

**EXPEDITED CONSIDERATION REQUESTED**

**PUBLIC VERSION**

239283

**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

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September 30, 2015  
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**Docket No. FD 35964**

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**AMERICAN CHEMISTRY COUNCIL, THE CHLORINE INSTITUTE, AND  
THE FERTILIZER INSTITUTE  
—PETITION FOR DECLARATORY ORDER—  
POSITIVE TRAIN CONTROL**

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**PETITION AND OPENING STATEMENT OF  
THE AMERICAN CHEMISTRY COUNCIL, THE CHLORINE INSTITUTE,  
AND THE FERTILIZER INSTITUTE**

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September 30, 2015  
SURFACE  
TRANSPORTATION BOARD

Paul M. Donovan  
LaRoe, Winn, Moerman & Donovan  
1250 Connecticut Avenue, N.W.  
Suite 200  
Washington, DC 20036  
Phone (202) 298-8100

Jeffrey O. Moreno  
Jason D. Tutrone  
David E. Benz  
Madeline J. Sisk  
Thompson Hine LLP  
1919 M Street, N.W.  
Suite 700  
Washington, DC 20036  
(202) 331-8800

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*Counsel for The Chlorine Institute*

September 30, 2015

*Counsel for The American Chemistry  
Council and The Fertilizer Institute*

**FILING CONTAINS COLOR IMAGES**

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**I. INTRODUCTION**

Pursuant to 5 U.S.C. § 554(e) and 49 U.S.C. § 721, the American Chemistry Council (“ACC”), the Chlorine Institute (“CI”), and The Fertilizer Institute (“TFI”) (collectively “the Petitioners”) hereby petition the Surface Transportation Board (“Board”) for an order declaring that the common carrier obligation, codified at 49 U.S.C. §11101(a), requires a Class I railroad to transport toxic inhalation hazard (“TIH”) materials over main lines, as defined at 49 U.S.C. § 20157(i)(2), although the Class I railroad has not equipped, or will not equip, such lines with an operable positive train control (“PTC”) system by the December 31, 2015 deadline specified by 49 U.S.C. § 20157(a). Petitioners request that the Board employ the Modified Procedures in 49 C.F.R. Part 1112 and treat this submission as Petitioners’ Opening Statement.

Petitioners seek expedited consideration of this Petition because they are threatened with a rail embargo of TIH materials as early as Thanksgiving, which is less

## PUBLIC VERSION

than two months away. To facilitate this expedition request, Petitioners are submitting their complete opening statement as part of this Petition and serving this Petition upon designated legal representatives of each Class I railroad. Petitioners also previously informed the Association of American Railroads (“AAR”) and representatives of each Class I railroad that this Petition would be forthcoming. These actions should permit the Board to immediately issue an order initiating this proceeding under modified procedures and soliciting reply statements from the Class I railroads and rebuttal statements from Petitioners on an expedited basis.<sup>1</sup> Specifically, Petitioners ask that the Board promptly issue a procedural schedule that provides two weeks for reply statements and one week for rebuttal. If the Board deems it necessary, it also can solicit comments from the Federal Railroad Administration (“FRA”), as the agency responsible for implementing and enforcing the PTC mandate. To the extent that the foregoing procedural requests require waivers of any of the Board’s otherwise applicable procedural rules, Petitioners ask the Board to also treat this filing as a request for such waivers.

Petitioners also have filed a Complaint, on September 29, 2015, in the U.S. District Court for the District of Columbia against all seven Class I railroads, seeking a declaratory judgment and injunctive relief on grounds that an embargo of TIH traffic due to the failure of the Class I railroads to comply with the impending statutory deadline for implementing PTC is a violation of their common carrier obligation. That action is founded upon the concurrent jurisdiction of federal courts to enforce the common carrier

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<sup>1</sup> Petitioners also have filed a Motion for Protective Order in this proceeding to protect certain confidential business information of Petitioners’ members who have submitted affidavits. Petitioners have designated portions of some affidavits as “Confidential” and served them upon the Class I railroad counsel based upon their representations that they will execute the requisite Undertakings upon the issuance of a Protective Order.

## PUBLIC VERSION

obligation.<sup>2</sup> Because the issue presented potentially is subject to resolution solely as a matter of statutory construction of 49 U.S.C. § 20157, over which the Board has no expertise or jurisdiction, the Petitioners do not believe that there is any reason for the court to refer this matter to the Board for consideration pursuant to the primary jurisdiction doctrine.<sup>3</sup> Nevertheless, in recognition of the potential for referral by the court to obtain the Board's input on other issues related to the common carrier obligation and the very short amount of time for doing so before the threatened embargoes, Petitioners are initiating this proceeding concurrent with their judicial action.

### II. STATEMENT OF INTEREST

Petitioners are trade associations that represent the overwhelming majority of TIH producers and many consumers that tender or receive TIH shipments by rail. They face a common threat if Class I railroads embargo TIH traffic due to their failure to comply with the PTC requirements of the Rail Safety Improvement Act of 2008 § 104, Public Law 110-432, 122 Stat. 4854 (Oct. 16, 2008), codified at 49 U.S.C. § 20157 (hereinafter "RSIA").

ACC is a trade association whose members include producers, purchasers and/or shippers of TIH materials, including chlorine, ethylene oxide, hydrogen fluoride, and methyl mercaptan, all of which are essential to their businesses and to the American economy as a whole. The business of chemistry depends upon railroads for the safe,

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<sup>2</sup> See *Pejepscot Industrial Park, Inc. v. Maine Central R.R. Co.*, 215 F.3d 195, 197 (1st Cir. 2000) (reversing lower court determination that STB jurisdiction over common carrier obligation was exclusive, but directing referral to the STB under primary jurisdiction).

<sup>3</sup> See *Louisville & Nashville R.R. Co. v. F.W. Cook Brewing Co.*, 223 U.S. 70, 84 (1911) (referral to ICC unnecessary when the result does not turn on any administrative question or fact within the scope of the agency's authority).

## PUBLIC VERSION

efficient and secure transportation of 176 million tons of chemical products each year, including TIH materials. Because rail transportation is the safest and most economic mode by which to transport TIH materials over land, the movement of TIH materials by rail is critical to the business of ACC members, the national economy, and the public health and safety.

CI is a 200-member trade association of chlor-alkali producers, packagers, distributors, users and suppliers. CI's North American producer members account for more than 95 percent of the total chlorine production in the U.S., Canada and Mexico. Chlorine accounts for the second largest volume of TIH shipments by rail in the U.S. and Canada. Chlorine plays an important role in public health as a disinfectant and is critical in the manufacture of thousands of products that we take for granted in our everyday lives.

TFI is the national trade association of the fertilizer industry. TFI members rely heavily on rail transportation for the safe and timely movement of anhydrous ammonia, which is the basic building block required to produce all nitrogen fertilizers, which increase crop yields by 40-60%. In addition, anhydrous ammonia has significant industrial uses, including reducing emissions from coal-fired power plants and diesel engines. Anhydrous ammonia accounts for more than 45 percent of the TIH materials transported by rail each year in the U.S. and Canada, which is the largest volume of any TIH material.

