</sup> See *Federal Register* <https://federalregister.gov/a/2013-19471>

<sup>16</sup> See *Federal Register* <https://federalregister.gov/a/2013-17201>

<sup>17</sup> See public comments <http://www.regulations.gov/#!docketDetail;D=FRA-2013-0067>

<sup>18</sup> See *Federal Register* <https://federalregister.gov/a/2013-27785>

audit security plans, specifically at railroads that move unit trains of flammable liquids.

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>19</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 Safety 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 Safety 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. The alert 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 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 railroads and other modes of transportation for hazardous materials safer, since the misclassification of a hazardous material affects more than just the railroad industry. During the meeting, the rail and crude oil industries agreed to consider potential actions they could take to enhance safety, including speed restrictions in high-consequence areas, alternative routing, the use of distributive power to improve braking, increased track inspections, improvements to crude oil 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>20</sup>

In the weeks following the “Call to Action” meeting, PHMSA has worked closely with industry stakeholders to advance the safety initiatives. We have received voluntary agreements from the AAR, the American Short Line and Regional Railroad Association, and the American Petroleum Institute to consider ways to quickly implement the approaches to safety discussed during the meeting.

#### *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 of hazardous materials, development of safety and security plans, and the awareness and understanding of 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 the materials being shipped. In January 2013, PHMSA and FRA began planning this initiative and officially launched “Operation Classification” in August 2013. This initiative is an ongoing effort, and PHMSA will continue to collect samples and test them to determine the characteristics of Bakken crude oil, as well as oil from west Texas.

<sup>19</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)

<sup>20</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)

To date, PHMSA has taken 58 samples to collect some preliminary information about the hazards associated with these oils. PHMSA has uncovered 11 potential violations, primarily related to improper packaging group assignment, and plans to release the findings of Operation Classification publicly upon conclusion of the effort. PHMSA has initiated enforcement actions on potential violators. In addition, as these violations could indicate further non-compliance issues, PHMSA continues to expand the scope of its investigations. PHMSA will use the results of the 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>21</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 receive regular updates to provide progress reports on industry commitments as part of the "Call to Action" and additional Departmental activities related to rail safety initiatives. This site 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. 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 have on the public and local communities nearby. We must prepare for these new and shifting demands right now and ensure that 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.

Senator BLUMENTHAL. Thank you, Ms. Quarterman.  
Mr. Hart.

<sup>21</sup> Website available at <http://phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnnextoid=c5ff6d96d8283410VgnVCM100000d2c97898RCRD&vgnnextchamel=0f0b143389d8c010VgnVCM1000008049a8c0RCRD&vgnnextfmt=print>

**STATEMENT OF HON. CHRISTOPHER A. HART, VICE  
CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD**

Mr. HART. Thank you, Chairman Blumenthal, Ranking Member Blunt, and members of the Subcommittee for inviting the NTSB to discuss lessons learned from accidents that can help improve rail safety.

Rail safety in America is improving, as we have already heard, with total accidents and incidents down almost 23 percent since 2004. However, a spate of recent accidents reminds us that our railroad system can and must be made safer.

Improving rail safety requires a comprehensive approach starting with actions to prevent accidents such as the December 1 Metro-North rail accident in the Bronx, which resulted in four fatalities. This tragedy has led to NTSB recommendations that will help prevent future accidents.

We must also take action to make accidents less severe. Last July, a crude oil train derailed near the town center of Lac-Mégantic, Quebec, triggering an intense crude oil fire; 47 people died and the town center was destroyed. This tragedy demonstrates that until we have figured out how to prevent accidents completely, it's also important to mitigate the consequences.

One of the major improvements the NTSB has been recommending for decades to help prevent accidents is positive train control. The tragic Metro-North accident in the Bronx was one type of accident that PTC is designed to prevent. PTC could have also prevented at least 25 other freight and passenger rail accidents that the NTSB has investigated since 2004. Congress has mandated the implementation of PTC by the end of 2015. This deadline is the law of the land. PTC must be implemented by that deadline to prevent future accidents.

The NTSB has recommended a transparent accounting of the railroad industry's actions taken and not taken to meet the statutory deadline. The NTSB is very disappointed and concerned that the FRA will not proactively release the railroads' PTC progress reports. The public interest would best be served by a full and transparent accounting of progress toward PTC.

Another way to prevent accidents is to make sure that the Nation's rail infrastructure is adequately maintained. Broken rail and other track defects are a major cause of derailments. Accordingly, the NTSB continues to call for more robust track inspections to identify and fix problems before they cause derailments.

We must also mitigate the consequences of accidents, especially those that involve flammable or toxic liquids such as crude oil and ethanol. We've already heard that rail carriage of both ethanol and crude oil increased more than 440 percent between 2005 and 2010. In 2012, ethanol was the most frequently transported hazardous material in the railroad system.

On December 30, near Casselton, North Dakota, 20 cars of a crude oil train derailed spilling about half a million gallons of crude oil and igniting a fire that burned for 24 hours. Fourteen hundred people were evacuated from their homes. As I mentioned earlier, in Lac-Mégantic, last July, a crude oil train derailment resulted in the deaths of 47 people. In coordination with the Transportation Safety Board of Canada, the NTSB issued recommenda-

tions to the FRA and to PHMSA addressing specific improvements related to the safe transport of flammable liquids by rail.

More broadly, the NTSB has publicly stated since 1991 that DOT-111 tank cars, which are the primary means of transporting crude oil and ethanol by rail, are too easily damaged even in low speed derailments. Their continued use to ship flammable liquids poses an unacceptable risk to the public. The revised DOT-111 design implemented by industry since 2011—the CPC-1232 specification car needs further changes to improve its crashworthiness. An improved Federal tank car design standard must include enhanced head shields and tank jackets and increased tank shell thickness.

The NTSB is encouraged that industry stakeholders and PHMSA are in broad agreement over the need to improve the DOT-111 design. We will monitor the PHMSA rulemaking closely, although the improvements are long overdue. Next month, we will hold a tank car safety forum dealing with the transportation of flammable liquids by rail, and we will address tank car issues, operations issues, and the emergency response issues.

Accident mitigation also requires that first responders have the training and resources necessary to safely and effectively respond to hazardous materials accidents. Railroads have a key role in helping prepare first responders and quickly responding to hazmat derailments. You've heard reference to the announcement by the Association of American Railroads and DOT Secretary Foxx of a series of new voluntary freight rail safety measures including measures to improve emergency response. As you may be aware, railroads and the DOT participate with the NTSB in our rail accident investigations and many of the newly-announced voluntary measures related to issues that we are examining in our ongoing investigations.

Meanwhile, we continue to investigate the Casselton, ND accident and the four accidents involving Metro-North. Already in 2014 we have issued three safety recommendations to Metro-North. We will issue additional recommendations if needed without waiting on the completion of that final report. Our investigators are doing the methodical, comprehensive job that the American people expect from the NTSB. We anticipate issuing final reports and recommendations addressing more than ten rail accidents by the end of this year.

Mr. Chairman, this concludes my testimony. I look forward to answering the Subcommittee's questions.

Thank you very much for inviting the NTSB to participate in this hearing.

[The prepared statement of Mr. Hart follows:]

PREPARED STATEMENT OF HON. CHRISTOPHER A. HART, VICE CHAIRMAN, ON BEHALF  
OF THE NATIONAL TRANSPORTATION SAFETY BOARD

Good afternoon, Chairman Blumenthal, Ranking Member Blunt, 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 long-standing 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 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

<sup>1</sup>A unit train is a train made up of cars carrying the same product.

<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).

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 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.
- 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

<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.”).

<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 accord-

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 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>

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ing 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, *Derailement 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.

<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>.

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 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.

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. If the deadline remains unaltered, the NTSB would encourage FRA to take appropriate action to ensure railroads are complying with all applicable requirements regarding PTC implementation.

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 implemen-

<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>.

tation 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>

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

<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).

<sup>18</sup> NTSB Recommendation No. R-10-1.

<sup>19</sup> NTSB Recommendation No. R-10-2.

to the two 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 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

<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).

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 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

<sup>21</sup>NTSB Recommendation No. R-13-17.

<sup>22</sup>NTSB Recommendation No. R-08-6.

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.

Senator BLUMENTHAL. Thank you, Mr. Hart.  
Mr. Blackwell.

**STATEMENT OF GEOFFREY C. BLACKWELL, CHIEF,  
OFFICE OF NATIVE AFFAIRS AND POLICY, CONSUMER  
AND GOVERNMENTAL AFFAIRS BUREAU, FEDERAL  
COMMUNICATIONS COMMISSION**

Mr. BLACKWELL. Chairman Blumenthal, Ranking Member Blunt, and members of the Subcommittee, thank you for the opportunity to testify today concerning the FCC's role in enhancing rail safety.

The FCC recognizes that positive train control has the power to save lives, prevent injury, and avoid property damage. It is the top priority of the FCC to work with all parties to help them fulfill their legal obligations and advance the deployment of PTC as prescribed by the Rail Safety Improvement Act of 2008. At the same time, we recognize the need to balance the very legitimate concerns regarding the potential impacts of such a major infrastructure deployment on historic properties including sites of religious and cultural significance to tribal nations.

This imperative is reflected in the FCC's statutory obligations under Section 106 of the National Historic Preservation Act as well as the National Environmental Policy Act. Regulations developed by the Advisory Council on Historic Preservation, require that the FCC review and assess whether a proposed communications facility may have an adverse effect on historic properties and consult with federally-recognized tribal nations as part of the review process.

The NHPA and our rules require that applicants ascertain prior to initiating construction, whether their construction could have a significant environmental impact including an adverse effect on historic properties.

A cornerstone of the Commission's implementation of Section 106 is the Tower Construction Notification System (TCNS). TCNS is a secure online system that allows parties constructing communications towers to ascertain whether their proposed construction would implicate a tribal nation's interest in culturally or religiously significant sites. A parallel system, E106, exists to facilitate review of towers by State Historic Preservation Officers (SHPO). TCNS and E106 provide an easy and efficient way to exchange information among FCC staff, tribal nations, State Historic Preservation Officers, and applicants.

In the spring of 2013, the railroads informed us that they intended to deploy PTC using a system that required the construction of approximately 22,000 wayside poles. We immediately sought to develop alternative ways to leverage TCNS and E106 to facilitate the deployment of this necessary infrastructure while also ensuring compliance with all the relevant statutes and our rules.

The TCNS and E106 systems are tried and true; designed to ensure efficient reviews, but were not designed for the sheer volume of the PTC wayside antenna structures. TCNS and E106 do, however, offer unique efficiencies that will provide many advantages to all the parties involved.

Being mindful of the FCC's trust responsibility to consult with tribal governments prior to implementing a regulatory action, we took the following steps: First, we consulted with the Council on Environmental Quality and the Advisory Council on Historic Preservation (ACHP) on the best path forward with the conclusion being that the most expeditious is for the Commission to tailor its historic preservation review processes is to develop a Program Comment. This is a document adopted and issued by the Advisory Council that allows the FCC to follow alternative historic preservation review processes.

Second, on September 27, we released a Section 106 Scoping Document as an initial step in developing a Program Comment. We then held tribal consultations in South Dakota in November, and Oklahoma in December. In unprecedented fashion, these meetings with tribal officials also included demonstration and presentation sessions by the railroads.

Third, on January 29, we released a draft Program Comment which seeks to promote administrative efficiency by providing for submission of poles in batches while ensuring that SHPOs and tribal nations will receive sufficient information about each pole to evaluate its effects on historic properties.

Comments on the draft Program Comment were due February 12. The Program Comment was formally submitted to the Advisory Council this past Tuesday, March 4. And under its rules, ACHP would act on the Program Comment by mid-April.

Once adopted, the Commission is prepared immediately to begin accepting railroad submissions for the up to 20,000 additional constructions now expected. Complicating our work to create an efficient process for new PTC construction is the fact that we must

consider more than 10,000 PTC constructions that were undertaken without completing the environmental and historic preservation review clearly required by Federal laws and regulations. This issue has figured prominently in our discussions with SHPOs and tribal nations as we seek to create an efficient review process.

Based on those discussions, it is clear to us that issues related to prior construction must be resolved at the same time as the issues surrounding future PTC infrastructure.

In closing, let me reiterate that the Commission recognizes the importance of PTC to enhancing rail safety and is committed to creating an efficient and timely review process. This process will ensure full consideration of the effects of PTC wayside poles on historic properties including sites of religious and cultural significance to tribal nations in a manner that allows the railroads to complete construction by the statutory deadline.

Thank you for the opportunity to appear today. I look forward to answering any questions you may have.

[The prepared statement of Mr. Blackwell follows:]

PREPARED STATEMENT OF GEOFFREY C. BLACKWELL, CHIEF, OFFICE OF NATIVE AFFAIRS AND POLICY, CONSUMER AND GOVERNMENTAL AFFAIRS BUREAU, FEDERAL COMMUNICATIONS COMMISSION

Chairman Warner, Ranking Member Blunt, and Members of the Subcommittee, thank you for this opportunity to appear before you today concerning the Federal Communications Commission's role in enhancing rail safety. My name is Geoffrey Blackwell, and I am the Chief of the Federal Communications Commission's (FCC) Office of Native Affairs and Policy, or ONAP, which is part of the Consumer and Governmental Affairs Bureau. ONAP was established in August 2010 to promote the deployment and adoption of communications services and technologies throughout Tribal Lands and Native Communities and to ensure robust government-to-government consultation with federally-recognized Tribal Governments and increased coordination with Native Organizations, including on environmental and historic preservation reviews and related matters. Along with other Commission Bureaus and Offices, ONAP is part of the internal infrastructure team at the Commission that coordinates closely on the matters involved in this hearing.

The Commission recognizes that positive train control (PTC) is a transformative technology that has the power to save lives, prevent injuries, and avoid extensive property damage. Clearly, PTC deployment is a top priority of all of the agencies and companies represented at the table today. It is also a top priority of the Commission to work with all parties to help them fulfill their various legal obligations and responsibilities and advance the deployment of PTC within the time-frame prescribed by the Railroad Safety Improvement Act of 2008 (RSIA).

At the same time, we recognize the need to balance legitimate concerns regarding the potential impacts of such a major infrastructure deployment on historic properties, including sites of religious and cultural significance to Tribal Nations. This imperative is reflected in the FCC's statutory obligations under Section 106 of the National Historic Preservation Act (NHPA), as well as the National Environmental Policy Act (NEPA). Most notably, NHPA regulations developed by the Advisory Council on Historic Preservation (ACHP) require that the FCC review and assess whether a proposed communications facility may have an adverse effect on historic properties, and consult with Federally recognized Tribal Nations as part of its review process.

For example, railroad tracks often follow historical trade and navigation routes that have been used for centuries, both by European settlers and by Native peoples before and since European settlement. Construction along the tracks therefore has the potential to affect a number of cultural or religious properties, from traditional burial sites to sacred landscapes. Our consultations with Tribal Nations revealed such specific histories. According to the Tribal Historic Preservation Officer (THPO) of the Quapaw Tribe of Oklahoma, when the railroad was constructed through historical Quapaw community lands in the southern plains, the soil of multiple burial mounds was bulldozed into the right-of-way to build up the track bed. According to the THPO of the Mississippi Band of Choctaw Indians, the largest Tribal cemetery

ever discovered in the state of Mississippi was found under a railroad right-of-way. Several THPOs for Tribal Nations resident in both North and South Dakota have identified village sites that lie underneath existing rail lines. Likewise, Tribal Nations with an interest in the Columbia River Gorge have identified sacred sites and petroglyphs that are either underneath or alongside the existing tracks. Construction along railroad tracks can also affect historic properties that are not of cultural and religious significance to Tribal Nations. For example, the Pennsylvania, Georgia, Montana, Wyoming, and New Mexico SHPOs have identified historic districts in their states that lie astride rail lines.

Accordingly, to address these concerns the Commission is dedicating substantial resources to establishing a specially-designed review process that would allow the railroads to deploy PTC wayside infrastructure by the December 31, 2015, statutory deadline, while also ensuring that it meets its statutory obligation to fully consider the effects of this infrastructure on historic properties, including sites of religious and cultural significance to Tribal Nations.

### **Background**

RSIA requires that freight and passenger railroads deploy by December 31, 2015, interoperable PTC systems along routes transporting passengers and certain hazardous cargoes. While the Federal Railroad Administration (FRA) is responsible for overseeing the railroads' implementation of PTC by the statutory deadline, the FCC plays a role in two aspects of PTC deployment. First, the FCC regulates access to spectrum, and many railroads are installing PTC systems that require licensed spectrum to enable wireless communication. Second, it is well established—and has been upheld by the D.C. Circuit—that a Commission licensee's construction of a facility (*e.g.*, a communications tower) to use Commission-licensed spectrum constitutes a major Federal action and Federal undertaking within the meaning of NEPA and the NHPA. Thus, the FCC has a legal responsibility to review the environmental and historic preservation impacts, including impacts on properties of religious and cultural significance to Tribal Nations, of infrastructure projects, like PTC, that will provide wireless services using FCC-licensed spectrum. It is a common misperception that the responsibility to ensure that Tribal Nations have an opportunity to participate in this process arises only with respect to the lands upon which Tribal Nations currently reside. In fact, the NHPA requires a nationwide scope, and Tribal involvement in the FCC process is typically most important on non-Tribal lands. These previously inhabited areas are precisely where Tribal governments do not presently own the land or have the authority to protect their religious and cultural properties, except through the NHPA.

### **Providing Spectrum**

Broadly speaking, the FCC understands that two types of PTC systems will be implemented in the United States. While they both use frequencies in the 217 to 222 megahertz range, they have different spectrum requirements. In the Northeast Corridor, Amtrak and the commuter railroads intend to implement Amtrak's Advanced Civil Speed Enforcement System (ACSES), via 12.5 kHz spectrum channels. Outside of the Northeast Corridor, commuter railroads, Amtrak and the freight railroads intend to implement a system developed by the freight railroads, Interoperable Electronic Train Management System (I-ETMS), via 25 kHz channels.

Since 2010, FCC staff has been working with freight and commuter rails to identify spectrum that is suitable and available for the deployment of an interoperable PTC system. PTC-220, a consortium of the Nation's seven Class I freight railroads, has acquired a substantial block of nationwide spectrum, as well as additional spectrum in dense urban markets, for the purpose of implementing PTC systems. FCC staff continues to work with PTC-220 and other relevant stakeholders to enable more intensive use of PTC-220s spectrum holdings, which will allow other railroads, especially commuter railroads, to benefit from PTC-220s spectrum holdings and networks. Provided that pending and future FRA requirements do not materially impact PTC spectrum needs, we believe the seven Class I freight railroads generally have sufficient spectrum to deploy PTC. We also believe that an increasing number of commuter rails have access to sufficient spectrum to deploy PTC. We continue to work actively with those still seeking spectrum.

### **Environmental and Historic Preservation Review**

The Commission's rules require that applicants ascertain—prior to initiating construction—whether a facility they wish to construct could have a significant environmental impact, including an adverse effect on historic properties. If the facility may have such an impact, the Commission's rules require the preparation of an Environmental Assessment (EA) and further environmental processing.

To determine whether there will be an adverse effect on historic properties, the rules require the applicant to follow certain procedures set forth in the Commission's 2004 Nationwide Programmatic Agreement (NPA) with the ACHP and the National Conference of Historic Preservation Officers (NCSHPO). Intended to facilitate historic preservation review for communications projects, the NPA includes procedures for participation of Tribal Nations and, where necessary, referral to the Commission for government-to-government consultation. The NPA also improved the process for SHPO review and excluded some constructions from review under defined conditions. The Commission's rules also specify procedures for NEPA compliance. No formal regulatory action is required to adapt these procedures for PTC wayside poles, and the Commission staff is working with the railroads to make the necessary informal adjustments to the process.

While the Commission's rules include certain exemptions and exclusions from NEPA and NHPA review, none currently available would categorically exclude the entire PTC wayside pole system. The creation of exemptions for infrastructure deployments like PTC would require not only consultation and negotiation with ACHP and NCSHPO, the other necessary signatories to our NPA under ACHP rules, but also a full notice and comment rulemaking proceeding at the Commission, a process that could take a year or longer.

A cornerstone of the Commission's implementation of the NPA is the Tower Construction Notification System (TCNS), a secure technology solution that allows parties interested in constructing communications towers to ascertain whether their proposed construction would implicate a Tribal Nation's interest in culturally or religiously significant sites in the area of the proposed construction. TCNS is a non-public system that facilitates the notification, interactions, and review of proposed constructions, while protecting the private nature of both the particular applicant's proposed construction and the site of religious or cultural significance to a Tribal Nation. Use of TCNS immediately narrows the areas of interest of Tribal Nations to only those that they have indicated as relevant in this process and currently, every single Tribal Nation in the country has set their areas of interest to participate in the TCNS system. A parallel system, E-106, exists to facilitate review of communications towers by interested state historic preservation officers (SHPOs).

On average the Commission processes more than 10,000 applications a year for new or collocated communications infrastructure through these systems. TCNS and E-106 provide an easy way to exchange information among Commission staff, Tribal Nations, SHPOs and applicants.

#### **Facilitating Efficient PTC Infrastructure Deployment**

In the spring of 2013, the railroads informed FCC staff that they intended to deploy PTC using a system that required the construction of approximately 22,000 wayside poles with antennas along the railroad tracks. Through continued discussions with the railroads we concluded, and the railroads have agreed, that the Commission's TCNS and E-106 processes, as they existed, were not suited to ensure efficient review of PTC wayside infrastructure on such a large scale. In fact, the existing TCNS and E-106 process was originally designed for tower-by-tower review and does not efficiently scale up to the large scale and linear nature of the proposed PTC projects. At the same time, we recognized that TCNS and E-106 do offer unique efficiencies that will provide many advantages to the railroads, FCC staff, SHPOs, and Tribal Nations. Consequently, the Commission immediately sought to develop alternative ways to leverage TCNS and E-106 so as to facilitate the deployment of necessary infrastructure while ensuring compliance with the relevant statutes and our rules. In doing so, we are mindful of the Commission's trust responsibility to consult with Tribal governments prior to implementing any regulatory action or policy that could significantly or uniquely affect Tribal governments, their land and resources.

Complicating our work to create an efficient process for new construction of PTC infrastructure is the fact that we must consider more than ten thousand PTC infrastructure deployments that were undertaken by the railroads without completing the environmental and historic preservation review clearly required by Federal laws and regulations. This issue has figured prominently in our discussions with SHPOs and Tribal representatives, and in consultations with Tribal government officials, as we seek to create an efficient review process. Based on those discussions, it is clear to us that issues related to prior construction must be resolved contemporaneously with the issues surrounding future PTC infrastructure construction.

In May 2013, FCC senior staff advised the major freight railroads to defer submission of requests seeking SHPO and Tribal review of wayside pole deployments until the FCC could develop a more streamlined process specifically tailored to PTC wayside poles. FCC staff has consistently advised commuter railroads, which will deploy a limited number of wayside poles, to continue using the TCNS and E-106 systems.

### **The Program Comment**

Upon concluding that our existing processes were not suitable for PTC infrastructure review, FCC staff consulted with the Administration's Council on Environmental Quality (CEQ) and with the ACHP on the best path forward. CEQ confirmed that we could not simply exclude PTC wayside poles from the required NEPA review without a formal notice and comment rulemaking process to develop a categorical exclusion. ACHP similarly confirmed that there was no ready path to a broad exclusion from NHPA review. ACHP further advised that the most expeditious way for the Commission to streamline its historic preservation review process is to develop a "Program Comment."

A Program Comment is a document adopted and issued by the ACHP that allows a Federal agency such as the FCC to follow alternative historic preservation review processes that address specific needs of an agency. Under this approach, the FCC must develop a draft Program Comment and propose it to ACHP after consultation with all stakeholders, including government-to-government consultation with Tribal Nations. Adoption and implementation of the Program Comment does not require a formal FCC rulemaking.

We released a Section 106 scoping document—an initial step in developing a Program Comment—on September 27, 2013. We then met with Tribal officials and railroad representatives, in Rapid City, South Dakota in November 2013, and Tulsa, Oklahoma in December 2013. In an unprecedented fashion, in addition to face-to-face consultations between Federal and Tribal officials, these meetings also included sessions with all interested parties present. At their request, we also coordinated with the railroads to facilitate live demonstrations of their PTC deployments to Tribal officials.

As a result of those meetings and consultations, on January 8, 2014, the Commission advised the Class I freight railroads to begin submitting through TCNS and E-106 proposed PTC infrastructure along segments of track that were discussed during the Rapid City and Tulsa meetings using a Beta version of the process we envision implementing in the Program Comment. While the TCNS and E106 systems are not designed for public inspection, and thus do not have public view versions, we believe it is a good indication of forward progress that one of the Class I freight railroads has voluntarily filed information in TCNS, and four have filed forms in the E-106 system.

We began our PTC solutions dialogue with Indian Country in August of last year—the earliest practicable date—at the annual meeting of the National Association of Tribal Historic Preservation Officers in Billings, Montana. We are scheduling additional consultations with Tribal Nations in the Pacific Northwest and Southwest to gather input on the draft Program Comment and continue the productive conversations between the Tribal Nations and the railroads. We also conducted a dialogue last week with the Culture and Heritage Committee of the United South and Eastern Tribes, and we have conducted numerous other meetings with regional and national inter-Tribal organizations.

FCC staff has also engaged numerous SHPOs on the proposal to create a more efficient review process. In particular, we provided information to the SHPOs by letter in July 2013, October 2013, and January 2014, and we have conducted four teleconferences with the SHPOs in August 2013, December 2013, and February 2014.

The FCC publicly released a draft Program Comment on January 29, 2014. The draft Program Comment would apply to wayside infrastructure that will be constructed within existing railroad rights of way for use in the implementation and operation of PTC systems. Infrastructure eligible for the procedures of the Program Comment may support either wayside antennas or base stations, but must not: (1) be taller than 75 feet; (2) create a foundation hole in excess of 15 inches in diameter (unless agreed to in the context of manual excavation); (3) require a foundation deeper than 15 feet; or (4) be situated outside the railroad right-of-way. Applicants using the proposed Program Comment must ensure that associated cultural resource reports are prepared by professionals who meet the relevant standards in the Secretary of the Interior's Professional Qualifications Standards. Additionally, applicants must be willing to support Tribal monitoring activities if requested and to compensate Tribal preservation offices for professional services in accordance with the ACHP's guidelines. The draft Program Comment seeks to promote administrative efficiency by providing for submission of poles in batches, rather than pole-by-pole, while ensuring that SHPOs and Tribal Nations will receive sufficient information about each pole to evaluate its effects on historic properties.

Comments on the draft Program Comment were due yesterday. The Commission expects to submit the Program Comment to ACHP by the end of February. Under its rules, ACHP should act on the Program Comment by mid-April. Once adopted,

the Commission is prepared immediately to begin accepting submissions from railroads under its terms.

**Collaboration**

Throughout this process, the Commission has been working closely with our partners at the Federal Railroad Administration, the National Transportation Safety Board, ACHP, CEQ, and the U.S. Fish and Wildlife Service to share information and ensure coordination between our agencies. As I stated we are also working closely with Tribal Nations and their cultural preservation officials, the SHPOs and, of course, the railroads subject to the PTC mandate. We will continue our close and productive collaboration with all of these parties to ensure that the Commission's processes do not inhibit the deployment of PTC by the statutory deadline.

In closing, let me reiterate that the Commission recognizes the importance of PTC to enhancing rail safety, and is committed to doing what is necessary to allow for an efficient and timely review process that ensures full consideration of the effects of PTC wayside poles on historic properties, including sites of religious and cultural significance to Tribal Nations, in a manner that allows the railroads to complete construction by the statutory deadline.

Thank you for the opportunity to appear today. I look forward to answering any questions you may have.

Senator BLUMENTHAL. Thank you, Mr. Blackwell.  
Mr. Searles.

**STATEMENT OF PRENTISS SEARLES, MARKETING AND RAIL  
ISSUES MANAGER, AMERICAN PETROLEUM INSTITUTE**

Mr. SEARLES. Chairman Blumenthal, Ranking Member Blunt and members of the Subcommittee, Senators Heitkamp and Hoeven, thank you for the invitation to testify on this important and timely topic of enhancing rail safety.

My name is Prentiss Searles. I am the Marketing and Rail Issues Manager for the American Petroleum Institute (API). I am testifying on behalf of my boss, Bob Greco, who has the flu today.

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 possible by technological breakthroughs and 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, recently released 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 our best science, research and real world data in a thoughtful and a deliberate manner.

Being a safe steward of our Nation's energy resources and providing the 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 railroad scientists and engineers, and others, to tackle some of the issues raised by the recent incidents involving the transport of crude by rail. PHMSA also committed to join our effort to develop a comprehensive standard that addresses the classification of crude oil to ensure that 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 oils 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 approaching 40 percent of the crude tank cars in use by our industry that exceed the current Federal safety standards. With this achievement, please keep in mind, as Administrator Quarterman said at last week's House hearing on rail safety, "Getting a new tank car is not a silver bullet. First, we need to prevent derailments."

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 these challenges. 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.

[The prepared statement of Mr. Greco follows:]

PREPARED STATEMENT OF BOB GRECO, GROUP DIRECTOR OF DOWNSTREAM  
OPERATIONS, AMERICAN PETROLEUM INSTITUTE

Chairman Blumenthal, Ranking Member Blunt, 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 Bob Greco, Group Director of Downstream Operations at 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 recently released 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 approaching 40 percent of the crude tank cars in use by our industry that exceed the current Federal safety standard. With this achievement please keep in mind, as Administrator Quarterman said at last week's House hearing on rail safety, "getting a new tank car is not a silver bullet; first we need to prevent derailments."

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 ap-

proach 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.

Senator BLUMENTHAL. Thank you, Mr. Searles.  
Mr. Hamberger.

**STATEMENT OF EDWARD R. HAMBERGER, PRESIDENT AND  
CHIEF EXECUTIVE OFFICER, ASSOCIATION OF AMERICAN  
RAILROADS**

Mr. HAMBERGER. Thank you, Mr. Chairman. Thank you for the opportunity to appear here before you today, Ranking Member Blunt, members of the Subcommittee. I will be focusing on two important aspects of rail safety: moving energy by rail and positive train control. But obviously, stand ready to answer questions in any other safety area that interests the Subcommittee.

Regarding moving crude by rail, as impressed as Senator Blunt is, the 200 some thousand carloads in 2012, 2013 looks to be about 410,000 carloads. And I think the 2015 and 2016 will continue to show that upward growth. Unfortunately, as we've all been discussing, several recent high-profile incidents have shaken the public confidence and have raised the question: Can railroads, in fact, move crude oil safely?

I'm here to tell you, unequivocally, the answer to that question is yes. Not only can we—we do. 99.997 percent of the time, from origin to destination, without an accidental release. But we agree with Mr. Searles. The goal has to be 100 percent. And to that end, we were pleased to sign an agreement with Secretary Foxx addressing voluntary action items that we hope and believe will continue to improve our safety record.

When you take a look at how to address risk, there are three basic tranches, if you will, basic pots. One is to prevent. That's on us, prevention. Next is mitigation. To me, that is knowing what's going into the tank car and what is the tank car. And then, containment, working with the emergency responders in the local communities. The agreement we have with Secretary Foxx addresses all three of those.

Briefly, under that agreement as far as prevention, we are going to be doing more frequent track inspections, speed restrictions in high-threat urban areas, enhanced braking, and the use of a sophisticated routing model, which we use now, developed by the Department of Homeland Security and others, for our toxic ventilation chemicals. We're going to use that now for crude oil as well. These steps are aimed, as they say, at accident prevention.

One other way we, of course, improve safety is by investing. You mentioned, Chairman Blumenthal, the need to continually invest. We will put \$26 billion of private capital into our network this year to maintain, expand and improve that network. That also improves safety.

Turning to mitigation, we believe that the current tank car standard must be improved. We have adopted many of the recommendations from the NTSB. There's a detailed graphic in my written statement as to what we have recommended to PHMSA and we believe that existing tank cars, again consistent with the

recommendation through the NTSB, must be retrofitted or phased out of moving flammable liquids as aggressively as possible.

Finally, emergency response is crucial. We already train 22,000 emergency responders through TRANSCAER, through individual actions by the railroads, 2,000 of those out in Pueblo, Colorado at the Emergency Response Training Center, which we run under contract with the FRA. We've committed to a \$5 million investment in a very special training module on crude oil and a stipend to assist an additional 1,500 emergency responders to go to Pueblo for hands-on experience in dealing with tank cars carrying crude.

Turning quickly to PTC, I have testified before this committee in the past about the challenges of the technology and the scope of PTC. We will not meet the 2015 deadline of having all 60,000 miles installed and operational. Not because of lack of trying; \$4 billion to date, thousands of man-hours, but the technology and scope issues are still there. Another challenge addressed by our friend from the FCC—and I say our friend—we've worked closely with Mr. Blackwell, but it is still a challenge.

As you pointed out, Senator Blunt, the whole point of PTC is communications. Communication between the back offices, between the locomotive, between the wayside interface units, what's coming, what's out there: the infrastructure of communication has to be there.

Right now, we've been put on hold installing the 22,000 additional poles that we need. But let me emphasize, these are poles about 40 feet high, on railroad right-of-way not on tribal nation lands, on railroad right-of-way, that has been disturbed, in many cases, for 100 or more years. We believe that the FCC has the authority to give a program exemption for those monopoles on the railroad right-of-way. About 97 percent of the 22,000 would be covered by that.

I appreciate the fact that the FCC has decided not to go down that route and has tried to work with us on this Program Comment. A draft was delivered to us last evening. Best as we can tell, they have accepted several of our recommendations but some of the core problems still remain. It is still a pole-by-pole process, 22,000 of them. Pole by pole, it is still not a closed-end timeline. There is no enforceable deadline at the end. And third, and the most, I think, troubling, that it is up to the railroad to do the study to prove the negative. We have to go out and prove that there is no cultural or historic interest in a particular site, rather than having those who believe that there is an interest come forward with evidence as to why they believe there's an interest.

So we think that—we appreciate the efforts. I've met with Chairman Tom Wheeler. Of course, Roger Sherman, Jeff Blackwell, who I think has been living this issue for the last 6 months, but we've already lost the 2013 construction season, 2014 is in jeopardy.

Thank you for your attention. I apologize, Mr. Chairman, for running over.

[The prepared statement of Mr. Hamberger follows:]

PREPARED STATEMENT OF EDWARD R. HAMBERGER, PRESIDENT AND CHIEF  
EXECUTIVE OFFICER, ASSOCIATION OF AMERICAN RAILROADS

On behalf of the members of the Association of American Railroads, thank you for the opportunity to discuss the current state of rail safety and specifically the transportation of crude oil by rail. AAR freight railroad members account for the vast majority of freight railroad mileage, employees, and traffic (including crude oil) in Canada, Mexico, and the United States.

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.

Let me make clear at the outset that, for our Nation's freight 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.

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, a period during which U.S. railroads originated approximately 832,000 carloads of crude oil, more than 99.98 percent of those 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, and the industry will continue to take steps to further improve safety. As explained later in this testimony, these actions fall into three broad categories:

*Accident Prevention*

- Railroads are continuing to reinvest record amounts—their own funds, not taxpayer funds—back into their infrastructure and equipment. Despite a weak economy, railroads have invested far more back into their networks over the past five years—approximately \$115 billion—than in any five-year period in history. This year, we project that railroads will invest more than \$26 billion in their networks, more than ever before. One of the major aims of these investments is to make the rail network more robust, so that the industry's decades-long record of declining accident rates continues.
- Railroads have voluntarily agreed to institute speed restrictions, additional inspections, and other operational modifications for trains carrying large amounts of crude oil.
- By July 1, 2014, railroads will begin using a sophisticated statistical routing model that takes into account a variety of variables, including population density, rail traffic volume, track conditions, and availability of alternative tracks, so that trains with large amounts of crude oil can move on routes that pose the least overall safety and security risk.

*Consequence Mitigation*

- In 2011, the rail industry voluntarily adopted industry standards requiring new tank cars that carry crude oil to be built with additional safety features to re-

duce the probability of release should an accident occur. This year, railroads have called for even more robust new tank car standards for crude oil.

