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Before the U.S. House Transportation and Infrastructure Committee's
Railroads, Pipelines and Hazardous Materials Subcommittee
"Building a 21st Century Infrastructure for America: The State of Railroad, Pipeline, and
Hazardous Materials Safety Regulations and Opportunities for Reform"
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Introduction

Thank you Chairman Denham, Ranking Member Capuano and Members of the Subcommittee for the opportunity to submit testimony and appear before the Subcommittee on the subject of Building a 21st Century Infrastructure for America: The State of Railroad, Pipeline, and Hazardous Materials Safety Regulations and Opportunities for Reform. It is a privilege to be back before this Subcommittee to discuss with you the challenges and opportunities that may affect BNSF's outlook on safety and regulatory matters.

As BNSF looks to the rest of 2017 and beyond, we see a time of market change and uncertainty. As a freight railroad, our efforts to understand what may happen in the future are critical; we make long-term decisions and it is crucial to match our immense investments in capacity—manpower, track, equipment and facilities—with demand. If we underestimate demand and have too little capacity, then we can suffer service issues. If we overestimate demand and have too many assets, our returns suffer and our ability to continue to make strong investments could be jeopardized. Our ongoing ability to both provide excellent service and make these investments is important to our customers, and the economy.

At the outset, I would like to commend this Committee for its work during the last Congress to enact a significant amount of beneficial legislation related to railroads, including extending the Positive Train Control (PTC) implementation deadline, passing a range of railroad-related provisions in the Fixing America's Surface Transportation (FAST) Act, as well as reauthorizing the Surface Transportation Board (STB) for the first time since 1995. In this Congress, we look forward to working closely with the Committee on a proactive agenda that provides for updating and improving regulation, ensures that infrastructure investment decisions and transportation policy treats railroads equitably and allows railroads to expand their facilities to help grow both the economy and our volumes. And in this Congress, BNSF and the freight rail industry hope to continue to be a resource to the Committee as it addresses these important issues.

Given the purpose of the hearing, I will turn first to the overall state of safety in the railroad industry and then discuss how railroads are regulated and where we and other interested stakeholders see opportunities for improvement by removing obstacles to innovation and providing incentives to continue improving safety outcomes. My testimony today should be read in conjunction with earlier comments from the rail industry on these issues. Both BNSF and UP have testified on this issue recently and the Association of American Railroads (AAR) is actively engaged with Congress and the Administration on improving regulatory processes and outcomes.

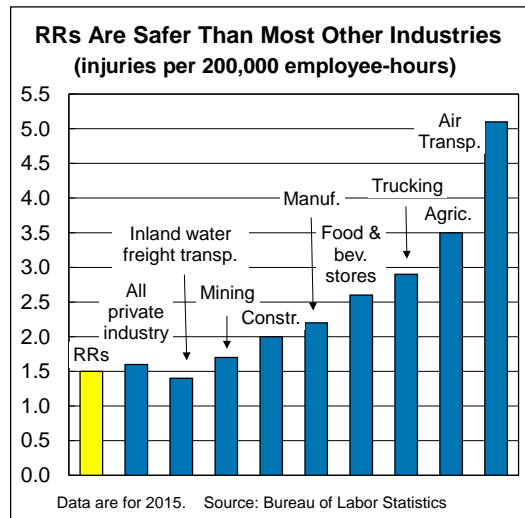
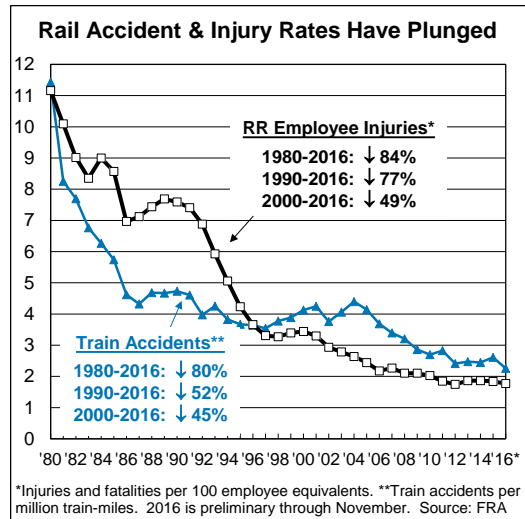
Safety Overview

The laws of physics that make railroads the most efficient mode of surface transportation also make railroading unforgiving. Through the targeted implementation of innovative technologies and processes in the years since the passage of the Staggers Act, this risk has been significantly contained to provide an incredibly safe railroading environment. The industry's most recent safety statistics demonstrate the trend of continuous safety improvement. Preliminary Federal Railroad Administration (FRA) data indicates that the train accident rate in 2016 was down 80 percent from 1980 and down 45 percent from 2000; the employee injury rate in 2016 was down 84 percent from 1980 and down 49 percent from 2000; and the grade crossing collision rate in 2016 was down 80 percent from 1980 and down 40 percent from 2000. By all of these measures, recent years have been the safest in rail history.