## PUBLIC VERSION

### III. ISSUE STATEMENT

If a Class I railroad fails to meet the December 31, 2015 deadline in the RSIA for implementing PTC on required rail lines, may it—indeed must it—continue to accept and transport TIH shipments over those lines pursuant to its common carrier obligation?

Petitioners submit that the answer must be an unequivocal and resounding “YES”!

This is much more than a hypothetical question; it is a stark reality that railroads and TIH shippers alike are currently facing. In a recent report to Congress titled “Status of Positive Train Control Implementation,” dated August 2015, the FRA advised Congress that “most railroads have not made sufficient progress to meet the December 31, 2015 implementation deadline.” Exhibit 1, p. 9. Since then, most of the Class I railroads have acknowledged that they will not meet the end-of-year deadline in letters to Plaintiffs and/or to Senator John Thune, Chairman of the Senate Committee on Commerce, Science and Transportation. In addition, several of them have informed Plaintiffs of how they intend to respond to the deadline:

- Union Pacific Railroad (“UP”) has acknowledged it will not meet the PTC deadline, Exhibit 2, p. 1, and stated that, “without a timely extension [of the PTC deadline], Union Pacific must embargo TIH shipments,” and “anticipate[s] issuing the embargo notice before Thanksgiving,” after which “Union Pacific will accept no more TIH loads or residue empties from shippers or consignees at points it serves.” *Id.*, p. 2.
- CSX Transportation, Inc. (“CSXT”) has acknowledged that “a safe, reliable, nationwide and interoperable PTC network cannot be completed by the deadline of December 31, 2015.” Exhibit 3, p. 2. Furthermore, CSXT has expressed its belief that “a request to accept and transport certain products on or after January 1, 2016, without the implementation of PTC fails this [common carrier] reasonableness test because it would require CSX to choose to violate either the RSIA or abandon its common carrier obligation.” *Id.*, p. 3. According to CSXT, “[w]ithout the certainty of a PTC extension in the very near future, CSX will need to begin preparatory actions no later than November 1 to suspend TIH traffic on December 1 in an orderly manner and have all TIH cars off the CSX system by December 31.” *Id.*, p. 4.

## PUBLIC VERSION

- BNSF Railway Company (“BNSF”) acknowledges that it “will not meet the RSIA deadline for [PTC] deployment,” Exhibit 4, p. 1, and has raised the question “whether [it] legally may operate any freight or passenger service on such lines [required to have PTC].” *Id.*, p. 2 [underline added]. BNSF is concerned “whether it can reconcile its duty to provide common carrier service on lines not in compliance with the PTC mandate [because] BNSF believes that the common carrier obligation is tempered by reasonableness, and must be read as subject to the later-enacted RSIA safety rules, such as the requirement to have an interoperable PTC system.” *Id.*
- Norfolk Southern Railway Company (“NS”) has stated that “it will not meet the December 31, 2015, deadline.” Exhibit 5, p. 5. NS too “is considering ceasing to ship TIH commodities and declining to host passenger trains on its network effective January 1, 2016. NS does not believe that such an approach would violate the common carrier obligation because the request for service that requires NS to violate federal law and which would subject NS to penalties is not reasonable.” *Id.*, p. 7.
- Kansas City Southern Railway Company (“KCS”) has stated that “full implementation of interoperable PTC by the current statutory deadline will be technologically impossible.” Exhibit 6, p. 1. KCS, however, has declined to state whether or how it will transport TIH shipments if the deadline is not extended. *Id.*, p. 2.
- Canadian Pacific Railway Company (“CP”) has declined to expressly state whether it will meet the PTC deadline, and if not, whether or how it will transport TIH shipments. Exhibit 7.
- Canadian National Railroad Company (“CN”) has not responded to Plaintiffs’ requests for information at all.

In the same letters in which the Class I railroads argue that they can and must embargo TIH traffic due to their failure to meet the PTC implementation deadline, several also acknowledge the potentially devastating consequences to TIH producers and consumers, and to the nation’s economic well-being:

- CSXT observes that TIH materials “are used in processes that are critical to contemporary life” and that “[h]alting the movement of these critical materials could have a negative ripple effect throughout many aspects of our economy.” Exhibit 3, p. 4.
- NS notes that “[o]bviously, ceasing to haul TIH commodities would be disruptive to certain of NS’s customers” and “[o]f course, those effects would also ripple through the American economy.” Exhibit 5, p. 7.

## PUBLIC VERSION

Petitioners have introduced multiple affidavits from TIH producers, TIH consumers, and professional economists in Exhibits 8 through 15 that provide details of the devastating impacts to which the foregoing railroad statements generally allude.<sup>4</sup>

Despite the many obvious, undisputed, and devastating effects of a TIH rail embargo upon our nation, the Class I railroads insist that the common carrier obligation protects them against civil penalties and potentially greater liability risk associated with their own violation of the RSIA, rather than the much broader and far more consequential public interest factors that are at the heart of the common carrier obligation. *See GS Roofing Products Co. v. Surface Transportation Board*, 143 F.3d 387, 393 (8th Cir. 1998) (“At the very heart of the common carrier obligation is the belief that railroads are in a position of unique public trust.”). That untenable position stands the common carrier obligation on its head.

### IV. BACKGROUND AND SUMMARY

The Board has discretionary authority to issue a declaratory order to eliminate controversy or remove uncertainty in a matter related to the Board’s subject matter jurisdiction.<sup>5</sup> “In exercising its discretion, the [Board] considers, among other things, the issue’s significance to the industry and the ripeness of the controversy.”<sup>6</sup> This Petition asks the Board to resolve a matter of immediate urgency concerning the relationship between the RSIA’s PTC mandate, codified at 49 U.S.C. § 20157, and the common carrier obligation, codified at 49 U.S.C. § 11101(a), that has substantial ramifications for

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<sup>4</sup> These exhibits are affidavits filed in the U.S. District Court for the District of Columbia, which Petitioners ask the Board to receive in evidence as Verified Statements submitted pursuant to 49 C.F.R. §§ 1104.5 and 1112.6.

<sup>5</sup> *See Bos. & Me. Corp. v. Town of Ayer*, 330 F.3d 12, 14 n. 2 (1st Cir. 2003).

<sup>6</sup> *Delegation of Auth.—Decl. Order Proceedings*, 5 I.C.C. 2d 675, 676 (1989).

## PUBLIC VERSION

the chemical and fertilizer industries; their customers, which include large swaths of American agriculture and industry; the overall American economy; and our nation's public health and safety.

The RSIA requires each Class I railroad to implement an operable PTC system by December 31, 2015, on all rail lines that handle at least 5 million gross tons annually and also handle either passenger traffic or TIH traffic. The Class I railroads have made it quite clear, however, that they will not meet that deadline, and in fact, some carriers have indicated that up to five additional years will be needed.<sup>7</sup> Although there are on-going lobbying efforts before Congress to enact legislation to extend the deadline, only the Senate has passed such legislation to date and it is unclear whether or when the House might do so.