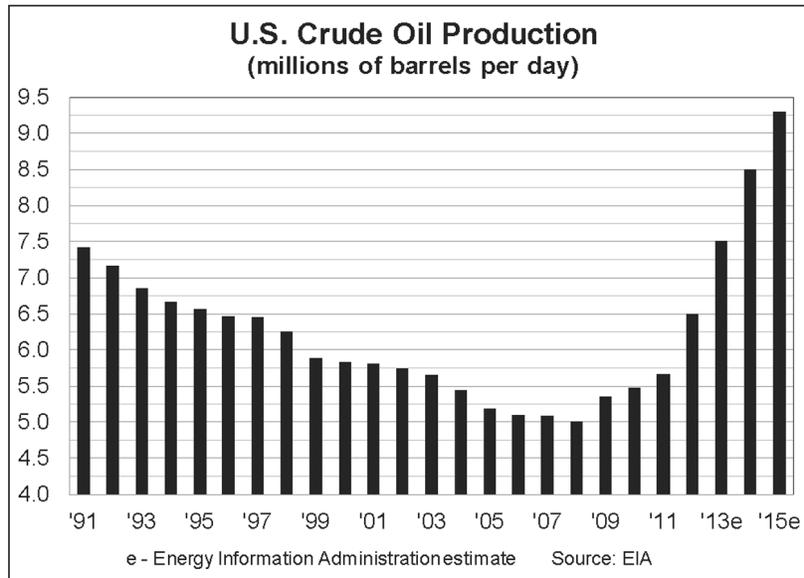
- Railroads have also called for an aggressive retrofit and phase out program for existing tank cars used to carry crude oil.

*Emergency Response*

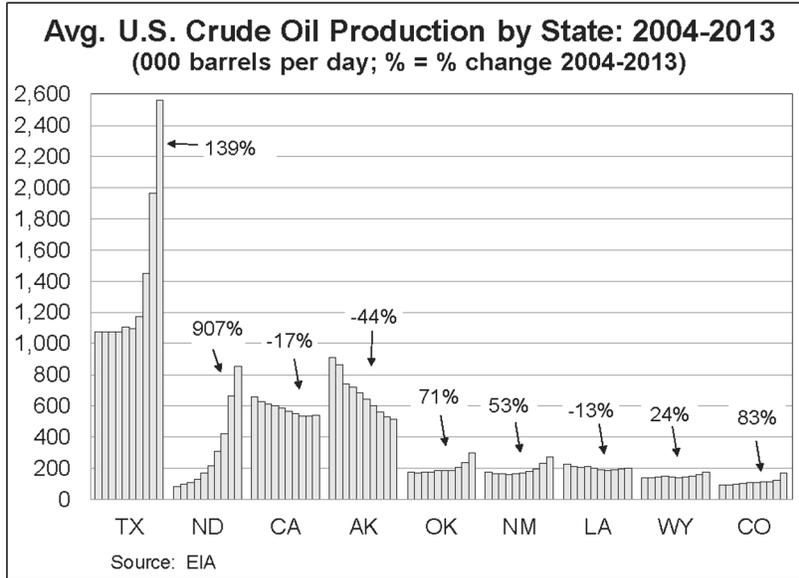
- Railroads help communities develop and evaluate emergency response plans, and they train tens of thousands of emergency responders each year. The industry has agreed to spend several million dollars this year to develop an emergency response training program at the Transportation Technology Center in Pueblo, Colorado specifically geared to crude oil spills and to provide tuition assistance for some 1,500 emergency responders from across the country to attend that training.

**Crude by Rail Meets Crude Oil Production Demand**

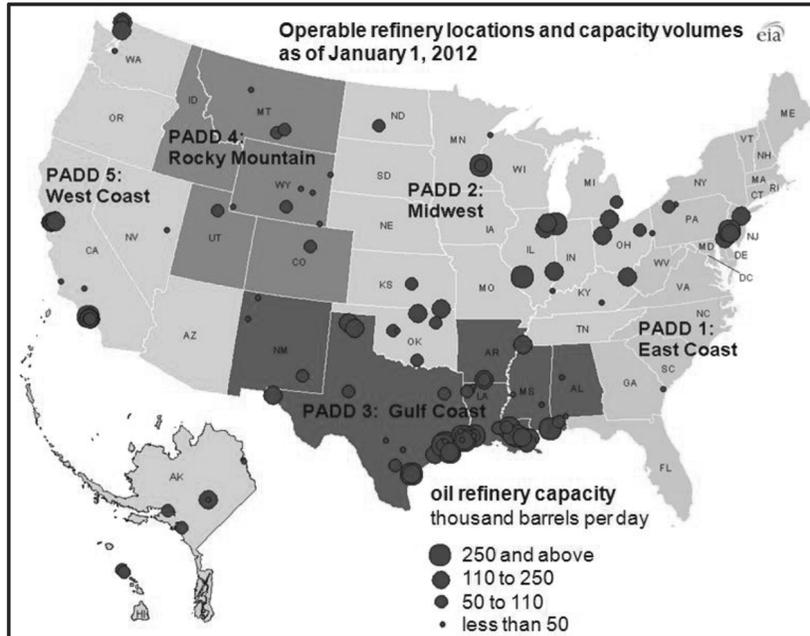
The huge increase in rail crude oil volume is a function of the massive, salutary development of North American oil resources in recent years, especially “shale oil.” U.S. crude oil production peaked in 1970 at 9.6 million barrels per day, but by 2008 it had fallen to 5.0 million barrels per day as depletion 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.



Much of the recent increase in crude oil production has occurred in North Dakota, where crude oil production rose from an average of 81,000 barrels per day in 2003 to 940,000 barrels per day by the fall of 2013, making North Dakota the second-largest oil producing state.

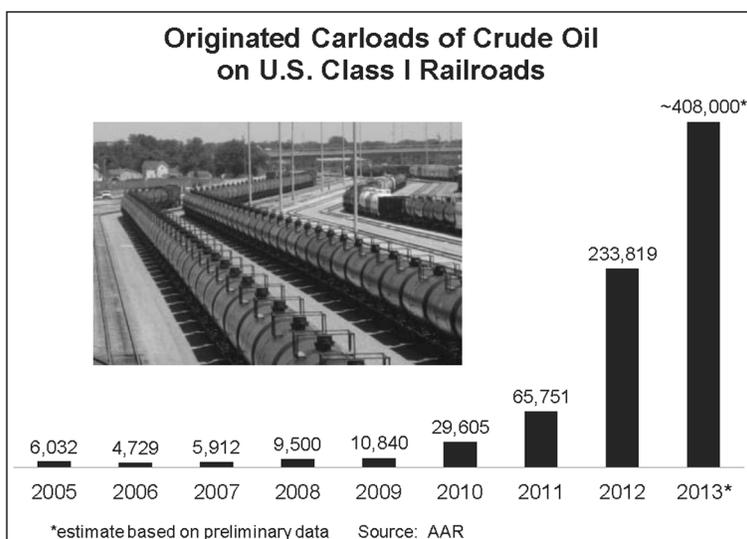


Of course, crude oil has little value unless it can be transported to refineries, but most U.S. refineries are located in traditional crude oil production areas (Texas, Oklahoma) or on the coasts where crude oil transported by tanker is readily accessible (California, Washington, New England, Gulf of Mexico). In part because of the long process required to obtain permits to build new refineries, it's unlikely that new refineries will come on line quickly near the new production areas.



Historically, most crude oil has moved from production areas to refineries by pipeline. However, in many of the new shale oil production areas, the existing pipeline network lacks the capacity to handle the higher volumes. Pipelines also lack the flexibility and geographic reach to serve many potential markets. Railroads, though, have the capacity and flexibility to fill this gap. In fact, the ability of a railroad to serve a refinery can make the difference between the refinery continuing to operate or closing down.

Railroads have seen dramatic recent increases in demand to transport crude. In 2008, U.S. Class I railroads originated 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 408,000 carloads and terminations were around 434,000 carloads.<sup>1</sup> In 2013, crude oil accounted for about 1.4 percent of total originated carloads on Class I railroads, up from just 0.03 percent in 2008.



Assuming for simplicity that a rail tank car holds about 30,000 gallons (714 barrels) of crude oil, the approximately 408,000 carloads of crude oil originated by Class I railroads in 2013 equal around 800,000 barrels per day, or about 11 percent of U.S. crude oil production.

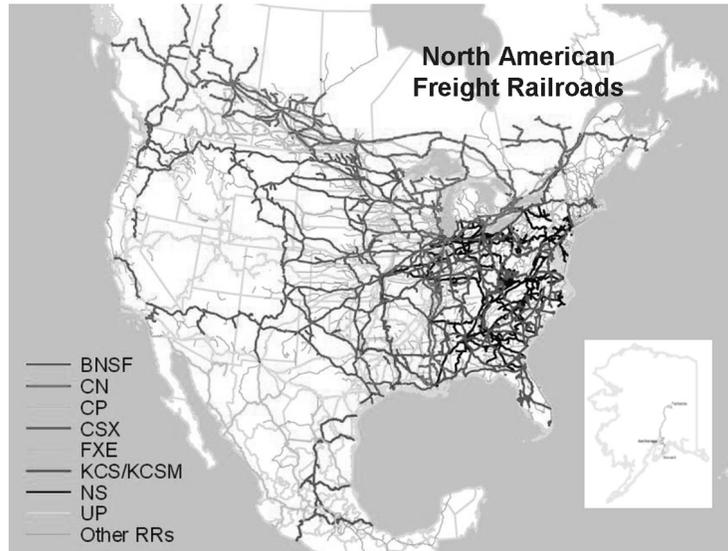
#### **Advantages to Our Nation of Transporting Crude Oil by Rail**

Looking ahead, both pipelines and railroads will be needed to provide safe, reliable crude oil transportation for our Nation. In addition to the critical fact that railroads provide transportation capacity in many areas where pipeline capacity is insufficient, railroads offer a number of other advantages for transporting crude oil:

- *Geographical Flexibility.* By serving almost every refinery in the United States and Canada, railroads offer market participants enormous flexibility to shift product quickly to different places in response to market needs.
- *Responsiveness.* Rail facilities can almost always be built or expanded much more quickly than pipelines and refineries can be. Essentially, railroads are the only transportation mode that can invest in facilities quickly enough to keep up with production growth in the emerging oil fields.
- *Efficiency.* As new rail facilities are developed, railroads are involved at every step, helping facility owners decide where to locate assets and how to lay out rail infrastructure to maximize safety and efficiency.

<sup>1</sup>Originations do not exactly equal terminations because some crude oil that originates on U.S. Class I railroads might be delivered to U.S. short lines or to railroads in Canada for termination and because some crude oil that terminates on U.S. Class I railroads might originate on railroads in Canada or on U.S. short line railroads.

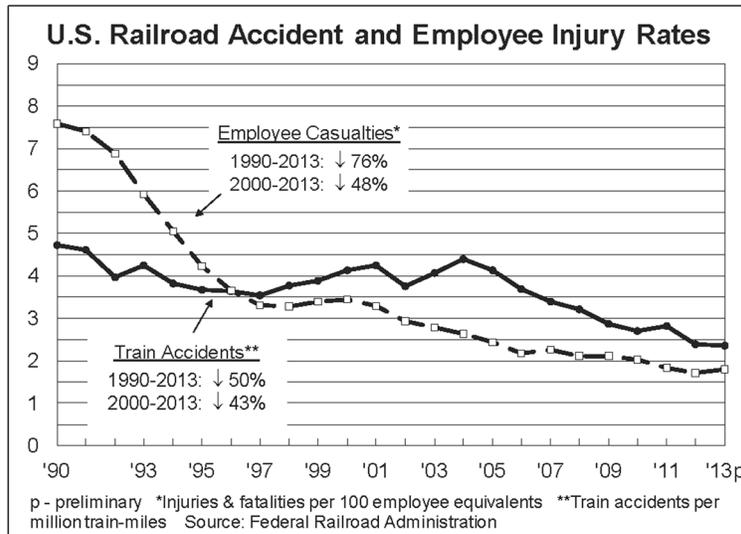
- *Underlying Infrastructure and Equipment.* Just over the past few years, railroads have invested tens of billions of dollars to replace and resurface tracks, buy new locomotives, build new terminals and track capacity, hire new employees, and take other steps to enhance their ability to transport crude oil.



Notwithstanding these attributes of rail, railroads recognize that if we are to continue down the path of energy independence, other transportation modes—including, of course, pipelines—have crucial roles to play.

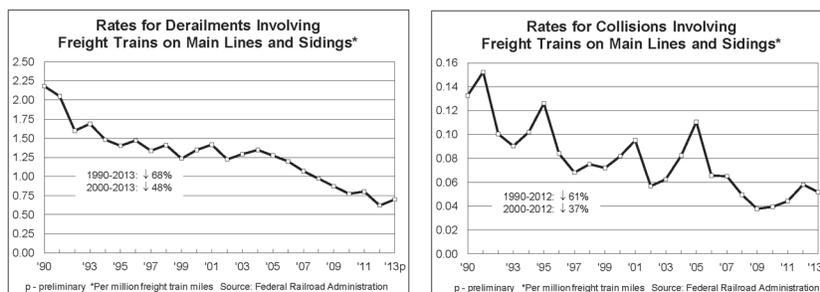
**Working to Prevent Rail Accidents**

We all know that, unfortunately, rail accidents happen, despite railroads’ best efforts to prevent them, and some of those accidents have tragic consequences. Railroads take the challenge of moving the Nation’s crude oil extremely seriously, and they recognize that improving safety is an ongoing process.



The industry's commitment to safety is reflected in safety statistics from the Federal Railroad Administration (FRA). The three most common safety measures used by the FRA are train accident rates, employee injury rates, and grade crossing collision rates. From 2000 to 2013, the train accident rate fell 43 percent, with 2013 having the lowest rate ever, according to preliminary FRA data. The rail employee injury rate fell 48 percent from 2000 to 2013, with 2013 having the second-lowest rate ever (behind 2012). The grade crossing collision rate fell 42 percent from 2000 to 2013, with 2013 having the second-lowest rate ever (behind 2012).

Collisions and derailments, two of the major categories that comprise the broader train accidents category, have fallen sharply over time as well. For example, according to FRA data, in 2000 there were 739 derailments involving freight trains on main lines or sidings, equivalent to 1.35 per million freight train miles.<sup>2</sup> In 2013, according to preliminary FRA data, there were 378 derailments (a 49 percent decline), equivalent to 0.70 per million freight train-miles (48 percent lower). In 2000, there were 45 collisions involving freight trains on main lines or sidings, equivalent to 0.08 per million train-miles. In 2013, the comparable figures were 28 collisions (down 38 percent) and 0.05 per million freight train-miles (down 37 percent).

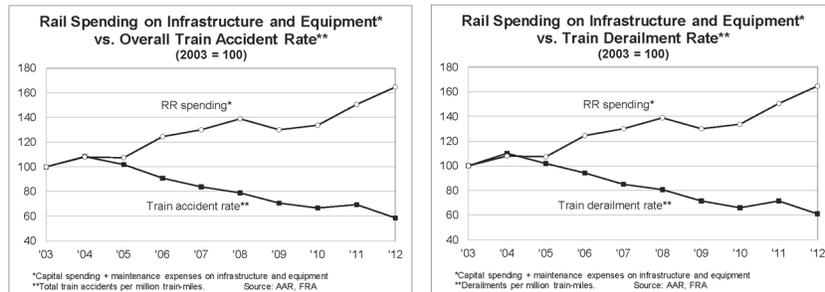


Railroads are proud that their overall safety record, as measured by FRA data, has been trending in the right direction for decades. That said, it is an unfortunate reality that rail accidents occur, despite railroads' capital and labor intensive efforts to prevent them, and we know that some of those 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 zero rail accidents, but when accidents do occur, we want 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 charts above show, there is a clear correlation between rail reinvestments and rail safety improvements.

<sup>2</sup>A train-mile is the movement of a train the distance of one-mile. For perspective, a million train-miles is roughly equivalent to 300 train trips across the country.



### 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.
- 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*.
- *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>3</sup>
- *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

<sup>3</sup>In terms of rail cars, "truck" refers to the complete four-wheel assembly that supports the car body.

quality, and yard and shop efficiency. It is based on the 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.

### **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>4</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.

Third, *inspections*. Comprehensive FRA regulations dictate the various kinds of inspections railroads are required to perform and how often. A 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 automated 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>5</sup> The FRA regulations do not require railroads to perform automated 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>6</sup> These detectors help prevent accidents by

<sup>4</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.

<sup>5</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>6</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.

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 simultaneously from both the head end and locations further back in the train in order to stop the train faster.

#### **Mitigation Through Enhancing Tank Car Safety**

While railroads pursue continuous improvement in safe operations, including most recently the new voluntary actions described above, 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 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. According to the most recent figures, around 98,000 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 half-height (at a minimum) "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>7</sup> Railroads also would require that tank cars be equipped with jackets and thermal protection, as well as full-height head shields, top fittings protections, and bottom outlet handles that will not open in a derailment.

The graphic on the next page summarizes proposed rail industry standards for tank cars carrying crude oil.

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. On February 25, the FRA issued an executive order requiring that crude oil from the Bakken region be tested to ensure that it is properly classified before it is transported by rail. Railroads support the pursuit of proper classification and labeling of petroleum crude oil in tank cars by shippers prior to transport. This is essential to ensuring that first responders are able to safely and appropriately respond in the event of an accident or incident.

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<sup>7</sup>Some railroads also support 9/16th inch tank car shells for freight cars carrying ethanol.



### 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 TTCL. The SERTC has provided in-depth hazmat emergency response training to more than 50,000 emergency responders and railroad and chemical industry employees.

In 2007, Congress authorized the National Domestic Preparedness Consortium (NDPC), a consortium within the Department of Homeland Security and funded by FEMA. The purpose of the NDPC is to identify, develop, test, and deliver training

to the Nation's emergency first responder community. Of the NDPC's seven members, only one—SERTC—is specifically designed to provide first responder training for rail and other surface transportation accidents. No other training center in the country possesses comparable infrastructure, including dozens of freight and passenger railcars, highway cargo tanks, intermodal containers, van trailer, and even a barge. Live simulations deliver tactical intervention training with unsurpassed realism.

Unfortunately, since it was added to the NDPC in 2007, SERTC has received only \$10 million from FEMA for surface transportation first responder training—\$5 million in 2009 and \$5 million in 2010. We understand that budgets throughout the Federal government have been challenged in recent years. That said, Congress provided an additional \$5 million to the NDPC in the 2014 omnibus appropriations act, increasing NDPC funding from \$93 million to \$98 million. FEMA has yet to allocate those dollars among the NDPC members. We hope this committee would agree that allocating these funds to enhance the ability of first responders to respond to crude oil incidents would be a sensible step for FEMA to take.

In addition to SERTC, 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 working in conjunction with 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, the AAR recently announced that railroads will provide approximately \$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 attend 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.

#### **Address Safety Concerns, But Don't Lose Sight of the Benefits of Domestic Crude Oil**

The development of crude oil resources in recent years represents a tremendous opportunity for this country, including the opportunity to move toward energy independence. As a report earlier this year from the Congressional Research Service (CRS) notes, "the prospect of U.S. energy independence is grounded in the production growth from tight oil formations such as the Bakken Formation in North Dakota and Montana, and the Eagle Ford Formation in Texas."<sup>8</sup> CRS says that, "Relative to other fuels, the United States is more dependent upon imports for its oil requirements, still accounting for almost 40 percent of consumption," but "since June 2005, when crude oil imports reached a peak, they have dropped almost 3.3 million [barrels per day], or 23 percent, through October 2013."

It's difficult to overstate the economic and security benefits associated with continued growth in domestic crude oil production. Over time, it will mean reductions in the Nation's trade deficit of tens of billions of dollars every year. It will mean new and better employment opportunities for hundreds of thousands of Americans and better economic development opportunities for regions all over the country. It will mean billions of dollars in new tax revenues for governments at all levels. And it will mean less reliance on sources of oil from places in the world that are not secure

<sup>8</sup>"An Overview of Unconventional Oil and Natural Gas: Resources and Federal Actions," Congressional Research Service, January 23, 2014.

and whose interests do not necessarily correspond well to those of the United States. The Peterson Institute, a well-respected, nonprofit, and nonpartisan research institution devoted to the study of international economic policy, recently found that, along with lower energy costs, the growth in domestic energy production should increase annual U.S. GDP growth between 0.09 and 0.19 percentage points through 2020. That adds up to hundreds of billions of dollars in higher GDP.

As we discuss ways to enhance the safety of transporting crude oil by rail, these important benefits should be kept in mind.

### **Positive Train Control**

The Rail Safety Improvement Act of 2008 (RSIA) requires Class I freight railroads to install a fully functioning, nationwide positive train control (PTC) network by the end of 2015 on main lines used to transport passengers or TII 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. The technology must also be fully interoperable, meaning that the system in place on any one railroad must be able to seamlessly interface with the system on any other railroad.

PTC is an unprecedented challenge, both in terms of the technologies to be used and the integration of those technologies. 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, the PTC system would apply the brakes automatically before the train passed the stop signal.

Railroads have been devoting massive resources to PTC. They've retained more than 2,200 signal system personnel to implement PTC, and to date have spent approximately \$4 billion (of their own funds, not public funds) on PTC development and deployment. They 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.

PTC's complexity, the enormity of the implementation task, and the fact that much of the technology and engineering applications PTC requires have had to be developed from scratch mean that, despite railroads' best efforts, much work remains to be done. The many potential failure points in PTC systems must be identified, isolated, and corrected, and the system must be made fully interoperable across all of the Nation's major railroads—all without negatively affecting existing rail operations.

Railroads also face serious non-technological barriers to timely PTC implementation. Today, the most serious such challenge involves PTC antenna structures.

At its heart, PTC is a massive communications system. Locomotives must be able to communicate with the "back office" concerning the train's speed, location, and many other parameters and receive information regarding, among many other things, the locations of other trains in the area, possible schedule changes, safety alerts, and so on.

This back-and-forth communication can take place only if a sophisticated, comprehensive wireless communications network is in place. A key part of this network is a series of thousands of antennas, spaced (on average) every few miles along the 60,000 or so miles over which PTC is being installed on U.S. freight railroads. These antennas are generally around 40-feet tall, and the vast majority are to be installed directly adjacent to the tracks on existing railroad rights-of-way, owned by the railroads themselves, in holes just a few feet deep and a couple of feet wide. In total, approximately 22,000 PTC-related antennas need to be installed.

The railroad industry began working several years ago with the Federal Communications Commission (FCC) to license the wireless spectrum necessary for PTC, and to its credit, the FCC has worked diligently to address spectrum-related issues. Nonetheless, the industry learned just last year that, under the FCC's interpretation of Section 106 of the National Historic Preservation Act (NHPA), railroads must ascertain, on an antenna-by-antenna basis, if the antennas will negatively impact areas of historic, cultural, or religious significance.

At the center of the challenge is the FCC's required notification and evaluation process that utilizes the FCC's "Tower Construction Notification System" (TCNS) for review by Native American tribes. Under that system, railroads must input certain information into the TCNS. That information is then transmitted to any Native American tribe that has expressed interest in the county in which an antenna will be located.

The initial information that railroads must input into the TCNS, such as the precise location of the antenna to be installed and its height, is relatively straightforward. That information is then transmitted to interested tribes through various means, and the tribe has up to a couple of months to express interest in the proposed antenna site. If it does so, it can demand much more comprehensive information about that site—such as a complete archaeological history—that can be difficult (if not impossible), costly, and time consuming for the railroad to obtain. Based on railroads' experiences to date, it takes, on average, three to five months between the time the railroad initially inputs information into the TCNS and the time when all necessary reviews are completed and the antenna can be cleared for installation. Multiply this process by 22,000 antennas and it becomes very clear why this is such a significant issue.



An example of a PTC antenna structure near other railroad signals.

As stated earlier, the vast majority of PTC antennas are not large and are to be installed in small holes on railroads' own rights-of-way. Many of the rail lines in question have been in use for decades, often for well over 100 years. Generally speaking, the rights-of-way at issue have been disturbed countless times in the past as railroads performed standard maintenance, installed other types of signal systems, built culverts, improved drainage, or undertook any of innumerable other activities related to rail operations and infrastructure construction and upkeep.

Once railroads started using the TCNS last year, it quickly became clear that the system was 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 new process for PTC antennas. That was around ten months ago.

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 PTC-related reviews. Unfortunately, we do not believe the "streamlined" process will lead to a meaningful reduction in the substantial and excessive delays associated with PTC antenna installation.

Under the streamlined system, the FCC would still require an antenna-by-antenna evaluation. Perhaps most vexing, even when a tribe cannot identify any specific historic or cultural area or property that could potentially be impacted at any

proposed individual antenna site, the tribe can still demand a comprehensive review of the site, which could include field work and the preparation of wide-ranging cultural resource reports and ethnographic studies. The tribe can also demand that railroads dig holes for antenna structures by hand. These demands, which the streamlined process allows, extend well beyond what is required under the NHPA. Moreover, the streamlined process does not establish firm deadlines by which the FCC will resolve disputes regarding sites, and it is not clear the agency has the resources to manage disputes around potentially thousands of antenna 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 75 feet located on the railroad right-of-way and not immediately proximate to a known historic property. We respectfully suggest that these antennas should be exempted. If the FCC decides not to pursue an exemption, it should put in place a process that really does expedite the historic review process, provides deadlines on the resolution of disputes, and encompasses all railroads' PTC infrastructure on the right-of-way. The existing "streamlined" process does none of these things.

Just to be clear, railroads are not seeking exemptions regarding PTC antenna installations on Native American reservations or similar areas, or in areas that are shown to be of significant historical or cultural interest. In these cases, railroads are happy to work with state preservation officials and tribes. Rather, railroads respectfully suggest that the NHPA was not designed and should not be used to impede PTC antenna installation in the way it has come to.

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. Please keep in mind, though, that these antennas are at the heart of the PTC network, and there is no realistic "work around." Until railroads are able to install these antennas in large numbers, huge portions of the PTC testing and implementation process simply cannot proceed.

Railroads have been working extremely hard to meet the 2015 PTC deadline, and they will continue to aggressively pursue PTC implementation. However, due to the significant technological challenges associated with PTC development and installation, the eight-month construction moratorium imposed by the FCC, and the remaining PTC regulatory uncertainty, railroads believe that the existing PTC implementation deadline of December 31, 2015 will need to be extended. Doing so would allow railroads, the FRA, and others to make sure PTC is done right.<sup>9</sup> In the meantime, incremental PTC implementation would continue, meaning that more and more of the safety benefits of PTC would be coming on line.

### Conclusion

Our nation's freight railroads share the urgency of this committee and the public at large regarding the need to augment the safe transport of products by rail. Railroads will continue to work with the Administration, their customers, and other stakeholders as necessary to identify additional safety enhancing steps that will make the North American rail network even safer.

#### APPENDIX TO MR. HAMBERGER'S PREPARED STATEMENT

Mr. Hamberger submitted to the Committee a copy of "Comments of the Association of American Railroads" submitted to the Federal Communications Commission (FCC) in the matter of "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.

The entire submission can be found at <http://apps.fcc.gov/ecfs/document/view?id=7521073012>.

<sup>9</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.

Senator BLUMENTHAL. Thank you very much, Mr. Hamberger, for your comments and all the witnesses.

We're going to begin a 5-minute round of questions and we can do a second round if my colleagues wish to do so.

You know, I want to thank you, Mr. Hamberger, for your comments on the voluntary agreement recently concluded with Secretary Foxx, which I welcome, but voluntary agreements are no substitutes for enforceable rules any more than they are out on the highway here when drivers travel our interstates. And I think that the laser focus that Mr. Searles mentioned certainly has to be applied with greater rigor and vigor.

A lot of Americans, I think justifiably, are wondering whether the Federal authorities, the Federal watchdog, have been asleep or absent. And that goes to the recommendations that Mr. Hart mentioned, recommendations, for example, for cameras facing inward and outward.

So let me begin the questioning by saying with respect to those recommendations, Mr. Szabo, why haven't they been implemented as orders?

Mr. SZABO. We continue to work through our regulator priorities. Obviously, the list starts with the 42 mandates of the Rail Safety Improvement Act prioritizing those and completing those first. It was an unprecedented number of requirements in that Act. And so those additional recommendations that come in after what Congress has mandated to us get added to the hopper, but we believe that we have a responsibility to you to execute those things that you mandated of us first and foremost.

On cameras, we started some good work with AAR with the industry and labor. About 10 months ago, based on that in November, I directed staff that that was to be a regulatory priority for 2014. And in fact, we have already now initiated efforts inside the Rail Safety Advisory Committee to start drafting those regulations.

Senator BLUMENTHAL. You know, we're now years after the first recommendation from the NTSB on cameras. We are still awaiting, as Mr. Hart mentioned, the PTC progress report.

I've said before, and I'll say it again here, that four people might be alive today if some of these recommendations, including cameras facing inward and outward, alerters, automatic train control, had been implemented.

Mr. SZABO. Mr. Chairman, if I may, our report on PTC implementation, in fact, was delivered to Congress about 18 months ago, ahead of schedule. And so, we've delivered that to you with a set of recommendations that we have asked Congress to make.

Senator BLUMENTHAL. But coming back to the recommendations for specific measures that might have prevented many of these incidents, my view is that we're behind. We've been lax and lagging and the question is why haven't those orders been forthcoming from the—

Mr. SZABO. Yes. And it's a matter, again, of putting things into what is a pipeline on regulatory priorities. When you're handed 42 in a Congressional mandate, and then additional recommendations continue to come in, you know, not only don't I have the resources, but if you understand the regulatory process—

Senator BLUMENTHAL. Well, you need a different—

Mr. SZABO. It starts with us and feeds through a process.

Senator BLUMENTHAL. You need a different authority. Because, for example on cameras, is there a requirement that you go through the APA rulemaking process?

Mr. SZABO. Well, if we're going to mandate it, we have to go through a rulemaking process.

Mr. CHAIRMAN. And you need to get a different authority.

Mr. SZABO. And of course, that's appropriate because, Senator, we owe it to everybody to get it right. And that's why it requires doing that due diligence.

You know, certainly you can do things fast, but if you do them fast you run the risk of committing errors that actually can harm safety or harm capacity in the industry. And so, you really have to do your due diligence, make sure that all stakeholders have appropriate input, and make sure, when you put that reg out, you've got it right.

Senator BLUMENTHAL. Well, I don't differ with anything that you've just said. But the recommendation was made by the NTSB in 2008. We're here in 2014, so due diligence has required 6 years and, in the meantime on that issue, cameras and on others where there were deadlines from Congress there still have been no regulations.

Let me turn——

Mr. SZABO. But Congress did not mandate that in 2008.

Senator BLUMENTHAL. Not that one, but others.

Mr. SZABO. And so, those things that you chose to mandate were the things that we prioritized first. We feel we owe that to you.

Senator BLUMENTHAL. Let me ask Mr. Hart.

Will the investigation of Spuyten Duyvil, and the Bridgeport incident, and the collection of incidents relating to Metro-North, be done by a time-certain?

Mr. HART. Yes. We are planning to combine the four Metro-North accidents into one report to be issued in November.

Senator BLUMENTHAL. Thank you. My time has expired so I'm going to turn to Senator Blunt.

Senator BLUNT. Thank you, Chairman. Ms. Quarterman, why don't we have the tank standards yet? I think you all have been working on that for two and a half years. And, as quickly and briefly as you can explain that, why has it taken that long?

Ms. QUARTERMAN. Thank you, Senator Blunt. As you may know, the process started with both the entire department and PHMSA and FRA working very closely with AAR and their tank committee looking at advancements to tank car standards. The end of that process resulted in a tank car standard that the department was not willing to support, and it also did not address some of the operational issues that were on the table as part of that tank car committee and specialists.

Senator BLUNT. So your outside advisory group came back with standards that you didn't think were adequate?

Ms. QUARTERMAN. The AAR's outside advisory group, correct.

And so we decided to go forward with a rulemaking process. That rulemaking process began in 2012 where we began to draft standards. As part of that process, we began to get a series of petitions that slowed down our finalizing and advanced notice of proposed

rulemaking. That advanced notice went out in September. We got more than 150,000 individuals commenting on that.

As of December 5, I can tell you that now FRA and PHMSA are sequestered together drafting an advanced—a notice of proposed rulemaking, we have our regulatory experts in the room, our financial experts that have to deal with the regulatory analysis that's required on that rule. And we are working extremely hard. I think we are close to a first draft. And I can tell you, I've never seen a rule drafted faster than that.

Senator BLUNT. I may come back to that if some of my colleagues don't answer other questions I have. And Mr. Hart, you said that you thought that positive train control, I think your quote was said, "Must be implemented by the end of 2015 to the maximum extent possible." Is that the deadline? When in 2015 is the deadline?

Mr. HART. I'm referring to the Congressional deadline of the end of 2015.

Senator BLUNT. Right. And by, "enacted by the maximum extent possible," you mean, some railroads would enact this and others without penalty wouldn't?

Mr. HART. The NTSB would like to see full implementation of PTC, but if it can't all be done, we'd like to see as much as possible by as many as possible as soon as possible.

Senator BLUNT. Mr. Szabo, do you want to comment on that?

Mr. SZABO. Yes.

The current Congressional mandate actually mandates full deployment by December 31, 2015 which, in our report to Congress, we indicate will not be achievable. We do believe that partial deployment is doable and partial deployment will provide very real safety benefits, but we need from Congress, we need from you, currently FRA does not have the ability to make any provisional certifications. It's either it's all done or it isn't. And so, we really need from Congress the tools and the authority to allow for provisional certification to, in fact, help achieve that partial deployment and achieve that accountability that Mr. Hart was talking about. Understanding the legitimacy of the challenges the industry has, along with the good faith effort that they've been making.

Senator BLUNT. You know, I would say, I'm not sure I have a final view on this yet, but I would say if we expand the law or expand the deadline, and there is some kind of partial deployment, I'd strongly encourage you to think about that as a trial run rather than having—we've seen what happens when you implement a technical system without going through a trial run, a trial run where maybe even information is widely shared but not where one company has to comply and another company doesn't. And you may use that as a laboratory time to test the system rather than to say, "OK, you've worked harder than everybody else, so we're going to penalize you by putting you under full, positive train control and every other company has two more years," or something like that.

Mr. SZABO. Senator, I think your point is very, very valid.

You know, positive train control will, in fact, be the backbone of our future safety efforts relative to human factors, but it's critical that we get it right. There's never been an undertaking of this magnitude installing PTC anywhere else in the world. And so, ac-

tually taking a look at those places where it can be implemented most easily, ensure that we get the bugs out of it as we continue to advance, are best going to serve safety and make sure that we don't do anything to gum up capacity for the industry. There are a couple of threats here in getting it wrong. And so, provisional certification will allow us to make sure we get it right.

Senator BLUNT. Well, I'm going to follow the Chairman's very well determined lead here and wait for other questions for another round.

Senator BLUMENTHAL. Thanks, Senator Blunt.  
Senator Cantwell.

**STATEMENT OF HON. MARIA CANTWELL,  
U.S. SENATOR FROM WASHINGTON**

Senator CANTWELL. Thank you, Mr. Chairman, and thank you for holding the hearing. And thank you for the witnesses that are here and everybody that's working on this issue and for your voluntary efforts to date.

I'm glad my colleagues from North Dakota are here because I know you see this issue, you know, from the perspective of your state but I want you to understand the perspective of our state because practically every newspaper in our state has editorialized on this. The state legislature is considering legislation. The city of Seattle is considering legislation. And the issue is that as this rail transports into our state from Spokane down to PASCO through the Columbia Gorge, to say nothing of the treachery and the unique environmental aspects of the Columbia Gorge, then through Vancouver, then up to Tacoma and perhaps on through Seattle, through Everett, up to Skagit County for processing. So you hit every population area in our state. OK? We're talking about population areas, three of them that are larger than your whole state, OK. We're talking about waterfronts that are integrated with ferry systems and in highly, you know, active waterfronts.

So when people look at this issue for us, they see the volatility of this product moving through major population centers. Not one, but every population center in our state, save a few. So that's why our state is very anxious about this. And that's why, Mr. Chairman, I agree. I don't personally think that this is an issue about voluntary, although we appreciate voluntary. I think to protect our citizens we have to be clear about what it is we're willing to do.

So I first have a question for Mr. Searles about these DOT-111 car issues that Mr. Hart has basically said are unacceptable public risk. That's what NTSB has said right now. They're unacceptable. So my question is when are the companies committed to ending the use of these cars?