In 2016, reportable train incidents on BNSF were at historic lows, down 16.6 percent year-over-year, which reflects the impacts of our large capital programs and increased leverage from the implementation and data of our detector network to resolve issues before they become problems. These technologies, as well as the effectiveness of our annual maintenance, and on-going employee training and rules compliance programs have driven train incidents to historic lows.

At BNSF, our safety vision is a workplace free of injuries and incidents. We believe that we can achieve this goal, and our determined efforts to meet it are the reason safety continues to improve. But we have not yet achieved our vision; incidents and accidents do occur. However, we believe that they are outliers; operating safely every day is expected and is our normative behavior. We are committed to the work of continuous safety improvement, because derailments and other significant safety failures, which pose risks to employees and communities, are neither an acceptable cost of doing business, nor are they morally acceptable.

In the freight rail industry, safe operations supported by the industry's continuous safety improvements are not achieved simply through compliance with FRA regulations. Safe operations require a comprehensive risk based safety program, many elements of which go well beyond federal mandates. And perhaps most importantly, safe operations require earning adequate revenues for the significant reinvestment necessary to safely operate the freight rail network and serve customers.



Railroad Regulation Review and Improvement

It is well known to this Committee that, as one of the country's oldest industries, nearly every facet of the rail industry is governed by unique legal and regulatory schemes that have been developed over the last 130 years. Freight railroads' business interactions are governed by the Interstate Commerce Act, primarily under the auspices of the STB. Our employees receive Railroad Retirement benefits instead of Social Security. Labor negotiations with unions representing our employees are governed by the Railway Labor Act. Railroads do not have insurance-based Workman's Compensation; instead, we operate under a nearly 110-year old statute called the Federal Employee Liability Act (FELA), established long before Workman's Compensation. FELA is a tort-based system that requires employees to litigate injury claims against railroads under a comparative fault system. And most relevant to the hearing today, railroad operations are governed by the Federal Rail Safety Act and more than a century of activity-based regulation under which safety compliance can only be achieved by executing mandated step-by-step processes or activities that regulators inspect and enforce.

There are a multitude of internal and external incentives for railroads to operate safely, in addition to regulation, which is why railroads have well-developed risk management plans based increasingly on evolving technology applications. The recent Subcommittee roundtable on railroad technology touched on some of these applications, including PTC (with which the Committee is very familiar), a range of detector and inspection technologies for track and equipment, and the increasing technological sophistication of today's locomotives. The emerging application of "Big Data" analytics to rail safety data generated by these technologies further leverages their impact by giving us deeper insights into multiple potential factors that can cause safety failures.

At BNSF, we have implemented a significant number of new technologies by layering them on—in essence adding to—our requirements under existing regulations. However, in many cases, once advanced technologies are deployed and proven, continued compliance with existing regulations can create inefficiency by diverting resources, with little or no offsetting safety benefit. A more innovative approach to regulation would perpetuate a virtuous cycle of continued investment in the development of these technologies, allowing railroads to advance safety while also achieving more productivity. Given the railroad industry's baseline of excellent safety performance and the evolving role of technology in safe operations, we believe that it is time for the U.S. Department of Transportation (DOT) to re-envision regulation of the freight rail industry to permit more flexibility when technology allows it and to promote innovation.

This view of how to reimagine existing regulatory requirements is reinforced by a recently issued Executive Order (EO) 13777, entitled "Enforcing the Regulatory Reform Agenda." Under EO 13777, the DOT will be required to fully review railroad regulations, waivers, guidance and other documents, consistent with the EOs promulgated by President Clinton (EO 12866 of September 30, 1993 regarding regulatory planning and review) and President Obama (EO 13563 of January 18, 2011 regarding retrospective review). This will provide the opportunity to identify specific regulations that can be updated, or even eliminated, maintaining a commensurate level of safety.

Furthermore, another recently issued directive, EO 13771, entitled “Reducing Regulation and Controlling Regulatory Costs,” effectively requires that any new rules can only be implemented if their benefits clearly outweigh costs in the comprehensive context of cumulative impact and effectiveness of existing regulations. This will require the FRA to consider the rail industry’s extraordinary safety record in developing a more balanced regulatory approach that permits more technology-driven operating efficiency as well as more performance-based regulation as appropriate.