As the December 31 deadline approaches, UP and CSXT have declared that, in the absence of Congressional action to extend the PTC deadline, they will begin to embargo TIH traffic by no later than December 1, 2015, which is a mere two months away.<sup>8</sup> NS also is considering a TIH traffic embargo. BNSF has stated that it may embargo all traffic. Although other Class I railroads have been less specific as to their intentions, they have not ruled out the possibility of TIH traffic embargoes. The Class I railroads have attempted to justify an embargo on grounds that requests for TIH transportation (or, in the case of BNSF, any transportation) over lines that are required to

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<sup>7</sup> U.S. Government Accountability Office. "Positive Train Control: Additional Oversight Needed as Most Railroads Do Not Expect to Meet 2015 Implementation Deadline," p. 41 (September 2015) (Publication No. GAO-15-739) (attached as Exhibit 16).

<sup>8</sup> Although the RSIA sets a December 31, 2015 deadline for implementing PTC, rail carriers have indicated that it will be necessary to refuse TIH shipments by December 1st to ensure that all TIH traffic, both loaded and empty residue, are off their rail networks by December 31st.

## PUBLIC VERSION

have operable PTC systems are not reasonable because such requests require a Class I railroad to operate in violation of the law.

Petitioners seek a declaration that railroads must continue to transport TIH materials pursuant to their common carrier obligation, despite the rail industry's failure to implement PTC by the December 31, 2015 deadline in the RSIA. The imminent embargo of TIH materials by Class I railroads has serious ramifications for the operations of Petitioner's member companies and their ability to deliver and receive TIH materials, with significant downstream consequences for the American economy.

### V. ARGUMENT

The Class I railroads have posited essentially two arguments as to why a request for TIH transportation on a main line that is not equipped with PTC would be unreasonable. First, they claim that such transportation would subject them to penalties for violating a rail safety law, thereby placing them in the position of having to choose between complying with the RSIA or the common carrier obligation. Because the common carrier obligation is qualified by the "reasonableness" of a transportation request, the railroads reconcile the two statutes by contending that a request for transportation that would violate the RSIA must be unreasonable. Second, they claim that such transportation is unreasonable because it would subject them to increased liability risks. Petitioners submit that: (1) the railroads are misinterpreting the RSIA; and (2) the common carrier obligation protects the public interest from the immediate and certain negative consequences of a TIH embargo that is predicated upon the Class I railroads' own violation of the RSIA.

## PUBLIC VERSION

**A. A request for TIH transportation on non-PTC main lines does not require railroads to violate the RSIA.**

The Class I railroads incorrectly claim that transportation of TIH materials over non-PTC mainlines would violate the RSIA. The statute does not contain any prohibition against TIH transportation over non-PTC mainlines. Rather, the statute imposes an affirmative obligation upon Class I railroads to implement PTC on mainlines that carry TIH. This distinction is significant because Congress drafted, and FRA has implemented, the RSIA in a manner that permits the harmonious enforcement of both the RSIA and the common carrier obligation.

**1. The plain language of the RSIA does not prohibit TIH transportation over main lines not equipped with PTC.**

The RSIA makes it unlawful for a Class I railroad not to install PTC in accordance with its PTC Implementation Plan (“PTCIP”). Nowhere does the statute make it unlawful to transport TIH materials over a mainline that does not have an operable PTC system. Thus, each Class I railroad automatically will be in violation of the RSIA on January 1, 2016, and thus subject to civil penalties, merely by failing to implement PTC in accordance with its PTCIP, even if that railroad does not transport a single car of TIH material thereafter. In other words, fulfillment of a request for TIH transportation over a main line not equipped with PTC does not require a Class I railroad to violate the law or subject it to civil penalties, and thus cannot constitute a reasonable basis for refusing a request for such transportation. This fact is evident in the plain language of 49 U.S.C. § 20157.

The RSIA, at 49 U.S.C. § 20157(a)(1), required each Class I railroad, within 18 months of enactment, to “develop and submit...a plan for implementing a positive train control system [PTCIP] by December 31, 2015, governing operations on...(B) its main

## PUBLIC VERSION

line over which poison- or toxic-by-inhalation hazardous materials...are transported....”

Section 20157(i)(2) defines a “main line” as “a segment or route of railroad tracks over which 5,000,000 or more gross tons of railroad traffic is transported annually....”

Among other things, each railroad’s PTCIP identifies the main line segments over which it must install PTC by December 31, 2015. Each Class I railroad filed its PTCIP as required by the statute and obtained approval from the FRA.

Next, Section 20157(a)(2), titled “Implementation,” states that “[t]he railroad carrier shall implement a positive train control system in accordance with the plan.” In other words, each railroad must install PTC on the main lines specified in its FRA-approved PTCIP by December 31, 2015. Failure to do so will constitute a violation of the RSIA that FRA may enforce through the assessment of civil penalties. This is an affirmative mandate to install PTC, not a prohibition against transportation of TIH.

This interpretation is reinforced by Section 20157(e), titled “Enforcement,” which states in its entirety that “[t]he Secretary is authorized to assess civil penalties pursuant to chapter 213 for a violation of this section, including the failure to submit or comply with a plan for implementing positive train control under subsection (a).” In other words, Congress defined the FRA’s enforcement authority in terms of a railroad’s failure to implement PTC in accordance with its PTCIP by December 31, 2015, not for transporting TIH after that date, and expressed that authority in terms of civil penalties, not as a prohibition upon TIH transportation.<sup>9</sup>

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<sup>9</sup> In the absence of Section 20157(e), the Federal Rail Safety Act provides for enforcement of railroad safety regulations by both civil penalties and injunctive remedies. 49 U.S.C. § 20111(a). In other words, FRA had all the authority it needed to apply both civil penalties and injunctive remedies without the addition of subsection (e). Congress, however, referenced only civil penalties in the RSIA, which must be construed to be the

## PUBLIC VERSION

### 2. FRA has implemented the PTC mandate so as not to trump the common carrier obligation.

FRA has implemented the RSIA so as to make clear that it does not trump the common carrier obligation. Through formal rulemakings to implement the RSIA, representations to the D.C. Circuit in defense of those rules, Congressional testimony, and in correspondence with Petitioners, FRA consistently has declared that the common carrier obligation will protect TIH shippers if railroads fail to install PTC.

The most definitive and binding statements are contained in FRA's PTC rulemaking proceedings. Various TIH shipper interests sought clarification from FRA that a railroad's failure to implement PTC within specified deadlines would not alter its common carrier obligation to transport TIH materials over those lines. FRA summarized their comments as follows:

According to the Trade Associations, although FRA has made it clear in the past that it does not intend for matters within its jurisdiction to trump the railroads' common carrier obligation, FRA's determinations affect the location of PTC system implementation and, thus, where, when, how, and if PIH materials are to be moved.

Accordingly, the Trade Associations are concerned that the railroads will use PTC system implementation as a means to limit their common carrier obligations with respect to PIH materials....While the Trade Associations recognize that it is not FRA's responsibility to enforce the railroads' common carrier obligation to transport PIH materials, they

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sole remedy if subsection (e) is to be more than mere surplusage. *Petit v. U.S. Dept. of Education*, 675 F.3d 769, 793 (D.C. Cir. 2012) (“judges should hesitate to treat words in a regulation or statute as mere surplusage—words of no consequence”); *see also Marx v. General Revenue Corp.*, 133 S.Ct. 1166, 1178 (2013) (the canon against surplusage is strongest when addressing two parts of the “same statutory scheme”). “[A] precisely drawn, detailed statute pre-empts more general remedies.” *Brown v. GSA*, 425 U.S. 820, 834 (1976). This “general/specific canon...avoids...the superfluity of a specific provision that is swallowed by the general one.” *RadLAX Gateway Hotel v. Amalgamated Bank*, 132 S.Ct. 2065, 2071 (2012).