Mr. SEARLES. Thank you for the question, Senator.

The first thing that we've done is we've stepped in and we developed over a 3-year period the upgraded tank car standards. So these are the CPC-1232 standard and that took 3 years to go in and look at all of the data that was required to understand the best approach that could be taken to make these cars safer. The industry concluded with consensus on that. And in the review of that consensus standard, the DOT led the review to determine whether or not we were going to have sufficient improvements there. And

the conclusion was that we did and thus we petitioned the Federal Government to make the CPC-1232 the new standard. All of that was data-driven. Since that time, we have been building that tank car to the point that we have 40 percent of the fleet this year will be the new tank car and 60 percent by the end of 2015. So we have been leaning forward beyond what the DOT requirements were and are today. And believe that those tank cars are going to be sufficient to be able to move the tank car to be able to move the product from here forward.

Senator CANTWELL. So what year will all of them be off our rails?

Mr. SEARLES. We are looking at the tank cars that were manufactured before the new standards came out. And in fact, in our comments to the ANPRM we asked for the FRA and PHMSA to lead a taskforce to review that. Since that time, we have been looking at the requirements to determine if retrofits are possible and whether or not there are meaningful improvements to those tank cars that can be made.

Senator CANTWELL. Well, I guess I would say, since we've gone from 4 years ago, having basically nothing by rail on crude, to now having something like 480,000 carloads of crude, so about 11 trains per day, to our population centers, this is a big deal.

Mr. SEARLES. Absolutely.

Senator CANTWELL. So knowing when those cars that are going to be off those rails, that NTSB has already said are unacceptable, Mr. Chairman, this is a key issue for me and for my state. And then, I know I have 30 seconds left, I guess I would just say that I don't know when you have a voluntary system, not everybody complies with it. What do you do about that? And even when people sign a voluntary agreement and then have a violation, is there a penalty? Is there a risk against that, in stopping that behavior?

So, Mr. Chairman, I think I'm more in the boat of where you are. I think we have to mandate the security that needs to be there because these population centers are just, you know—I don't know what our cities in jurisdictions are going to—they might decide to ban this altogether.

I think we have to prove that the public is going to be safe here and, again, I know I'm out of time, but we haven't even gone to this issue of the highly flammable material and maybe somebody could tell me what safety precautions are going to be made in the future to change a Bakken oil into a transportable product that is not as flammable.

So thank you, Mr. Chairman.

Senator BLUMENTHAL. Thank you, Senator Cantwell.

Senator Heitkamp.

**STATEMENT OF HON. HEIDI HEITKAMP,  
U.S. SENATOR FROM NORTH DAKOTA**

Senator HEITKAMP. Thank you, Mr. Chairman and Ranking Member. It's really quite an honor to be here and I am grateful for the invitation and grateful for the opportunity.

I want to kind of start out where Maria left off. And I want to assure the Senator from Washington that where we may see it differently because we're producing but you're refining, you're refining Bakken crude in your state. And we all are concerned about safety.

This is not a tradeoff of economics versus safety. We have to make the transportation of this material as safe as what is humanly possible on the rails. I don't think there's any doubt about it.

Now, Mr. Hart, I want to go back to one of your comments, because we have focused a lot on the 111s and, you know, I'm always amused when people say 40 percent. I think the more important question that we have is how many of the 111s have been retired? You know, if you look at the 111s transporting this material, obviously if you're growing the fleet, which you have to in order meet the demand of transporting, of course you're going to have a lower percentage of 111s on the rail. But the concern is getting the 111s off.

And Mr. Hart, I think following on that track, you also said that you think the 1232s are deficient, if I heard your testimony correctly. So I want you to reaffirm that and then I want to hear from both the Association of American Railroads and from API on what their reaction is to that. And we can talk about the regulation after that.

Mr. HART. Thank you for the question.

Yes. I did say that the 1232s are still not adequate. As I mentioned, the NTSB is holding a forum on the transportation of crude oil and ethanol next month that will talk about not only rail cars but a variety of other associated issues, including operations and emergency response.

Senator HEITKAMP. I only have so much time, so I really want to just focus on getting kind of an immediate reaction to the comment about the 1232s. Yes.

Mr. HAMBERGER. On behalf of the AAR, we filed comments at the PHMSA and the ANPRM recommending that new tank cars be built exceeding the 1232. We are requesting that they require the full-height head shields, the jacket, thermal protection, top fitting protection, high capacity pressure relief valve. So we think that the 1232 was a big step above the DOT-111s. Knowing what we do now about some of the volatility of some of the crude moving, we think we need to go even beyond the 1232s.

Senator HEITKAMP. Interested in API's response.

Mr. SEARLES. Thank you.

I think the information that has been, that AAR's referring to, has not been shared that substantiates the benefit of these improvements. You're starting to get down into a very narrow range of improvement and you go from very small number to an even smaller number. And so, we would look forward to having those discussions on that. However, I would say that the 1232, again, was studied for three years. Actually, it was studied for 2 years and then another third year was taken to review how sufficient that performance specification would be.

Senator HEITKAMP. So this is shaping up as a regulatory fight here, obviously, and it appears that PHMSA and FRA are moving in the direction of the Association of American Railroads in terms of recommendations on the tank cars. I think it's doubtful they're going—as she said already, she thinks the 1232s are deficient. That's why they didn't go through the process back when you guys requested their weighing-in on approving the tank car. This is very problematic from a public standpoint, because the public expects

that we're going to make decisions and they're going to be fact-based.

Now, we haven't had a major derailment that involved the 1232s. We've obviously had major derailments that involve the 111s and, I only have 42 seconds. So I'd like to ask Mr. Searles, how many 111s have been taken off the train?

Mr. SEARLES. The 111s continue to be the tank car that was provided in the regulations.

Senator HEITKAMP. So we need to be careful when we say 40 percent and it's going to be less because it had to mean we've taken these cars off the trains. It just means that we've grown the fleet to the point that their percentage involvement is dwindling; correct?

Mr. SEARLES. The numbers indicate that we are moving in the direction that will bring us to these safer tank cars.

Senator HEITKAMP. But, as of today, there hasn't been any major movement of 111s off the rails?

Mr. SEARLES. Not to my knowledge.

Senator HEITKAMP. Yes.

Senator BLUMENTHAL. Senator Hoeven.

**STATEMENT OF HON. JOHN HOEVEN,  
U.S. SENATOR FROM NORTH DAKOTA**

Senator HOEVEN. Thank you, Senator Klobuchar. Thank you to Senator Blumenthal, also to Senator Blunt, for holding this hearing and appreciate all of you being here.

The country is producing a lot more energy thanks, in very large part, to the states like North Dakota; very positive for the country in terms of knowledge, job creation, economic growth, but having affordable energy and from a national security standpoint. But we need the infrastructure to move that energy from where we produce it to the markets. That means pipelines, but that also means moving it as safely as possible by rail and by truck. And that's what today is all about. We need to do this safely and we need a comprehensive approach. A comprehensive approach that both prevents derailments and if a derailment occurs that we minimize the risk of fire or explosion. That means that everybody's got a role to play here: the regulators, the railroads, and the shippers.

Obviously, oil companies own most of the cars. And so, you know, people, we've got to work together to get this done. And so, I'm going to have questions for each of you, which I'm obviously not going to get done in this session, but hopefully I'll have a follow-up opportunity and, you know, I want to start with inspections.

And I'd like to ask Administrator Szabo, have you increased inspections? I know the answer to that is yes, but give us some sense of what you're doing. And also, do you need more inspectors to meet the demands of the increased volume?

Mr. SZABO. Well, as I've stated in my testimony, our inspection and enforcement program is data driven. And so, we actually use statistical modeling to analyze that data and determine, you know, our National Inspection Plan and it's based on where there is risk.

One of the reasons why I believe the agreement with AAR is so important is because it helps us determine the most safe and secure route to be used for the movement of this product using the

27 risk factors. And that also gets run through a computer analysis to determine the most safe and secure route. But then we mandate of the industry additional equipment and track inspections along those routes; as well as it allows me to better focus limited resources on those routes. Certainly, the 45 additional employees that we received as part of the 2014 budget package are going to help us tremendously but, you know, the truth of the matter is there can be an endless demand for resources.

I have a responsibility to make sure that I am as smart and strategic as possible with the limited resources that you choose to provide me.

Senator HOEVEN. But at this point, you are making provision for additional inspectors and we certainly want to work with you through the appropriations process to see that you're able to do that in a sensible way, in a cost-effective, sensible way, but we need to make sure we're doing more inspections.

Mr. SZABO. And, Senator, if I could add one more point that's an important piece to that. You know, we do have the state inspection partnership. And there are 30 states across the Nation that choose to hire their own inspectors. We train them. We absorb the cost of training them and certifying them, but then states are able to use these inspectors to supplement our inspection efforts in their own states and raise the bar that much higher.

Senator HOEVEN. Mr. Blackwell, how are we going to or how are the railroads going to implement positive train control, which is part of the safety solution, if they can't get the tower sited on their own right-of-ways? Does that require legislation or, I mean, is FCC going to just hold them up forever, or does it require legislation? Or what do we have to do to get positive train control out there?

Senator BLACKWELL. There are, we believe, in our programs, on this—

Pardon me, Senator.

We believe the Program Comments strike the appropriate balance between front loading, the type of information that is usually requested and readily available, and with PTC's goals and deadlines. And in doing so, we prescribe much-ordered deadlines that are already streamlined processes. We don't expect that all the applications will take the maximum time allowed, but we've accelerated procedures and reduced the overall review process by 40 percent. Specifically, this includes shortened timeframes for initial responses and situations lacking responses. And we've also established a new deadline for our FCC review of resolutions and disputes.

The Program Comment limits the scope of review to a smaller area of potential effect from one-half mile to one-quarter mile. And it also allows for exclusions of wayside structures, similar to nearby existing structures in the right-of-way, for wayside structures located within rail yards of at least 1,000 square feet and from affects on the rails and the track beds themselves.

The Program Comment, like the NHPA and our rules, also set standards for requesting additional information requiring tribal nations and State Historical Officer—

Senator HOEVEN. Mr. Blackwell, I'm over my time. We'll come back to this. But my question, very specifically, is going to be ei-

ther you're going to commit to work with the railroads to get this done, or it's going to require legislation. But I am over my time and we can certainly come back to that.

Senator BLUMENTHAL. Thank you, Senator Hoeven.

Welcome, and thank you to Senator Thune for joining us. If it's OK with you, I'm going to ask Senator Klobuchar to do her questions and then turn to you.

**STATEMENT OF HON. AMY KLOBUCHAR,  
U.S. SENATOR FROM MINNESOTA**

Senator KLOBUCHAR. Thank you very much. Thank you, Mr. Chairman. Congratulations. You'll do a great job and you're working with a good guy with Senator Blunt. We once shared a committee together and I'm looking forward to both of you working on this important issue.

I'm in the neighboring state of Minnesota and we've certainly seen the effects of increased rail. We're pleased that we have more of our own energy in this country. We think it's very important. But, at the same time, we can't lag behind for our capacity and our safety standards.

I get very frustrated by government delay. I'll tell you that. So if you could answer your questions quickly, that'll show that we're on the right road.

Ms. Quarterman, have you thought about what this rulemaking that's taken two and half years of trying to focus on the cars, the tank cars, that carry the most flammable and volatile liquid since the severe derailments have involved that to try and move that quicker?

Ms. QUARTERMAN. We've been moving as fast as we possibly can. We have been working on these rules very hard. And I will say the discussion at the panel among the witnesses today point to why, even though we are working fast, we need to be strategic and deliberative in our process. As you've seen, the tank car standard has evolved over the past several years.

Senator KLOBUCHAR. Do you think it's safer to have new tank cars or retrofitted cars?

Ms. QUARTERMAN. It depends on what the retrofit is.

Senator KLOBUCHAR. And do you think that we'll have the manufacturing capability to get those cars? I know Burlington Northern has just voluntarily agreed to buy 5,000.

Can we get those off the factory floors fast enough?

Ms. QUARTERMAN. Well, I recently had a meeting with one of those manufacturers and they said they thought they could. I think they're eager to do so.

Senator KLOBUCHAR. OK.

And, again, as many of us have urged here, just the sooner we can get this done, the better. We had a derailment with a train loaded with iron ore on December 5 of last year in Two Harbors, Minnesota. Seventy-six rail cars piled up and, others, 17 cars loaded with iron ore pallets parked on an adjacent track were hit and derailed. Our reports indicated that, actually, it was *Canadian National*; that they hadn't removed the snow and ice from the tracks. As you know, we've had a lot recently, despite warning from crew members.

Do you think the railroads have the appropriate lines of communication, and I think this is probably best a question for Mr. Hamberger, in place to ensure that crew members can easily report these kinds of concerns?

Mr. HAMBERGER. I'm unaware of the specific that you're talking about but I've always said that when it comes to security and safety, the 180,000 crew members that we have are the first line of notification of whether something is not right if it happens to be a security issue, and the same for safety. So I believe every railroad has in place a communication systems to get those kinds of safety issues from the employees. So, I would think so.

Senator KLOBUCHAR. OK.

Well, we'll follow up with you with getting the facts out there so we can talk about it further.

The other thing I hear around our state on issues, things that have already been talked about, is that on not having the capacity to prepare for and respond to an event like a hazardous spill or a derailment. What do you think, Mr. Hamberger, that rail companies could do to assist communities to ensure that they're properly prepared should a disaster occur?

Mr. HAMBERGER. Several things that they are already doing, and that is: working with the emergency responders and training and letting them know what is coming through their communities and designing training programs for the most dangerous things coming through the communities. But we're also—and the agreement with Secretary Foxx, as an industry, taking on an inventory of what are the emergency response equipment out there; whether it's foam or booms near water supplies and try to have that available both for other railroads but also share it with appropriate emergency responders so they know what's available.

Senator KLOBUCHAR. Mr. Szabo, do you think we have enough track inspectors out there?

This is something I've heard from our own Department of Transportation, as well as some of the workers that aren't on the panel today, but I know they're concerned about this. Do you think we have enough track inspectors? And what can be done to address a shortage? I know, in our state, we only have a few of them.

Mr. SZABO. Well, I think this is similar to the answer that I gave Senator Hoeven.

You know, first off, the 45 additional employees that the 2014 budget provided for us is going to help. The agreement that was signed with AAR requiring them to do additional inspections is going to help. My ability to more strategically focus on crude routes is going to help; and, you know, following our data is going to help, as well as the ability for states to supplement through our state partnerships. So you know, I think we've got the tools and we just need to execute.

Senator KLOBUCHAR. OK.

And I'm out of time here but, Mr. Blackwell, I'll follow up on the record about some of the concerns raised by Senator Hoeven about trying to move on the PTC implementation and just the concern that this is something that could help and that this is just taking too long. So we'll follow up on the FCC role on what we can do to speed it up.

Thank you.

Senator BLUMENTHAL. Thank you, Senator Klobuchar.  
Senator Thune, again welcome and the floor is yours.

**STATEMENT OF HON. JOHN THUNE,  
U.S. SENATOR FROM SOUTH DAKOTA**

Senator THUNE. Thank you, Mr. Chairman. And, thank you to you and Ranking Member Blunt for holding this hearing on a very important subject and I will follow up on Senator Klobuchar's issues on PTC but I do want to thank the panel for being here today.

And, you know, one way we could get fewer trains in North Dakota is to horizontally drill from South Dakota.

[Laughter.]

Senator THUNE. Pull some of that energy back down into our state.

Senator HOEVEN. We're watching you.

[Laughter.]

Senator THUNE. You know I've had some experience. I worked as the State Rail Director in South Dakota prior to coming to this job. And the railroads are so important in our part of the country. The reason there's so much interest here, you can tell today, is that we're incredibly dependent. So much so that back when the Milwaukee Road abandoned the railroads in our state in the late 1970s, the State of South Dakota actually acquired the railroads, not the power and the rolling stock but the right-of-way and the track and everything to keep railroads active and going. It's the most efficient way to move freight and, obviously, critically important to our agricultural economy. So for many years, the State of South Dakota actually operated, or I shouldn't say operated, but contracted, for operations with some railroads and maintain the track and right-of-way; so this is a critically important issue in our state and to all the states that are represented here.

I want to ask a question and this would be for Mr. Blackwell. And I appreciate it's been talked about a little bit already, the effort the FCC's taken to expedite the approval of PTC towers and I'm also encouraged that the FCC has issued a draft proposal. However, I'm still concerned about how long it's going to take before Class I railroads are going to be able to take advantage of this process. It's my understanding that that draft proposal was submitted to the Advisory Council for Historic Preservation this week and that the ACHP will then have 45 days to review and approve it.

Given that timeline, what is the earliest date in which you think railroads will be able to begin installing towers under the new system?

Mr. BLACKWELL. So, maybe a bit of the challenge, if you do the math right now, but it would be 45 days from the date of the transmittal. We would be ready to begin processing those up to 20,000 more. There's absolutely nothing holding everybody back now from preparing the information to be ready to go as soon as possible.

Senator THUNE. So after a tower is submitted for approval, how long do you anticipate it would take for final approval? And do you

have any estimates on how this will compare to the timeline under the current approval process?

Mr. BLACKWELL. Well, we did shorten the—by frontloading the system with an amount of information that's normally routinely gathered, we were able to shorten timelines significantly. Overall, it is 40 percent. We did also shorten timelines associated with the initial responses, lack of responses, and then encouraged the parties that may have disputes to come to the FCC. And we have a self-imposed 15 day deadline to deal with those.

Senator THUNE. OK.

This would be a follow-up question for Mr. Hamberger.

The railroads have run into a lot of obstacles and their efforts to meet this 2015 PTC deadline but the FCC approval process clearly has become a big impediment to that. Let me ask you what your overall assessment is of the FCC's draft proposal and do you think it will help expedite the process for that approval?

Mr. HAMBERGER. I have not personally read what was submitted last evening but my lawyers, who have, so this is secondhand, advise me that some of our comments submitted in the process have been acknowledged but the core issue of not having an end date to when a decision has to be reached, there is a deadline on expressing an interest, but not on reaching a conclusion. And although we can file by county, each individual pole still has to be dealt with and the upfront submission of data that Mr. Blackwell is talking to is, I believe, it's an ethnographic study where we have to show, prove a negative, that there is no cultural or historic interest in that site pole by pole, by pole. We do not think that this solves the problem. Again, recognizing the amount of effort that has gone into it and I appreciate Chairman Wheeler's personal interest, but we are not there.

Senator THUNE. So in the interim, the FCC has initiated this beta process for PTC tower approval in which railroads are able to batch these applications, as was mentioned, up to 20 PTC towers in the same county.

Have railroads made use of that process?

Mr. HAMBERGER. Yes.

And in several cases they have gotten back automatic responses of that, not wanting to go forward in some cases. I'm told that not one of those have yet made it through the process.

Senator THUNE. Do you like that process? Do you see benefits to that process? Do you see limitations to that process?

Mr. HAMBERGER. We went forward, as Mr. Blackwell indicated, in an informal process in dealing with the tribal nations that we knew had interest and have erected 10,000 poles. We think that the rules that FCC has allow that. They have told us that we cannot do that; that we have to work through the TCNS process.

And I think that is a bureaucratic slowdown that is adversely affecting our ability to make progress. I was going to be delivering our white paper, effective of 12-31-2013, at which we had been projecting that we were going to be able to meet 40 percent of our implementation by the end of 2015. That's what we projected at the end of 2012; that we were going to be able to get about 24,000 miles up and running. We can no longer make that projection.

And so I'm not in a position to submit that as part of my testimony today. We're still going back to the railroads and trying to get what the number might be. And unfortunately, until this process plays out, we don't know. We just don't know how long it's going to take.

Senator THUNE. And that 45-day clock hasn't started running yet.

Mr. BLACKWELL. It started running Tuesday.

Senator THUNE. It did, OK. OK.

So we're talking 45 days, middle of April, and then how many days after that to get a final rule?

Mr. BLACKWELL. Well, we could start processing the applications immediately.

Senator THUNE. OK.

And you're saying if they are submitting applications, doing all the preparatory work right now, that those applications could start being processed immediately when that 45 days runs out?

Mr. BLACKWELL. The submission process, under the Program Comment, would begin once the Program Comment became final. Forty-five days. The ACHP has it for 45 days.

Senator THUNE. OK. All right.

Mr. HAMBERGER. That assumes they don't extend.

Senator THUNE. Right.

Mr. BLACKWELL. I would clarify something, Senator, about the ethnographic studies that Mr. Hamberger just mentioned. This draft Program Comment does not require ethnographic studies. The reference is to help the railroads prepare materials that, based on our experience, are frequently asked for in the course of the Section 106 reviews.

Senator THUNE. Well, I guess the only thing I would say, Mr. Chairman, is there's a lot of pressure on the railroads, obviously, to comply with and to meet the 2015 deadline. And there are a number of us on the Committee who are co-sponsoring legislation that would extend that by a reasonable amount of time so the railroads have the time to comply. But the FCC has become a critical component in allowing that process to move forward. And I would hope that you will do everything you possibly can to expedite this process, because, for a lot of reasons, there's a sense of urgency attached to this and I hope that that's fully understood there at the Commission.

Mr. BLACKWELL. Senator Thune, Senator Hoeven, the FCC is committed to tailoring the process in a way that will enable the railroads to meet their current statutory deadline fully committed.

Senator THUNE. Mr. Chairman, I have a statement I'd like to ask consent to have in—

Senator BLUMENTHAL. Without objection.

[The prepared statement of Senator Thune follows:]

PREPARED STATEMENT OF HON. JOHN THUNE, U.S. SENATOR FROM SOUTH DAKOTA

Thank you Senator Blumenthal, and Senator Blunt for holding this important hearing and I am glad that Senators Hoeven and Heitkamp are able to join us today to underscore their first-hand perspective when it comes to increased domestic oil and gas production from their home state and the recent accident that occurred there.

The topic of this hearing is particularly timely, as we've seen several high-profile accidents in recent months involving both freight and passenger railroads, some of which have sadly resulted in the loss of life and injuries to rail passengers.

As a Senator from South Dakota, I am particularly interested in the safety issues involved in transporting crude oil from the Bakken region, and I am encouraged to see railroads, the oil industry, and the various Federal safety agencies working together on this issue—including improvements when it comes to tank car safety to protect against releases of commodities that are increasingly moved via the second safest mode of bulk transportation.

I am also interested in hearing from the Federal Communications Commission (FCC) and the Association of American Railroads on the work that is being done to speed up the approval process for the communications towers that railroads must install to fully implement Positive Train Control (PTC), which can certainly assist in reducing the incidence of some, but not all, rail accidents.

While I agree that PTC is an important safety technology that railroads should work to install as quickly as possible, I worry that the current statutory deadline of December 2015 is unrealistic for most passenger and freight railroads. I think this is especially true in light of some of the delays that have occurred at the FCC that we will hear more about today.

Along with Senators Blunt, McCaskill, and Pryor, I have introduced legislation, which is supported by other members of this committee, to extend the 2015 deadline in order to allow the railroads a realistic time-frame for full implementation. There are now 12 bipartisan co-sponsors of this legislation, and I hope that our committee will consider this bill in the coming months.

At the end of the day, we have a shared interest in seeing PTC work as intended, and avoiding the unintended consequences of an unworkable timetable that could weaken the overall safety of our rail network. We all want PTC done right, and I appreciate the perspectives of our witnesses on how we can work together to make that happen.

Senator THUNE. Thank you.

Senator BLUMENTHAL. Thank you, Senator Thune.

And I think that comment, by Senator Thune, points to a very real issue that the FCC has to address. I'm going to be meeting later in the day with Chairman Wheeler and certainly this topic is high on the agenda.

I come away from the testimony, so far, with the feeling that your agencies collectively and individually need more authority to expedite these rules and make this system work better.

Do any of you disagree? And, please, don't hesitate to disagree.

Mr. HAMBERGER. Mr. Chairman, I'm going to jump in even though it's not exactly on the point to your comment because I don't want to let stand on the record without responding, but I know this is dangerous at the first hearing.

I'm testifying before you as our new chair, but you talked about the inadequacy of voluntary actions. And I submit to you that every railroad has a voluntary rulebook which goes beyond the requirements of the FRA that really helps deliver the safest transportation mode America has. And you talked about inward-facing cameras; we're not waiting for the rule. Kansas City Southern has already gone through the process; had to go through—

Senator BLUMENTHAL. You may be right, Mr. Hamberger, and I apologize for interrupting, but I'm limited in terms of the time I have to ask my question.

Mr. HAMBERGER. I'm sorry.

Senator BLUMENTHAL. You may be right about some railroads, but certainly not all. Metro-North is not moving ahead with cameras. The NTSB has recommended to Metro-North that it have those cameras, but we still have not seen them. It took a derailment with four fatalities to cause Metro-North to implement auto-

matic train control, alerters, and other commonsense sensible measures still have not been implemented.

There is a reason why Congress has mandated certain actions. And the rules necessary to enforce those laws still have not been issued in many instances despite deadlines that have been passed. And I am not, I hope, unfairly criticizing the FRA or PHMSA. I know that resources are an issue, but I'm asking really for authority; whether the agencies need authority to expedite these rules, to issue emergency orders.

We're talking here about huge and humongous costs in lives and dollars, in the creditability and trust in our system, potential environmental affect. I was going to hold up—oh, we now have the—these issues unite and interlock the entire country. As you can see, what happens along those arteries of transportation affects the Midwest, the states that are represented here by my colleagues from North and South Dakota, Missouri, and eventually, potentially Long Island Sound as well as Albany, places in New York, the Northeast.

So there has to be a sense of urgency here that, I think, may not be felt by all the railroads in all necessary respects about these rules. So, in terms of enforcement of our laws that protect safety and reliability, isn't there a need for more authority?

And Mr. Blackwell, you seem to be on the verge of saying something. So let me call on you.

Mr. BLACKWELL. I was. Thank you, Mr. Chairman.

We believe that we've identified the most expeditious process. We have not placed bureaucratic process above public safety. We take our responsibility with respect to public safety at the Commission deeply seriously.

You asked about additional authority. Under the applicable statutes and regulations—and Mr. Hamberger suggested that the Commission might be able to do a wholesale exemption of positive train control. Under applicable statutes and regulations, a wholesale exemption of the infrastructures associated with PTC from NEPA and the National Historical Preservation Act would require negotiation with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers and the full notice and comment rulemaking of the Commission including consultation with tribal nations. And that would take us well beyond the December 2015 deadline.

Senator BLUMENTHAL. Any other comment?

And let me ask the same question with respect to resources; more authority clearly necessary. What about more resources? Also necessary; based on what I've heard today and what I've heard over years of learning and listening about this process.

I know that Mr. Szabo would agree because we fought for more resources for the FRA. And what we've achieved, I will say, still is inadequate in spite of the increase that we managed to restore to the budget. So I think that one of the lessons of today is that we need both resources and authority.

Let me ask, in particular, about the Operation Classification results so far. As I mentioned at the very outset, a very high proportion to samples—I think the majority of the samples taken indicated that the packing was inappropriate to the content of the

crude. I know I'm probably misstating, in technical terms, the result but basically in the majority of samples, correct procedures were not followed.

Ms. QUARTERMAN. Within those particular samples that we're taking. We started this effort last August and we have gone out a series of times doing this testing. And each time we've gone out, we have extended the testing that we perform. We started by looking first at flash point, initial boiling point. As we learned more, we continued to go back and expand the tests. We now include vapor pressure and sulfur content. We're beginning to do corrosivity tests and flammable gas content. It's a learning experience in terms of trying to understand the characteristics of this particular crude oil.

We have to all remember, we're talking about crude oil here. We're not talking about a refined product. And crude oil varies from region to region and place to place and we want to understand exactly what the characteristics of this particular crude are. Last week, we were out again. We had a multi-agency strike force in North Dakota with members of the FRA, the FMCSA, the North Dakota folks as well.

Senator BLUMENTHAL. Well, let me just interrupt because I want to turn to Senator Blunt for our next round.

On February 4, you released the first round of your test results which concluded that 11 of 18 samples, taken from cargo tanks delivering crude oil to loading facilities, we're not assigned to the correct transportation packing group. As a result, you issued notices of violation; \$93,000 in fines to the shipping companies involved.

Doesn't that give you a lot of alarm?

Ms. QUARTERMAN. It does, indeed. And that is why we, the Department, issued an emergency order related to classification and testing. We amended that order today, after we had some questions from operators about the order. And that's why we're out on the ground every day despite resource issues. I didn't respond to that question but certainly after have those.

Senator BLUMENTHAL. So maybe voluntary compliance isn't working as it should be.

Ms. QUARTERMAN. Well, I think we have to double-check on these things. Absolutely.

Senator BLUMENTHAL. I may have an opportunity to follow-up in a third round, I'm sure, to the chagrin of our witnesses but I'm going to turn to Senator Blunt because I've reached the end of my time this time.

Senator BLUNT. Thank you. Thank you, Chairman.

Ms. Quarterman, what, on the strike force, were you testing a new rule or was this a rule that the railroad should have, or the shipper rather who complies here? The shipper or the person—

Ms. QUARTERMAN. The shipper or offerer is the person who needs to comply with the rules.

Senator BLUNT. And was this a new rule?

Ms. QUARTERMAN. No, it was not a new rule. It's an existing rule.

Senator BLUNT. So your view is that in the strike force, on a rule that was existing, it had been out there for how long; we talking years, months, days?

Ms. QUARTERMAN. Many, many years.

Senator BLUNT. That they were not complying in how many cases out of how many?

Ms. QUARTERMAN. I believe Senator Blumenthal was talking about, what was it, 11 out of 18 in one particular series of tests that we did. We've gone out about five or six different times and we haven't finished our enforcement actions, obviously, so there may be more coming.

Senator BLUNT. So in the total, is this 11 out of 18 or is this 11 out of a particular route? I'm interested in knowing more about that.

Ms. QUARTERMAN. It's 11 out of a particular 18. It was one trip.

Senator BLUNT. That was the total test in that one trip, was 18?

Ms. QUARTERMAN. That's my recollection, yes.

Senator BLUNT. And in terms of—are you going to change the way you require this testing? Is that in your proposed rule that we test for different things than we have?

Ms. QUARTERMAN. It certainly is on the table. We are looking at everything related to the movement of crude oil, so classification issues are something that we're looking at as well.

Senator BLUNT. Yes.

On the tank cars, I thought Senator Heitkamp made a particularly helpful observation about, you know, you obviously have a lot more shipping going on so the cars that were out there could be out there.

What I don't understand, Mr. Hamberger, is who owns these cars? I think, generally, they have been owned by the shipper but does that mean the orange juice cars are owned by the orange juice people and the milk cars are owned by the milk people. And what does that mean?

Mr. HAMBERGER. Tank cars are a bit of an anomaly in that we own basically very few tank cars.

Senator BLUNT. "We" being the railroads.

Mr. HAMBERGER. Being the railroads, yes, sir.

They're owned either by producers or leasing companies who build them and then lease them out to the shippers. In other areas, boxcars, you know, automotive bi-levels, tri-levels, most of those, many of those at least, are owned by the railroads but some of those are also owned directly either by a shipper or by a leasing company. But in the tank car area, it is almost not, as you mentioned, BNSF did just announce they're going to purchase 5,000 but that is not the normal for us.

Senator BLUNT. Right. And I assume that these cars can be that the 111, if I'm using the right terminology, could still be used for something else even if we decide for—I'm seeing a number of heads shaking here. So taking 111s off the railroad is a different question than using them for another purpose.

Mr. HAMBERGER. That is correct; yes.

Our recommendation is not to use them for flammable liquids.

Senator BLUNT. Right. And Mr. Blackwell, how long have you worked for the FCC?

Mr. BLACKWELL. Off and on for 15 years, sir.

Senator BLUNT. And how long in the current job?

Mr. BLACKWELL. Four years.

Senator BLUNT. And when did the FCC realize that it had responsibilities under positive train control that was passed, I guess, in 2011?

Mr. BLACKWELL. We first learned about the massive number of wayside poles, just under a year ago.

Senator BLUNT. So this is not—I can't go back and say what did you do though, you just didn't know how involved you were going to be? Mr. Hamberger, you want to help me with that?

Mr. HAMBERGER. Well, that isn't exactly correct.

I think Mr. Blackwell may have learned a year ago, but when the FCC awarded the spectrum to a group called PLC 220, it's the railroad organization that bought the spectrum for PTC, as part of that award there's a requirement that you submit to the bureau every 6 months what you're doing to make sure that you're using that spectrum because otherwise, why, you know, why should you get to keep it? So starting in 2009, we submitted statements to the FCC telling them what we were doing to implement the award of that spectrum including putting up poles along their right-of-way.

Senator BLUNT. And, I would say that the recent people that have appeared here that are now serving on the FCC seem to be much more aware of this and, Mr. Blackwell, I think you would—the Commission itself is responsible here to this committee and you're responsible to the Commission. But what I'm wondering at now, and I think I'm right here, you mentioned some dates. You said September the twenty-seventh. There was one day and that was last year. You're talking September 27, 2013; right?

Mr. BLACKWELL. Yes, sir.

Senator BLUNT. And then, January 29, 2014?

Mr. BLACKWELL. That was the release of our draft Program Comment.

Senator BLUNT. And Senator Thune had you in sometime in mid-to-late April 2014. And then, you've got the whole 22,000 towers to side, even if you group them? I'm having a hard time imagining, unless something changes, you get all that agreed to, all that done, by the end of 2015, let alone your assertion that there's plenty of time for the railroads to comply by the end of 2015. You're not going to have 22,000 people out there setting individual towers on a given day when you all are finally done with this, and 22,000 individual pieces of equipment. The idea that we can, the government, can drag its feet as long as it has and then suddenly, in the middle of the year before this has to be completed, the next year, the government can assert that there's plenty of time for the railroads to comply now that we've finally come up with our rules, I just think is ludicrous.

Now, let me be sure I understand these poles, too. There are 22,000 towers and poles. How many of those would be the big tower that I would envision when I think about something like a telephone, cellular; any of them?

Mr. HAMBERGER. No. The ones that we're talking about are what are called monopoles. They could be as high as 60 feet, could be as low as 20 feet depending on terrain. Generally speaking, go down into the ground six, eight, ten feet, maybe two feet diameter of a hole. Ninety-seven percent of them will be on the right-of-way of the railroad. Again, not in tribal nation land. We understand if it

is tribal nation land that would be a different consideration. And if we were talking about the big radio towers, that obviously is a different consideration.

Senator BLUNT. Do we have to build any of those big towers?

Mr. HAMBERGER. About 500, apparently.

Senator BLUNT. Five hundred—

Mr. HAMBERGER. Of the 22,000?

Senator BLUNT.—cellular type towers and the others are—

Mr. HAMBERGER. It's included in the 22,000; 500 in the 22,000.

Senator BLUNT. So 40 feet, that's somewhere in the streetlight, telephone pole—

Mr. HAMBERGER. That's my assessment, yes.

Senator BLUNT.—is the size that you're talking about.

And I'm going to ask one more question and then I'm going to be done with this. On the wayside structures you mentioned in rail yards, can they build things there that they couldn't build in the right-of-way without approval from your organization, Mr. Blackwell?

Mr. BLACKWELL. Senator Blunt, I should clarify a couple of things. Section 106 of the National Historic Preservation Act applies nationwide, not just on tribal lands. And it applies within the rights-of-way. In fact, these rights-of-way, because they're private in nature, there have not been surveys. Folks don't know what's in them. But the exceptions to that are identified under Program Comment do involve a rail yard. There are exceptions for wayside structures similar in nearby existing structures in the right-of-way. For wayside structures located within rail yards of at least 1,000 square feet—100,000 square feet, excuse me. And reviews are exempted from rails on the track—the review of the—impact for rails on the track beds themselves.

Senator BLUNT. Do you think you'll have all, assuming the railroad complies with every deadline you've set, do you think you'll have all these towers agreed to? When do you think is the last time you'll finish the approval process on the 22,000 towers; the ones that are going to then be built by the end of 2015?

I'm going to keep track of this topic and if it's like November 2015, whenever it's finally done, I'm going to come back and ask you how you thought these towers were all supposed to be done by the end of 2015, which is exactly what you said here today. I just don't understand how you think there's—I'll let you answer the question, then I'm done.