Altering existing rules to keep up with changes in technology or operations has not been easy. For example, in 1982 the FRA updated the Class 1A brake inspection standard by increasing the intermediate inspection interval requirement from 500 to 1,000 miles, a move reflecting already decades-old changes in rail operations, including the transition from steam to diesel locomotives in the early-to-mid-1900s. At the time, the Chicago Tribune ran a story about the impending change in an article titled “Ancient rail rules getting an update.”¹ Fast forward to today, and notwithstanding the tremendous advances in locomotive design, brake and detection technology, railroads have been unsuccessful in having the brake inspection standard reflect modern train capabilities. There have been waivers from the underlying rule, but it has not been possible to update the existing regulation to a new model that combines the opportunity for visual inspection at origin and detector technology en route to identify exceptions or defects, thereby eliminating intermediate inspections (as is the case in Canada).

What was true in 1982 is even more true today—the regulatory process takes a great deal of time and analysis and with an uncertain result. Well-meaning safety regulators can be extremely risk averse in their approach to reviewing or changing regulations, especially those that have long been in place, even in an increasingly technology-transformed work environment. Therefore it is important to think about a new approach to regulatory oversight as a means to empower the regulator to embrace innovation and technology-empowered advances in safety. There are many examples of how existing regulations ignore the self-diagnostic and self-reporting aspects of new technologies and even equipment manufacturer specifications and warranties to require inflexible time-bound or mileage-based inspection, testing and overhaul activities. Signal systems, grade crossing equipment, rail cars, brakes and locomotives have microprocessor technology applications that monitor and report actual asset health. Regulations nonetheless still require visual inspections of these systems and, while there is a role for visual inspections, regulations need to recognize the enhanced safety value of automated inspections and technological diagnostics and build in appropriate operational flexibility.

There are other areas of opportunity for regulatory improvement worth noting. Electronic recordkeeping and communications rules are ripe for updating, with railroad technology and digital communication able to drive safer and more efficient outcomes. The electronic delivery of mandatory train orders and directives, which are appropriate today and certainly a logical adjacency in the era of PTC, exist alongside regulatorily-required paper directives, operations documents (like train lists) and voice-based transmission of orders (for employees to copy down by hand). For example, railroads have digitized the consist and hazmat operational information that they are required to provide to first responders and emergency response planners, yet crews

¹ David Young, “Ancient rail rules getting an update”, *Chicago Tribune*, January 10, 1982, found at <http://archives.chicagotribune.com/1982/01/10/page/67/article/ancient-rail-rules-getting-an-update>.

are required to carry paper versions of all documents. The conversion to electronic recordkeeping on the railroad would be an important innovation that would provide a digital platform for a variety of purposes, including regulatory oversight.

Finally, technology innovations in the area of track inspection are making it possible to find potential defects much earlier than visible, time-bound human physical inspections allow. However, regulations actually discourage the use of continuous rail inspection technology that exponentially expand the detection of rail flaws; they require that, once a flaw or potential defect is found, the inspection vehicle must stop further inspection to allow for immediate remediation. If the inspection vehicle is unmanned and attached to a train consist stopping en route to mark a location is impractical. In reality, unless a defect poses an imminent risk, remediation can be done more effectively and efficiently as part of a more flexible rail maintenance and train operations plan from a later-deployed maintenance of way crew. The FRA has temporarily allowed this type of inspection through waivers, but its regulations should be updated to recognize the benefit of track inspection innovations in order to create an incentive to expand this inspection method. There are also a variety of track and ballast regulations which should be revisited to allow railroads to apply inspection technologies and use associated appropriate standards to bring this area of regulation up to date.

Collectively, deployment of these technologies is moving our railroad safety programs from reactive to predictive, and turning “finders” into “fixers.” Technology-based inspection can also reduce the safety exposures related to frequently putting people in, under and between equipment or out on the line of road to perform physical inspections to check for the same conditions. Across our workforce, these technologies make the work of our employees safer, and take advantage of the technical skills that our employees increasingly bring to the job.

While I have highlighted the need for a number of current waivers to be made permanent and incorporated into underlying regulation, properly implemented a temporary waiver process does have significant benefits. In addition to updating existing regulations, granting waivers can be an effective way in the short term to help make further regulatory evolution possible, particularly when new technology is being developed. However, as BNSF testified, in recent years the waiver process has become too lengthy, difficult and often results in conditions attached that make the waiver ineffective. Properly implemented waivers can be put in place more quickly on an interim or term basis. Frankly, the relatively contained rail line of road, rail yard and facility environment is one of the safest for demonstrating new technologies. To the extent that railroads need waivers to demonstrate technology, regulators should view them as opportunities to create common understanding about railroad operations, similar to a “pilot program.”