## PUBLIC VERSION

assert that PTC system implementation must not erode that obligation.

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Moreover, the Trade Associations request that FRA confirm its interpretation of 49 CFR 236.1005(b)(3)(ii), which states: “If PIH traffic is carried on a track segment as a result of a request for rail service or rerouting warranted under part 172 of this title, and if the line carries in excess of 5 million gross tons of rail traffic as determined under this paragraph, a PTCIP or its amendment is required.” The Trade Associations believe that this language, consistent with the common carrier obligation, implies that a rail carrier may not deny a shipper’s request to transport PIH materials solely on the grounds that a PTC system is not installed on any line segment necessary to complete the requested transportation. The Trade Associations believe that this regulation requires the railroad to accept the PIH materials traffic for transportation consistent with its common carrier obligation, amend its PTCIP, and equip the necessary track with a PTC system within 24 months, pursuant to 49 C.F.R. 236.1005(b)(3)(iii).

PPG also believes that FRA must be mindful of the interplay between the PTC regulations and the railroads’ common carrier obligation, which requires the carriers to provide service on reasonable request. PPG expresses similar concerns with the regulatory provision cited by the Trade Association and complains that seeking STB enforcement of the railroads’ common carrier obligation could take months, if not longer, to resolve. Accordingly, PPG urges FRA to clarify that 49 CFR 236.1005(b)(3)(ii) does not permit a railroad to refuse PIH materials service because a rail line does not have a PTC system installed, and that rail movement of PIH commodities may be provided over a non-PTC-equipped line pending approval of FRA and the actual construction to add a PTC system to such line.

“Positive Train Control Systems,” 77 Fed. Reg. 28285 (May 14, 2012), pp. 28291-92.

The foregoing concerns were expressed in the context of proposed FRA regulations for addressing changes in rail traffic that could require installation of PTC on

## PUBLIC VERSION

additional track segments beyond those in a railroad's FRA-approved PTCIP. The commenters were concerned that railroads could cite to their lack of PTC on a rail line to avoid their common carrier obligation in response to a request for TIH transportation. The proposed rule required a railroad to amend its PTCIP and granted the railroad until the later of December 31, 2015 or 24 months to install PTC.

FRA first responded to the foregoing TIH shipper comments with a disclaimer that its PTC rules do not alter the common carrier obligation and that disputes over the common carrier obligation are best handled by the Board. FRA then explained the interaction between the PTC mandate and the common carrier obligation:

These comments indicate some confusion over the jurisdiction of the various federal agencies governing the rail transportation of hazardous materials. Specifically, these commenters suggest that the PTC rule might be construed by FRA or STB to limit what line segments PIH materials may travel over. The structure of 49 CFR part 236, subpart I, requires that PTC systems be installed on many line segments over which PIH materials are transported; it does not in any way govern the movements of PIH materials.

\* \* \*

While STB is the agency ultimately responsible for the enforcement of the common carrier obligation..., FRA does not view the requirement to install PTC systems on certain rail lines as affecting the common carrier obligation in any way.

With respect to the application of 49 CFR 236.1005(b)(3), FRA views the provision as neutral with respect to the common carrier obligation. Where new PIH materials traffic exists on a line that meets the tonnage threshold, whether by the railroad's acceptance of the PIH material for transportation or by STB action to require such transportation, the rule requires the railroad carrier to file a PTCIP or RFA [Request for Amendment] as soon as possible and to implement a PTC system on that line

## PUBLIC VERSION

segment within 24 months. FRA expects that PTCIP or RFA to include risk mitigation and other measures necessary to effectively and efficiently implement the new PTC system so that PIH materials may safely traverse the line segment during those intervening two years.

*Id.*, pp. 28292-93 [underline added]. The very last underlined statement above is particularly relevant to this Petition because it constitutes FRA's express acknowledgement that TIH materials can continue to be transported over non-PTC main lines while PTC is being installed, even for installations after December 31, 2015. These FRA statements indicate that RSIA does not alter the common carrier obligation. In other words, a railroad's common carrier obligation to transport TIH materials is unaffected by whether or not the railroad has implemented PTC on all main lines required to complete the transportation.

The Chlorine Institute appealed FRA's decision to the U.S. Court of Appeals for the D.C. Circuit. The Court ultimately dismissed the appeal as not yet ripe.<sup>10</sup> During oral argument, however, FRA insisted that "Positive Train Control takes a backseat to the common carriage requirement."<sup>11</sup> The Court construed this to mean that "the STB's exercise of its own authority to enforce a railroad carrier's statutory obligation to 'provide [] transportation or service on reasonable request,' *id.* § 11101(a), will ensure the availability of rail carriage to PIH shippers."<sup>12</sup> FRA's oral argument representation was key to Judge Kavanaugh's concurrence in the court's opinion dismissing the appeal:

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<sup>10</sup> *Chlorine Institute, Inc. v. Federal Railroad Administration*, 718 F.3d 922 (D.C. Cir. 2013). As noted above, the RSIA deadline is now ripe for determination because of recent and unequivocal assertions by FRA, GAO, and the Class I railroads themselves that the rail industry will not meet the PTC deadline which is a mere three months away.

<sup>11</sup> *Id.* at 928, n. 8, *quoting* Oral Argument Recording at 37:50 (Apr. 4, 2013).

<sup>12</sup> *Id.*

## PUBLIC VERSION

I join the Court's opinion but add a point significant to my resolution of the case. As was discussed at oral argument, the [STB] will ensure that chlorine shippers continue to receive common-carrier transportation on railroads when such transportation is reasonably requested....When the Board requires a railroad to provide common-carrier service to chlorine shippers, the railroad will have to allow the shipment and, if necessary under the [RSIA], will have to equip the relevant track with positive train control. With that understanding, I join the judgment and opinion of the Court holding that the Chlorine Institute does not at this time face an actual or imminent injury from the 2012 Final Rule.<sup>13</sup>

The clear expectation of both FRA and the DC Circuit is that this agency will ensure that railroads cannot invoke their failure to install PTC to avoid their common carrier obligation to transport TIH traffic.

During the foregoing appeal, the AAR, in its brief as *Amicus Curiae*, also made representations to the Court that are inconsistent with those being made by its member companies today. The AAR quoted from many of the same passages in FRA's PTC rulemaking decision referenced above and separately declared that "[t]he freight railroads' common carrier obligation, enforced by the [STB], prevents railroads from refusing to transport PIH materials entirely..."<sup>14</sup> Yet the threatened embargo of TIH traffic by the AAR's Class I railroad members on grounds that such transportation would be an unreasonable request due to their own non-compliance with the PTC deadline constitutes just such a refusal "to transport PIH materials entirely." This abrupt about-face is unexplained and unjustified.

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<sup>13</sup> Id. at 279 (Kavanaugh, J. concurring)

<sup>14</sup> "Brief for Association of American Railroads as *Amicus Curiae* in Support of Respondents and Urging Denial of the Petition for Review," p. 16, *Chlorine Institute, Inc. v. Federal Railroad Administration*, 718 F.3d 922 (D.C. Cir. 2013) (No. 12-1298) (attached as Exhibit 17).