Mr. BLACKWELL. Well, there was a reference earlier to the base stations, those towers can go through the process right now; our regular process. We also developed a process that had been mentioned earlier on the beta testing process for railroad subdivisions that were demonstrated in our Oklahoma and in our South Dakota consultations. The FCC is fully committed to tailoring our process in a way that will enable the railroads to meet the current statutory deadline, Senator.

Senator BLUNT. I actually don't believe that's possible based on the sitings you have to do and the towers that still have to sited, but I'm going to watch this pretty closely and if the FCC is fully committed as you say they are, to have all of these towers in place by the end of 2015, you're going to have to be really quick to let

them know that they can set these towers. Again, I'll just repeat, there aren't 22,000 crews that are going to, on a given day, each set a tower.

Senator BLUMENTHAL. Senator Thune.

Senator THUNE. And a question to follow up to that. I mean, once the towers are installed, you still have to test, you still need interoperability, you have a whole bunch of things that have to happen subsequent to that; correct?

Mr. HAMBERGER. Correct.

Senator THUNE. So, I mean, this is a—yes. This is a process that's going to go on for some time.

Senator BLUMENTHAL. Thank you for those excellent questions, Senator Blunt and Senator Thune.

And I might just make the observation that even before November 2015, I think we may need to have a separate hearing on some of the question you've been raising because they are profoundly important and they go to the core of safety and reliability in both freight and passenger.

If my colleagues would like, Senator Heitkamp.

Senator HEITKAMP. Yes. Just, quickly.

You know, this really fits in kind of three categories for me. Number one, prevention of derailments. Second category is mitigating the consequences of derailments. And then, making sure that, in the third category, that we have in fact trained professionals who respond to these crises. And I want to just briefly hit each one.

I was surprised, Mr. Szabo, that you didn't talk about technology very much when you were asked because I think technology is such that you could in fact inspect that track every time a train went over the track. And so, you know, I just want to lay that—I don't have a lot of time, so I just want to lay that marker down that we're interested in the relationship that you have with the Association of American Railroads so we make sure we get that technology deployed.

In the category of mitigation, I think, you know, with all due respect, PHMSA doesn't have a very good record on this. And I know you said you're moving with all due diligence but that's not the past history on this. I think there was a lack of engagement. In fact, Senator Hoeven along with Senator Landrieu, sent a letter in December of 2012 asking where that collaboration was, where that discussion was. Now we're here, in crisis almost, trying to resolve this issue and I think it's a lesson for all of us to respond and react.

Finally, I want to talk about classification. There hasn't been a lot of talk about how this product gets classified, except the Chairman raised this.

I want to ask Ms. Quarterman. Taking a look at the range of violations, would it have changed how any of that product was actually shipped? It may have changed how people respond to it if there's a crisis, and I recognize the need to know exactly what that is for the first responders, but would it have changed how they shipped that product?

Ms. QUARTERMAN. I don't have a list of each of the violations that are listed there but we're talking here about cargo tanks, which are trucks on the highway. And there are differences be-

tween the tanks that are used for Packing Group I packages and Packing Group II packages.

Senator HEITKAMP. I just want to focus on the railroad. I want to focus on the rails.

Ms. QUARTERMAN. Once it went to a rail, whether it would have made a difference if the packing group were wrong?

I don't know what the number was at that time. Packing Group I and Packing Group II are very similar.

Senator HEITKAMP. In terms of the requirement on how they ship.

Ms. QUARTERMAN. In terms of the requirement.

Senator HEITKAMP. So we just want to make sure that we're laying down the understanding that these classifications are relevant and important and must be met. But they may not change, in fact, how that product moves under current regulation.

Finally, I want to talk a little bit about classification because in my discussions with API and with PHMSA, you know, this is facts. I mean, what actually is in the tank or what gets produced, it's chemically provable. But yet, we have all of this disagreement about what is this, what is this product. And I know that API has come up with a pretty extensive outline on process in terms of studying this and getting to the point, and I know you're currently moving. Are you guys communicating? Are you giving us what we need in terms of a process so the public can be guaranteed it's moving forward appropriately?

Yes, API.

Mr. SEARLES. Yes, thank you.

We, indeed, are moving forward with the development of a standard that looks at classification of crude oil and what it does is look at all of the aspects that need to be resolved. There have been several questions that have come from PHMSA and we're addressing those and any other questions that come up during those meetings. So that is a group of scientists and engineers, and railroads and PHMSA will be participating in those meetings. In fact, they had somebody at the last meeting.

Senator HEITKAMP. So we're building consensus on how we're going to test this or what the standards are going to be, Ms. Quarterman?

Ms. QUARTERMAN. API has stepped forward to put together a standards creation body. We are participating in that body. We have, since we last met with Secretary Foxx, we have had a series of meetings with crude oil representatives including API, but also individual shippers to ask them what are the characteristics of the crude. And I've had a series of conversations over the past month with individual companies. Some are providing information on that and we have told them what we know about the crude so far.

And, you know, we did probably as many tests last week as we had in the period before, so we will have a lot more information after we get the results from that.

Senator HEITKAMP. I think this is headed in the right direction.

I just want to thank both the Chairman and the Ranking Member for this extraordinary opportunity to participate and ask if it's okay if I submit a statement for the record.

Senator BLUMENTHAL. Without objection.

[The prepared statement of Senator Heitkamp follows:]

PREPARED STATEMENT OF HON. HEIDI HEITKAMP,  
U.S. SENATOR FROM NORTH DAKOTA

Chairman Blumenthal, Ranking Member Blunt—thank you for organizing this hearing on the critically important topic of rail safety.

Right after the Casselton derailment, I spoke with Senators Warner and Blunt to request that this committee hold a comprehensive hearing to examine rail safety—and they didn't hesitate to commit to investigating the topic we will consider today.

Thank you for the opportunity to participate as a guest of your subcommittee and, more importantly, thank you for your leadership and responsiveness on this important issue facing the country.

**Why We Need This Hearing**

*Our country is in the midst of an energy revolution, and North Dakota is at the heart of it.* Nearly a million barrels of oil are produced in my state each day, and additional growth is expected in the coming months and years.

*This energy boom is dramatically changing our country.* It is putting us on the path to North American energy independence and helping wean us off of foreign oil. It is increasing the competitiveness of American manufacturing. And it is providing thousands of jobs and creating new wealth in the countryside.

*But with all these benefits come additional costs. And just last month in Casselton, North Dakota, we saw what can happen if we don't properly manage those costs.*

*Transporting crude by rail was so different even just a few years ago.* Trains in the past would carry little if any crude. And when crude was carried by rail, it was in relatively small amounts mixed in with a diverse variety of grain and container shipments.

*Shipments of rail by crude have increased exponentially over the course of the previous five years.* Trains have had to fill in where other forms of energy transportation are lacking. According to the Association of American Railroads, the number of railcars carrying crude oil on major freight railroads in the U.S. grew by *more than 6,000 percent* between 2007 and 2013. Now we are seeing entire key trains of tanker cars carrying more than half a million barrels of crude to market.

*It's past time for industry and regulators to respond appropriately to the dramatic changes in the rail freight marketplace.* I look forward to hearing from the railroads and oil producers today on their thoughts for the future of their respective industries. I also look forward to hearing the thoughts of the DOT regulators on what they believe we need to take to make the shipment of crude safer.

**What I Hope to Learn From this Hearing**

*I've spoken with many of the officials and agencies here today.* We have talked about the derailment in Casselton as we seek to find out what happened and learn about the steps that we can take to prevent them from happening in the future. We have spoken about railcar safety standards, train speed limits, accident clean up, routing, training for first responders, the packaging of crude, track inspections—the list goes on.

*But you get my point—I've been looking into these issues since the Lac Mégantic derailment in Quebec last summer—even before the derailment in Casselton.* We were very fortunate no one was hurt as a result of the Casselton derailment. But as we saw in Quebec, that isn't always the case.

*Today, I hope to get some more insight into these issues and hear about them in a public forum.* North Dakotans need to know that as traffic continues to increase on our rail system, they will be safe in their homes and communities. I'm committed to making sure that's the case.

*Understandably, rail safety is on the minds of many North Dakotans following the Casselton derailment and subsequent explosions—and it's certainly an issue I'm very focused on.* For many of us in the Senate, the Casselton derailment has trained our focus on efforts to improve safety for the rail shipments of crude oil—and we need to consider all angles to update needed standards and regulations.

*To truly improve safety, we need to work together.* An effective and comprehensive response will require coordination and collaboration—from the industry, Federal regulators, and local governments. Everyone should want safety to be a top priority. And everyone should want to make sure we hit needed deadlines to show that safety is our top priority.

*DOT should set that example by leading the way.* There are multiple jurisdictions within the DOT that are involved with the oversight and policy setting for the rail

shipment of crude. It will be important that DOT provide the leadership to coordinate the activities of the multiple agencies involved and play an active role in guaranteeing the timely completion of the work of the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Rail Administration (FRA) to improve the safety of crude rail transportation.

I'm grateful to have Secretary Foxx at the helm, whom I believe is up to the task. Thank you again for the opportunity to contribute to this ongoing discussion today.

Senator HEITKAMP. Thank you so much.

Senator BLUMENTHAL. Thank you for joining us, Senator Heitkamp, and thank you for your excellent questions.

Senator Hoeven.

Senator HOEVEN. Thank you, Mr. Chairman.

I want to follow up with Administrator Quarterman and PHMSA. I did write, along with Senator Landrieu, in December 2012 and asked what you were doing and how soon we would get the regulations, understand the regulatory requirements for both the shipping industry, the shippers, as well as the railroads, so that they could go from the DOT-111 cars to the newer 1232 cars or whatever that model is going to be, what those requirements are going to be. And so, I come back to you today, and we've had some dialogue on it, but when are we going to see that standard so that the industry has some certainty and so we can move to the new cars as aggressively as possible?

Ms. QUARTERMAN. As I've said several times today, we're working very hard on getting that standard done, but a couple of things, I think, are important to remember here. The first is that the DOT-111 tank car itself was created in the 1960s and has had modifications over that time. So we're talking about a standard that could be in effect for decades.

So we really need to get this right and, as you've heard from the panel today, from Vice Chairman Hart about his concerns about the 1232, the AAR about their modifications to their standards, and we're continuing, even though the rulemaking period has closed, to hear comments from many other stakeholders suggesting that the new standard should be different from either the 111 or the 1232. We really have to get all those comments together and look at the data and determine what the right new standard is for whatever number that new car because that's number one.

Number two, the other important point to make is, as we have all said on this panel; this really requires a comprehensive approach. Do we need to improve the 111 tank car? Absolutely, we do. And we are working hard to make that happen, but that is a mitigative step. We need to first concentrate on prevention and do all these other things, like rerouting trains, perhaps slowing them down as we have with the AAR agreement, looking at braking mechanisms. We need to do all of those things together to improve and we're working on that hard.

Senator HOEVEN. Ms. Quarterman, of course we do. And that's what we've been talking about today. But I'm asking you when you're going to move forward with the new standard? That's the question I'm asking.

Ms. QUARTERMAN. Well, as I said earlier, FRA and PHMSA folks have been together working on a rule. We have a first draft of a rule. They are working on, what we call, a regulatory evaluation

which is really the cost-benefit analysis; an important part of that—

Senator HOEVEN. Your rule has to go to OMB. Has that happened yet?

Ms. QUARTERMAN. It has not happened yet. No, it has not.

Senator HOEVEN. And they've talked about having a proposed rule out before the end of the year. Are you anticipating that timeline?

Ms. QUARTERMAN. I'm hopeful to beat that, yes.

Senator HOEVEN. OK. Now I'm going to turn to Mr. Searles and Mr. Hamberger.

How can you two help make this happen in a way where we get it right and we get it done? And either one can start.

Mr. HAMBERGER. In my humble opinion, one way to do it would be to split the rulemaking into two. Address the new tank car standard and then deal with the retrofits. There is a two-year backlog right now and those cars could be being built to a standard that a year from now is not deemed adequate. It seems to me that the message should be sent for certainty to, whether it's a railroad or shipper, a leasing company, whoever is buying a new car that this is the new car standard because it does have to last for 25 or 30 years. There is not a great deal of difference in the new car standard between some of the stakeholders that are talking to PHMSA. So that would be one thing that might be a way to show some progress. Because, the issue of the retrofit and phase-out, there are different types of DOT-111s; some of them actually have a jacket.

And so, how do you deal with that? And, you know, what product is this for? And that, I think, is taking a lot of resources but it would just be an unasked-for thought, but since you asked that, maybe that would be one way to move forward at least on the new tank car standard.

Senator HOEVEN. Mr. Searles.

Mr. SEARLES. Yes, thank you.

I think that there are opportunities to move forward now with what we had consensus with 3 years ago. Those are safe cars; those are what are being built today; those are the things that will be the state-of-the-art. To that end, an interim final rule could be put forward today and you wouldn't have to worry about consistency and certainty taking place at that point. I agree that if you were looking at retrofits and those, there is more study that needs to be done. All of this needs to be done in a holistic and systematic way, as Administrator Quarterman suggested, because classification also has an impact to the tank car design. And we need to be able to get all of that information so that we are doing the right thing at the right time.

Senator HOEVEN. We had a meeting about 30 days ago with the regulators, with the railroads and with the shippers and we talked about a comprehensive plan with both short-term and long-term steps. We need to work together, we need to get it right, we need to be comprehensive, and we need to make this happen.

I'd like to thank the Chairman and the Ranking Member, not only for holding this hearing but I brought up the positive train control issue. Mr. Blackwell, I would strongly recommend that FCC

put forward a plan to this committee as to how they're going to work with the railroads to actually facilitate or to empower them to get the PTC in place by the end of 2015. I think that there's a lot of confusion here on how that can actually happen. And it seems to me, you've got to show the path whereby the railroad is able to respond. They have a responsibility, obviously, to do it. The one question I'd ask is, will there be a different standard for freight and passenger trains with PTC or will that be a consistent standard?

Mr. BLACKWELL. No. The freight train would be able to be treated the same—oh, sorry. It'd be the same standard.

Senator HOEVEN. So, it would be the same standard?

Mr. BLACKWELL. Same standard, yes.

Senator HOEVEN. Well, I'd strongly urge that some visibility on this path—I think Senator Blunt did a marvelous job of laying it out. I don't understand how that's going to work yet. But if we're going to have a comprehensive plan that both prevents derailments to the extent possible and then we make sure that we reduce the risk of fire or explosion or other risks, as well as having a strong emergency response, we've got to have positive train control. So just like we've got to move forward on the tank car standards, we've got to move forward with things like PTC; as well as the technology, Mr. Szabo. And we're going to try to help in terms of making sure that there's funding to do it but with both people and technology to inspect.

So, Mr. Blackwell, you were going to say something and I'll wrap up here, Mr. Chairman.

Mr. BLACKWELL. I was going to say, just to add, Senator, that many commuter rails are installing a different type of PTC system and can use existing infrastructure to deploy and because it's a much smaller order of magnitude are utilizing our existing system right now.

Mr. SZABO. Senator, if I may, just two comments.

I mean, first off, thank you for bringing up technology as did Senator Heitkamp. While I touched on it in my testimony, I would truly appreciate additional questions for the record to allow me to talk about that quite a bit more because our R&D program and advancing technology is going to be a critical piece of driving the next generation of safety. And two, the debate on PTC. The challenges with siting the towers just adds one more reason why my agency needs the power to do provisional certification so we can get as many pieces, you know, as much deployed as quickly as possible, you know, and get up and achieve those safety benefits.

Senator HOEVEN. We'll work with you on that.

Thank you, Mr. Chairman.

Senator BLUMENTHAL. Thanks, Senator Hoeven.

I think we're going to want all of you back and we're going to want you back soon. We're going to want to drill down—forgive me for using the oil well analogy.

[Laughter.]

Senator BLUMENTHAL. We don't have oil wells in Connecticut so I feel safe in using that term. But we do have freight, by the way. We have ten private freight railroad companies and they're moving ethanol. As a matter of fact, the amount of ethanol has grown from

zero in 2011, to about 340 loads a month over two rail lines in 2012.

So the issues that have been raised here, in terms of moving crude oil and moving fuel, are increasing in urgency and importance. And, just to follow up Senator Hoeven's comments, you know, a number of you said we need to get it right. Nobody disagrees that we need to get it right; we do need to get it right, but we need to get it done. And the delays that we've seen, for whatever the reasons, are putting people at risk. They're putting products and freight at risk, but they're also putting people at risk.

And so, we need to develop a way to make this system work better. There has been general agreement that more authority and more resources are necessary. There will be questions for the record. I'm glad you raised that issue, Mr. Szabo. And I'm glad you would welcome them. We're going to keep the record open and a number of us will have questions for the record.

I don't want to prolong this hearing now. I began by asking, Mr. Szabo, whether you could tell us anything about the results of Operation Deep Dive.

Mr. SZABO. Yes. I committed that to you. We will have that report issued. Our deadline is March 17. We're endeavoring to meet that deadline and I promised you a personal briefing and that is still my commitment.

And rest assured, while we're in the process of analyzing everything that's in the report, we're not just sitting back and waiting. We, in fact, have been in near daily contact with Metro-North on things that we believe deserve immediate improvement. And while there'll certainly be a, you know, a list of recommendations and perhaps other actions coming out of the report, we're not waiting for the issuants to issue all of those recommendations. We need fixes in real-time.

Senator BLUMENTHAL. Thank you.

Well, fixes in real time is the message. And they have got to be real fixes in much realer time.

And thank you all for being here today. Thank you to my colleagues, particularly Senator Blunt, for participating and thank you to the panel.

This hearing is closed.

[Whereupon, at 1:43 p.m., the hearing was adjourned.]

## A P P E N D I X

### PREPARED STATEMENT OF THE CITY OF FARGO

Chairman Blumenthal and Ranking Member Blunt,

In the past eight months there have been four train derailments involving cars carrying crude oil, three of which resulted in fire. Only one of those events resulted in the loss of life but the potential in the others was great.

The derailment in Lac-Mégantic first caught our attention last July. Our City Administrator, Pat Zavoral, and I met to discuss possible issues related to rail traffic as crude oil trains can be seen passing through the City of Fargo several times each day. We reached out to BNSF and held a teleconference with them to discuss the issues.

Our first concern is the monitoring and maintenance of the rail lines that pass through Fargo. The shifting soils have long been noted to be a problem within our community. We were told the number of trains that pass through our community on a daily basis, are over 100 and climbing. This emphasizes the need to have a high level of security and extra maintenance efforts for the rail lines.

The speed of trains that travel through our community is a concern as well. We recognize the impact that slowing and speeding up have on the travel time of the trains, but our main concern is the safety of the citizens around the rail lines. We have a full understanding of physics and the results of higher speeds and the resulting damage to the cars and adjacent properties when trains derail. Speed is a major component when we study the anatomy of a crash or derailment and we believe that slower speeds in major urban areas are essential to public safety.

We recognize that slower speeds will make for a longer wait time at a rail crossing. Continued efforts to upgrade protection at grade crossings are essential. Grade crossings need to be looked at all along the lines not just within the borders of cities. This is evident to me daily, when the driving public will take the risk to quickly pass before a train reaches the crossing. Each time an engineer has to take emergency measures to slow a train to avoid a potential crash there becomes another opportunity to fatigue the parts on the cars and cause issues further down the line.

The construction of the cars that carry crude is another area of concern. Everything we are learning about Bakken Crude Oil is that it is more flammable, has lower ignition points, and lower flash points. It is imperative for the public's safety that this material is treated and transported in a manner will commensurate with the volatility of the product. As newer, safer cars are built it is important that the railroad industry looks closely at the car's features as they put trains together.

Recent discussions about railcar safety have indicated that new cars should have more protection at the bulkheads as well as better protection for the valves and other assemblies on the cars. The suggestions here are welcome, however; it is imperative that as train cars are arranged the old design and new designed cars will not be placed in close proximity to each other. The concern that we have is that an old car involved in a derailment will tear open and potentially ignite the crude inside.

If a new car is the next car in the line, the protection that is afforded in that car could potentially be of great danger to responders to the incident. It is our fear that the newly designed car may act more like a pressurized vehicle if there is direct flame impingement on that car. As the crude inside heats and the pressure builds, the potential is there for a more violent and catastrophic explosion of that car. It would be our hope that only like constructed cars will be put in sequence when placing together a crude or ethanol train.

The causes for all of the past derailments are different, from human error to broken equipment to weather. We will never be able to predict the next derailment or its cause. I believe it is imperative that congress work with the railroad to implement Positive Train Control (PTC). This will allow for earlier detection of issues along the line and will be able to slow the train traffic in an area if a problem is noted.

This is of particular concern to Fargo as we have several trains that pass each other as they pass through our community. If we have a derailment of a train within the community, any measures that we can provide to prevent a potential issue should be put in place.

We recognize the impact that the railroad has had in the development of our country. We recognize the impact that the railroad will have in the future expansion of our economy and interstate commerce. We support the use of rail to move products throughout our country. The BNSF has been a great partner with the Fargo Fire Department and we appreciate the support that we receive from them. As you consider measures that regulate railroad industry, we ask that you do so with public safety and the safety of first responders in mind.

Thank you for your time,

STEVEN J. DIRKSEN,  
*Fire Chief,*  
City of Fargo, ND.

Cc: U.S. Senator Heidi Heitkamp  
U.S. Senator John Hoeven  
U.S. Senator Amy Klobuchar

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PREPARED STATEMENT OF BRUCE BENNETT, PRESIDENT,  
STAGE 8 LOCKING FASTENERS

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 U.S. 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 break-away 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 percent 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 percent of the initial torque applied
- Only 20 percent of the wheel sets equipped with the legacy cap screw locking system retained over 90 percent of the initial torque applied.
- 74 percent of the wheel sets equipped with the legacy system retained between 50 percent and 90 percent of the initial torque applied.
- 7 percent 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.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO  
HON. JOSEPH C. SZABO

*Question 1.* The FRA’s Operation Deep Dive, which is a 60 day comprehensive review of Metro-North’s safety practices and standards, commenced on December 16, 2013 and was released on March 14, 2014. The FRA examined all safety related aspects of Metro-North Railroad including track quality, inspection methodology and quality of repair, signaling and train control functionality, and protection for on track crews. What can you share with us today about what the FRA has learned from its comprehensive review about Metro-North’s safety culture?

Answer. FRA learned that Metro-North had an unhealthy safety culture. They placed an emphasis on on-time performance, to the detriment of safety: track inspections were rushed, Metro-North track maintenance standards were not met, and mainline efficiency tests were not conducted so as to not adversely impact on-time performance. These issues were part of a faulty culture that Metro-North allowed to develop.

FRA learned that Metro-North had no office or department, including its Safety Department, that proactively advocated for safety. No Metro-North office or department actively searched for unsafe conditions and practices, and once they were discovered, no one took ownership to ensure effective remediation.

FRA also learned that safety-related training and management oversight were deficient across departments.

FRA provided its detailed findings and recommendations in a report to Congress by March 17, 2014.

*Question 2.* In a report published on April 17, 2013 the DOT Inspector General evinced findings that the FRA was delayed on issuing rules that Congress directed in the Rail Safety Improvement Act of 2008 (RSIA). At the time of the report, FRA had not issued 9 of the 17 final rules mandated by RSIA.

The DOT IG report also found that there were inefficiencies in the Railroad Safety Advisory Committee or RSAC process, namely that there were breakdowns in communication between FRA and the RSAC on several rulemakings and that certain critical documents were not shared with the stakeholders sitting on the RSAC.

Because of these issues, the Inspector General concluded that the “delayed promulgation of the RSIA required rules has delayed the mitigation of railroad industry safety hazards that Congress intended the rules to address.”

The FRA, in January, did issue final rules for adjacent track work and rail integrity. FRA has also announced its plan to begin the rulemaking process for inward and outward facing cameras. This leaves 8 rules left for the FRA to issue. Why hasn’t the FRA done everything it can to protect passengers?

Anyone who rides the rail in this country deserves a safe and reliable service. I am deeply concerned by the apparent failings at FRA to heed important safety recommendations by Congress and the NTSB, our Nation’s top Federal safety organization. The NTSB has been calling for cameras in and on trains since 2008. It’s 2014;

why have you not acted? It's baffling that it took a major derailment in New York in December to get the FRA to commit to requiring cameras. I'm concerned that regulatory capture is getting in the way of the FRA's work, which is absolutely critical to protecting the traveling public. If you can simply issue an emergency order requiring cameras, why not do that? Commuters deserve more. What is the status of the inward/outward facing camera rule? What is the plan? What is the timeline for action? Action appears to be missing.

What is the status of other delayed rules like the training standards for railroad employees rule? The FRA should be doing everything it can to protect passengers; but the failure to require even basic safety recommendations from the NTSB concerns me, many of my colleagues and many of the constituents I've spoken with.

What are inefficiencies in the rulemaking process that you can improve to cut down the time it takes to develop new rules? Does the RSAC process work? Do you agree that the FRA has a problem with regulatory capture—if not, why not?

Answer. FRA continues to act diligently in completing its regulatory workload, placing a priority on those rulemakings that will most effectively advance safety, particularly those required by Congressional mandate.

As to how to reduce "the inefficiencies of the rulemaking process" in general, FRA has to strike a balance between speed and quality. "Quality" includes adherence to demanding procedural and substantive legal requirements. As you know, all three branches of the Federal Government—Congress, the courts, and the Executive Branch—have established certain mandatory procedures and substantive requirements related to the rulemaking process (*i.e.*, the development and issuance of regulations, including FRA safety regulations). With few exceptions, before FRA is permitted to issue a final rule, there must be public notice of the proposal and an opportunity for public comment; a reasonable response to any public comments; an articulated, rational basis for the rule; and consistency of the rule with any applicable laws.

For many FRA rulemakings, other Federal agencies and offices are part of the clearance process: these draft rulemaking documents, cleared by FRA staff and by me as Administrator, go into a pipeline that extends from this agency to the Office of the Secretary of Transportation, which circulates the document to other agencies and offices within the Department, and then to the Office of Management and Budget, where the draft rule is circulated to relevant non-DOT agencies and offices.

Costs and benefits of a draft proposed rule and draft final rule must be identified, analyzed, and weighed against each other. This evaluation can be very complex, but provides critical information to decision makers, reviewers, and the public. It should also be noted that the complex nature of the administrative review process for draft rulemaking documents means that widening one part of the pipeline (*e.g.*, by adding resources) is not enough to expedite issuance of a rule if the rest of the pipeline remains narrow; the delay simply occurs at a different stage of the process. After FRA issues a final rule, FRA's procedural rules provide for the filing of petitions for reconsideration, a vehicle through which litigation is often avoided, thus conserving administrative and judicial resources. A final rule is also subject to judicial review in the U.S. Courts of Appeals and may be set aside by the court. (By contrast, NTSB does not issue rules; it issues recommendations, and these recommendations are not subject to notice and comment, cost-benefit analysis, or judicial review.)

Regarding inward- or outward-facing cameras, it is important to note they would not have prevented the December 1 Spuyten Duyvil derailment. FRA acted appropriately with Emergency Order 29 to require those measures that had a direct relationship to the accident and would provide immediate safety benefits to Metro-North's operation. While Congress could have mandated a camera when it passed the RSIA in 2008, it chose not to, so congressionally mandated rulemakings were given priority in the rulemaking process. FRA does believe that inward-and outward-facing cameras can provide value and will assist in accident investigations. That is why in the summer of 2013, while giving priority to finishing the 42 Congressional mandates established in the RSIA, FRA was involved in various camera projects occurring in the industry. Based on what we learned, FRA placed this issue on our internal rulemaking agenda in November of 2013 for action in 2014. As planned, the Railroad Safety Advisory Committee (RSAC) has accepted the task of formulating recommendations on the appropriate design and use of locomotive-mounted cameras and will begin RSAC working group meetings on the topic this summer, with recommendations due early next year.

You asked whether FRA has a problem with "regulatory capture." I can assure you that it does not. FRA is a data-driven agency, dedicated to achieving its safety mission for the good of the public, and subject to the highest ethical standards. FRA works tremendously hard to ensure that it prioritizes its rulemaking endeavors to address the most safety-critical issues in the timeliest fashion. Given the 42 indi-

vidual mandates imposed on the agency in the RSIA, FRA has utilized its limited resources in an efficient manner in order to advance and address the safety needs of the country and industry in a timely fashion. During the five-year period from February 1, 2009, to January 31, 2014, FRA published approximately 76 major regulatory documents, including 66 advance notices of proposed rulemaking, notices of proposed rulemaking (NPRMs), and final rules; 3 emergency orders; and 7 interpretations, for an average of more than 15 major regulatory documents per year. We are also actively involved in many pending rulemakings, including one on fatigue management, which will address the issue of sleep apnea and other fatigue-related issues.

We believe our approach to handling and prioritizing rulemakings has increased the level of safety across the industry. This is evidenced by the historically low accident statistics during the last ten calendar years. During this period, total derailments decreased 48 percent, total train accidents decreased 48 percent, and total highway-rail grade crossing accidents decreased 32 percent. The year 2012 had record low numbers of train accidents, and that safety record was surpassed in 2013. But we always owe the public better. Our goal is to drive continuous safety improvement. We expect this of ourselves and we expect it of the industry we regulate.

You also asked if the RSAC process works. The RSAC process not only works, it is vital—especially for the difficult issues, which we tend to propose be handled there. It ensures the highest level of transparency and provides the highest level of public input. A chartered advisory committee under the Federal Advisory Committee Act, RSAC includes representatives of stakeholders throughout the railroad industry (rail labor, rail management, rail suppliers, rail passengers, State rail safety programs, and other organizations), and ensures that FRA hears a wide range of opinions early in the rulemaking process so that proposals are appropriately vetted early, clarified, and communicated. The RSAC's meetings are also open to the general public, announced in the *Federal Register*, and part of the agency's public docket system. The RSAC process saves time—especially at the end of the process—by making the cost-benefit analysis more accurate, minimizing petitions for reconsideration, and creating a rule that is understood by the regulated community.

Regarding the current status of the rulemakings mandated by the RSIA, I refer you to a list attached to my prepared testimony, enumerating the FRA rulemakings completed as of today (March 6, 2014), that were mandated, explicitly or implicitly, by RSIA. Here is the status to date of the remaining RSIA-mandated rulemakings:

1. The critical incidents final rule was in the final stages of review at FRA.
2. The training standards final rule was in review in the Executive Branch.
3. The system safety plan final rule was being reviewed within FRA.
4. The NPRM on risk reduction plans was being reviewed within the Department of Transportation.
5. The NPRM to extend the alcohol and drug rule to maintenance-of-way workers had been redesignated by OMB as non-significant and was expected to be published in April.
6. The emergency escape breathing apparatus final rule was delayed due to competing priorities and need to reexamine data for an economical option to comply with the RSIA.
7. The dark territory rule was being held in abeyance because technology implementation plans expected in railroads' risk reduction and system safety plans will likely make the rule unnecessary for safety. (The mandate is for either a rule or guidance.)

*Question 3.* As a result of Metro-North's series of recent accidents in the past year, the FRA issued several orders and recommendations to Metro-North to improve its safety standards in the short term. FRA ordered a safety stand down for Metro-North, directed the railroad to implement a confidential reporting system for employees, and issued an emergency order to Metro-North to modify its signal system at critical curves on the rail line.

Most of the public orders and recommendations only came after Metro-North experienced its 4th major incident. Where was the FRA last spring? What actions did you immediately take after the first derailment in May 2013 in Bridgeport? The FRA seemed pretty quiet only until the December incident—what specific steps did you take immediately after the Bridgeport derailment to improve safety and reliability at our Nation's largest public transit provider?

What assurances can you give to us today and to the commuting public that Metro-North has a trustworthy level of safety while FRA rules are being developed and finalized?

Is there sufficient reason to have confidence in this railroad in the short-term while we develop long-term solutions?

Answer. Following the May 2013 Bridgeport derailment, on June 2, I personally met with Metro-North President Howard Permut to discuss concerns about their safety culture and the need to implement a confidential close calls reporting program. From May through November 2013, FRA conducted 245 inspections on the Metro-North system, and conducted a focused inspection of Metro-North's Roadway Worker Protection. Given that the joint NTSB-FRA investigation is focusing on a failure in a compromise joint in the track, FRA increased track inspections utilizing FRA track inspectors and an FRA Automated Track Inspection Program (ATIP) vehicle, which FRA uses to inspect track to determine whether the track conforms with the track geometry standards set in FRA's Track Safety Standards (49 C.F.R. part 213) (*e.g.*, proper gage). (Between June 3-20, FRA's ATIP car covered the entire Metro-North territory.)

On June 26, FRA facilitated a meeting on compromise joints hosted by Metro-North. In addition to Metro-North, participating railroads included Amtrak, Long Island Rail Road, New Jersey Transit Rail Operations, and Port Authority Trans-Hudson. The agenda covered compromise-joint protocol including inspection and maintenance, an FRA presentation on joint bar inspection technology, and a general discussion to identify best practices. This was followed by a second meeting with Metro-North, Amtrak, and Long Island Rail Road to discuss automated track inspection technology, with FRA again presenting. Metro-North indicated it would explore possible utilization of an automated ride-monitoring system to supplement periodic track-geometry surveys.

On July 12, in a meeting with Metro-North President Howard Permut, FRA stressed that safety must take priority over on-time performance. Mud conditions on the Harlem Line were discussed, along with Positive Train Control for the New Haven Line, between New Rochelle and New Haven (on Amtrak's Northeast Corridor), and Metro-North's reconsideration of the possibility of participating in FRA's voluntary Confidential Close Call Reporting System (C<sup>3</sup>RS) program. Mr. Permut responded by noting the existence of numerous capital projects (bridges, stations, catenary, rail, and ties) and the absence or near-absence of funding from the State of Connecticut and the Federal Government.

Throughout Operation Deep Dive, the FRA teams met regularly with Metro-North leadership and staff. Where appropriate and practicable, Metro-North immediately implemented corrective actions in response to the safety concerns that FRA identified.

To provide an update to my March 6, 2014, testimony, Metro-North's new president has fully accepted FRA's March 17, 2014, Deep Dive Report, its findings, and directed actions and recommendations; has fully acknowledged the problems confronting the railroad; and has committed to working with FRA to restore the railroad to a level of safety preeminence. In light of this, FRA has confidence that progress is being achieved and will continue to be achieved.

FRA will be conducting 30-day progress meetings to track Metro-North's advancement in addressing the safety issues identified through Operation Deep Dive and other actions to enhance safety. In addition, the FRA Deep Dive teams are returning to the Metro-North to observe and document the railroad's actions in response to FRA's findings. Some of FRA's directed actions and recommendations can be achieved in the short term; for others, more time is needed. The safety culture of the organization cannot be changed overnight, but there is reason to be confident that safety will be improved in both the short and long term, with the management of Metro-North, the railroad's employees, FRA, and other interested stakeholders working together.

*Question 4.* Following Metro-North's incidents and coming immediately in the aftermath of the Spuyten Duyvil derailment, the FRA was able to issue several safety directives to Metro-North but was only able to issue an Emergency Order for the modification of the railroad's signal system. According to your office, Emergency Orders are difficult to issue, as there have only been 29 in the FRA's history. An Emergency Order for the other safety directives, for instance the confidential close call reporting system, could have been extremely beneficial for reasons of greater enforcement and oversight to ensure compliance. Does the FRA need more authority from Congress to be able to issue Emergency Orders more easily? Do you lack authority in other areas that Congress should review to help the FRA protect passengers?

Answer. FRA's existing statutory authority to issue emergency orders, as well as other safety orders and regulations, properly requires an assessment that addresses all aspects of the public interest. The statutory language conferring the authority to issue an emergency order reads, in part, as follows:

- (1) If, through testing, inspection, investigation, or research carried out under [49 U.S.C. chapter 201], the Secretary of Transportation decides that an unsafe condition or practice, or a combination of unsafe conditions and practices, causes an emergency situation involving a hazard of death, personal injury, or significant harm to the environment, the Secretary immediately may order restrictions and prohibitions, without regard to section 20103(e) of this title [i.e., prior notice and an opportunity for comment and oral presentation] that may be necessary to abate the situation.
- (2) The order shall describe the condition or practice, or a combination of conditions and practices, that causes the emergency situation and prescribe standards and procedures for obtaining relief from the order. \* \* \*

49 U.S.C. 20104(a). The statute sets a high bar for issuing an emergency order, because it is issued without prior public notice and an opportunity for public comment. In that sense, it is difficult to issue an emergency order. An emergency order represents final agency action, which is subject to review both administratively and in the U.S. Courts of Appeals. 49 U.S.C. 20104(b), 20114(c).