The speed, cooperation and transparency inherent in the waiver process and in providing more flexibility in underlying rules is an important element of regulatory transformation because it provides positive incentives for both the regulated and the regulator. It is a precursor to moving rail safety regulation toward performance-based regulation, where regulators are measuring success in safety outcomes and seeking out opportunities to advance automation and other technological innovation.

One of the best examples of how a technology mandate could have been more performance-based is found in the rules for implementation of PTC. As you may recall, the 2008 PTC mandate and the subsequent regulations as originally adopted by the FRA had a cost of approximately \$20 for every dollar of benefit. While Congress started down the path of a performance standard by identifying the types of incidents it wanted to see prevented—in other words, by identifying expected outcomes—the railroads should have been left to identify and implement the best means to achieve those goals. This would in part have included PTC, since in 2008 BNSF was already in the process of implementing a version of PTC called Electronic Train Management System (ETMS), but could have included other tools as well. If given more flexibility to leverage ETMS and other technologies, including those that could lend additional efficiencies to rail operations, the protections being sought could have been put in place in a more efficient and cost-effective manner, and we believe could have achieved better safety outcomes sooner. Going forward, regulatory oversight of the installation, testing and eventual complete implementation of PTC should focus not on monitoring and inspecting every aspect of equipment and technology but rather on the overall functionality and effectiveness of the final system to deliver the identified safety outcomes. That is ultimately what the mandate requires, what the regulators are accountable for, and as importantly, what the railroads want and need from PTC to run a safe and efficient operation.

Ultimately, PTC, combined with currently deployed and in-development safety and detector technologies and advanced data analytics will move railroad safety and efficiency to the next level. For example, BNSF intends to leverage the architecture of its PTC system to develop the next generation of train operations known as “moving block” to greatly increase capacity and efficiency. As we see it today, the approval process to bring new microprocessor-based equipment into service is too lengthy and the documentation is overly burdensome, and there is risk that the operation and evolution of the technologies themselves will be over-regulated. The regulatory mind-set needs to be transformed, consistent with the innovation taking place within the industry and elsewhere. This starts with taking steps towards improving existing regulations, partnering with industry on waivers and moving toward the development of performance-based regulations. Congress has a role in encouraging this and, ultimately, requiring it if necessary. Below are principles of regulatory improvements that we believe should guide the DOT and Congress:

- Regulations should be based on a demonstrated need, as reflected in current and complete data and sound science. They should have a well-defined and measurable objective, and be regularly evaluated as to their effectiveness in achieving it.
- All components of an agency’s decision-making should be transparent to the public and subject to meaningful analysis and comment before the rule is finalized.
- Non-prescriptive regulatory tools, like performance-based regulations, should be deployed wherever possible to align the interests of the regulator and the industry, and to foster and facilitate innovation to achieve well-defined policy goals.
- Regulations should provide benefits outweighing their costs, and the potential redundancies and general interplay with other existing regulations should be considered in every rulemaking.
- Use of “guidance” should be limited to appropriate situations and time periods.

While these comments are focused on the FRA, these principles can and should be adopted by all agencies with railroad oversight (e.g., STB, PHMSA, and OSHA).

Conclusion

Regulatory innovation does not happen overnight, and it is especially difficult in a long-lived industry like railroads when there are more than 100 years of how “it has always been done.” But there are many, many railroad-related regulations that need to be reviewed and rewritten. Current regulations and enforcement effectively mandate particular actions and then levy fines for specific regulatory violations discovered through intermittent regulatory inspections of conditions that generally were neither factors in an incident nor compromised overall rail safety. There are exceptions to that, certainly, but as a modus operandi for oversight of an effectively safe industry, the regulatory paradigm focused on penalizing violations is not as efficient or effective as one that encourages ever-improving safety outcomes. Furthermore, in a technologically evolving Class I operating environment, a regulator will scarcely be able to keep up through regulation as we know it. Regulatory change is necessary, appropriate and the time is right. There will be a safety payoff, as well as a role, for all stakeholders involved in the safe operation of America’s freight rail industry.

Congress and the Administration “control the dial” on how much of the railroad industry’s potential safety and efficiency benefits we can ultimately deliver. We know that Congress and especially this Committee understand the role of railroads in the economy, and in each of your states, and we appreciate that we are able to remain engaged in dialogue with you about these issues and others related to freight movement in our nation.