## PUBLIC VERSION

The FRA's civil penalties for violations of the RSIA are consistent with the conclusion that the RSIA is violated by failure to implement PTC in accordance with a Class I railroad's PTCIP, not by the actual transportation of TIH materials over non-PTC main lines. FRA has published civil penalties for violations of the RSIA at 49 C.F.R. Part 236, App. A, subpart I. While there are penalties associated with a failure to implement PTC in accordance with a carrier's PTCIP, there is not a single penalty for transporting TIH materials on a main line without PTC.<sup>15</sup>

In various other forums since adopting its PTC implementation rules, the FRA consistently has stated that railroads may continue to transport TIH materials over main lines even if they fail to meet the PTC deadline in the RSIA. In a letter to the Chlorine Institute dated August 7, 2014, FRA Administrator Joseph Szabo responded to concerns that PTC would not be deployed by December 31, 2015. While noting that "there are several legitimate practical and legal reasons that may preclude full deployment by the deadline," he assured the Chlorine Institute that:

FRA may exercise prosecutorial discretion where noncompliant railroads are making good faith efforts to comply with the law. This would allow movement of [TIH] materials over routes scheduled for PTC deployment that is not yet accomplished, or over routes with partial PTC deployment. FRA would not support any effort by railroad carriers to circumvent their common carrier obligations through failure to implement PTC systems where those systems are required by statute.<sup>16</sup>

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<sup>15</sup> See penalties for violations of Sections 236.1005 and 236.1011.

<sup>16</sup> Letter from Joseph Szabo to Frank Reiner, dated Aug. 7, 2014 [underline added] (Exhibit 18).

## PUBLIC VERSION

The underlined sentence unequivocally indicates that railroads can continue to transport TIH materials after December 31, 2015, consistent with their common carrier obligation, despite their failure to complete installation of PTC by that date.

More recently, during her September 17, 2015 confirmation hearing before the Senate Committee on Commerce, Science and Transportation, Acting FRA Administrator Sarah Feinberg testified that FRA will impose additional safety requirements upon railroads which choose to operate after December 31, 2015.<sup>17</sup> That statement clearly indicates that FRA will not prohibit the transportation of TIH materials over main lines without PTC. Moreover, she clarified that such additional safety requirements would apply to ANY operations over main lines required to have PTC, not just TIH transportation.<sup>18</sup> This demonstrates that there is no basis for Class I railroads to single out TIH materials for embargo due to their failure to meet the PTC deadline. This is a fact that at least one Class I railroad, BNSF, has acknowledged in recent letters to Senator Thune and to this Board.<sup>19</sup>

The foregoing statements by FRA, AAR and the D.C. Circuit, which indicate that TIH shippers are protected by the common carrier obligation regardless of a railroad's compliance with RSIA, are a reasonable interpretation of the statute that harmonizes both RSIA and the common carrier obligation. The statute imposes a duty to implement PTC and provides for enforcement by civil penalties; it does not prohibit rail transportation of TIH materials if PTC is not implemented in accordance with the statute. The Board owes

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<sup>17</sup> See <http://www.c-span.org/video/?328184-1/federal-railroad-administration-confirmation-hearing-sarah-feinberg>, Video Recording at 41:34-42:08.

<sup>18</sup> *Id.*, Video Recording at 27:21-27:55.

<sup>19</sup> See Exhibit 4, p. 2; "Fall Peak" Letter from Carl Ice, BNSF President and CEO, to Daniel Elliott, STB Chairman, dated July 24, 2015, p. 2.

## PUBLIC VERSION

substantial deference to these opinions, as Congress has entrusted implementation of the RSIA to FRA, not to this agency. In addition, there is no indication in the text of RSIA or its legislative history that Congress intended for this narrow piece of legislation to trump the broad and long-established common carrier obligation by prohibiting the transportation of TIH materials over non-compliant main lines.

Through this proceeding, Petitioners are asking the Board to confirm what every other government entity to address the question already has concluded, namely, that a railroad's failure to comply with the RSIA's PTC mandate by the deadline established for doing so will not absolve that railroad of its common carrier obligation to transport TIH materials over those lines.

**B. The common carrier obligation protects the public interest from the devastating effects of a TIH rail embargo that is predicated upon the railroads' own violation of the RSIA.**

If TIH transportation over non-PTC main lines after December 31, 2015 would violate the RSIA, that does not automatically render a request for such transportation unreasonable. In concluding that a request for TIH transportation over non-PTC main lines would be unreasonable, the Class I railroads commit the critical mistake of considering only the impact of TIH transportation requests upon themselves in the form of potential exposure to civil penalties and increased liability risks. Although they openly acknowledge the substantial societal impacts of a TIH embargo, the ramifications of those impacts play no role in their analysis. Nor does their own culpability in failing to comply with the RSIA. That is not how the common carrier obligation works. The public policy foundations of the common carrier obligation require a Class I railroad to transport TIH materials over non-PTC main lines after December 31, 2015, even assuming *arguendo* that TIH transportation over non-PTC main lines would subject the

## PUBLIC VERSION

railroad to civil penalties and greater liability risk precisely because the drastic societal impacts of a TIH traffic embargo tip the scales heavily in favor of continued transportation of TIH materials.

When evaluating the reasonableness of a railroad embargo, the Board must be careful not to “undermine[] the policy considerations that are the foundation of the statutory common carrier obligation.” *GS Roofing Products Company v. STB*, 143 F.3d 387, 392 (8th Cir. 1998). “At the very heart of the common carrier obligation is the belief that railroads are in a position of unique public trust. They are therefore held to higher standards of responsibility than other private enterprises.” *Id.* at 393, citing *General Foods Corp. v. Baker*, 451 F. Supp. 873, 875 (D. Md. 1978); *Ethan Allen, Inc. v. Maine Cent. R.R. Co.*, 431 F.Supp. 740, 742-43 (D.Vt. 1977). Those higher standards mean that “carriers should not unilaterally cease operations absent exigent circumstances.” *Id.* In this case, the mere fact that a railroad might be in violation of the RSIA by transporting TIH materials over non-PTC main lines cannot constitute an exigent circumstance that would excuse its common carrier duties in light of the far more exigent circumstances associated with a failure to transport.

In essence, a railroad’s desire not to be subject to civil penalties for transporting TIH is comparable to claiming that TIH transportation will become less profitable. But, “[a]n embargo may not be justified ‘solely on the grounds that to continue to provide service would be inconvenient or less profitable.’” *GS Roofing* at 394, quoting *Ethan Allen* at 743. Furthermore, any reduction in profitability due to civil penalties is a consequence of the railroad’s own violation of the statute and thus should not be visited upon TIH shippers or the general public.