FRA's Emergency Order 29 was appropriate to address the immediate safety issues identified in the most effective way. In particular, Emergency Order 29 required Metro-North to take immediate action to prevent excessive train speeds by (1) identifying and prioritizing high-risk areas where operating rules required speeds to be reduced by more than 20 mph, (2) modifying its existing signal system to ensure speed limits are obeyed, and (3) 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.

Issuance of an emergency order to mandate a C<sup>3</sup>RS program on the railroad would have been inappropriate and unproductive. A confidential close call reporting program only works if an organization has "buy in" from employees and management at all levels so that it is voluntary, and only if appropriate protections are in place to ensure that employees have a confidential, discipline-free method to report close call events. It is not a quick fix. It is meant to provide valuable data that can be analyzed to improve safety over time.

Notably, new leadership at Metro-North has agreed to implement a C<sup>3</sup>RS program, and FRA is currently in the development and implementation of such a program.

*Question 5.* According to a 2012 report by the U.S. Government Accountability Office (GAO), FRA is only able to inspect about 1 percent of the Nation's tracks each year with the resources they are allocated.

The agency's rail-safety oversight framework relies on inspections to ensure railroads comply with Federal safety regulations. FRA inspects railroad infrastructure and operations, identifies safety defects, and may cite railroads for violations.

The GAO has found that the FRA faces three major rail safety challenges—(1) implementation of its oversight of mandated safety measures and new railroad risk reduction plans, (2) adjusting to changing rail traffic flows, and (3) ensuring it has enough inspectors for its current and future oversight workload.

Mr. Szabo: Has the FRA been able to increase the percentage of track inspected in one year since 2012? What can be done to increase this coverage? How much will the additional funding in the Safety and Operations Budget help?

Answer. In FY 2014, FRA received \$184.5 million for its Safety and Operations account, an increase of \$15 million from FY 2013. This increase will allow FRA to hire 45 new staff and should enable FRA to have roughly 350 inspectors on board by the end of this fiscal year. By strategically using safety data, FRA assigns its inspectors across its eight regions and five safety disciplines to help ensure maximum safety benefits. To do this, FRA uses a mathematical staffing allocation model that is driven by statistical analysis, and then adjusts the allocation based on knowledge of local conditions and emerging safety issues.

*Question 6.* Does the FRA use any automated inspection technology to oversee safety of the U.S. railroads?

Answer. Yes. The primary automated inspection technology that FRA uses to oversee safety of the U.S. railroads is the ATIP program, which I described briefly earlier. The broad purpose of the ATIP program is to minimize the risk and severity of a train accident, which potentially includes a catastrophic hazardous materials incident, by accurately collecting and distributing track geometry information and

intelligence, both to FRA and to the railroads whose track is being inspected by FRA. The data collected by the ATIP cars provides supplemental assistance to all railroad inspectors through advance detection of potential accident-causing hazards by identifying noncompliant and unsafe track geometry locations and conditions needing evaluation and remediation. ATIP prioritizes its surveys to maximize its capability to detect potential accident-causing hazards on higher risk routes, such as passenger, hazardous material, and higher speed track. The accurate track geometry information is disseminated to FRA and respective railroads for evaluation and remediation to minimize the risk of a passenger train accident or catastrophic hazardous material train accident.

FRA also anticipates the potential need for ATIP to support requests from other U.S. Government agencies for track inspections, such as we have gotten in the past. These agencies include the Department of Energy (track inspections prior to rail shipments of nuclear fuel) and the Department of Defense (route surveys of the Strategic Rail Corridor Network, or STRACNET (which is an interconnected and continuous rail line network consisting of more than 36,000 miles of track serving more than 130 defense installations)). In addition, FRA provides support for the Department of State.

The ATIP survey miles for the past four years are listed in the table below:

Calendar Year	ATIP Enforcement	Amtrak Assessment (2010–2012/ Remote operation (2013))	Total Miles
2010	52,760	29,245	82,005
2011	42,717	34,224	76,941
2012	53,225	21,896	75,121
2013	40,523	16,561	57,084

*Question 7.* What technology does the FRA use to detect early signs of troubles before they become accidents?

Answer. FRA is also working with railroads and labor organizations to implement voluntary programs to collect information about safety issues before they develop into accidents. Railroads that use the C<sup>3</sup>RS, for example, let their employees anonymously report unsafe track (and other) conditions to supplement FRA's ATIP inspections, FRA's regulatory inspections, and the carriers' own track inspections. C<sup>3</sup>RS is a key piece of FRA's efforts to proactively improve safety. It is designed to improve railroad safety practices by collecting and studying confidential close call reports detailing unsafe conditions or events, and developing and implementing targeted corrective actions. At its core, C<sup>3</sup>RS is voluntary, confidential, and non-punitive. FRA is currently engaged in expanding the program nationwide. C<sup>3</sup>RS programs are actively running on the Union Pacific Railroad Company, the National Passenger Railroad Corporation (Amtrak), New Jersey Transit Rail Operations, and the Strasburg Rail Road, and FRA is working with additional railroads, including Metro-North, and the Long Island Rail Road, to implement program sites.

FRA also provides oversight of the rail inspection technology utilized by the railroads to perform rail inspections through the agency's Rail and Infrastructure Integrity Division. The Rail Integrity Branch within the Rail and Infrastructure Integrity Division was established to provide FRA oversight on railway non-destructive inspection technologies for detection of internal rail flaws and for other rail-related maintenance programs. This branch performs onsite inspections, investigations, and/or evaluations to determine the effectiveness of railroads' programs that address the inspection, maintenance, and replacement of rail.

The branch provides oversight into the capabilities of the industry's various computerized non-destructive rail-inspection systems, the training and experience of the flaw detector car operators, and the accuracy of the defect verification/identification process utilized by the test car operator. Exposure to all phases of these processes has considerably increased total FRA safety oversight within the industry.

As one example of how the Rail Integrity Branch is developing expertise that will potentially improve rail inspection technology and expand its deployment, the branch oversees waivers issued to CSX Transportation, Inc. (CSX), that allow relief from certain provisions of the Track Safety Standards. As a condition for granting these waivers, CSX has implemented an experimental process for continuous test rail inspection that has the potential to minimize risk associated with rail-flaw development by allowing the carrier to test its rail more frequently, control rail-flaw development, and reduce service failure and derailments. The inspection technology

is referred to as an “ultrasonic computer based test system.” The project also shows significant potential to improve railway safety by increasing inspection speed and providing extended system coverage. Based on the results of initial trial performance of this technology, FRA believes that this experimental rail inspection system may ultimately prove to be more capable than the system previously used, in terms of its ability to identify rail flaws and to do so quickly. FRA is working with CSX to improve this continuous rail inspection process.

*Question 8.* Does the FRA have its own means of verifying railroads’ compliance with the Federal safety standards or does it depend on the railroads’ own inspection data?

Answer. FRA inspectors conduct routine inspections to verify railroads’ compliance with the Federal railroad safety standards and the Hazardous Materials Regulations. FRA’s inspections are conducted on track, signal systems (including signal systems installed on locomotives and signal systems installed along the track way-side), rolling stock (locomotives and railcars), operating practices, and the transportation of hazardous materials. We also carry out regular inspections of companies that offer hazardous material for transportation by rail (rail shippers) to determine their compliance with the Hazardous Materials Regulations. FRA also routinely audits railroads’ bridge programs, as well as the accuracy of a railroad’s accident and incident reporting. We also investigate hundreds of complaints submitted to FRA each year by private citizens alleging violations of Federal rail safety or hazardous materials requirements.

FRA uses information technology to strategically analyze FRA’s inspection and accident/incident data in order to identify trends and prioritize inspections. FRA’s C<sup>3</sup>RS program also uses information technology to sort the C<sup>3</sup>RS data and identify emerging risks.

And, as previously mentioned, FRA conducts an ATIP Program. It utilizes a fleet of track geometry vehicles. The ATIP vehicles traverse the Nation conducting track-geometry surveys, the results of which are shared with the railroad being inspected. The ATIP vehicles identify defective conditions and conditions that could eventually develop into defects, thus identifying early signs of trouble before they cause accidents. Note, however, that FRA’s role is to monitor the railroads to determine whether their track is in compliance, not to inspect the track itself. The duty to inspect for compliance with the Track Safety Standards rests on the track owners, which are the railroads. Many railroads have their own automated track inspection vehicles to inspect their own track.

*Question 9.* The FRA regulates railroads across the entire country. At NTSB’s November hearings on the Metro-North Bridgeport derailment and the West Haven accident, a representative from the Long Island Rail Road (LIRR) testified that the LIRR conducts inspections at a higher rate than Metro-North and also employs automated inspection vehicles more frequently.

At a meeting between Congress members, DOT and the FRA, Mr. Szabo, you spoke to the fact that alerter systems are good railroad practice and standard on most railroads across the country while Metro-North lacked these devices in each train cabin where an engineer operates. You stated that you were checking with the American Public Transportation Association (APTA) on whether any other railroad didn’t have alerters as a standard device in each train cabin.

In your opinion, how does Metro-North’s standard of safety compare to other railroads’ throughout the country? What other areas besides the aforementioned does Metro-North lag behind the rest of the Nation’s railway system? Have you followed up with APTA on whether or not there are other railroads without alerters in every train cabin?

Answer. Operation Deep Dive uncovered an unhealthy safety culture on Metro-North, one where an inappropriate overemphasis on on-time performance had adversely impacted safety. As resources permit, FRA will conduct similar efforts on other commuter operations to determine to what extent Metro-North is an outlier in safety culture.

Overall, passenger railroad operations in this county are very safe. Nonetheless, there have been eight passenger fatalities resulting from commuter rail train accidents in the last five calendar years. However, this represents an improvement over the previous 5 year period in which there were 43 passenger fatalities. This safety improvement is due to work in many areas, including initiatives to improve accident avoidance and survivability. We owe the public a drive for continuous safety improvement.

You also inquired about Metro-North’s lack of an alerter in each of its train cabs. An alerter is a type of locomotive-mounted equipment that is used to assure that the locomotive operator is alert, not physically incapacitated, and aware of, and

complying with, the indications of a signal system or other operational control system. Systems like Positive Train Control, or the signal upgrades the FRA required of Metro-North under Emergency Order 29, can provide a similar level of protection.

Metro-North has the greatest number of units operating without alerters. Current Federal regulations require a working alerter on any locomotive, including a control cabin locomotive, ordered on or after September 8, 2000, or placed into service for the first time on or after September 9, 2002, if the locomotive is the controlling locomotive of a commuter or intercity passenger train. See 49 C.F.R. 238.237. Most carriers have either retrofitted existing equipment, provided a similar level of protection through other technology, or are in the process of retrofitting their fleet; however, this provision does not apply to rebuilt locomotives. There are separate, higher requirements for alerters on high-speed passenger trains (*i.e.*, traveling at a speed more than 125 miles per hour but less than 150 miles per hour; *e.g.*, Acela Express); namely, there must be an alerter in the controlling cab of any high-speed passenger train. See 49 C.F.R. 238.447(c) by operation of 49 C.F.R. 238.401. Finally, there are also separate requirements for alerters on locomotives used in freight service. See 49 C.F.R. 229.140.

*Question 10.* On January 15, 2014, the Regional Planning Association released a report titled, “Getting Back on Track: Unlocking the Full Potential of the New Haven Line.” The RPA report concludes that the New Haven Line’s largest issue is the severity of its aging and deteriorating infrastructure. Due to the state of the railroad’s infrastructure, the New Haven Line (NHL) is extremely underfunded and requires tremendous increases in funding to reach a state of good repair. At current funding levels of less than \$200 million a year, it would take 20 years to reach a state of good repair. Connecticut has dedicated \$1 billion to the railroad in its 2013–2017 capital plan, but the RPA concludes that an additional \$3.6 billion is needed to replace the railroad’s obsolete infrastructure by 2020.

These infrastructure needs, which include deteriorating bridges, some over 100 years old, worn track, and outdated signaling and power systems, pose threats to safety as seen in the Bridgeport derailment. Broken and ill-repaired track has put lives at risk and it’s only a matter of time before such an incident reoccurs if nothing is done.

How critical is sound infrastructure to the ensuring safety on the Nation’s railway system? How many of the existing safety concerns can be solved by reaching a state of good repair for the Nation’s railroads?

Answer. A sound and safe infrastructure is critical to ensuring the safety of train operations. But so too are sound and safe rolling stock, sound and safe signal systems, sound and safe operating practices, sound and safe safety-critical personnel, and sound and safe intermodal intersections with railroad tracks (such as highway-rail grade crossings and railroad bridges over navigable waters). All the pieces need to be sound and safe to ensure we have a safe railroad system. In other words, a state of good repair means we have safe track, signal systems, rolling stock, operating practices, safety-critical personnel, and intermodal intersections.

One of the keys to ensuring that the Nation’s railroad system is maintained in a state of good repair is predictable, dedicated funding. Congress has for decades funded highway, transit, and aviation programs through multi-year authorizations that provide guaranteed funding. This enables States, local governments, and other stakeholders to plan for and to execute infrastructure investments in a comprehensive and efficient manner, with a view towards long-term safety and operational improvements.

Reliance upon inadequate and unpredictable annual appropriations has made it extraordinarily difficult for the U.S. rail system to be maintained in a state of good repair. The Administration proposes to rectify this problem with legislation authorizing mandatory contract authority through FY 2018 for rail investment programs. The programs would be paid for with resources in a new Rail Account of the Transportation Trust Fund that will be funded with revenue from pro-growth business tax reform.

*Question 11.* On December 1st, a Metro-North train derailed resulting in four casualties and close to seventy injuries. The train was travelling at approximately 82 mph in an area where speed was limited to 30 mph. The NTSB investigation is ongoing, but officials recently recommended that Metro-North install inward-and outward-facing cameras on its trains. The NTSB has called on all railroads to install such cameras since a 2008 crash between a passenger and a freight train resulted in the death of 25 people. The FRA has recently indicated its decision to begin the rulemaking process on this issue.

Following the December 2013 Metro-North derailment that resulted in four casualties and close to seventy injuries, the NTSB recommended that Metro-North in-

stall inward-and outward-facing cameras. This is something the NTSB has been recommending since 2008.

The FRA announced earlier this year that it would begin the rulemaking process for requiring inward-and outward-facing cameras in all locomotives and operating cabs. How will this rulemaking help address safety concerns? Some have raised privacy concerns with the cameras; can these issues be addressed in the rulemaking? Can you provide an update on where this rulemaking stands?

Answer. FRA recognizes the potential value of both inward-and outward-facing camera recordings for accident investigation purposes and to advance safety. For these reasons, in the summer of 2013, FRA became involved in various camera projects occurring in industry, and in November 2013 placed the camera rulemaking on FRA's internal rulemaking agenda for 2014. Today a task statement pertaining to this issue was presented to the RSAC for its consideration, and the task was accepted by the RSAC. We expect the RSAC to report its recommendations on the issue by April 1, 2015.

Although FRA recognizes the value of voice and image recordings for accident investigation purposes and as part of an operational testing program, FRA is also well aware of the significant privacy concerns presented by the installation and monitoring of these cameras. Accordingly, we must fully understand and address these privacy concerns and ensure that the technology is implemented with appropriate safeguards and controls in place that address the privacy concerns and also achieve the desired safety results. Addressing these concerns through the rulemaking process—through the RSAC process in particular—will ensure that these issues are appropriately analyzed and addressed and that the technology is implemented in as efficient a manner as possible.

*Question 12.* The FRA has limited budgets and inspectors to address safety issues posed by crude transportation. While the volume of crude oil being shipped by rail has increased dramatically in the past few years, FRA and PHMSA have limited resources to ensure crude oil is transported safely. I believe we need to invest more in our infrastructure, particularly when it comes to the safety of our transportation systems. Mr. Szabo, do your current budgets provide an adequate number of inspectors and rail safety employees to cover all of the issues posed by the rail safety issues we've seen recently?

Answer. It is important that FRA receive predictable and dedicated funding. I can assure you that FRA will make maximum use of whatever resources it is provided. As discussed above, FRA uses a staffing model that draws on the latest railroad accident and inspection data to strategically allocate its inspectors around the Nation and across safety disciplines. For FY 2014, FRA received a larger Safety and Operations budget, which will allow FRA to hire 10 new rail safety inspectors and 20 rail safety specialists.

FRA has not requested new staff for FY 2015. However, the Office of the Secretary of Transportation (OST) has proposed a new \$40 million Safe Transportation of Energy Products Fund, which would be available to FRA as well as the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Motor Carrier Safety Administration (FMCSA) to address issues surrounding the transportation of crude oil and other materials. FRA may be able use these funds to hire temporary staff as well as to conduct other activities such as research and testing.

*Question 13.* How would increasing investments in rail safety programs help you better address safety needs?

Answer. In addition to adding new railroad safety staff in FY 2014, FRA is increasing its investment in key safety programs. FRA is planning on spending an additional \$1 million on its C<sup>3</sup>RS program to support nationwide implementation. As I said earlier, the program allows railroad employees to report close calls on a voluntary, confidential basis, without fear of disciplinary action. FRA also plans to spend almost \$900,000 on high-speed rail safety certification to help ensure the safety of high-speed rail projects under construction before they enter into operation. Additionally, FRA plans to spend close to \$700,000 to update its Railroad Safety Information System for enforcement of new safety regulations including those mandated by RSIA.

For FY 2015, FRA requests significant new investment in the Nation's rail system—\$4.8 billion in FY 2015 and \$19 billion over 4 years—that will directly improve safety. With these resources, FRA proposes to fund, among other things, positive train control implementation by commuter railroads and Amtrak. Moreover, FRA will fund state-of-good-repair work by Amtrak to improve Amtrak's reliability and increase the safety of its aging infrastructure. Moreover, some program funds would be eligible for grade crossing improvement and community rail safety initiatives.

*Question 14.* Mr. Szabo, are there other ways that some of your costs could be offset?

Answer. FRA's proposed rail investment program is fully paid for in the President's budget. FRA proposes that Congress fund rail programs through a 4-year reauthorization bill paid for through a Rail Account of the Transportation Trust Fund. The President's budget proposes this trust fund spending be supported by revenues generated from reforms to the corporate tax code. Details about the change in tax policy are listed in the President's budget.

*Question 15.* DOT-111 tank cars were involved in the Lac-Mégantic, Alabama, and North Dakota derailments and explosions. The DOT-111, which accounts for 69 percent of the U.S. tank car fleet, has a documented history of failure during accidents. AAR has asked DOT to adopt tougher standards for new tank cars, as well as requiring the retrofit or phase out of tank cars built to less stringent standards. API and the Railway Supply Institute (RSI)—who represent tank car manufacturers—also support higher tank car standards, but have concerns about retrofit costs.

For several decades, the NTSB has expressed concern about the DOT-111 tank car. Other stakeholders, including AAR, API, and RSI, have sought tougher tank car standards. DOT is almost a year behind on a rulemaking, which would propose updates to the DOT-111 standards, and does not anticipate issuing a final rule until next year. This is unacceptable to me and the thousands of people living in communities that see these train cars roll through their towns everyday—communities along these rail lines deserve more. Again, this seems to be another example of regulatory capture; the DOT for all intents and purposes outsourced tank car recommendations to industry back in 2011. And here we are 3 years and several high profile accidents later, and we're still talking about the need for stronger tank cars.

What is taking so long to issue these rules? Why can't the process be sped up? Can we build a tank car strong enough to prevent all of these accidents from happening? How important is a comprehensive approach to addressing the safety issues posed by transporting crude?

Answer. FRA is working closely with PHMSA to provide support and resources in an effort to expedite the development and issuance of an NPRM to address DOT-111 tank cars and also to comprehensively address the risks, and mitigate the consequences, of train accidents involving hazardous materials in general, and crude oil in particular. The Secretary has delegated to the Administrator of PHMSA the statutory authority to issue rules pertaining to the transportation of hazardous materials by all modes of transportation, including rail and I believe PHMSA provided testimony at the February 26, 2014, hearing of the House Transportation and Infrastructure Committee, Subcommittee on Railroads, Pipelines, and Hazardous Materials which summarizes the specific circumstances surrounding the development and progress of this rule.

You also asked whether it is possible to build a railroad tank car strong enough to prevent the release of its contents during any accident scenario. The short answer is "no," not given the current state of the art. Because improving tank car survivability cannot, by itself, prevent rail accidents and unintentional hazardous material releases, a comprehensive approach is necessary. Only if the risks of transporting petroleum crude oil are comprehensively addressed are real safety improvements going to be made. For this reason, FRA, in partnership with PHMSA, is aggressively pursuing comprehensive improvements to the rail transportation of crude oil, including improving railcar survivability through tank car design improvements, rail operational practices, and proper testing and classification of crude oil before being offered for transportation.

We need strong tank cars that are highly puncture-resistant during train accidents as well as operating measures to prevent train accidents from occurring in the first place and to mitigate the seriousness of an accident if it does occur. No matter how many rail safety regulations are in place or how high the tank car standards are, it is necessary to have personnel and equipment in place to deal with a train accident and any unintentional release of hazardous material if it occurs during railroad transportation. In short, a comprehensive approach to the safe transportation of hazardous materials by rail is essential.

*Question 16.* In July, a train carrying crude derailed and exploded in Lac-Mégantic, Québec, killing 47 people and destroying the city's downtown. On December 30th, a train in North Dakota carrying crude oil struck another train which set off an explosion and required the evacuation of more than 1,500 people. On January 7th, a train carrying crude and propane derailed and caught fire in New Brunswick, Canada forcing an evacuation less than 35 miles from the Maine border.

A series of freight rail accidents over the past 8 months highlight the need for safety plans to be in place so that communities and first responders know how to

respond when there is a train accident carrying crude, propane, or any other hazardous material. Training first responders is a good first step to improving the response to incidents, and I was glad to see that included in your recent agreement.

Mr. Szabo, as part of your agreement, AAR committed to rerouting trains carrying at least 20 cars of crude oil to the “safest and most secure routes.” How will these routing decisions impact communities that are not currently seeing a large influx of crude-by-rail? Will other communities see an increase in crude trains and will additional resources be focused on these communities?

Answer. AAR, on behalf of its member railroads, has committed to complying with the route analysis requirements of the Hazardous Materials Regulations (49 C.F.R. 172.820(c)-(f) and (i)) when operating trains transporting 20 or more loaded railroad tank cars containing crude oil. The route analysis rule requires railroads to collaborate with State and local officials on the routing of certain hazardous materials and to select the routes posing the least overall safety and security risk on which to transport those materials. The rule requires an evaluation of the safety and security of the routes currently used and alternative practicable routes over which a railroad has authority to operate. The rule also mandates, at a minimum, the consideration of 27 specific safety and security risk factors. The identified risk factors include operational, infrastructure, and consequence elements, such as population centers, environmentally sensitive areas, and emergency response capabilities along the routes.

It is difficult to predict the extent to which compliance with the route analysis requirements will alter specific crude rail routes. However, compliance with the regulation will ensure that crude oil is transported over the safest and most secure rail routes, which will reduce the risk of an accident in the first place and help to mitigate the effects of an accident should one occur.

In addition, other commitments from the railroad industry will further enhance the resources available to communities through which large quantities of crude oil are transported. These additional railroad industry agreements are to develop an inventory of emergency-response resources along routes over which trains carrying large quantities of crude oil move; to make the relevant information available to appropriate emergency responders; to allocate \$5 million to develop and provide a hazardous material transportation training curriculum applicable to crude oil transportation for emergency responders; and to fund a portion of this training through the end of 2014.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO  
HON. JOSEPH C. SZABO

*Question 1.* With the number of crude oil rail shipments across the country expected to increase over the next several years, what actions has the FRA taken to identify rail corridor segments that are more susceptible to train derailments, either due to aging or faulty infrastructure, geographic terrain, or other means, and what actions have been taken to address this issue?

Answer. FRA has taken action on multiple fronts to mitigate safety risks on rail corridors. In 2013 and 2014, FRA safety inspectors from FRA’s five core disciplines—Hazardous Materials, Motive Power and Equipment, Operating Practices, Signal and Train Control, and Track—have performed approximately 3,500 inspections in the subdivisions over which unit trains of crude oil are moved.

Major freight railroads also committed to using the Rail Corridor Risk Management System (a risk-based routing analysis tool developed in coordination with the Federal Government as part of the implementation of the rail routing amendments to the Hazardous Materials Regulations) to analyze the safety and security risks of particular routes and to ensure that trains transporting large quantities of crude oil are operated on the safest and most secure rail routes.

In response to the Secretary’s Call to Action, the Association of American Railroads committed to employing speed restrictions in 46 federally designated high-threat urban areas, implementing train braking enhancements using distributed power or two-way telemetry end-of-train devices, more frequent rail and mechanical inspections, installation of wayside defective-bearing-detection equipment, and providing resources to enhance emergency response capabilities and community awareness along crude oil routes.

In addition, the American Short Line and Regional Railroad Association (ASLRRRA) responded to the Call to Action by identifying specific actions that it believes small railroads can voluntarily take to contribute to a safer national rail network. For example, contingent upon securing a 6- to 12-month pilot project grant

from FRA, ASLRRA plans to create the Short Line Safety Institute that will do the following:

- Begin with a focus on the transportation of crude oil by small railroads and then expand to the transportation of all commodities for Class III railroads.
- Work with FRA to develop and implement pilot safety inspection and evaluation projects for short line railroads.
- Work with FRA to evaluate the current safety and compliance attainment levels on small railroads; contract and train expert qualified inspectors; and develop training, assessment, and reporting document systems.
- Work with FRA to create benchmarks and objectives to measure the progress and effectiveness of the Short Line Safety Institute safety inspection programs.

*Question 2.* What actions are being taken by your agency/organization to coordinate with state and local agencies on disaster preparedness training and emergency response efforts?

Answer. 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 following industries: chemical manufacturing, transportation (including railroads), distributors, and emergency response (including State and local agencies). Through the Department's "Call to Action," both the railroad and petroleum industries have renewed their commitment to enhancing emergency response communications and training, most recently with the American Petroleum Institute (API) joining the TRANSCAER® program and the railroad industry committing to developing an inventory of emergency response resources along routes over which trains transporting large amounts of crude oil operate. This inventory, relevant information from which will be made available to appropriate emergency responders, will include locations for staging emergency response equipment along the routes and contacts for the notification of communities. In addition, the railroad industry has committed 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.

FRA hazardous materials inspectors provide basic training to states, municipal governments, and local emergency response agencies. Knowledge gained from this training enables fire and police agencies to identify the type and positioning of hazardous commodities and to develop appropriate incident response or containment plans. The training provides detailed explanations of regulations pertaining to hazardous materials documentation, placement of hazardous materials within trains, appropriate packaging, and railroad communication protocols. FRA inspectors often demonstrate tank car safety features and describe train crew responsibilities to ensure that emergency responders know the appropriate railroad personnel to contact for train makeup information.

FRA has also issued a grant to the American Chemistry Council, CHEMTREC, and TRANSCAER® for the design and delivery of a training program focused on the needs of volunteer emergency responders, including fire fighters, emergency medical technicians, police agencies, and others. The training program will include approaching and managing a derailment, tank car recognition and damage assessment, chemical properties and hazards, hazard communication, firefighting techniques, environmental concerns, and other related topics. FRA is often an active participant in the training, conveying valuable insights based on experience and lessons learned.

FRA's eight regional offices have law enforcement liaisons who focus on highway-rail grade crossing safety. Regional liaisons have been effective in getting rail safety awareness courses included in the accreditation process for law enforcement officers. FRA also provides information to local judges and prosecutors supporting consistent enforcement of highway-railroad safety laws.

*Question 3.* What immediate measures can states, municipal governments, and local agencies take to mitigate potential disasters?

Answer. In order to be prepared for the potential consequences of any rail accident involving hazardous materials and to mitigate those potential consequences, States, municipal governments, and local agencies can take advantage of both existing measures in place to ensure emergency responders are prepared for such incidents and the rail and oil industry's renewed commitments through the Department's "Call to Action," as noted in my answer to your previous question. Through

the TRANSCAER® program, the railroad and hazardous materials shipping industries collaborate and cooperate with communities through which hazardous materials are transported. For example, in accordance with AAR Circular OT-55-N, railroads are to assist in implementing TRANSCAER's community outreach program to improve community awareness, emergency planning, and incident response for the transportation of hazardous materials. The same industry standard provides for the disclosure of certain commodity flow data upon request to local emergency response agencies and planning groups. At a minimum, such information must include rank-order identification of the top 25 hazardous commodities transported through the community. Accordingly, appropriate emergency response personnel should be in communication with any railroads transporting hazardous materials through their jurisdictions in order to ensure that they have access to the most up-to-date information on the commodities being transported through their jurisdictions and the extent of emergency response resources available along the rail routes.

States that currently do not have rail safety programs can join FRA's State Rail Safety Participation Program. Thirty states currently partner with FRA to regulate rail safety. State inspectors provide supplemental safety inspections that nonparticipating states do not receive. FRA does not reduce its inspection efforts in a state that elects to employ rail safety inspectors. Therefore, states that have rail safety inspectors receive a net gain in rail safety inspections. A larger rail safety inspection force results in correction of more safety defects, better response to public complaints and railroad accidents, and State expertise to directly address rail safety issues with railroad operating and maintenance personnel. Public safety concerns about unsafe rail operations can best be met by enhanced rail inspection using both State and Federal resources.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. HEIDI HEITKAMP TO  
HON. JOSEPH C. SZABO

*Question 1.* Can you provide me with an account of the research and development activities the FRA is currently engaged in to enhance track inspection efforts underway? How are the technologies being developed by FRA different than the technologies that are currently deployed by the railroad?

Answer. FRA has conducted research and developed several new track inspection technologies, including the following:

- the Gage Restraining Measurement System: a train-based system to assess the performance of track components such as crossties and rail fasteners;
- the Portable Track Loading Fixture: a handheld device to assess the performance of rail fasteners;
- the Joint Bar Inspection System: a machine-vision system to detect rail joint bar defects and failures;
- the Portable Ride Quality Measurement System: to identify locations of poor track quality;
- the Autonomous Track Geometry Measurement System (ATGMS): an unmanned and cost-effective way of assessing track quality over large rail networks
- Ground Penetrating Radar (GPR): a system to detect poor track support; conditions such as foul ballast and waterlogged foundation; and
- Rail Defect Inspection Systems.

In terms of the last category (rail defect inspection systems), we have developed a rail defect measurement system that does not require contact with the rail. This system does not detect all types of rail defects. It was designed to find the most prominent type of defect (transverse defect). Future generations of the system may be adapted to look for other types of rail flaws. Compared to conventional systems, the current system can operate at higher speeds and is not adversely affected by rail surface condition. Another rail defect inspection system that we are developing will accurately measure the size of defects so the appropriate corrective action can be taken. The system uses the Computed Tomography (CT) scan technology used in the medical field.

ATIP is used by FRA to inspect track to determine whether it conforms to the track-geometry provisions of FRA's track safety regulations. The fundamental track geometry inspection technology employed in ATIP is used by both FRA and many railroads. The vision for the future is to use ATGMS to cover more mileage at lower cost and then schedule a manned vehicle with many of the inspection systems described above to fully assess the track conditions. The information from the ATGMS

will be used for planning walking inspections and manned car inspections. The comprehensive information collected by the manned cars will be used by researchers to better understand the track behavior and, when warranted, will provide more guidelines to promote safety.

FRA develops inspection technologies that are safety focused, with the intent to reduce the number of derailments and other types of railroad accidents/incidents and unintentional releases of hazardous material. Some of these technologies have a side benefit of aiding in the maintenance planning for the railroads.

As to how the technologies being developed by FRA differ from the technologies that are currently deployed by the railroad, several of the technologies listed above are already in use today by railroads. Others are nearing the end of the research and development stage and are being transferred to the industry as prototypes.

*Question 2.* What level of funding was provided to FRA for research and development in the current fiscal year? Does this level of funding provide adequate resources to your agency to complete your research and development missions?

Answer. FRA received \$35.1 million for FY 2014 for its Railroad Research and Development program, and has requested for \$35.25 million for FY 2015. This amount supports FRA's ongoing research into railroad safety issues and the development of technologies that can reduce future accidents. The program's areas of focus are track, rolling stock, train control and communications, human factors, and railroad systems issues. Regardless of funding level, FRA will effectively use its budget to undertake meaningful research and development work.

For FY 2015, FRA also requested new research program funding under the Rail Service Improvement Program to expand its work into emerging areas facing the rail industry. These include the following:

- Upgrades to the Transportation Technology Center (\$15 million): The Transportation Technology Center (the Center) in Pueblo, Colorado, does not have facilities for testing, evaluating, and demonstrating state-of-the-art high-performance rail infrastructure and equipment. Upgrading the Center will result in faster approvals for new equipment, stronger safety standards, and early identification of reliability issues, saving long-term maintenance costs and ensuring better passenger service.
- National Cooperative Rail Research Program (\$5 million): Section 306 of Passenger Rail Investment and Improvement Act established this program, managed by the National Academy of Sciences, to provide a rail research program similar to those for aviation, highways, and transit. FRA launched the program in 2012 to develop the intellectual infrastructure needed to advance effective rail policy, and proposes to continue funding the program.

*Question 3.* I understand the President's budget would provide additional resources for FRA to hire inspectors. These inspectors would be in addition to the additional FTEs provided to the FRA in FY14. What are the greatest resource needs of the agency and how will additional hires—should additional FTEs be provided—be directed at addressing current capacity shortfalls at the agency?

Answer. In its FY 2015 budget, FRA has not requested money to add new inspectors or other staff. However, OST has proposed a new \$40 million Safe Transportation of Energy Products Fund, which would be available to FRA as well as PHMSA and FMCSA to address issues surrounding the transportation of crude oil and other materials. It is possible that FRA may use these funds to hire temporary staff as well as to conduct other activities such as research and testing.

In general, FRA strives to maximize the funding it receives, regardless of the amount. Regarding full-time equivalents, each year FRA rebalances its inspector workforce across the FRA regions and across safety disciplines based on analysis by its staffing allocation model and professional judgment by top FRA management. This year, FRA is particularly attuned to the need to address increased shipments crude oil and ethanol.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN THUNE TO  
HON. JOSEPH C. SZABO

*Question 1.* At the hearing you discussed the inspection partnerships that the Federal Railroad Administration (FRA) has with several states. How many states participate in this program? Can you provide a list of these states for the Committee? How many additional inspectors are made available through this program? Will these inspectors be useful in approving Positive Train Control (PTC) systems?

Answer. Thirty states currently participate in FRA's State Rail Safety Participation Program with 176 State inspector positions currently authorized by State pro-

grams. Please accept this table titled “State Rail Safety Programs” into the record of this hearing. The table provides a breakdown by State, with further details, such as the FRA Office of Railroad Safety region that works with the State program and the safety discipline of the State inspector(s) (*e.g.*, motive power and equipment, operating practices, hazardous materials, and signal and train control). State inspectors will not be involved in the process to approve PTC systems.

*Question 2.* What are the major safety issues accompanying the transportation of crude oil by rail and what have been the most common types of accidents that have occurred in the last five years?

Answer. Crude oil, like ethanol, presents unique risks in transportation by rail because of flammability and volume of the material shipped in unit trains.<sup>1</sup> Although it is rare to have only a single rail car breached that contains a flammable liquid, a breach of only a single tank car in a train accident followed by the ignition of a self-feeding pool fire<sup>2</sup> can result in energetic ruptures of adjacent tank cars. Further, in derailments of unit trains of crude oil, adjacent tank cars containing crude oil will be involved.

Also, crude oil facilities are coming online quickly and employing personnel with limited experience in loading and securing tank cars for transportation. These facilities and their operators are continually learning (through FRA and industry outreach activities) how to inspect and secure a tank car prior to offering it for transportation.

Unlike the vast majority of other chemicals shipped by rail, which are produced to a specification under the auspices of a rigorous quality assurance program, crude oil is a naturally occurring, mined material with properties that vary based on location and time of extraction. The variability of the properties of crude oil, such as its flammability, gas content, corrosivity, and vapor pressure, make it difficult to determine the appropriate package for transportation. Tank car owners and shippers of crude oil must work together to ensure the equipment is not damaged by the crude oil with which it is loaded, by selecting compatible interior coatings, (if required), gaskets, and o-rings for service equipment.

To answer your other question, about the most common kinds of accidents, FRA’s accident/incident database indicates that during the 5-year period between January 1, 2009, and December 31, 2013, 41 percent of train accidents were caused by defective track, road bed, and structures; 37 percent by human factors involving train operations or handling equipment, switches and derails; 11 percent by mechanical and electrical failures; 1 percent by signal and communications causes; and the remaining 10 percent by miscellaneous causes.

Regarding train accidents in which crude oil was unintentionally released, there have been seven in the last 5 years in the United States as well as two in Canada. The Canadian accidents occurred at Lac-Mégantic in Quebec and at Plaster Rock in New Brunswick—the Transportation Safety Board of Canada is investigating both. Based on the available information, the Lac-Mégantic accident was a result of improper securement of the crude oil train; the Transportation Safety Board of Canada has not released an official report of the findings of their investigations. The accident in Casselton, ND, was a result of a unit train of crude oil colliding with a grain train fouling (blocking) the main line; the grain train had derailed as a result of a broken axle. Other U.S. train accidents during the last 5 years involving releases of crude oil include the following: Vandergrift, PA (mechanical causes); Aliceville, AL (broken rail); and New Augusta, MS (broken rail).<sup>3</sup>

*Question 3.* One of the requirements in the Rail Safety Improvement Act of 2008 is that PTC technology be interoperable, meaning that the systems of different railroads operating over each other’s track would be able to communicate with one another. How does the FRA plan to certify interoperability of the various PTC systems it is required to approve? Will certification of interoperability be more difficult if some railroads complete installation before others? How many FRA employees do you think will be needed to certify PTC systems? Do you worry that using these inspectors for this purpose will further limit the agency’s ability to conduct oversight of rail safety generally?

Answer. PTC system interoperability will be created primarily through two different, but complementary, approaches. One approach is for the railroads to select

<sup>1</sup>A “unit train” is defined as a train in which all the cars are shipped from the same origin to the same destination, without being split up or stored en route).

<sup>2</sup>A “pool fire” is a turbulent diffusion fire burning above a horizontal pool of vaporizing hydrocarbon fuel.

<sup>3</sup>The three other U.S. train accidents in the last 5 years that have resulted in the unintentional release of crude oil were at Havre, MT (November 1, 2010); Monroe, LA (December 1, 2011); and Parkers Prairie, MN (March 27, 2013).

a single common shared industry standard technology. Currently, for example, the majority of freight and passenger commuter railroads outside of Northeast Corridor (NEC) are relying on Interoperable Electronic Train Management System (I-ETMS), and the NEC railroads are relying on the Advanced Civil Speed Enforcement System (ACSES). The second approach (where different railroads elect to implement different technologies) calls for the affected railroads to each implement all of the technologies involved. For example, freight and passenger railroads that implement both I-ETMS and ACSES would run the two systems in parallel. FRA views certification as the process of measuring, testing, and evaluating the effectiveness of the functions of the system prior to authorizing a system for operational use. In both approaches, the FRA certification process is focused on ensuring that the implementing railroads have: (1) correctly deployed the technology, (2) put in place adequate training and maintenance programs to ensure that the railroads can safely operate and maintain the systems, and (3) implemented technology that performs the required PTC statutory functions.

The FRA personnel involved in the certification process are looking to see that an adequate series of tests and inspections have established that safeguards designed into the hardware and software of the system are operative, function as intended, and collectively constitute acceptable controls; and that the equipment supplier and the railroad have successfully implemented these safeguards and controls. Production models of a given system design need be tested only to verify that all safeguards are present and properly functioning. Specifications (procedures, tests, and inspections) for subsequent certification reviews must be produced as part of the design process. The FRA certification personnel are also verifying that an adequate series of tests and inspections is performed according to specifications established during the design phase to ensure that the required set of safeguards (hardware, software, and procedural) are present and operational in the installed equipment, and on all communication links. This work also examines the operational procedures and administrative structure of the organization that controls the equipment, and must establish that the procedural and administrative environment supplements and complements hardware and software safeguards, and that physical safeguards are appropriate. The FRA personnel involved in the certification must also ensure that an adequate series of tests and inspections is performed to establish that the system has continuous safeguards, that the system can make real-time checks on its performance, and that the system can search for loopholes once the system is operational or after any system malfunction, as well as after scheduled or unscheduled hardware or software maintenance or modification.

Certifying computer systems is a very difficult issue. It involves an examination of the provided safeguards (hardware, software, procedural, and administrative), and ideally, a quantitative estimate of the probability of various failure modes. It is almost impossible to identify and protect against all possible failure modes of a system. The matter of overall equipment configuration becomes especially important in large systems containing many computers, either collocated or geographically distributed. The overall hardware configuration must be examined in order to establish the consequences of a total or partial loss of a major component in the system. This becomes more difficult when multiple certification requests must be processed simultaneously. Completion of the certification process by one railroad before another does not necessarily mean that one railroad's certification is any more difficult than the other. Depending on the specific implementation and the issues being examined, early completion of the certification process by one railroad potentially could facilitate the certification process of subsequent railroads since issues, especially those related to the system specification and design, may have already been adequately verified.

FRA depends heavily on the vendors and railroads in the certification process. As a matter of practicality, without the proactive participation and good faith efforts of the vendors and railroads to ensure system safety through the entire design, implementation, and operation of the system, not only would timely certification of a system not be possible, but the level of safety oversight that would be provided would be inadequate relative to the system complexity. FRA staffing needs are therefore heavily dependent on the technology deployed, the capabilities of individual inspectors, as well as the level of effort and degree of objective safety oversight being expended by the vendors and railroads. In order to not detract from FRA's other safety inspection activities, FRA established a dedicated PTC Branch. The branch, consists of 8 regional specialists (GS-13) (1 per region), 2 senior specialists (GS-14), and a supervisor (GS-15) dedicated to PTC system certification and safety oversight. This group is augmented by a senior scientist (senior level (SL)/scientific (ST)) and senior electronics engineer (GS-15) as well as two senior signal engineers (GS-14) and contract engineer support as required.

The complexity and size of the railroad-specific safety plans to support the certification request are immense. The safety plan associated with the Electronic Train Management System, for example, a simpler predecessor system to the proposed I-ETMS system, contained more than 6,000 pages of highly technical information. FRA will receive 38 safety plans from the railroads, with some of equal or larger size. If these safety plans are received simultaneously, FRA staffing will not be able to process them concurrently. A best case scenario for the review process for a single plan would be 6 to 9 months. Although the railroads are working with FRA to coordinate these document reviews, this remains a new process with a scope not attempted previously by any of the participants—freight railroads, intercity passenger railroads, commuter railroads, and FRA.

FRA approval of the PTC Development Plans (PTCDP), a significantly simpler document, took nearly 18 months. The PTC Safety Plans (PTCSP) will be more complex and voluminous than the PTCDPs. The FRA review may result in changes in the PTCSPs as a result of design, hardware, or software issues that would prevent certification, making the timeline for approval uncertain. The potential result could be delays in some certifications and the ability of the affected railroads to use deployed PTC systems.

Although FRA support of the various railroads often provides a window into a railroad's progress, it by no means presents a complete picture of what is happening with a program or project. FRA support is usually requested when there are issues impeding progress. In situations where no FRA support is requested, FRA has only anecdotal evidence of progress, or lack thereof.

For regular, detailed, and unfiltered reporting on a railroad's progress with PTC system implementation, it would be necessary to embed a dedicated FRA PTC-qualified inspector into each railroad's development and deployment team on a full-time basis. With the complexity of PTC systems, multiple inspectors may be required. FRA has not requested additional staff or funding to provide this level of oversight as we believe it is currently not warranted based on the railroads' actions and would introduce a high degree of Federal intrusion on railroad and vendor autonomy.

*Question 4.* Beyond the rail and oil industries, what other industries has FRA consulted with, or does it plan to consult with, in its efforts to improve tank car safety?

Answer. FRA's Office of Railroad Safety has regular interactions with all segments of the freight rail industry including the railroads, labor, shippers of hazardous materials, tank car manufacturers, tank car owners, and tank car inspection and repair facilities. These meetings are intended to both disseminate information related to our enforcement and regulatory objectives as well as understand the potential impacts of regulatory amendments and discuss non-regulatory measures to improve the safety of transportation of hazardous material by rail. For example, tank car manufacturers provided valuable insight relative to the possible design enhancements and retrofit options. They stressed the importance of developing a practical standard (one that will provide the needed improvements and can be built based on the current state of the manufacturing practices) as soon as possible to provide the certainty to make the needed investments in the next generation of tank cars. And in another example, ethanol shippers discussed preemptive actions taken to improve the safety in transporting denatured alcohol by rail, characterization sampling and testing to ensure accurate information is available for first responders, standard emergency response tactics, and training of emergency response trainers.

*Question 5.* What role does FRA play in ensuring Amtrak's compliance with historic preservation and tribal consultation requirements under Section 106 of the National Historic Preservation Act? Did FRA play any role in ensuring Amtrak's compliance with these requirements when PTC towers were installed?

Answer. FRA is responsible for complying with Section 106 of the National Historic Preservation Act when providing grants to Amtrak. For these grants, FRA works with Amtrak to ensure the appropriate analysis and consultation consistent with the legal requirements of Section 106 is completed. This requirement would apply where the grant funds potential installation of any antennas required for PTC, but does not apply where antennas required for PTC are installed without grants from FRA.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROGER F. WICKER TO  
HON. JOSEPH C. SZABO

*Question.* Mr. Szabo, there has been a significant increase in the number of rail accidents that have garnered media attention. I realize that a number of investigations are ongoing but have there been any overarching trends in the causes of these

accidents? Also, what, if any, would the impact be of some of the legislative proposals before us today and those currently being considered by the Federal Railroad Administration? Proposals such as Positive Train Control and mandatory two man train crews?

Answer. Media attention is a poor metric for determining overarching trends in rail safety. FRA certainly understands the media focus on incidents involving passenger trains or the transportation of crude oil by rail, given their potential to directly affect the general public. With that said, FRA routinely generates analysis of overarching trends in rail safety, and those trends indicate that rail continues to grow safer as a mode of transportation.

Growing safer does not mean, however, that there is not room for continuous safety improvement. FRA depends on its analysis of trends in rail safety to identify where improvements can best be made. FRA continues to work to address the leading cause of deaths related to railroad operations, which is trespassing on railroad property; and the second-leading cause of deaths related to railroad operations, which is highway-rail grade crossing incidents. Together, trespassing and grade crossing accidents account for more than 90 percent of all rail-related deaths. With respect to train accidents (*i.e.*, rail equipment accidents/incidents that result in damage to railroad property in excess of the dollar reporting threshold and excluding highway-rail grade crossing accidents to avoid double-counting; *e.g.*, derailments and train-to-train collisions), which have decreased by 48 percent in the last 10 years, the most common causes are human factors and track issues. FRA continues to work to address these issues. PTC systems will serve to prevent and reduce the risk of human factors train accidents and incidents. FRA is currently considering the safety effects of mandatory two person crews on certain trains. Meanwhile, FRA is conducting research on the detection of track defects and improving the Automated Track Inspection Program.

With respect to pending and potential legislative proposals, however, it would be inappropriate to comment on them in this forum. If you were to request a letter expressing the views of the Executive Branch on such legislation, FRA would gladly provide input.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. ROY BLUNT TO  
HON. JOSEPH C. SZABO

*Question 1.* As you know, the rail car manufacturers were not present in the initial January meeting between the Secretary, the railroads, and the oil industry on tank car standard. What type of outreach is DOT doing to the manufacturing industry? How will the industry be involved in discussions and meetings going forward?

Answer. It is important to note that the meeting hosted by the Secretary was not to discuss tank car standards, but was for the purpose of discussing oil classification and testing, and railroad operating modifications. In addition, representatives of FRA's Office of Railroad Safety met with representatives of the Railway Supply Institute (RSI), an industry association representing most of the tank car manufacturers and owners, as well as the individual manufacturers. RSI discussed the industry's position on tank car design and retrofit options for existing tank cars. Individually, manufacturers discussed innovative design ideas intended to improve the crashworthiness of tank cars and survivability of tank cars in a pool fire. The industry clearly understands that the safety of transporting flammable liquid is currently a focus issue, but the industry also realizes that tank car enhancements must be designed with all specifications of tank cars in mind, understanding that all hazardous materials pose a risk to public safety and the environment.

Over the past 4 years, FRA's Tank Car Quality Assurance Team has audited all tank car manufacturing, inspection, and repair facilities. During these audits, FRA educated the facilities on how to meet the performance requirements, ensure the final product meets the specifications, identify non-conformances, and prevent recurrence of non-conformances.

The Secretary of Transportation issued a letter to Association of American Railroads (AAR) President and Chief Executive Officer Edward Hamburger urging the AAR's Tank Car Committee (TCC) to develop a consensus standard for the next generation general purpose tank car. The TCC comprises representatives of Class I, II, and III railroads; tank car manufacturers; and shippers. At the spring 2014 TCC meeting, AAR hosted a special session intended to develop the consensus standard. A consensus could not be reached.

The manufacturers, individually and in conjunction with the Railway Supply Institute, submitted comments to the docket for HM-251 (the DOT-111 tank car rule).

Their comments were reviewed and closely considered relative to the Regulatory Impact Analysis and proposed regulatory amendments.

*Question 2.* Late February, Metrolink commuter railroad held a PTC media event in California concerning the status of PTC implementation. Would you please provide the Committee with an updated status report on Metrolink's implementation of PTC, including development of its dispatching system, its PTC back office system, and status of PTC revenue service runs across Metrolink territory.

Answer. Metrolink continues to make significant progress towards the completion of PTC implementation, although they have encountered a number of technical and other 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 resulted in a 2-year delay in the program. Metrolink subsequently engaged Wabtec Corporation to develop the required dispatch and back office systems. Once completed, 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 (I-ETMS), Metrolink began revenue demonstration operations over the BNSF Railway'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 were recently 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 during system testing by Union Pacific Railroad (UP), Amtrak, and BNSF, FRA anticipates receipt of the system certification request from Metrolink for I-ETMS in the first quarter of calendar year 2015.

Metrolink has completed its PTC track database asset mapping and validation as well as wayside interface unit verification and validation. Metrolink has also 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.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. KELLY AYOTTE TO  
HON. JOSEPH C. SZABO

*Question.* Recently, there have been significant public safety concerns raised in the New Hampshire towns of Newington, Stratham, Greenland, and the City of Portsmouth regarding a pending application from Sea-3, Inc. to expand its liquefied petroleum gas (LPG) facilities in Newington.

These communities are concerned about the condition and safety of the Portsmouth and Newington Industrial Tracks, given the potential danger associated with using them to transport highly flammable material. Currently, Pan Am Railways operates 2-3 trains per week, each with 7-12 rail cars, which are only allowed to travel 10 miles per hour due to track conditions.

As you know, I recently sent a letter to you requesting that the FRA conduct an inspection of the Portsmouth and Newington Industrial Tracks, and that given the significant public safety concerns you or a representative from the FRA attend a public forum on track safety in our state.

Can you commit to me that you will conduct an inspection of these tracks? Are you willing to attend a public forum on track safety in New Hampshire?

Answer. On March 10, 2014, an FRA representative will attend a Newington town hall meeting in Newington, New Hampshire. At the meeting, the FRA representative will discuss when and how often the track and bridges are inspected, what is

the current condition of the track, who owns the tank cars that the propane is moved in, and who checks the structural integrity.

Previously, on January 23, 2014, an FRA railroad safety inspector conducted an inspection of the Portsmouth Branch and Newington Industrial track identifying three noncomplying defects to the Track Safety Standards. The Portsmouth Branch and Newington Industrial track last underwent a Sperry rail test in August 2013.

During the week of April 28, 2014, the regional track safety specialist along with a railroad safety inspector will conduct a walking inspection of the entire Portsmouth Branch (10.5 miles), and the Newington Industrial track (3.7 miles). On May 14, 2014, the FRA Automated Track Inspection Program's track geometry car will conduct a field survey of the Portsmouth Branch and the Newington Industrial track.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN HOEVEN TO  
HON. JOSEPH C. SZABO

*Question 1.* The Federal Railroad Administration cites track and infrastructure failure as the second leading cause of train derailments in the United States. The incorrect interaction between moving vehicles and the track is a common cause of derailments. What research has your administration conducted to develop track inspection technologies, and what work are you doing to develop the next generation of rail defect prevention?

Answer. FRA has conducted research and developed several new track inspection technologies including the following:

- a. Gage Restraining Measurement System: a train-based system to assess the performance of track components such as crossties and rail fasteners;
- b. Portable Track Loading Fixture: a handheld device to assess the performance of rail fasteners;
- c. Joint Bar Inspection System: a machine-vision system to detect rail joint bar defects and failures;
- d. Portable Ride Quality Measurement System: to identify locations of poor track quality;
- e. Autonomous Track Geometry Measurement System: an unmanned and cost effective way of assessing track quality over large rail networks;
- f. Ground Penetrating Radar: a system to detect poor track support conditions such as foul ballast and waterlogged foundation; and
- g. Rail Defect Inspection Systems.

We have developed a rail defect measurement system that does not require contact with the rail. Compared to conventional systems, it can operate at higher speeds and is not adversely affected by rail surface condition.

Another rail defect inspection system we are developing will accurately measure the size of defects so the appropriate corrective action can be taken. The system uses the computed tomography (CT) scan technology used in the medical field.

*Question 2.* In addition, how will the focus of research conducted through the Automated Track Inspection Program (ATIP) evolve to develop technical solutions to types of derailments we have seen of late?

Answer. Currently, FRA's Automated Track Inspection Program monitors track geometry by periodically collecting track data to confirm that the track conforms to certain requirements of the FRA Track Safety Standards. The vision for the future is to use Autonomous Track Geometry Measurement Systems (ATGMS) to survey more mileage at lower costs. In addition to determining defective conditions, the increased coverage would allow track trending analysis; then, a manned vehicle with the inspection systems described above could be scheduled to fully assess the track conditions. The information from ATGMS will be used for planning walking inspections and manned car inspections. The comprehensive information collected by the manned cars will be used by researchers to better understand the track behavior and, when warranted, will provide more guidelines to promote safety.

Attachment: "State Rail Safety Programs"

## ATTACHMENT

## State Rail Safety Programs

STATE	Region	Track Inspectors	MP&E Inspectors	OP Inspectors	HM Inspectors	S&TC and Crossing Inspectors	TOTAL
AL	3	1	1	0	0	0	2
AZ	7	1	1	1	1	0	4
CA	7	8	7	9	6	6	36
FL	3	2	1	2	1	1	7
IA	6	2	0	0	0	0	2
ID	8	0	0	0	2	0	2
IL	4	3	0	1	2	3	9
MD	2	1	1	1	0	0	3
ME	1	2	0	0	0	0	2
MN	4	1	0	0	0	0	1
MO	6	2	0	1	0	1	4
MS	3	1	0	1	1	1	4
MT	8	0	2	0	0	0	2
NC	2	1	1	0	0	1	3
NE	6	0	1	0	0	0	1
NH	1	1	0	0	0	0	1
NJ	1	0	0	0	1	0	1
NM	5	0	0	1	0	1	2
NV	7	1	1	1	1	0	4
NY	1	5	4	1	2	0	12
OH	2	3	2	3	3	2	13
OR	8	2	2	1	1	1	7
PA	2	3	3	2	1	1	10
SC	3	1	1	0	0	0	2
TN	3	2	1	2	1	1	7
TX	5	2	4	5	2	2	15
UT	7	1	0	0	0	0	1
VA	2	2	2	1	0	0	5
WA	8	1	0	1	1	1	4
WV	2	2	3	2	1	2	10
<b>Totals</b>		51	38	36	27	24	176

Includes active vacant positions

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN D. ROCKEFELLER IV  
TO HON. CYNTHIA L. QUARTERMAN

*Question 1.* In recent months, DOT officials concluded that eleven of eighteen samples taken from cargo tanks carrying Bakken crude were not labelled correctly. In addition, it has been revealed that the Bakken crude involved in the deadly Lac-Mégantic accident was inaccurately labeled. Given your ongoing investigation of Bakken crude, how big of a problem is misclassification of crude? Is this happening frequently?

*Answer.* During PHMSA's initial investigations in August 2013, PHMSA determined that some facilities were relying on old and broadly generic data, instead of conducting actual testing, to determine the proper classification and characterization of crude oil.

(b) By November, 2013, PHMSA found that facilities began to periodically test (*i.e.*, flash point and boiling point) crude oil to determine the classification and packing group selection in accordance with the hazardous materials regulations. Through PHMSA's investigations and continuous presence in North Dakota in February and March, concurrently, with release of the Secretary's Emergency Order, PHMSA documented that industry has increased its efforts to determine classification and packing group selection by conducting tests more frequently.

*Question 2.* You recently announced an amended Emergency Order to address the testing of crude. Beyond the Emergency Order and your current investigation, what oversight procedures are in place to ensure that proper classification is being conducted? What long-term procedures need to be addressed to ensure that proper classification continues to be addressed?

Answer. (a) PHMSA continues to have a presence in North Dakota. Investigators frequently visit rail loading facilities to oversee compliance with the Emergency Order. This includes review and collection of shipping papers, train consists, cargo tank load receipts laboratory test results, and Safety Data Sheets. In addition PHMSA recently hired an investigator to focus on the Bakken region and provide direct oversight of operations in North Dakota. In addition to regulatory efforts and with regard to longer-term strategies, PHMSA has supported the American Petroleum Institute Standards Committee initiative to develop industry standards for proper sampling techniques, testing criteria, and testing frequency for crude oil. PHMSA actively participated in the discussions during working groups sessions held thus far and will continue through expected completion in July, 2014.

Furthermore, through the United States—Canada Regulatory Cooperation Council the two nations have collaborated on a variety of crude oil related efforts. Specifically, the United States and Canada have held meetings to discuss classification, testing and sampling issues that could have future ramifications on classification procedures for crude oil.

*Question 3.* How do current requirements for shipping crude by rail differ from requirements for shipping by pipeline?

Answer. The Hazardous Material Regulations set forth the criteria for classifying and describing crude oil for transportation, which directly correlate to authorized packagings, typically tank cars designed to withstand dynamic forces normally incident to transportation by rail. The HMR also require hazard communication (*i.e.*, placards, shipping papers, emergency response information). For transportation by rail, the container and the material are in motion along fixed track and rail infrastructure regulated by FRA. The Pipeline Safety Regulations focus on the form of the material in transport, and crude oil is moved at specified flow rates through fixed pipeline infrastructure.

*Question 4.* In January, API along with other stakeholders met with Secretary Foxx and Administrators Szabo and Quarterman to discuss the safe transport of crude oil by rail. At that meeting, DOT asked API to consider a number of additional safety measures, including sharing testing information. Both DOT and API have previously stated that you are working together to provide necessary information. However, on March 28, DOT provided a press statement saying, "we still lack data we requested and that energy stakeholders agreed to produce. The overall and ongoing lack of cooperation is disappointing, slows progress, and certainly raises concerns."

The recent DOT statement differs drastically from information you and your staff have previously and recently provided. What specific information have you asked the industry to provide and what information is still outstanding? Are discussions for data ongoing with the industry? If so, are there hurdles to the industry for providing data to DOT?

Answer. The following questions were posed by PHMSA to API and Crude Oil shippers prior to two meetings held in early February 2014:

- What tests or methods do you use to determine the properties of the crude oil to include its vapor pressure, flammable gas content, flash point, boiling point, hydrogen sulfide content and corrosive properties prior to offering it in transportation?
- Who performs these tests and how frequently are they completed?
- When you find high levels of gases in crude, what actions do you require of your oilfield personnel before loading into a transport vehicle? What information about the crude oil properties, if any, is provided by the producers to you prior to transportation? How is this information communicated?
- What information do you share with truck and rail carriers about the crude oil properties?

- Are there any prescribed limits involving vapor pressure, flammable gas concentration or hydrogen sulfide content above which the crude oil is not placed into transportation? If so, what are these limits and how are they determined?

While discussions are ongoing and PHMSA has received some testing information from individual crude oil companies, the data thus far has been limited. As part of its on-going efforts, PHMSA has supported the American Petroleum Institute Standards Committee initiative to develop industry standards for proper sampling techniques, testing criteria, and testing frequency for crude oil. PHMSA has actively participated in the discussions during working groups sessions held to date and plans to continue up through expected completion in July.

*Question 5.* Please provide detailed information on how the industry has not been responsive, including information on when and how your requests for information have stalled or been denied.

*Answer.* The Secretary's Call to Action in January 2014 specifically called on the crude oil industry to provide information and data on testing and classification procedures. In addition PHMSA held meetings with API and Crude Oil shippers in early February 2014 to follow up.

While discussions are ongoing and PHMSA has received some testing information from individual crude oil companies, the data thus far has been limited. As part of its ongoing efforts, PHMSA has supported the American Petroleum Institute Standards Committee initiative to develop industry standards for proper sampling techniques, testing criteria, and testing frequency for crude oil. PHMSA has actively participated in the discussions during working groups sessions held to date and plans to continue up through expected completion in July.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO  
HON. CYNTHIA L. QUARTERMAN

*Question 1.* With the number of crude oil rail shipments across the country expected to increase over the next several years, population centers and fragile natural resource areas that are home to crude oil rail corridors will be more susceptible to rail traffic accidents. What actions has PHMSA taken to identify sensitive areas where crude oil train derailments could prove to be catastrophic, whether they are geographically, environmentally, or otherwise?

*Answer.* Part 130 of PHMSA's regulations requires certain rail carriers to develop and maintain oil spill prevention and response plans as discussed below. These requirements are intended to prevent and contain spills of oil during transportation. More specifically, with regard to spill response planning, a basic response plan is required for oil shipment in a packaging having a capacity of 3,500 gallons or more and a comprehensive response plan is required for oil shipment in a packaging containing 42,000 (1,000 barrels). Crude oil trains are currently subject to the basic oil spill response required by 49 CFR Part 130.

PHMSA is committed to improving emergency response and recent efforts highlight this focus. On February 10, 2014, PHMSA held an emergency responder stakeholder engagement meeting. This discussion focused on the level of preparedness emergency responders and public safety officials have with regard to the rail transport of crude oil unit trains through their communities.

In addition, on January 16, 2014, Secretary Foxx, FRA Administrator Szabo, FMCSA Administrator Ferro, and I issued a "Call to Action." At that time, the Department asked crude oil stakeholders to identify prevention, mitigation and response strategies that could be implemented quickly to enhance the safe transportation of crude by rail. In regard to population centers and fragile natural resource areas, the following actions have been taken to address the concerns you raise:

- AAR agreed to, by no later than July 1, 2014, voluntarily expand routing requirements (§ 172.820) to trains carrying more than 20 cars of crude oil. In addition, AAR agreed to address risks of unit trains of crude oil by implementing speed restrictions of 50 mph for trains carrying more than 20 cars of crude and implementing speed restrictions of 40 mph for specific trains carrying more than 20 cars of crude in high threat urban areas designated by DHS.
- AAR agreed that rail carriers must assess available routes using, at a minimum, the 27 factors listed in Appendix D to Part 172 of the HMR to determine the safest, most secure routes for security-sensitive hazardous materials. These factors address safety and security issues, such as the condition of the track and supporting infrastructure; the presence or absence of signals; past incidents; population density along the route; environmentally-sensitive or significant areas; venues along the route (stations, events, places of congregation); emer-

gency response capability along the route; measures and countermeasures already in place to address apparent safety and security risks; and proximity to iconic targets. The HMR requires carriers to make conscientious efforts to develop logical and defensible systems using these factors.

- The American Petroleum Institute (API) agreed to work with the railroads to enhance emergency response training through transportation community awareness and emergency response trainings. In addition, the AAR agreed to inventory crude oil routes and share this information with emergency responders, develop and provide a hands-on training curriculum applicable to crude transport for emergency responders, and work with communities on crude oil train routes to address location-specific concerns.

These immediate actions by the regulated community and PHMSA's outreach to emergency responders are an important first step in improving emergency response. However, regulatory modifications may be necessary. Based on the recent occurrence of more accidents involving crude oil, the NTSB has recommended in two Safety Recommendations (R-14-4 and R-14-5) that PHMSA reconsider the threshold quantity for requiring the development of a comprehensive response plan for the shipment of oil and that PHMSA work with the FRA to expand hazardous materials route planning and selection requirements to include certain trains transporting large amounts of flammable liquids. PHMSA agrees with NTSB and plans to consider these issues in a future rulemaking.

*Question 2.* What actions are being taken by your agency/organization to coordinate with state and local agencies on disaster preparedness training and emergency response efforts?

Answer. PHMSA launched a comprehensive outreach plan to educate industry, first responders, and the general public on the risk and proper classification of transporting crude oil. PHMSA has provided extensive information on its public website and social media stream to include the Secretary's Call to Action, Safety Advisory Notices, Amended Emergency Order, a thorough list of questions and answers (Q&As) related to transporting crude oil. PHMSA's Hazardous Materials Safety Assistance Team (HMSAT) has scheduled a series of public workshops and seminars to educate industry and first responders about the properties of crude oil and how to be better prepared for responding to crude oil incidents. PHMSA also held a meeting with various members of the emergency response community to discuss the risks crude oil poses and the challenges associated with unit train incidents.

In addition to PHMSA's outreach effort, the Secretary's Call to Action has prompted industry to establish rail safety measures for transporting crude oil. This includes emergency response. The American Petroleum Institute (API), the American Associations of Railroads (AAR), and American Short Line & Regional Railroad Association (ASLRRA) have committed to assisting state and local communities with the development of response plans, sharing of information to include crude oil train routes, and providing training for responding to a crude oil incident.

Lastly, since 1993, the HMEP grant program has provided funding to States, Territories, and Tribes to ensure local emergency responders are prepared and trained to effectively respond to and mitigate the consequences of hazmat transportation incidents. With the recent emphasis on crude oil shipments, PHMSA has encouraged grantees to allocate funding towards emergency preparedness activities such as developing/revising response plans, commodity flow studies, and response training applicable to a crude oil incident.

PHMSA looks to intensify its outreach effort under the FY 2015 proposed Emergency and Preparedness Information for Communities (EPIC) initiative that requests more resources to conduct outreach campaigns, site visits, and grassroots training with potential state, local, and tribal grantees.

*Question 3.* What immediate measures can states, municipal governments, and local agencies take to mitigate potential disasters?

Answer. Prompted by the Secretary's Call to Action, states, municipal governments, and local agencies are encouraged to reach out to the railroad industry to gain better understanding of the frequency and quantity of hazardous materials being transported by rail through their communities. Knowing this information, states and local agencies can adequately prepare by developing response plans and providing training for first responders in case of rail incidents involving crude oil.

The Association of American Railroads has a program to provide local first responders (upon written request) a list of the top 25 hazmat commodities transported through their communities on an annual basis in order to assist emergency responders with preparing for any emergency involving those materials.

In addition, although not specifically related to transport, Local Emergency Planning Committees (LEPCs) under the EPA could provide valuable information related to risks in a specific community.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO  
HON. CYNTHIA L. QUARTERMAN

*Question 1.* Ms. Quarterman, I don't know if you've been to Washington—but like many places in the west, our cities grew up around—and because of—railroads. It is a legacy that we are proud of. But it also means that there is a lot of rail freight moving through our population centers. So when people see these unsafe DOT-111 tank cars being used to move crude—they are concerned, just like I am concerned. Are you able to give us an actual date that the updated tank car standards will be finalized?

Answer. 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.* Does your agency have ample staff and expertise to keep moving this, and other safety-critical rulemakings, forward?

Answer. PHMSA staff are subject matter experts in the field of hazardous materials transportation and have a high level of expertise. However, PHMSA is small agency relative to its national program responsibilities to ensure nearly one million shipments of hazardous materials arrive safely daily. In the FY 2015 budget, the Administration has requested \$7 million (over the FY 2014 enacted level) additional funding for the hazmat program as well as \$40 million to ensure the transportation of energy products.

*Question 3.* What can we do in Congress to give you the resources to make sure these standards are kept up to date and don't get delayed?

Answer. PHMSA's program operations continue to rely on 20-year-old legacy information management systems for data collection, integration, and analysis. This reliance on obsolete systems impacts operational efficiencies, including regulatory matters. Quality information is necessary to improve safety standards. The program would be better able to improve overall performance and efficiency if adequate funding were provided to consolidate disparate and obsolete data systems used by all internal programs that contribute to the extensive rulemaking process. In FY 2014, we requested \$28.9 million for IT modernization of the hazmat safety program over a span of 7 years. To date we have received only \$11.4 million of that necessary funding.

PHMSA deals with very complex and technical public safety issues that require extensive review, as they should. In addition, there are very significant economic impacts associated with safety regulations that can require extensive regulatory evaluations (Safety Benefits and Cost). The rulemaking process is deliberative because it is crucial to receive and analyze input from a wide variety of stakeholders, including shippers and carriers, state and local officials, and concerned citizens.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. HEIDI HEITKAMP TO  
HON. CYNTHIA L. QUARTERMAN

*Question 1.* What is the timeline for release of PHMSA's findings regarding the chemical makeup of the U.S. crude samples as part of Operation Backpressure?

Answer. PHMSA expects to release results in May 2014.

*Question 2.* When will you be sharing the methodology used to arrive at your conclusions with producers and third-party independent verifiers?

Answer. PHMSA is prepared to share the methodology that was used for testing at the same time it shares the test results in May 2014.

*Question 3.* Is it true that the lab used when testing the characteristics of Bakken crude is the same lab used by many energy industry companies? Does the contracting lab use the same methodologies to test crude oil characteristics for PHMSA that they use for testing the samples from the oil and gas companies? If that is the case, would you say that using the same testing lab improves the ease with which oil companies would be able to share crude analysis data with PHMSA to support Operation Backpressure?

Answer. Yes, the testing laboratory PHMSA has contracted with to perform tests is widely recognized and used by the industry. However, we have established a wall between the work performed for us and their industry clients.

Yes, the contracting laboratory uses the same methodologies to test crude oil for energy industry companies as it does for PHMSA, with the exception of corrosion testing, which the industry is currently not performing.

No, using the same lab and test methods does not necessarily lead to more data sharing, since there are contractual, proprietary, and legal issues governing the relationship between the laboratories and their clients. This information is protected and not releasable without proper authority. Nevertheless, PHMSA has invited producers and shippers to share information they have collected and PHMSA has recently received some results from some individual producers.

*Question 4.* In terms of sample size, I understand that the sample size was not incredibly large or diverse in terms of well-site diversity. While you of course can't be expected to test every single well and shipment, do you view the current testing under way as an initial phase of testing? In other words, will you use the results from this testing to go back to the Bakken, take several more samples, to ensure that they all generally match or fall within some identifiable range of the samples you are testing now?

Answer. PHMSA's plan of sample collection for testing is primarily based on the volume of shipments from rail loading facilities. According to the AAR, approximately 640,000 barrels of crude are moved out of North Dakota via rail per day. All of these facilities store crude oil processed from each of the over 10,000 wells in large storage tanks prior to loading on rail cars.

Yes.

Yes.

*Question 5.* As part of the testing, is PHMSA collecting samples from multiple points along the line of delivery? Specifically, are samples being taken from the well head, the loading point and the delivery point?

Answer. Yes, PHMSA has collected from multiple locations to include cargo tank and rail car loading points. PHMSA is currently working with producers to identify opportunities to collect samples at or near the well heads, as well as other delivery points, including destination points.

*Question 6.* Your agency recently announced some fines against several producers in the Bakken for product mislabeling based on your tests and what you determined were shipments that were identified in the wrong Packing Group. Since that time I know my staff and staff from other offices and Committees have reached out to you, and while we take you at your word regarding the mislabeling and testing, it seemed that you had no clear answer as to how this product, based on a different Packing Group would be handled. Why is that? Do you not have clear, identifiable standards that a producer, shipper, third-party trucker can access?

Answer. With regard to packing group, for rail shipments of flammable liquids, the packing group can trigger additional requirements including the need for a comprehensive security and safety plan that address personnel security, unauthorized access, and en route security. In addition, a change in packing group can change the package which the commodity may be transported in, *e.g.*, the tank cars or truck cargo tanks.

The regulatory requirements for crude oil provide a uniform safety system that is globally recognized and harmonized. This regulatory system is well known and has been in place for decades. Because of this robust regulatory system, nearly one million shipments of hazardous materials arrive safely daily.