## PUBLIC VERSION

The reasonableness of an embargo requires a balancing approach. *Id.* at 393. The rail industry has a strong safety record transporting TIH materials for nearly a century without PTC. Continuing to provide such transportation after December 31 will merely maintain the *status quo* until the Class I railroads are able to complete their PTC installation. In contrast, an embargo of TIH traffic, for up to five years based upon some railroads' current estimates for completing PTC installation, has catastrophic consequences for our Nation's economy, health and safety. Petitioners have submitted eight affidavits, which are attached as Exhibits 8 through 15, from TIH producers, TIH consumers, and professional economists describing how a TIH embargo will quickly and devastatingly damage TIH producers, TIH consumers, and the public interest.<sup>20</sup>

Those affidavits demonstrate the lack of alternatives to rail transportation for existing TIH rail traffic. For example, depending upon the specific TIH material at issue and the geographic locations of the facilities that produce and receive TIH materials, rail is the only transportation option. Pipelines and barges either are not options at all, or are options only during certain times of the year.<sup>21</sup> Trucks are not an option at all for chlorine, and they have far too little capacity to absorb the enormous rail volumes of other TIH materials.<sup>22</sup> Moreover, even if there were a sufficient number of the specialty

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<sup>20</sup> See, Affidavit of Christopher D. Bohn ("Bohn Aff.") (Ex. 8); Affidavit of Robin A. Burns ("Burns Aff.") (EX. 9); Affidavit of Jacqueline Faseler ("Faseler Aff.") (Ex. 10); Affidavit of Jeffrey B. Klopfenstein ("Klopfenstein Aff.") (Ex. 11); Affidavit of Dale Marantz ("Marantz Aff.") (Ex. 12); Affidavit of Sharon G. Piciacchio ("Piciacchio Aff.") (Ex. 13); Affidavit of Thomas K. Swift ("Swift Aff.") (Ex. 14); and Affidavit of Dr. Harry D. Vroomen ("Vroomen Aff.") (Ex. 15).

<sup>21</sup> Bohn Aff. ¶¶ 11-13, 18-20, 22-23; Burns Aff., ¶¶ 6-8; Faseler Aff., ¶¶ 23, 31, 33-34; Marantz Aff., ¶ 12; and Piciacchio Aff., ¶ 11.

<sup>22</sup> Bohn Aff. ¶¶ 14, 18; Burns Aff., ¶6; Faseler Aff., ¶ 32; Marantz Aff., ¶ 13; and Piciacchio Aff., ¶ 11.

## PUBLIC VERSION

trucks and specially-qualified drivers needed to transport all TIH materials by truck, it would not be in the public interest to place such enormous volumes of these toxic materials on our nation's public highways.<sup>23</sup>

Due to the lack of alternatives to rail transportation, a rail embargo of TIH materials would force TIH producers to curtail, or even shut down, TIH production.<sup>24</sup> This in turn would force TIH consumers to do the same for their products that depend upon TIH materials with cascading effects throughout our nation's economy.<sup>25</sup> Production shut-downs have their own set of special consequences related to the safety hazards and maintenance risks associated with unplanned outages and restarting complex chemical production facilities.<sup>26</sup>

The Affidavit of Dr. Thomas Swift, a staff economist for ACC, provides an overview of how multiple TIH materials are used throughout our nation's economy and quantifies their impact upon our economic output. Exhibit A to Dr. Swift's Affidavit lists 22 of the most common TIH materials that depend upon rail transportation along with a summary of the products to which each TIH material is essential. Exhibit B to Dr. Swift's Affidavit separately illustrates the particularly ubiquitous nature of chlorine, which is the foundation for so many intermediate and derivative commodities essential to producing literally thousands of products that we depend upon daily. Dr. Swift estimates

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<sup>23</sup> Bohn Aff. ¶¶ 14, 17; Faseler Aff., ¶ 32; and Marantz Aff., ¶ 13.

<sup>24</sup> Bohn Aff., ¶¶ 18-19; Burns Aff., ¶ 13-14; Faseler Aff., ¶¶ 35-37, 42; Marantz Aff., ¶ 14; and Piciacchio Aff., ¶¶ 12-13.

<sup>25</sup> Bohn Aff., ¶¶ 27-29; Burns Aff., ¶ 15; Faseler Aff., ¶¶ 40, 43, 47-55; Klopfenstein Aff., ¶¶ 10-13; Marantz Aff., ¶¶ 8-11, 14-16; Piciacchio Aff., ¶¶ 7, 14; Swift Aff., ¶¶ 5-18; and Vroomen Aff., ¶¶ 7-21.

<sup>26</sup> Bohn Aff., ¶¶ 25-26; Faseler Aff., ¶¶ 43-45; and Marantz Aff., ¶ 14.

## PUBLIC VERSION

the value-added and employment associated with 6 major sectors of our economy that depend upon TIH materials or their derivatives.<sup>27</sup>

The inability to purify public water supplies qualifies as the most widely understood and immediate consequence of a TIH rail embargo. In a letter to Senator Thune, a coalition of water agencies best summarized the devastating public health impacts of an embargo:

Even a temporary interruption of water disinfection chemical deliveries could risk a public health disaster for communities across the country. Effective disinfection of drinking water and wastewater prevent the type of cholera and typhoid outbreaks seen in less-developed countries from happening in the U.S. Chlorine in various forms has been the standard-bearer for water disinfection for more than 100 years. Water utilities cannot treat water supplies to the stringent standards of the Safe Drinking Water Act without it. Similarly, anhydrous ammonia is necessary to produce a popular disinfectant known as chloramine, which aids in controlling the formation of regulated disinfection byproducts.

Exhibit 19, *See also*, Burns Aff., ¶¶ 8, 15; Piciacchio Aff., ¶ 7; Swift Aff., ¶ 14.

Agricultural production qualifies as another major public injury from a rail embargo of TIH materials. Anhydrous ammonia accounts for 45% of rail TIH volumes and is used either directly as a Nitrogen fertilizer or indirectly to produce other Nitrogen fertilizers.<sup>28</sup> To ensure adequate inventories for the Spring planting season, ammonia producers produce and transport ammonia year-round to storage terminals throughout the American farmland.<sup>29</sup> Any interruption in the production and transportation of ammonia, and especially one coming so soon after the depletion of inventories in the Fall

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<sup>27</sup> Swift Aff., ¶¶ 10-13.

<sup>28</sup> Bohn Aff., ¶ 7; Marantz Aff., ¶¶ 7-8; and Vroomen Aff., ¶¶ 5-6.

<sup>29</sup> Bohn Aff., ¶ 9; Marantz Aff., ¶¶ 9-10; and Vroomen Aff., ¶ 21.

## PUBLIC VERSION

application season, will guarantee a huge shortage of Nitrogen fertilizer this Spring.<sup>30</sup> If anhydrous ammonia cannot be transported, it cannot be made; if it cannot be made, it cannot be sold; if it cannot be sold, it cannot be applied; where it cannot be applied, crop yields would decrease dramatically.

Some additional consequences associated with a rail embargo of TIH materials would include the following:

- the inability to burn coal because power plants cannot obtain anhydrous ammonia needed to meet Clean Air Act emissions standards;<sup>31</sup>
- the inability to use diesel fuel because anhydrous ammonia is not available for production of diesel exhaust fluid (“DEF”), which reduces diesel engine emissions;<sup>32</sup>
- reductions in plastic production due to chlorine and ethylene oxide shortages;<sup>33</sup>
- shortages of life-saving pharmaceuticals and surgical supplies due to chlorine, anhydrous ammonia, ethylene oxide shortages and other TIH materials;<sup>34</sup>
- a shortage of chemicals to deice planes and runways due to reduced ethylene oxide production;<sup>35</sup> and
- a shortage of methionine hydroxy analogue, which is essential to the production of animal feed for livestock, due to the inability to transport the TIH material methyl mercaptan, which is essential to production of methionine hydroxy analogue.<sup>36</sup>

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<sup>30</sup> Bohn Aff., ¶¶ 22-23, 27-28; Marantz Aff., ¶¶ 10, 15; and Vroomen Aff., ¶¶ 7-21.

<sup>31</sup> Bohn Aff., ¶¶ 4, 19, 29; and Marantz Aff., ¶¶ 11, 16.

<sup>32</sup> Bohn Aff., ¶¶ 8, 19, 29, 33.

<sup>33</sup> Burns Aff., ¶ 8; Swift Aff., ¶¶ 8, 17 and Ex. A (discussion of chlorine, sulfur dioxide, phosphorous trichloride, allyl alcohol, hexachlorocyclopentadiene, hydrogen sulfide).

<sup>34</sup> Bohn Aff., ¶ 8; Burns Aff., ¶¶ 8, 15; and Faseler Aff., ¶¶ 20, 50.

<sup>35</sup> Faseler Aff., ¶ 18.

<sup>36</sup> Klopfenstein Aff., ¶¶ 3-13.

## PUBLIC VERSION

Based upon just the foregoing abbreviated list of consequences, the public interest underlying the common carrier obligation clearly requires that railroads continue transporting TIH materials.

The United States Department of Transportation (“DOT”) repeatedly has acknowledged many of the facts in the Petitioners’ Affidavits. In 2008 testimony before the Board, DOT addressed the public benefits of TIH materials, their essential nature, and the need to transport such materials by rail:

Hazardous materials moved by rail include chemicals used to purify water supplies, the weapons and munitions required by the military, fertilizers needed for crop production, and chemicals needed to produce pharmaceuticals, food and everyday products like glass and plastic. Transporting hazardous materials to their destination in a timely manner is essential to our daily lives. As an example, timely delivery of chlorine for drinking water systems is critical to the public safety and health, and without the delivery of anhydrous ammonia, an essential fertilizer, agricultural production would plummet. The need for hazardous materials to support essential services means that the transportation of these materials is unavoidable.

...

Railroads carry over 17 million shipments of hazardous materials annually, including millions of tons of explosives, poisonous, corrosive, flammable, and radioactive materials. Almost 87% of these shipments are in tank cars. Approximately 100,000 carloads of this hazardous material are PIH materials. With chlorine and anhydrous ammonia representing over 78% of the PIH traffic.

The vast majority of PIH offerors ship by rail; indeed many do not have the infrastructure (loading racks, product transfer facilities) necessary to utilize trucks for such transportation. Moreover, the current fleet of cargo tank motor vehicles is insufficient to handle a significant shift in PIH cargoes from rail to highway—for example, there are only about 85 cargo tank motor vehicles used for the transportation of chlorine, by contrast there are

## PUBLIC VERSION

approximately 5,900 chlorine rail tank cars that engage in 36,470 rail tank car movements of chlorine each year.

Statement of the United States Department of Transportation at 2-3, *Common Carrier Obligation of R.Rs.—Transp. of Hazardous Materials*, STB Docket No. EP 677 (Sub-No. 1) (July 10, 2008) (emphasis added).

Four years later, DOT again testified before the Board about the critical nature of TIH materials and the essential role of railroads to transport them safely and efficiently:

It is generally accepted that the safest, most cost effective, and efficient way for moving TIH materials is by rail. Transferring large amounts of TIH materials to barges or pipeline are not viable options. Chlorine pipeline operations are limited to “over the fence” operations involving relatively short moves of the material; generally from one facility to an adjoining end-user operation. Ammonia pipelines exist from the Gulf Coast to the Midwest, but these pipelines are already capacity constrained. Transport by water is limited by the lack of specially built equipment to transport these materials and the fact that barges can only serve those in close proximity to navigable waterways. While some anhydrous ammonia shipments may move by truck, all chlorine essentially travels by rail. It takes about four tank trucks to haul the amount of product that can be moved in a single rail tank car, and trucks operate in close proximity to passenger vehicles. Shifting the movement of the TIH commodities to highways would lead to increased fuel consumption, air pollution, and costs of essential goods, and would likely result in more deaths and injuries since trucks are involved in many more accidents than rail tank cars. The public interest would be ill served if there were a significant shift to the transportation of these commodities by truck.

Comments of the United States Department of Transportation at 5-6, *Union Pacific R.R. Co.—Pet. for Declaratory Order*, STB Docket No. FD. 35504 (2012) (emphasis added).

The Class I railroads cannot cite to unsafe transportation over non-PTC main lines as an exigent circumstance to justify an embargo against TIH traffic in light of the fact that railroads currently are transporting TIH materials without PTC and have been for

## PUBLIC VERSION

nearly a century. Furthermore, it would be inaccurate to suggest that Congress intended for the safety objectives underlying the RSIA to trump the 100-year-old common carrier obligation, with all of the associated consequences to the public interest, without an explicit statement to the contrary. Since the earliest days of the rail common carrier obligation, the Supreme Court held that “the very fact of the public character of a railroad would itself seem to call for special care by the legislature in regard to its conduct, so that its business should be carried on with as much reference to the proper and fair interests of the public as possible.” *United States v. Trans-Missouri Freight Ass’n*, 166 U.S. 290, 321-22 (1897). Congress afforded railroads seven years to implement PTC because it believed that would provide sufficient time to do so, not because seven years was the magical point after which PTC’s safety objectives must override all common carrier considerations regardless of whether PTC had been, or could be, implemented by that date. Yet that is the consequence of the Class I railroads’ position.

The Class I railroads assert that they will not meet the December 31, 2015 deadline for PTC implementation despite their most diligent efforts to do so. The implication of this railroad argument is that they should not be penalized for missing a deadline that they contend was arbitrary, unreasonable, and unrealistic. Even if this contention were true (to which Petitioners express no opinion), there is far less rationale for shifting the consequences to TIH shippers, receivers, and the American public of missing a deadline that does not apply to them and over which they possessed no control whatsoever.

Furthermore, the Board has no authority to second-guess Congress’ choice of deadline and no expertise to evaluate the reasonableness of railroad efforts to comply

## PUBLIC VERSION

with that deadline. If the Class I railroads truly believe in the unreasonableness of the PTC deadline, it is their responsibility to make their claim in a court of law to prevent enforcement of the RSIA against them for they are the only ones with the knowledge and information required to prove such a claim.<sup>37</sup> Unless and until a court renders such a decision, the role of the Board is to protect the greater public interest through the common carrier obligation, which cannot be limited based upon a railroad's own violation of law. The Board must assume the PTC deadline is reasonable and refuse to permit a railroad's own violation of the deadline to excuse that railroad from its common carrier obligation to transport TIH materials.

Nor can the railroads cite an increase in their liability risk as an exigent circumstance, because that risk is due entirely to their own failure to comply with the RSIA. Otherwise, a railroad could avoid its common carrier obligation by simply choosing not to comply with an applicable rail safety law. Although the Class I railroads contend that the RSIA imposed an arbitrary, unreasonable, or impossible deadline for PTC implementation, they can raise that argument as a defense to any tort action that seeks to impose greater liability upon them for failure to install PTC in compliance with the RSIA, if and when such action is filed.