*Question 7.* What are the different requirements that come with increasing packing standards from Class I to Class II? Fines were recently assigned from your agency for the mislabeling of crude carrying tanker cars, and standards should be enforced when they are required. However, it is unclear to the stakeholder community what the differences are in terms of their responsibilities—other than changing the label on the tanker—for Class I and Class II tankers. What are the differences between Class I and Class II with regard to operation requirements and the need for response plans?

Answer. The accurate selection of the shipping description is important in determining the proper packaging, and the packing group can change the tank cars authorized. With regard to packing groups, for rail shipments of flammable liquids, the packing group can trigger additional requirements including the need for a comprehensive security and safety plan that addresses personnel security, unauthorized access, and en route security. As much of crude transport is multi-modal, assigning the wrong packing group can have serious downstream consequences. For example, different cargo tanks are used for packing groups I and II flammable liquids.

With regard to response plans, the threshold for such plans is based on the quantity of oil, not packing group. Part 130 of the hazardous materials regulations provides the requirements for oil spill prevention and response plans. There are two

types of response plans: Basic and Comprehensive. More specifically with regard to spill response planning, a basic response plan is required for oil shipment in a packaging with a capacity of 3,500 gallons or more and a comprehensive response plan is required for oil shipment in a packaging containing 42,000 gallons (1,000 barrels).

*Question 8.* Are you at the table with the oil producers, rail companies, and suppliers as they continue to game out and work on specs for tank cars? If not, why? And why were you not at the table with many of these same companies when they worked on new specs and standards after the 2009 Illinois ethanol derailment and explosion? I believe the new standards agreed upon, without input from PHMSA, were also then submitted to your agency for input, but PHMSA has failed to comment thus far on those proposed standards. Industry-wide standards that have now been in place since 2011.

Answer. Yes, PHMSA has been continuously involved with development of tank car standards. Specifically, PHMSA engineers sit on the AAR Tank Car Committee (TCC) in an advisory capacity and participated in a 2011 task force created with a dual charge 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. PHMSA and FRA were highly involved in this task force and hoped that the activity would lead to a comprehensive approach. The task force promised to address the root cause, severity, and consequences of derailments and its recommendations were finalized on March 1, 2012. The AAR task force did not address many of the recommendations provided by PHMSA and FRA.

After considering the outcome of the AAR task force, PHMSA decided to initiate an ANPRM. On September 6, 2013, PHMSA issued an ANPRM regarding tank car specifications. The comment period for the action closed on December 5, 2013.

*Question 9.* While I think it's great to see various industries working together to come up with an accepted best-practice, in this newly designed tank cars, shouldn't the agency tasked with regulating the standards for movement of this product be both engaged on the front end, and offer feedback when new standards are adopted? We now have a tank car on the tracks since 2011 PHMSA has yet to offer comment on.

Answer. As mentioned in response to question 8 above, PHMSA has been and continues to be involved.

The Hazardous Materials regulations currently have such a review process in place. Section 179.4 requires proposed changes in or additions to specifications for tank cars to be submitted to the Executive Director—Tank Car Safety, AAR, for consideration by its Tank Car Committee. Following this, The Tank Car Committee will review the proposed specifications at its earliest convenience and report its recommendations through the Executive Director—Tank Car Safety to the Department. The recommendation will be considered by the Department in determining appropriate action.

PHMSA engineers sit on the AAR TCC in an advisory capacity and participated in a 2011 task force created with a dual charge 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.

On May 14, 2010, PHMSA published a final rule (HM-233A) to amend the Regulations to incorporate provisions contained in certain widely used or longstanding special permits that have an established safety record. As part of this 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 of FRA.

On January 25, 2011, FRA issued a *Federal Register* notice of FRA's approval pursuant to PHMSA's May 14, 2010 final rule. The approval established detailed conditions for the manufacturing and operation of certain tank cars in hazardous materials service, including the DOT Specification 111, that weigh between 263,000 and 286,000 pounds. Taken as a whole, the PHMSA rulemaking and the FRA approval serve as the mechanism for tank car manufacturers to build a 286,000 pound tank car. As such, rail car manufacturers currently have the ability to manufacture DOT/TC-111 tank cars meeting the CPC-1232 industry standard under the conditions outlined in the January 25, 2011 approval.

*Question 10.* You mentioned that a Strike Force met in North Dakota the week prior to the March 6 hearing that was comprised of PHMSA, FRA, and FMCSA. Can you provide my office with details about that meeting? Were samples collected?

From where? Has such a task force been deployed to other oil plays in different regions of the country?

Answer. PHMSA organized a Multi-Agency Strike Force Operation during the week of February 23, 2014, which was the first such strike force of its kind deployed specifically in the oil fields. Participating agencies other than PHMSA, included the Federal Motor Carrier Safety Administration, Federal Railroad Administration, Customs and Border Protection, and the North Dakota Highway Patrol Commercial Motor Vehicle Enforcement. A total of 23 personnel formed five different teams to conduct inspections of crude oil shipments and assist each other with the expertise and regulatory jurisdiction normally exercised by each participating agency.

Yes. Samples were collected from 14 petroleum crude oil loading facilities located throughout the western part of North Dakota. PHMSA investigators collected samples of crude oil from various locations including cargo tanks, storage tanks, and pipelines connected to rail cars.

No.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN THUNE TO  
HON. CYNTHIA L. QUARTERMAN

*Question 1.* What are the major safety issues accompanying the transportation of crude oil by rail and what have been the most common types of accidents that have occurred in the last five years?

Answer. Transporting petroleum crude oil can be problematic if released into the environment because it is both flammable and causes environmental damage when spilled. The risk of flammability is compounded in the context of rail transportation because petroleum crude oil is commonly shipped in large unit trains. In the last five years there have been seven major accidents in the United States and Canada which involved crude oil. All of these incidents have occurred within the last ten months. Due to the investigation process, the type of five of these incidents is still to be determined (Four in the United States and one in Canada). The other two incidents types were Collision (Casselton, ND) and Lack of Securement of a Train (Lac-Mégantic, Quebec).

*Question 2.* Do you have concerns about whether industry will continue to adopt voluntary safety enhancements if Pipeline and Hazardous Materials Safety Administration's final rule ultimately obsoletes the \$7 billion investment that has been made to manufacture cars to the CPC-1232 standard the development in which PHMSA participated?

Answer. PHMSA understands the industry's needs to set best practices and industry standards. We encourage the development of such practices, however PHMSA has the responsibility of ensuring tank car standards continue to meet acceptable safety requirements. When considering these standards, PHMSA considers the points of views of stakeholders through its rulemaking process.

*Question 3.* Beyond the rail and oil industries, what other industries has PHMSA consulted with, or plan to consult with, in its efforts to improve tank car safety?

Answer. In addition to the rail and oil industries PHMSA continues to consult with tank car owners, tank car manufacturers, emergency responders, and other Federal agencies and local government.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROGER F. WICKER TO  
HON. CYNTHIA L. QUARTERMAN

*Question.* AAR has stated that rail is the safest way to transport crude oil. They contend, and I am quoting here, "pipelines have spilled 55 percent more [hazardous materials] per ton-mile than have railroads." Do you agree with their assessment, if not what is the safest way to transport petroleum products?

Answer. According to AAR the number of crude oil car loads originated by the members increased from 11,000 in 2009 to more than 400,000 in 2013 with an expected increase. Over the last 10 years, while train volume has increased, train accidents have declined by 43 percent and the number of train accidents involving hazardous materials has declined by 16 percent. Despite this decline in accidents, derailments can have lasting consequences to the public, communities, and environment. PHMSA recognizes opportunities to improve safety and are sharply focused on further reducing risks regardless of how this product is transported. Whether transported by rail or by pipeline, the shipment of crude oil must be done safely and in accordance with our regulations. This is a safety issue that applies to all modes of transportation.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. ROY BLUNT TO  
HON. CYNTHIA L. QUARTERMAN

*Question 1.* Are there any precedents where the implementation of new regulations on tank cars that ship hazardous materials have also impacted an existing fleet?

Answer. Yes there is. Most recently on January 13, 2009 PHMSA issued a final rule that improved the crashworthiness of railroad tank cars used to transport poisonous by inhalation (PIH) materials (*i.e.*, chlorine and anhydrous ammonia). The final rule required PIH tank cars to have better puncture resistance head, side and strengthened valves, top fittings and nozzles.

The final rule also imposed operational requirements and prioritized retirement or replacement of existing cars.

*Question 2.* The Feb 25th DOT Emergency Order requires that all crude oil be classified in Packing Groups 1 and 2. I have heard from many oil producers that they already often treat crude oil as Packing Group 1 or 2. What type of data did PHMSA collect that led DOT to believe the Emergency Order requiring the practice was necessary? Do you have figures on how often shippers of crude oil use Packing Group 3?

Answer. One of the goals of the Emergency Order is to eliminate the use of a non-DOT spec tank standard for transporting bulk quantities of crude oil. In light of continued risks associated with petroleum crude oil shipments by rail, the further action described in this Amended Order is necessary to eliminate unsafe conditions and practices related to the classification and packaging of petroleum crude oil that create an imminent hazard to public health and safety and the environment.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO  
HON. CHRISTOPHER A. HART

*Question 1.* The NTSB since has been in Connecticut on the New Haven Line investigating each Metro North incident that has occurred over the last year. You have done extensive discovery and have interviewed Metro North management, employees, and related parties for insight and feedback.

You have also provided progress reports on your findings at NTSB held hearings and briefings to Congress. What is the status of NTSB's investigation report on the Metro North incidents? When can policy makers and other stakeholders expect these reports? Why does it take a year to complete incident reports? It seems unnecessarily long.

Answer. The NTSB plans to combine four of the Metro-North accidents—the May 17 derailment and collision in Bridgeport, CT; the May 28 worker fatality in West Haven, CT; the July 18 CSX trash train derailment on Metro-North tracks in The Bronx, New York; and the December 1 derailment also in The Bronx—in to one report that will be presented to the Board in mid-November 2014.

As the investigations have progressed, we issued four safety recommendations to Metro-North and reiterated one safety recommendation to the FRA. These recommendations provide an early glimpse in to the investigation of the safety shortfalls we identified to date and can also be used by policymakers who are examining ways to improve safety at Metro-North.

The NTSB has 10 rail investigators in our Office of Rail, Pipeline, and Hazardous Materials Investigations (RPH) who are currently investigating 23 rail accidents. We investigate all relevant aspects of all railroad accidents; operations, mechanical, signals, track, and human performance. Although we attempt to complete each investigation within 1 year, limited resources challenge our ability to reach that goal. The final reports will fully explain the various issues related to each accident, and will also provide policymakers with a great deal of information that will assist in their efforts to improve railroad safety.

*Question 2.* At one point, you mentioned that if a common thread such as safety culture can be traced through each of Metro North's accidents, the NTSB would consider consolidating each incident into one report. Have you made a decision on whether or not to do this?

Answer. As stated previously, the NTSB will consolidate 4 Metro-North accidents in to one report that will be presented to the Board in mid-November 2014.

*Question 3.* One year seems like long to publish an investigation report. Can you accelerate this process? Does NTSB have a resource problem?

Answer. The NTSB had been under a hiring freeze due to sequestration. The FY 2014 budget has allowed us to begin hiring actions again, 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.

The hiring freeze, which has left us unable even to replace those who retire, has impacted all modal offices at the NTSB, and even after hiring new staff, the training time will result in the new staff not being available to lead their own investigations for at least one year. The effects of sequestration will be felt for several years, and if sequestration is implemented again, the NTSB will face the same resource constraints and potentially delay accident reports even further.

I am happy to talk with you further about the needs of the NTSB.

*Question 4.* What type of follow up does the NTSB do once they issue a recommendation to the FRA or an individual operator such as Metro-North? The NTSB first recommended that the FRA requires cameras in 2008—what follow up has occurred since that time with FRA? The NTSB should not have to recommend something twice but I would hope there is an ongoing dialogue with agencies and operators about their recommendations.

*Answer.* We agree that it seems unnecessary to issue recommendations multiple times, but too often, we see no action on recommendations by the recipient. After issuing a recommendation, the NTSB tracks the progress via correspondence with the recipient. I can provide you with the correspondence history on any recommendation in which you are interested.

In the case with redundant worker protections, like shunting, the NTSB issued that recommendation to the FRA in 2008, but six years later, this recommendation has not been implemented despite indications that the FRA would implement it.

*Question 5.* The NTSB has made several recommendations to the FRA, Metro North, and the Nation's railroads in general following the string of Metro North accidents in 2013. Following the May 28, 2013 accident that resulted in the death of track foreman Robert Luden, the NTSB recommended the installation of shunting systems. The NTSB has also made recommendations for inward and outward facing cameras for the Nation's railroads as well as recommended to the FRA to issue an adjacent track rule which it now has.

Mr. Hart, What other recommendations does the NTSB have to improve safety on the Nation's railroads in the short-term that can be implemented immediately and cost effectively?

*Answer.* The focus of the NTSB is to issue recommendations to improve safety without conducting a cost-benefit analysis; therefore, it is difficult for me to discuss the cost effective component. However, there are several recommendations to the FRA that have been open for a number of years that would be relatively quick to implement. For example, the NTSB has recommended that the FRA develop and publish a guide for crewmembers on the hazards of using certain types of medications while on the job (R-00-002). This recommendation has been open since 2000 and despite the wealth of information that is available about the side effects of various drugs, no new regulations have been implemented.

*Question 6.* What should we be focusing on as Federal regulators to improve safety on the Nation's rail system in the long run?

*Answer.* There is no one "silver bullet" to improve rail safety, but at the NTSB, we have seen some themes in our investigations that, especially when taken together, go a long way to making our railroads safer. Current safety issues, or overarching trends, include: safety deficiencies in the design of thousands of railroad tank cars; the need for widespread implementation of positive train control (PTC) systems; the need for installation of inward-and outward-facing locomotive cameras; the need for improved medical programs; and 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 varied approaches that, when working together, can help drive down the number and frequency of accidents or mitigate the severity of accidents.

1. *Improved Tank Car Design.* The NTSB has called for more robust tank cars for over 20 years. More recently, the accidents in Lac-Mégantic, Quebec, Casselton, ND, and New Augusta, MS, and in Casselton, ND illustrate the continuing need for these improvements. Enhanced head shields, jackets, and thicker shells could reduce or mitigate the severity of these accidents.
2. *Technology.* The NTSB has called for positive train control (PTC) or its predecessor technology for over 40 years. This technology would prevent or mitigate head-on collisions, roadway worker fatalities, and other accidents that are the result of human factors deficiencies. PTC preventable accidents continue happening with the most recent occurring on December 1, 2013, in The Bronx, NY, which killed four people and injured 59 others. Since 2004, in the 25 PTC pre-

ventable accidents that the NTSB investigated, 65 people died, more than 1,100 were injured, and damages totaled millions of dollars. Unfortunately, we have been told by the railroad industry that many railroads will not meet the 2015 deadline for implementation. The NTSB has recommended that railroads provide PTC implementation update reports to the FRA every 6 months until PTC implementation is complete. The NTSB believes the FRA should make this information 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.

3. *Inward-and Outward Facing 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 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.
4. *Improved Medical Programs.* Updating medical exams to include a review of drug-to-drug interaction, screening for sleep disorders, and thorough physical examinations; improved testing for color discrimination capabilities; and more frequent checks for personnel with chronic conditions. The most recent NTSB investigations illustrating this trend include Goodwell, OK and Red Oak, IA. Additionally, there is preliminary evidence to support the need for improved medical programs in current on-going investigations.
5. *Top-down Safety Cultures.* 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 and the continual increase in passenger ridership.

The NTSB held a public forum on September 10 and 11, 2013, on successes and challenges associated 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.

Currently, the NTSB is examining the role of safety culture and the critical role that organizational culture plays in preventing accidents at the Metro-North Railroad. As we continue the on-going investigations into five Metro-North accidents, including the Bridgeport, CT, derailment on May 17 where 76 people were injured, the West Haven, CT, roadway worker fatality on May 28, the derailment of a CSX train along Metro-North tracks on July 18, the derailment on December 1 in The Bronx where four people were killed, and most recently, an additional roadway worker fatality on March 10, 2014, in Manhattan, NY, we will examine organizational issues that likely impact the safety performance at Metro-North. 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.

6. *Maintenance Issues.* The Metro-North 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 an ongoing investigation, the NTSB is looking at the adequacy of the FRA's Track Safety Standards.

*Question 7.* What has your research showed about the importance of inward and outward facing cameras? Why is this such a critical tool for protecting passengers?

Answer. Inward-and outward-facing video and audio recorders can provide vital information to investigators about what happened during an accident. This informa-

tion can also be incorporated in to company training programs, which will improve passenger safety.

*Question 8.* The NTSB investigates railroads across the entire country. At NTSB's November hearings on the Metro North Bridgeport derailment and the West Haven accident, a representative from the Long Island Railroad (LIRR) testified that the LIRR conducts inspections at a higher rate than Metro North and also employs automated inspection vehicles more frequently.

At a meeting between Congress members, DOT and the FRA, Administrator Szabo spoke to the fact that alerter systems are good railroad practice and standard on most railroads across the country while Metro North lacked these devices in each train cabin where an engineer operates. He stated that he was checking with the American Public Transportation Association (APTA) on whether any other railroad didn't have alerters as a standard device in each train cabin.

In your opinion, how does Metro North's standard of safety compare to other railroads throughout the country?

Answer. Our on-going Metro-North accident investigations only focus on those specific accidents and do not enable us to generate an overall safety rating for Metro-North's total operations or to compare its overall safety with other railroads. That being said, we will likely issue recommendations as a result of these investigations that can be applied at other railroads to improve the safety throughout the country.

Also, positive train control (PTC) is a technology that includes the role of the alerter, and the NTSB has been on the record for more than 40 years calling for PTC to be implemented throughout the rail industry. Accidents like the December 1, fatal accident could have been prevented or mitigated by PTC.

*Question 9.* What other areas besides the aforementioned does Metro North lag behind the rest of the Nation's railway system?

Answer. Our investigations have identified and will continue to identify safety shortcomings of Metro-North. The four recommendations issued up to this point clearly point to areas of improvement for Metro-North in the areas of worker protections, in-cab audio and video recorders, and speed control.

We will not hesitate to act on other safety shortfalls at any time as the investigations proceed.

*Question 10.* On December 1, a Metro-North train derailed resulting in four casualties and close to seventy injuries. The train was travelling at approximately 82 mph in an area where speed was limited to 30 mph. The NTSB investigation is ongoing, but officials recently recommended that Metro-North install inward-and outward-facing cameras on its trains. The NTSB has called on all railroads to install such cameras since a 2008 crash between a passenger and a freight train resulted in the death of 25 people. The FRA has recently indicated its decision to begin the rulemaking process on this issue.

Following the December 2013 Metro-North derailment that resulted in four casualties and close to seventy injuries, the NTSB recommended that Metro-North install inward-and outward-facing cameras. This is something the NTSB has been recommending since 2008. What safety benefits does the NTSB see in requiring these cameras? Are some rail agencies already using this technology?

Answer. In 2008, the NTSB recommended inward-and outward-facing audio and image recorders after the deadly rail accident in Chatsworth, CA, and we recently reiterated that recommendation in Goodwell, 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.

**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)

In the investigation of the 2012 Goodwell, OK, 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, the 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 system-wide 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. Voluntary installation is an excellent step forward, but we are not confident that all railroads will install cameras unless they are required by rule.

*Question 11.* In July, a train carrying crude derailed and exploded in Lac-Mégantic, Québec, killing 47 people and destroying the city's downtown. On December 30th, a train in North Dakota carrying crude oil struck another train which set off an explosion and required the evacuation of more than 1,500 people. On January 7th, a train carrying crude and propane derailed and caught fire in New Brunswick, Canada forcing an evacuation less than 35 miles from the Maine border.

A series of freight rail accidents over the past 8 months highlight the need for safety plans to be in place so that communities and first responders know how to respond when there is a train accident carrying crude, propane, or any other hazardous material. Training first responders is a good first step to improving the response to incidents, and I was glad to see that included in your recent agreement. Mr. Hart, based on your response to safety incidents generally, what more should be done to ensure emergency responders are able to quickly and appropriately respond to these types of incidents?

Answer. The NTSB has issued recommendations to the FRA and PHMSA to require the railroads to immediately provide to emergency responders accurate, real-time information regarding hazardous materials on a train in the event of an accident. These recommendations were issued in 2007 as a result of an accident in Anding, MS, and we continue to see other rail accidents in which timely information to first responders results in a lack of coordinated response and can endanger the responders and the communities through which these trains travel.

More can be done by railroads to provide real-time data on train manifests, especially when the manifest is available electronically. We look forward to working with you to ensure that our first responders are armed with up-to-date information in the aftermath of an accident.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO  
HON. CHRISTOPHER A. HART

*Question 1.* What actions are being taken by your agency/organization to coordinate with state and local agencies on disaster preparedness training and emergency response efforts?

Answer. The NTSB believes there should be better coordination between first responders and the railroads travelling through their communities. To that end, the NTSB has issued recommendations to the FRA and PHMSA to require the railroads to immediately provide to emergency responders accurate, real-time information regarding hazardous materials on a train in the event of an accident. These recommendations were issued in 2007, but we continue to investigate rail accidents in which timely information to first responders results in a lack of coordinated response and can endanger the responders and the communities through which these trains travel.

More can be done by railroads to provide real-time data on train manifests, especially when the manifest is available electronically. We look forward to working with you to ensure that our first responders are armed with up-to-date information in the aftermath of an accident.

*Question 2.* What immediate measures can states, municipal governments, and local agencies take to mitigate potential disasters?

Answer. The accident in Paulsboro, NJ, in November 2012, is an example in which first responders were not adequately trained to respond to the toxic release and did not have the necessary resources (air monitoring equipment, fire suppression equipment, etc.). Local and state governments should contact the railroad operators in their community and work to improve emergency responders' training and identify how resources will be provided and managed in the event of derailments involving hazardous liquids. It should include first responder training and routine refresher training. Also, public education programs for communities through which railroads transport hazardous materials can be developed. Lastly, municipalities should adequately identify and analyze risks, or adequately provide for response to releases of hazardous materials that are transported through communities.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. HEIDI HEITKAMP TO  
HON. CHRISTOPHER A. HART

*Question 1.* Local stakeholders have raised concerns about the conditions of the ground in and around Casselton that could potentially affect track quality or integrity. Is the NTSB, in its review of the Casselton Derailment, testing ground quality near the Casselton Interchange to determine whether or not it was a factor contributing to the derailment?

Answer. The NTSB accident investigation is ongoing with many factors being reviewed. As part of the investigation, track conditions, including ground and subgrade, and maintenance records will be reviewed for their condition as well as for compliance with current FRA regulations and BNSF Railway established maintenance procedures.

*Question 2.* When will the NTSB's investigation be completed? Will NTSB issue recommendations to the regulators based on these findings? Or will the independent agency reiterate previous recommendations that have not been acted upon—such as the recommendations from the findings of the 2009 Cherry Valley derailment?

Answer. The NTSB goal is to complete its investigation of the Casselton, ND, accident in about one year. However, if we identify safety issues that need more immediate action, we can issue safety recommendations at any time before the report is complete. An example is found in safety recommendation R-14-10 issued on April 7, 2014, to the American Association of Railroads requiring that second-hand use axles undergo non-destructive testing specifically designed to locate internal material defects in axles.

Regarding the Cherry Valley, IL, tank car recommendations, the NTSB is closely following the rulemaking actions at PHMSA, and we will comment on those efforts to ensure our lessons learned are part of the record on tank car design.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO  
GEOFFREY C. BLACKWELL

*Question 1.* One key aspect to implementing PTC is providing the necessary spectrum. Various types of equipment owned by many different railroads must be able to communicate on any track equipped with PTC. It would be most efficient to utilize a single radio frequency band across the entire PTC system to minimize the cost of radio receivers and network equipment. A consortium of the Union Pacific, Norfolk Southern, CSX, and BNSF railroads, has purchased licenses to some frequencies in the 220 MHz range. Along with Amtrak and other railroads, the consortium has requested additional 217–222 MHz spectrum and appropriate license and rule changes, claiming 220 MHz will be insufficient in congested urban areas. Although frequencies may be available in various bands, the railroads prefer the 217–222 MHz range due to compatibility with current infrastructure and the radio communication technology they have chosen to employ. Because of uncertainty over spectrum needs, the FCC issued a public notice seeking comments from stakeholders on May 5, 2011, but has not instituted a formal rulemaking process regarding PTC radio spectrum issues.

Mr. Blackwell, what is the status of the FCC's rulemaking for PTC radio spectrum? What did the FCC glean from the public comment period? Has progress been

made based on the findings from the public comments? When can we expect a final rule on PTC spectrum?

Answer. The Commission has not initiated a rulemaking with respect to PTC spectrum, focusing instead on directly helping the railroads secure the necessary spectrum. Also, Congress did not direct FCC to provide spectrum to commuter rails, or any railroads, in the Rail Safety Improvement Act of 2008. The public record from the 2011 Public Notice indicated that most commuter rails did not know how much spectrum they needed to deploy PTC and lacked familiarity with how to secure spectrum in the secondary markets by lease or acquisition. As a result, the Commission has worked to educate the commuter rails and the American Public Transportation Association (APTA) about securing spectrum in the secondary markets. In addition, we have granted substantial technical relief to enable PTC system implementation. In fact, Commission staff has been working closely with the freight and commuter railroads to identify available spectrum suitable for PTC deployment.

We will continue to work with all parties on this issue and believe that we will be able to help the remaining railroads identify and secure sufficient spectrum for their PTC deployments. In fact, with the Commission's assistance, approximately 75 percent of the commuter railroads have acquired or are in discussions to lease spectrum. In lieu of a rulemaking, therefore, the Commission will continue to assist all railroads to acquire the necessary spectrum they need through secondary market transactions and technical relief.

*Question 2.* As part of PTC implementation, railroads must install tens of thousands of new antenna structures nationwide to transmit PTC signals. The Federal Communications Commission (FCC) maintains that all PTC antenna structures are subject to the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA). The location of each antenna must be submitted to the FCC so Native American tribes can determine if the installation will negatively impact areas of historic, cultural or religious significance.

In January 2014, the FCC released a proposal that was intended to expedite the review of PTC infrastructure.

Mr. Blackwell, has the FCC processed this level of applications before? Do you agree with Mr. Hamberger's assessment? What additional challenges might the agency face in processing the applications quickly?

Answer. The Tower Construction Notification System (TCNS) is a secure technology solution that allows parties interested in constructing communications towers to ascertain whether their proposed construction would implicate a Tribal Nation's interest in culturally or religiously significant sites in the area of the proposed construction. A parallel system, E-106, exists to facilitate review of communications towers by interested State Historic Preservation Officers (SHPOs). On average, the Commission processes more than 10,000 applications a year for new or collocated communications infrastructure through these systems, which were originally designed for tower-by-tower review.

When the railroads informed FCC staff of the extent of construction necessary to deploy PTC in the spring of 2013, and after continued discussions with the railroads, we concluded (and the railroads agreed) that the Commission's TCNS and E-106 processes, as they existed, were not suited to ensure efficient review of PTC wayside infrastructure on such a large scale. At the same time, we recognized that TCNS and E-106 offer unique efficiencies that will provide many advantages to the railroads, Commission staff, SHPOs, and Tribal Nations. In consultation with Advisory Council on Historic Preservation (ACHP) and the Administration's Council on Environmental Quality (CEQ), the Commission moved forward with drafting a Program Comment intended to streamline existing procedures and promote administrative efficiency for review of PTC wayside infrastructure.

The Commission does not agree with the overall assessment of the program comment by Mr. Hamberger and the Association of American Railroads (AAR). In fact, many of the changes made to the Program Comment prior to submission to ACHP were based on comments from AAR and the individual railroads. Commission staff is fully committed to working with the railroads subject to the PTC deployment deadlines. We expect the procedures proposed in the Program Comment to materially reduce the time it will take railroads to complete required reviews of PTC infrastructure. Specifically, overall time limits for review are reduced by 40 percent and appeals must stop at the end of 90 days in most cases. The Program Comment is currently under review by ACHP, and we look forward to working with the railroads to help them take advantage of the new procedures once ACHP has completed its review.

The existing poles constructed without NHPA and NEPA review pose the most significant challenge to moving forward expeditiously. The Commission is currently in discussions with the relevant stakeholders, including the railroads, Tribal Na-

tions, and SHPOs, regarding multiple mitigation proposals so that we can help expedite resolution of the pre-construction issues and move forward toward completion of PTC deployment.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. AMY KLOBUCHAR TO  
GEOFFREY C. BLACKWELL

*Question.* Mr. Blackwell, railroad companies are waiting on the Federal Communications Commission (FCC) to approve the siting, construction and replacement of an estimated 22,000 communication towers and antenna structures before they can move forward on implementation of positive train control (PTC) technology. What is the FCC doing to make this approval process more efficient? Aside from extending the deadline to allow more time for implementation, are there steps that the FCC could do to speed up the approval process?

*Answer.* Commission staff is fully committed to working with the railroads subject to the PTC deployment deadlines. We have drafted a Program Comment intended to streamline existing procedures and promote administrative efficiency for review of PTC wayside infrastructure. We expect the procedures proposed in the Program Comment to materially reduce the time it will take railroads to complete required reviews of PTC infrastructure. Specifically, overall time limits for review are reduced by 40 percent and appeals must stop at the end of 90 days in most cases. The Program Comment is currently under review by the Advisory Council on Historic Preservation (ACHP), and we look forward to working with the railroads to help them take advantage of the new procedures once ACHP has completed its review.

The draft program comment also includes a provision for individual railroads to enter into voluntary alternative arrangements with State Historic Preservation Offices (SHPOs) and Tribal Nations. One railroad has approached the Commission with ideas that might form the basis for such alternative arrangements, and we are working with that railroad to advance those ideas.

Another issue is the roughly 10,000 poles that have already been constructed without the required review pursuant to Section 106 of the National Historic Preservation Act (NHPA) and the National Environmental Protection Act (NEPA). The Commission is currently in discussions with the relevant stakeholders, including the railroads, Tribal Nations, and SHPOs, regarding multiple mitigation proposals so that we can help expedite resolution of the pre-construction issues and move forward to completion of PTC deployment.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. HEIDI HEITKAMP TO  
GEOFFREY C. BLACKWELL

*Question.* Please explain the challenges regarding PTC implementation before your agency and the steps that you are taking to address them.

*Answer.* Commission staff is fully committed to working with the railroads subject to the PTC deployment deadlines. We have drafted a Program Comment intended to streamline existing procedures and promote administrative efficiency for review of PTC infrastructure. We expect the procedures proposed in the Program Comment to materially reduce the time it will take the railroads to complete required reviews of PTC infrastructure. Specifically, overall time limits for review are reduced by 40 percent and appeals must stop at the end of 90 days in most cases. The Program Comment is currently under review by the Advisory Council on Historic Preservation (ACHP), and we look forward to working with the railroads to help them take advantage of the new procedures once ACHP has completed its review.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO  
PRENTISS SEARLES

*Question 1.* “Operation Classification” is focused, in part, on classification and packing group assignments for Bakken crude. Tests are being conducted to measure the chemical properties of the crude. PHMSA recently urged API to share information on the composition of Bakken crude oil. Last week, PHMSA issued an emergency order requiring that crude oil shippers conduct “sufficient testing” before transport and they must cease shipping crude oil using the least restrictive hazardous materials packaging standards (known as Packing Group III).

DOT has been testing Bakken crude and has found that there are ongoing concerns with the proper testing and classification of the crude oil. Mr. Searles, Federal regulations to test materials have been in place for many years and prior testimony from API has indicated that you have also been testing crude for years. How frequently do your members currently test materials? How do testing practices vary across companies? What oversight processes do companies have in place to maintain records of that data?

Answer. API is developing a standard of best industry practices with regard to sampling and testing for classification of crude oil for rail transportation. The frequency of testing is dependent upon many different factors and must account for the variability of the material. Some criteria to determine the frequency of testing include:

- History of source of crude oil
- Stability of crude oil source
- New crude production or changes in production operations
- Type of rail car loading facility

Testing practices are prescribed in standards published by API, ASTM and ISO. These standardized procedures stipulate the necessary steps for testing of crude oil and allow for little variability. Testing data can be supplied from multiple sources over different time frames. Nevertheless, documentation has to be retained by the shipping party for a minimum of two years.

*Question 2.* DOT-111 tank cars were involved in the Lac-Mégantic, Alabama, and North Dakota derailments and explosions. The DOT-111, which accounts for 69 percent of the U.S. tank car fleet, has a documented history of failure during accidents. AAR has asked DOT to adopt tougher standards for new tank cars, as well as requiring the retrofit or phase out of tank cars built to less stringent standards. API and the Railway Supply Institute (RSI)—who represent tank car manufacturers—also support higher tank car standards, but have concerns about retrofit costs.

For several decades, the NTSB has expressed concern about the DOT-111 tank car. Other stakeholders, including AAR, API, and RSI, have sought tougher tank car standards. DOT is almost a year behind on a rulemaking, which would propose updates to the DOT-111 standards, and does not anticipate issuing a final rule until next year. This is unacceptable to me and the thousands of people living in communities that see these train cars roll through their towns everyday—communities along these rail lines deserve more. Again, this seems to be another example of regulatory capture; the DOT for all intents and purposes outsourced tank car recommendations to industry back in 2011. And here we are 3 years and several high profile accidents later, and we’re still talking about the need for stronger tank cars.

Several companies have proposed using only newer tank cars and BNSF Railroad has stated that they will order even stronger tank cars. Would you agree that these actions will make transporting hazardous materials safer? Do your members have concerns about the cost implications for acquiring new cars? What is the industry doing to protect communities?

Answer. The oil and gas industry is focused on a holistic approach to safety, which includes efforts relating to prevention, mitigation, and response. One component of mitigation is tank car design. Our members have been building state-of-the-art tank cars since 2011 based on designs that were developed over the course of several years through the evaluation of decades of data. Tank car design must be evaluated holistically so that changes to the tank cars do not result in unintended increases in risk elsewhere in the transportation process. Our industry is currently undertaking an integrated risk assessment so that we can understand what elements of the supply chain deserve more focus. Safety is a core value of the oil and gas industry, as such, we are evaluating tank car designs from a safety perspective.

*Question 3.* In recent months, DOT officials concluded that eleven of eighteen samples taken from cargo tanks carrying Bakken crude were not labelled correctly. In addition, it has been revealed that the Bakken crude involved in the deadly Lac-

Mégantic accident was inaccurately labeled. What changes has the industry made to ensure the proper classification of crude?

Answer. At a minimum, API member companies are required to test and classify their product according to Federal regulations. However, our members also understand the need to assess any potential new issues and as a result API is developing a standard that addresses the classification and loading of crude oil into rail tank cars so that we ensure that the industry has a standard set of recommended practices. We have also encouraged our members to supply sample data to PHMSA.

*Question 4.* What issues led to the initial misclassification of crude? Is this happening frequently?

Answer. The tragedy at Lac-Mégantic is currently being studied extensively by safety experts. When that review is complete, API will work with other stakeholders to address any issues that contributed to the accident. However, we will point out, that the product was moved in a tank car that was designed for the higher packing group product (Hazard Class 3, Packing Group I) and the emergency response for that product whether it was a PG I, PG II or PG III, would have been the same, regardless. Tank cars are not normally run at 65 mph anywhere in the country (U.S. or Canada).

*Question 5.* DOT recently announced an amended Emergency Order to address the testing of crude. What oversight procedures are in place to ensure that proper classification is being conducted? What long-term procedures need to be addressed to ensure that proper classification continues to be addressed?

Answer. DOT oversees the transportation of crude by rail and ensure that proper classification is being conducted. The API standard will address this process and will ensure that the industry has a standard set of recommended practices for the classification and loading and unloading of crude oil into rail tank cars.

*Question 6.* What steps, if any, can be taken before shipment to address the volatile content of Bakken crude?

Answer. API members strive to follow all government regulations regarding the proper classification of crude oil, including testing for initial boiling point and flash point. Additionally, companies undertake a variety of processes prior to the loading of crude oil into tank cars depending on their business practices. As part of this process, produced crude oil moves from the well to an oil and gas separator (or heater treater) where gas, oil, and water are separated.

API is currently developing a standard for the classification, loading, and unloading of crude oil into rail tank cars that will assess the characteristics of crude oil to determine which attributes, in addition to those already in the regulations, may need to be considered to develop the best handling procedures.

*Question 7.* In January, API along with other stakeholders met with Secretary Foxx and Administrators Szabo and Quarterman, to discuss the safe transport of crude oil by rail. At that meeting, DOT asked API to consider a number of additional safety measures, including sharing testing information. Both DOT and API have previously stated that you are working together to provide necessary information. On March 28, DOT provided a press statement saying, “we still lack data we requested and that energy stakeholders agreed to produce. The overall and ongoing lack of cooperation is disappointing, slows progress, and certainly raises concerns.”

The recent DOT statement differs drastically from information you provided to the Committee. What specific information have you been asked to provide and what information is still outstanding? Are discussions for data ongoing with DOT? If so, are there hurdles to the industry for providing data to DOT? When will the industry provide all requested information to the DOT?

Answer. There are three separate data collection efforts underway by: North Dakota Petroleum Council (NDPC), AFPM and individual companies. Generally there are seven characteristics of crude oil being collected (*e.g.*, flash point, initial boiling point, vapor pressure, light end analysis, API gravity, sulfur, and H<sub>2</sub>S).

API member companies are submitting data to PHMSA and sharing it with API. More than 150 samples have been submitted to PHMSA thus far and API continues to encourage our members to submit data to PHMSA. API is compiling the data shared by our members and members have met individually with PHMSA to discuss their data.

In addition to the individual proprietary data, the North Dakota Petroleum Council (NDPC) has contracted to a third party to conduct quality assurance tests that will study the range and variability of Bakken crude oil qualities (ND and MT). They will collect 150 total samples—101 well and 49 rail and that data is from both well sites and rail facilities from a significant geographic area. The results will also be provided to PHMSA as a complement to the proprietary data that individual

companies are already sharing. NDPC has provided updates to PHMSA on their progress.

AFPM is collecting data from the loading rack and the refinery gate. AFPM has provided updates to PHMSA on their collection effort. Industry will look forward to collaborating with PHMSA to review the crude oil quality data compiled through Operation Classification and the industries data collection efforts.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO  
PRENTISS SEARLES

*Question 1.* What actions are being taken by your agency/organization to coordinate with state and local agencies on disaster preparedness training and emergency response efforts?

Answer. In 2013, API published the Oil and Natural Gas Industry Preparedness Handbook. This Handbook, created in coordination with API, other industry trade associations (AFPM, ILTA, AGA, INGAA, SOCMA, PMAA, NATSO) and government partners (DOE, DHS, DOI, DOT, EPA, NSS, NASEO), is focused on preparing industry and government partners for incidents involving oil and natural gas operations from an all hazards perspective. API continues to promote the importance of planning for preparedness, mitigation and response through education, communication, the development of partnerships and the necessity of drills and exercises. API, as well as our members and other industry trades, meet regularly with federal, state and local partners to stress the importance of continuous communication and the development of plans to ensure the ready supply of oil and natural gas to first responders, communities and critical services. API also works internally with members, as well as with public partners, to document and share the expertise that exists within industry related to oil spill response, spill mitigation and clean up.

*Question 2.* What immediate measures can states, municipal governments, and local agencies take to mitigate potential disasters?

Answer. API designed the Oil and Natural Gas Industry Preparedness Handbook as a tool for industry, as well as for states, municipal governments, and local agencies. The strategy advocated for in the Handbook applies to all parties involved in incident response; communication and education prior to a response. The largest section of the Handbook is specific guidance for state and local partners. This section provides guidance on a few specific but critical areas. The first is to know who the critical partners are in your area upon which key resources or services depend. This includes roles and responsibilities, as well as the people who are empowered to make decisions in a crisis. The second is to know what not to do. This is as important to the private sector as it is to governments. Understanding the laws and regulations that can impede response, those that can facilitate response and those that may not take effect until a response occurs should be known and understood prior to a response. Thirdly, it is critical for all parties to understand what matters in an event. For localities and states, this is often identification of where critical resources and services are sourced, or where critical assets are located. Lastly, all of the previous concepts should be combined and integrated into exercises to ensure all parties understand these concepts, know what is needed, and to identify gaps in knowledge and process.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO  
PRENTISS SEARLES

*Question 1.* Mr. Searles, Federal officials and your industry seem to agree on one thing: that Bakken crude is light, sweet, and more combustible than most other crudes. This is obviously a factor in these explosions, and the correct labeling of these shipments is critically important. I believe some fines have already been assessed for misclassification.

Misclassification means that first responders don't know what to expect when they approach a disaster site. And in a trade dependent-state like Washington, our rail lines run through major population centers. Consequences from an accident would be high—which is one of the reasons cities and newspapers across our state have expressed concern about the safe movement of crude. Could you tell us what steps your industry is taking to reduce the volatility of Bakken crude prior to transport?

Answer. API members strive to follow all government regulations regarding the proper classification of crude oil, including testing for initial boiling point and flash point. Additionally, companies undertake a variety of processes prior to the loading

of crude oil into tank cars depending on their business practices. As part of this process, produced crude oil moves from the well to an oil and gas separator (or heater-treater) where gas, oil, and water are separated.

API is currently developing a standard for the classification, loading, and unloading of crude oil into rail tank cars that will assess the characteristics of crude oil to determine which attributes, in addition to those already in the regulations, may need to be considered to develop the best handling procedures.

*Question 2.* Could you tell us what steps your industry is taking to better understand the characteristics of crude prior to shipment?

Answer. API has established a group of physical chemists who are specialists in crude oil properties. They are reviewing different properties of crude oil to determine in addition to those already required by PHMSA, those most suitable for classifying and characterizing the material for rail transportation. Furthermore, these specialists are also looking at the science behind crude oil properties used for rail car selection in order to identify those parameters that could impact rail car design.

Guidance on this subject is being included in the development of the API standard, a process which is open to all stakeholders such as the railroad industry, tank car builders/owners and lessors, PHMSA, Transport Canada, as well as crude oil producers.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. HEIDI HEITKAMP TO  
PRENTISS SEARLES

*Question 1.* A consensus seems to be emerging that steps need to be taken to fortify existing tanker cars or to build new and safer cars. I understand your members own roughly half of the tanker cars used to carry crude. The other half are owned by rail car leasing companies. Can you tell me at what stage in the depreciation schedule producer owned rail cars are? In other words, in general, how long have these cars been in service?

Answer. The vast majority of tank cars in crude service were built after 2001 (over 80 percent) and approximately half of those cars were built in 2012 and 2013 so they are likely to not have been fully depreciated at this point.

*Question 2.* If DOT-111s are phased out, the productive life of some of these assets will be shortened significantly. Would the American Petroleum Institute support changes to the tanker car depreciation schedules as an incentive for oil producers to invest in new tanker cars?

Answer. We have no position on that proposal at this point.

*Question 3.* At what stage of the depreciation schedule are the DOT-111 tanker cars in the current fleet? More specifically, what is the percentage of tankers cars that are nearing their life's end? What percentage of tanker cars are in the middle or early part of the 50 year productivity window?

Answer. The vast majority of tank cars in crude oil service are in the middle or early part of the 50-year productivity window. Over half of those are in the first few years of service life.

*Question 4.* At the meeting you and I attended with Secretary Foxx, API committed on behalf of the industry to provide PHMSA with data regarding the crude in the Bakken. To date, what information has API been able to provide to PHMSA?

Answer. There are three separate data collection efforts underway by: North Dakota Petroleum Council (NDPC), AFPM and individual companies. Generally there are seven characteristics of crude oil being collected (*e.g.*, flash point, initial boiling point, vapor pressure, light end analysis, API gravity, sulfur, and H<sub>2</sub>S).

API member companies are submitting data to PHMSA and sharing it with API. More than 250 samples have been submitted to PHMSA thus far and API continues to encourage our members to submit data to PHMSA. API is compiling the data shared by our members and members have met individually with PHMSA to discuss their data.

In addition to the individual proprietary data, the North Dakota Petroleum Council (NDPC) has contracted to a third party to conduct quality assurance tests that will study the range and variability of Bakken crude oil qualities (ND and MT). They will collect 150 total samples—101 well and 49 rail and that data is from both well sites and rail facilities from a significant geographic area. The results will also be provided to PHMSA as a complement to the proprietary data that individual companies are already sharing. NDPC has provided updates to PHMSA on their progress.

AFPM is collecting data from the loading rack and the refinery gate. AFPM has provided updates to PHMSA on their collection effort. Industry will look forward to collaborating with PHMSA to review the crude oil quality data compiled through Operation Classification and the industries data collection efforts.

*Question 5.* Is it true that many of your members use the same contracting labs that are used by PHMSA to test the qualities and characteristics of Bakken crude? To your knowledge, do contracting labs use identical methodologies for multiple clients when testing for characteristics such as vapor pressure, viscosity, corrosiveness, boiling point and flash point? If that is the case, do you believe that oil companies testing crude oil are in a strong position to share data with PHMSA as part of Operation Backpressure?

Answer. We do not know what labs PHMSA is using for its Operation Classification studies and I cannot speculate on whether they are using the same labs as the oil companies. To my knowledge, many of the test procedures for testing crude oil properties are the same, though some of the test procedures can have significant reproducibility variance.

*Question 6.* At the end of this process, if additional requirements are mandated to further improve the safety of tanker cars beyond the 1232 good faith tanker specifications—do you commit to cooperating in good faith to meet those standards?

Answer. API will continue to cooperate to ensure that the most appropriate tank cars are chosen and that approach is based on the proven and available models. It is our understanding that API's members and the petroleum industry in general has been purchasing the CPC-1232 standard tank car and we have already committed to adding the safety valves once they are designed and engineered (*i.e.*, the low trigger, high-flow pressure relief device and the enhanced bottom outlet valve handle).

*Question 7.* In your opinion, are the DOT-111 cars currently in use sufficiently safe for the transportation of crude?

Answer. Under normal operating conditions, the existing DOT-111 tank cars are safe. However, our members understand that in situations where prevention fails, there is a need to mitigate incidents. That said, our members continue to review whether there are possible improvements that would mitigate incidents if the tank cars are derailed. If we identify improvements and those are approved by DOT, it will be imperative that enough time is given to implement the changes so that the U.S. continues to benefit from our country's crude oil renaissance while simultaneously implementing changes that would improve safety.

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RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. JOHN THUNE TO  
PRENTISS SEARLES

*Question.* Can you explain for the Committee the logistics and ownership of tank cars when it comes to that fleet and how long it would take to cycle the existing fleet of new and older model DOT-111 tank cars?

Answer. There are approximately 100,000 DOT-111 rail tank cars in the U.S. fleet moving flammable liquids like crude oil and ethanol.<sup>1</sup> Of that fleet, there are over 42,000 in crude oil service and more than 14,000 of those tank cars are built to the petition car standard.<sup>2</sup> The Railway Supply Institute has publically stated that there are another 37,800 tank cars that will be built to the petition car standard for crude oil service that will be delivered by December 2015.<sup>3</sup> There will be approximately 80,000 cars in crude oil service by that time. Tank cars are unique in that they are not owned by the railroads, they are owned by tank car leasing companies and shippers. Tank cars have an operating life of 30-50 years.

The impact on each API member will vary depending on their business model and on the final PHMSA rule and timeframe. Specifically, the extent and complexity of a modification, whether companies purchase cars or lease them, the size of each fleet, the number of cars backordered, the make-up of the total fleet, the availability of materials, and access to repair shop or manufacturer capacity will all determine timing.

<sup>1</sup>Third Quarter 2013 Data from AAR 11/9/13 Fleet Analysis

<sup>2</sup>AAR NTSB Presentation, 4/22/2014

<sup>3</sup>RSI NTSB Presentation, 4/22/2014

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. ROGER F. WICKER TO  
PRENTISS SEARLES

*Question.* What would the impact of completing the Keystone XL pipeline be on the amount of petroleum products that are currently being transported by rail?

*Answer.* API does not forecast, but when considering this question, the following may help better explain the options available to ship crude oil from Canada or our upper Plains states to domestic refineries—where we can take a raw material and make more valuable products. The Keystone XL pipeline is neither the only pipeline being considered, nor the only means available to ship Canadian or domestic crude oil. KXL is but one of 6 major pipeline proposals to bring Canadian crude to market. In addition, 100,000 barrels per day (bpd) of its capacity is set aside for Bakken crude production (according to the Department of State). However, Bakken production, is expected to increase by about 700,000 bpd by 2017 and by 1 million bpd by 2020.<sup>4</sup> The expected increase in Bakken production is seven to ten times larger than the set-aside Bakken capacity of KXL. . Rather, it may serve to reduce the increase in rail traffic that would occur absent KXL by 14 percent in 2017 and 10 percent in 2020.

It is important to keep in mind that the decision to ship crude to market via pipeline or rail is multifaceted. It is not a matter of pitting one mode against the other mode. Rail provides flexibility, shorter times to come on line. Pipeline approvals take time as we certainly have seen with KXL now, nearly 6 years under review. The Department of State found the proposed KXL to be the preferred means to bring Canada's crude from Alberta to our refineries in the Gulf along that route. Rail offers the option to deliver crude to refiners not served by pipelines, to help our domestic refiners utilize our own domestic production, rather than purchasing their crude from more distant, less friendly sources.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. RICHARD BLUMENTHAL TO  
EDWARD R. HAMBERGER

*Question 1.* On January 15, 2014, the Regional Planning Association released a report titled, "Getting Back on Track: Unlocking the Full Potential of the New Haven Line. The RPA report concludes that the New Haven Line's largest issue is the severity of its aging and deteriorating infrastructure. Due to the state of the railroad's infrastructure, the New Haven Line (NHL) is extremely underfunded and requires tremendous increases in funding to reach a state of good repair. At current funding levels of less than \$200 million a year, it would take 20 years to reach a state of good repair. Connecticut has dedicated \$1 billion to the railroad in its 2013–2017 capital plan, but the RPA concludes that an additional \$3.6 billion is needed to replace the railroad's obsolete infrastructure by 2020.

These infrastructure needs, which include deteriorating bridges, some over 100 years old, worn track, and outdated signaling and power systems, pose threats to safety as seen in the Bridgeport derailment. Broken and ill-repaired track has put lives at risk and it's only a matter of time before such an incident reoccurs if nothing is done. How critical is sound infrastructure to the ensuring safety on the Nation's railway system?

*Answer.* AAR has often testified that one of the most important ways that railroads have reduced accidents is through significant and consistent investments back into their networks. Since the enactment of Staggers, 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 \$25.1 billion in 2013. The vast majority of these investments have improved rail safety either directly or indirectly. For many of these investments, safety is the primary reason the expenditures were made. From 2008 to 2012 alone, 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 dollars on signal and communications systems, bridges and tunnels, and machinery. These and other investments, as well as the billions of dollars railroads spend on maintenance of their networks each year, have made railroads much safer. This assertion is borne out by the fact that from 1980 to 2013, the train accident rate fell 79 percent, the rail employee injury rate fell 84 percent, and the grade crossing collision rate fell 81 percent.

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<sup>4</sup>ICF, 2014

*Question 2.* How many of the existing safety concerns can be solved by reaching a state of good repair for the Nation's railroads?

Answer. Clearly, a railroad in a state of good repair is safer than a railroad with significant amounts of deferred maintenance. Thanks largely to the \$550 billion freight railroads have reinvested back into their networks since 1980, America's freight railroads are in better condition today than ever before. And because a financially viable railroad is in a much better position to reinvest in its network and in risk reduction strategies than a financially challenged railroad, it is critically important that the regulatory structure under which railroads operate recognize the need for railroads to continue to earn sufficient revenues to allow them to reinvest heavily back into their systems.

*Question 3.* DOT-111 tank cars were involved in the Lac-Mégantic, Alabama, and North Dakota derailments and explosions. The DOT-111, which accounts for 69 percent of the U.S. tank car fleet, has a documented history of failure during accidents. AAR has asked DOT to adopt tougher standards for new tank cars, as well as requiring the retrofit or phase out of tank cars built to less stringent standards. API and the Railway Supply Institute (RSI)—who represent tank car manufacturers—also support higher tank car standards, but have concerns about retrofit costs.

For several decades, the NTSB has expressed concern about the DOT-111 tank car. Other stakeholders, including AAR, API, and RSI, have sought tougher tank car standards. DOT is almost a year behind on a rulemaking, which would propose updates to the DOT-111 standards, and does not anticipate issuing a final rule until next year. This is unacceptable to me and the thousands of people living in communities that see these train cars roll through their towns everyday—communities along these rail lines deserve more. Again, this seems to be another example of regulatory capture; the DOT for all intents and purposes outsourced tank car recommendations to industry back in 2011. And here we are 3 years and several high profile accidents later, and we're still talking about the need for stronger tank cars.

AAR recently called for additional changes to the proposed tank car standard. What prompted this change and how will those changes increase safety?

Answer. In 2011, AAR petitioned PHMSA to adopt more stringent requirements for DOT-111 tank cars used to transport packing group I and II materials. That petition proposed that new tank cars used to transport those materials must have thicker shells than required by the current regulations, with current shell thicknesses permitted only for tank cars constructed of normalized steel and equipped with jackets and thermal protection. In addition, the petition proposed that tank cars be equipped with enhanced top fittings protection, reclosing pressure relief devices, and half-height head shields. Subsequently, AAR adopted an interchange standard (CPC-1232) with the same requirements applicable to tank cars used to transport crude oil and ethanol, effective for cars ordered after October 1, 2011.

AAR now supports even more stringent standards for new tank cars used to transport these materials. Furthermore, AAR proposes additional requirements for tank cars transporting flammable liquids, including packing group III flammable liquids, retrofits of existing cars in flammable liquid service, and an aggressive phase-out of cars that cannot meet retrofit requirements. The phase-out program must take into account factors such as manufacturing capacity, the demand for new DOT-111 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. Input is needed from shippers and tank car manufacturers to determine the precise parameters of a phase-out program and identify retrofits that should be required.

The discussion of new tank car standards takes place in the context of the accident that took place on July 6, 2013, in Lac-Mégantic, Quebec. The Lac-Mégantic accident has no parallel in recent times and over the last several decades the railroads' overall safety record has improved dramatically. Indisputably, railroads provide an efficient and safe way to transport hazardous materials such as crude oil and other flammable liquids.

*Question 3.* In July, a train carrying crude derailed and exploded in Lac-Mégantic, Québec, killing 47 people and destroying the city's downtown. On December 30th, a train in North Dakota carrying crude oil struck another train which set off an explosion and required the evacuation of more than 1,500 people. On January 7th, a train carrying crude and propane derailed and caught fire in New Brunswick, Canada forcing an evacuation less than 35 miles from the Maine border.

A series of freight rail accidents over the past 8 months highlight the need for safety plans to be in place so that communities and first responders know how to respond when there is a train accident carrying crude, propane, or any other haz-

ardous material. Training first responders is a good first step to improving the response to incidents, and I was glad to see that included in your recent agreement.

As part of your agreement, AAR committed to rerouting trains carrying at least 20 cars of crude oil to the “safest and most secure routes.” How will these routing decisions impact communities that are not currently seeing a large influx of crude-by-rail? Will other communities see an increase in crude trains and will additional resources be focused on these communities?

Answer. Since this aspect of the industry’s commitments to USDOT will not take effect until July 1, 2014, it is premature to speculate on how the use of the RCRMS tool may impact crude oil routing decisions. That said, railroads seek to operate safely everywhere, and their safety record indicates that they succeed the vast majority of the time.

*Question 4.* As part of PTC implementation, railroads must install tens of thousands of new antenna structures nationwide to transmit PTC signals. The Federal Communications Commission (FCC) maintains that all PTC antenna structures are subject to the National Environmental Protection Act (NEPA) and the National Historic Preservation Act (NHPA). The location of each antenna must be submitted to the FCC so Native American tribes can determine if the installation will negatively impact areas of historic, cultural or religious significance.

In January 2014, the FCC released a proposal that was intended to expedite the review of PTC infrastructure.

How would the FCC’s proposed process affect the ability of railroads to meet the Dec. 31, 2015 deadline? What are the major hurdles to efficiently moving forward on installation?

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.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BARBARA BOXER TO  
EDWARD R. HAMBERGER

*Question 1.* In your testimony before the Subcommittee, you mentioned that in light of recent accidents involving crude oil shipments, railroads are considering expanding the application of a number of procedures used for trains carrying toxic/hazardous materials to trains carrying large amounts of crude oil.

Examples of such procedures include speed restrictions, more frequent train inspections, and the use of the Rail Corridor Risk Management System—developed jointly with the Federal government to aid railroads in identifying the safest and most secure rail routes. When will the railroads make this determination?

Answer. Pursuant to the agreement with Secretary Foxx, railroads will adhere to speed restrictions for key crude oil trains within the limits of high-threat urban areas by no later than July 1, 2014; perform at least one additional internal rail inspection than is required each year by Federal regulation effective March 25, 2014; and begin using the Rail Corridor Risk Management System by no later than July 1, 2014.

*Question 2.* What procedures expected to be used by crude oil trains are different than those procedures currently used by trains shipping toxic and hazardous substances, and which procedures currently used by trains shipping toxic and hazardous substances can be used by crude oil trains?

Answer. AAR Circular OT-55-N specifies recommended railroad operating practices for the transportation of all hazardous materials, including crude oil. Earlier this year, USDOT Secretary Foxx called for the industry to identify steps that might be taken to address the new and unique challenges associated with crude oil transportation. In late February, the industry agreed to a series of additional voluntary actions for crude oil, including increased track inspections, upgraded braking systems, routing protocols, speed limits in certain areas, deployment of trackside safety technology and emergency response enhancements.

*Question 3.* In your testimony before the Subcommittee, you mentioned that upon request, railroads provide appropriate local authorities with a list of the hazardous materials, including crude oil, transported through their communities. Why is it not general practice to automatically distribute this information to local authorities so they can implement the appropriate mitigation and emergency preparedness procedures in case of a disaster?

Answer. AAR members provide bona fide emergency response agencies or planning groups with specific commodity flow information covering hazardous commodities transported through the community. The railroad industry considers this to be restricted information of a security sensitive nature and the recipient of the information must agree to release the information only to bona fide emergency response planning and response organizations and not distribute the information publicly without the railroad's express written permission.

*Question 4.* What actions are being taken by your agency/organization to coordinate with state and local agencies on disaster preparedness training and emergency response efforts?

Answer. All major railroads have teams of full-time personnel whose primary focus is hazmat safety and emergency response. Railroads also have teams of environmental, industrial hygiene, and medical professionals available 24 hours a day, seven days a week, and 365 days a year to provide assistance during hazmat incidents. Railroads also maintain networks of hazmat response contractors and environmental consultants, strategically located throughout their service areas, who can handle virtually any air, water, waste or public health issue. These contractors, who are on call at all times of the day and night, have multiple offices and equipment storage locations and a vast array of monitoring equipment, containment booms, industrial pumps, and other spill response and heavy equipment. Finally, railroads have comprehensive "standard of care" protocols that ensure that impacts to the community—such as evacuations—are addressed promptly and professionally.

In addition to relying on their own personnel, railroads have a long history of working closely with state and local emergency first responders and emergency planners in many different ways. Each year, railroads actively train well over 20,000 emergency responders throughout the country. This training ranges from general awareness training to much more in-depth offerings. The precise parameters of these emergency response training programs vary from railroad to railroad.

In addition to individual railroad activities, some railroad hazmat training efforts fall under the auspices of the Transportation Community Awareness and Emergency Response Program (TRANSCAER). TRANSCAER is a national inter-industry partnership focused on assisting communities to prepare for, and to respond to, hazmat incidents. TRANSCAER offers classroom and hands-on training; emergency planning assistance; support for community drills and exercises; technical information, reference, and training materials; and national conferences and workshops for sharing best practices. TRANSCAER provides this training at no cost to emergency responders and has developed a well-earned reputation for quality and effectiveness.

The rail industry is also deeply involved in improving our Nation's emergency response capability through its support of the Security and Emergency Response Training Center (SERTC), a world-class training facility that is part of TPCI in Pueblo, Colorado. The AAR established SERTC in 1985. Its original mission was to train railroad personnel to safely handle accidents involving tank cars carrying hazardous materials. Over time, though, its scope has been broadened to also serve the public sector emergency response community, other industries, government agencies, and emergency response contractors from all over the world.

SERTC's primary focus is still freight rail safety, but SERTC also offers training covering other surface transportation modes. It recently implemented emergency response and planning programs related to passenger rail and mass transit. The Transportation Security Administration has been using SERTC for employee training since 2006. In fact, more than 2,100 TSA participants have trained at SERTC to date in such areas as "Railroad 101," hazmat transportation, and safety compliance. FBI and National Guard personnel have also been trained at SERTC. Over the years, SERTC has provided in-depth, realistic, hands-on hazmat emergency re-

sponse training to more than 50,000 local, state, and tribal emergency responders and railroad, chemical, and petroleum industry employees. Many railroads regularly provide financial assistance to emergency responders in their service areas to attend SERTC. Instructors at SERTC average more than 30 years of emergency response experience.

*Question 5.* What immediate measures can states, municipal governments, and local agencies take to mitigate potential disasters?

Answer. They should take advantage of the variety of opportunities railroads provide to help local emergency responders. As noted above, railroads have a long history of working closely with state and local emergency first responders and emergency planners in many different ways. These consist of a combination of some or all of the following:

*Safety Trains.* Several railroads utilize “hazmat safety trains” and other training equipment that travel from community to community to allow for hands-on training for local first responders.

*Training Centers.* Several railroads operate centralized hazmat training sites where they train employees, first responders, customers, and other railroad industry personnel in all aspects of dealing with hazmat incidents.

*Local Firehouse Visits.* In aggregate, railroads visit hundreds of local firehouses each year to provide classroom and face-to-face hazmat training.

*Table Top Drills.* Railroads regularly partner with local emergency responders to conduct simulations of emergency situations in which general problems and procedures in the context of an emergency scenario are discussed. The focus is on training and familiarization with roles, procedures, and responsibilities.

*Self-Study Training Courses.* Railroads make available self-study programs for emergency responders that allow students to learn proper procedures at their own pace.

Some railroads also provide related web-based training on hazmat and general rail safety issues.

Railroads also regularly provide hazardous materials training to their customers and short line railroad partners. These comprehensive rail industry efforts point to the seriousness with which railroads take their responsibilities regarding the safety of the communities they serve.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO  
EDWARD R. HAMBERGER

*Question 1.* Mr. Hamberger, I think we are all in agreement that the voluntary crude-by-rail operating agreement is a step in the right direction.

But city councils in places like Spokane and Bellingham, mayors, and Washington’s major newspapers are telling me that they simply don’t have enough information about what is being moved by rail to give them confidence that it is moving safely. The *Spokesman Review* expressed it pretty clearly, saying it was “vital that feds create oil-by-rail safeguards,” and speaking of the new agreement, “if that result is also voluntary, then it won’t bring much comfort.” I agree with them, and hope—expect—your industry to allay their concerns by answering their questions about train movements in Washington communities and nationwide. Very frankly, the consequences are high for Washington state. We have rail lines, with at-grade crossings, running through the hearts of our major cities, so a crude derailment could be catastrophic.

I think that is why folks are asking if voluntary agreements are strong enough. It is obviously impossible to completely eliminate all risk in these situations. But I think we all agree that we need to reduce it significantly to prevent another disaster like we witnessed in Lac-Mégantic or Casselton, North Dakota. That includes improved tank car safety, oil classification, and rail operations. And on the operations side, I’m just not convinced that a voluntary, opt-in initiative is enough to hold bad actors accountable, considering the potential consequences of a derailment in one of our population centers.

What penalties exist for railroads that don’t sign the voluntary agreement?

Answer. All Class I railroads have signed the voluntary agreement.

*Question 2.* What penalties exist for railroads that opt-in to the voluntary agreement, and then violate it (whether they cause an accident or not)?

Answer. The voluntary steps that were agreed to by freight railroads are memorialized in a letter of agreement to DOT containing the details of the steps. The signatures of the senior railroad officials affixed to the letter affirm the individual rail-

roads' firm commitment to abide by the terms of the agreement. AAR does not expect there to be any compliance issues, but FRA inspectors can monitor compliance and FRA can undertake additional measures if compliance issues arise.

*Question 3.* If industry is behind these voluntary procedures—do you believe we should be thinking about making them into a statute, or imposing fines for violating them?

Answer. There would be no safety advantage. Class I signatories will comply and FRA can monitor compliance.

*Question 4.* If no, why not?

Answer. There would be no safety advantage.

*Question 5.* If the good actors are already opting-in, does making the voluntary standards into law come at a cost?

Answer. All Class I railroads have signed the voluntary agreement.

*Question 6.* If accidents keep occurring even once this agreement is fully implemented, is your industry prepared to go further to reduce risk?

Answer. There is every reason to expect the measures undertaken will reduce the probability of a crude oil release.

*Question 7.* Mr. Hamberger, I think we are all pleased that your industry is working on new, specialized crude-by-rail training as part of the voluntary operating agreement. I believe that includes tuition assistance for 1,500 first responders to attend training in Colorado in 2014. Obviously, there are a lot of communities, probably hundreds in Washington state, that are affected by crude traffic—so I'm a little worried that 1,500 nationwide is only a drop in the bucket.

In Washington, rail lines run through the heart of our biggest cities—so this issue really hits home to my constituents. They want to see this product moving safely, and they want to know that their first responders have received adequate training from industry experts on how to respond.

Has the industry considered making a commitment to extending additional funding for future years, to ensure that this training reaches a large number of first responders? If no, why not?

Answer. It is important to understand that the training at TPCI represents only a fraction of the railroads' commitment to emergency response training. Railroads have a long history of working closely with state and local emergency first responders and emergency planners in many different ways. In addition, each year, railroads actively train well over 20,000 emergency responders throughout the country. This training ranges from general awareness training to much more in-depth offerings. The precise parameters of these emergency response training programs vary from railroad to railroad.

Local responders should take advantage of the variety of opportunities railroads provide. These consist of a combination of some or all of the following:

*Safety Trains.* Several railroads utilize “hazmat safety trains” and other training equipment that travel from community to community to allow for hands-on training for local first responders.

*Training Centers.* Several railroads operate centralized hazmat training sites where they train employees, first responders, customers, and other railroad industry personnel in all aspects of dealing with hazmat incidents.

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*Table Top Drills.* Railroads regularly partner with local emergency responders to conduct simulations of emergency situations in which general problems and procedures in the context of an emergency scenario are discussed. The focus is on training and familiarization with roles, procedures, and responsibilities.

*Self-Study Training Courses.* Railroads make available self-study programs for emergency responders that allow students to learn proper procedures at their own pace.

Some railroads also provide related web-based training on hazmat and general rail safety issues.

Railroads also regularly provide hazardous materials training to their customers and short line railroad partners. These comprehensive rail industry efforts point to the seriousness with which railroads take their responsibilities regarding the safety of the communities they serve.

*Question 8.* Mr. Hamberger, as you know, especially in the West, we have freight rail lines running through the hearts of our cities—Seattle, Spokane, Tacoma, and Vancouver, just to name a few in my state. That makes my constituents concerned

when they look at crude moving by rail. Consequences could be very high if there was to be a derailment in one of our population centers.

What is your industry doing to invest in these population centers, far from the Bakken? I don't mean just normal maintenance. But is the railroad industry developing new standards for track and track types for areas where track runs through cities? Put another way: is there an engineering solution (not operations) you are developing as an industry to substantially lower the risk of any derailment in population centers?

Answer. While railroading today seems similar to railroading 150 years ago, this apparent similarity 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.

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; ground-penetrating radar that helps identify problems (such as excessive water penetration and deteriorated ballast) that hinder track stability; and positive train control systems that are designed to automatically stop or slow a train before certain accidents occur. Railroads and their suppliers will continue to pursue these and other technological advances that make rail transportation safer and more secure.

Separately, in response to USDOT Secretary Foxx's challenge to the rail industry to identify steps that might be taken to address the new and unique challenges associated with crude oil transportation, the industry announced in February 2014:

- Effective March 25, 2014, railroads began performing one additional internal-rail inspection each year above those required by new FRA regulations on main line routes over which trains moving 20 or more carloads of crude oil travel. Railroads will also conduct at least two high-tech track geometry inspections each year on main line routes over which trains with 20 or more loaded cars of crude oil are moving.
- Not later than July 1, 2014 railroads will begin installing additional wayside wheel bearing detectors if they are not already in place every 40 miles along tracks with trains carrying 20 or more crude oil cars, as other safety factors allow.

*Question 9.* Mr. Hamberger, a number of commodity groups and shippers have come into my office in recent months with concerns that increasing crude-by-rail shipments is negatively impacting their businesses.

This includes service issues regarding: (1) timely delivery of their products, (2) timely availability of rail cars, or (3) reduced rail capacity for non-crude shipments in a way that appears to eliminate rail as a viable transportation alternative. These concerns come on top of significant delays—in part caused by crude-by-rail growth and congestion—to the Amtrak Empire Builder between Seattle/Portland and Chicago. What steps is the rail industry taking to ensure sufficient access and reliable service for the broad range of commodity groups that have historically relied on rail service?

Answer. The recent winter presented rail service challenges that were far worse than usual in many parts of the country. Railroads are working around the clock to overcome these challenges. It remains the railroads' goal to provide service at the high levels their customers expect.

Having said this, AAR projects that the Nation's freight railroads will spend approximately \$26 billion in 2014 to build, maintain, and upgrade their nationwide rail network. This year's projected record investments continue a decades-long trend of private railroad dollars that sustain America's freight rail network. The result is a rail network that is the best in the world, serving and expanding to meet both freight and passenger railroads.

Freight railroads have invested approximately \$550 billion of their own money into the rail network since 1980, including \$118 billion in the past five years alone. From upgrades to bridges and tunnels to new tracks and facilities, freight rail infrastructure is constantly maintained and upgraded to meet the demands of an evolving economy.

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RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. HEIDI HEITKAMP TO  
EDWARD R. HAMBERGER

*Question 1.* The industry has been very cooperative with regulators throughout this process, and has even asked for the regulators to issue rules to give them more certainty. It is not often that you have an industry calling for more regulation. It is even rarer that the regulators don't respond quickly to give the industry the certainty it needs. Related to this issue, can you tell me what areas of concern you have regarding the upcoming rules? Do you think that PHMSA and the FRA could go too far in responding to derailment Casselton? Are you convinced the regulators are on the right track? Or is it too early to know?

Answer. Since DOT has not issued a notice of proposed rulemaking, AAR does not know the direction DOT might go in.

*Question 2.* Can you please outline the steps the railroad industry has committed to taking in order to improve rail safety?

Answer. The nation's major freight railroads recently joined Transportation Secretary Anthony Foxx in announcing a rail operations safety initiative that will institute new voluntary operating practices for moving crude oil by rail. Additional issues relating to the safe transport of crude oil discussed in January with Secretary Foxx, such as tank car standards and proper shipper classification of crude oil, are being addressed separately. The voluntary initiative addresses crude by rail safety in eight important areas: routing analysis for crude trains; lowering crude train speeds in some areas; accident prevention through inspections; accident prevention with additional wayside technology; local emergency responder training and tuition assistance; railroad emergency response capabilities; and braking systems.

*Question 3.* Will these changes be costly? And will they ultimately be passed on to your customers?

Answer. Railroads take the challenge of moving the Nation's crude oil extremely seriously, and they recognize that improving safety is an ongoing process. Railroads are proud that their overall safety record, as measured by FRA data, has been trending in the right direction for decades. Having said this, AAR has no estimate of the cost of these changes.

*Question 4.* To what extent do the different railroads disagree on what needs to be done to improve rail shipment of crude?

Answer. There is no disagreement. Class I railroads all agree that actions falling into three categories are necessary to continue to improve safety. They are: accident prevention, consequence mitigation and emergency response. Likewise, Class I railroads all signed the recent letter of agreement with DOT laying out a series of voluntary crude oil action items.

*Question 5.* If the railroads agree to industry wide standards to enhance the safety of the shipments of crude, will the industry have any issue with the regulators following the lead of industry in mandating these standards through rulemaking?

Answer. Nothing in the voluntary crude oil agreement with USDOT would preclude the government from issuing additional safety regulations at any time. However, there is an advantage to industry standards. Industry can update its standards much quicker than DOT can change its standards. Thus, industry standards can offer the public a safety advantage where feasible.