## VI. CONCLUSION.

Petitioners ask the Board to issue a declaratory order that removes any uncertainty that the common carrier obligation will continue to require a railroad to transport TIH materials after the December 31, 2015 deadline in RSIA for implementing PTC, even

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<sup>37</sup> In its September 9, 2015 letter to Senator Thune, NS has acknowledged that it "is considering taking legal action to invalidate the deadline as a violation of due process given its arbitrary nature and the potential to deprive the railroad of cash through fines imposed by FRA." Exhibit 5, p. 7.

**PUBLIC VERSION**

though the rail industry will not be in compliance with the PTC mandate for the vast majority of the nationwide rail system. Petitioners ask the Board to initiate a proceeding so that TIH suppliers and consumers, the rail industry, FRA, and other interested parties may address this question within the parameters of the expedited procedural schedule proposed in Part I above.

Respectfully submitted,



Paul M. Donovan  
LaRoe, Winn, Moerman & Donovan  
1250 Connecticut Avenue, N.W.  
Suite 200  
Washington, DC 20036  
Phone (202) 298-8100

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Jeffrey O. Moreno  
Jason D. Tutrone  
David E. Benz  
Madeline J. Sisk  
Thompson Hine LLP  
1919 M Street, N.W.  
Suite 700  
Washington, DC 20036  
(202) 331-8800

*Counsel for The Chlorine Institute*

*Counsel for The American Chemistry  
Council and The Fertilizer Institute*

September 30, 2015

PUBLIC VERSION

CERTIFICATE OF SERVICE

I hereby certify that on this 30th day of September 2015, I electronically served a copy of the foregoing upon the counsel listed below.

Samuel M. Sipe  
Anthony J. LaRocca  
Steptoe & Johnson LLP  
1330 Connecticut Ave., NW  
Washington, DC 20036

*BNSF Railway Company*

David Rifkind  
Stinson Leonard Street  
1775 Pennsylvania Ave., NW  
Suite 800  
Washington, DC 20006

*Canadian Pacific Railway Company*

William Mullins  
Baker & Miller PLLC  
2401 Pennsylvania Ave., NW  
Suite 300  
Washington, DC 20037

*Kansas City Southern Railway Company*

David Hirsh  
Harkins Cunningham LLP  
1700 K Street, NW  
Suite 400  
Washington, DC 20006

*Canadian National Railroad Company*

Paul Moates  
Sidley Austen LLP  
1501 K Street, NW  
Washington, DC 20005

*CSX Transportation, Inc. and  
Norfolk Southern Railway Company*

Michael Rosenthal  
Covington  
One City Center  
850 10th Street, NW  
Washington, DC 20001

*Union Pacific R.R. Co.*

  
\_\_\_\_\_  
Jeffrey O. Moreno

# **EXHIBIT 1**

**Federal Railroad Administration  
Status Report to  
House and Senate Committees on Appropriations**



**Status of Positive Train Control Implementation**

**August 2015**

# Table of Contents

<b>1. Introduction</b> .....	<b>1</b>
<b>2. Background</b> .....	<b>1</b>
<b>3. PTC Mandate in the Rail Safety Improvement Act of 2008</b> .....	<b>3</b>
<b>4. Implementing the Rail Safety Improvement Act’s PTC Mandate</b> .....	<b>4</b>
<b>5. Ongoing Challenges</b> .....	<b>6</b>
<b>6. FRA’s Actions and Financial Support to Assist Railroads to Meet Deadline</b> .....	<b>7</b>
<b>7. Status of PTC Implementation</b> .....	<b>9</b>
<b>8. Individual Railroad PTC Implementation Status</b> .....	<b>11</b>
<b>9. Enforcement</b> .....	<b>14</b>
<b>10. Conclusion</b> .....	<b>19</b>
<b>Appendix A: Amtrak-Specific PTC Implementation Data</b> .....	<b>i</b>

## 1. Introduction

DOT and FRA are providing this Status Report to the House and Senate Appropriations Committees pursuant to the House Appropriations Transportation, Housing and Urban Development, and Related Agencies Subcommittee Report 113–464 accompanying the FY 2015 Consolidated and Further Continuing Appropriations Act, and in compliance with section 104 of the Rail Safety Improvement Act of 2008 (RSIA) (Pub. L. No. 110-432, Division A, codified in section 20157 of title 49, United States Code).

In 2008, after multiple accidents and urging from safety advocates and experts, as well as the National Transportation Safety Board (NTSB), Congress mandated that railroads implement Positive Train Control (PTC) systems by December 31, 2015. A majority of railroads will not meet this statutory deadline.

This Status Report informs Congress, railroads, other industry stakeholders, and the public of: (1) the background of the PTC mandate and other requirements; (2) efforts FRA has taken and continues to take to support railroads in implementing PTC; (3) current status of railroads progress in implementing PTC; (4) FRA’s enforcement options for railroads that fail to meet the December 31, 2015, deadline; and (5) a path forward to achieve full PTC implementation.

## 2. Background

### *History of Positive Train Control technology and calls for implementation*

PTC technology is the single-most important rail safety development in more than a century.

According to the NTSB’s PTC Preventable Accident List, during the last 46 years, NTSB has investigated 145 freight, commuter and transit PTC-preventable railroad accidents. Had PTC been in place at the time of those incidents, the NTSB estimates 300 lives would have been saved and more than 6,700 injuries would have been avoided.<sup>1</sup>

While the term “Positive Train Control” did not appear until a report by FRA in 1994, the technology is not completely new. Since the early 20th century, rudimentary elements of PTC have existed, and regulators and safety advocates have been calling on the rail industry to implement some form of PTC for decades. In Germany, Great Britain, and France, there has been one form or another of automatic train control since the 1930s.

In 1922, the Interstate Commerce Commission (ICC) used its authority under the 1920 Transportation Act to require railroads to install a train control system on at least one

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<sup>1</sup> NTSB, PTC Preventable Accident List. June 10, 2015. [http://www.nts.gov/news/speeches/T-Bella-Dinh-Zarr/Documents/20150610\\_PTC\\_Preventable\\_Accident\\_List.xls](http://www.nts.gov/news/speeches/T-Bella-Dinh-Zarr/Documents/20150610_PTC_Preventable_Accident_List.xls).

division over which passenger trains operated.<sup>2</sup> The Order was expanded in 1924 to include an additional passenger division on each railroad. The ICC set minimum standards that required train stop systems to operate automatically and apply brakes until the train was brought to a stop if an engineer failed to acknowledge a restricting signal. A train control system was required to apply the brakes until the train was brought to a stop in the event an engineer failed to take action to control the speed of the train in accordance with signal indications. The railroads petitioned the ICC for approval to install the automatic cab signal system (ACS), which provides warning when signal aspects change to more restrictive aspects, on their line in lieu of a train stop or train control system. In 1930, the ICC approved the cab signal system.<sup>3</sup>

In 1969, the NTSB issued its first official recommendation on the need for train control technology like PTC after four people were killed and 43 were injured near Darien, Connecticut, when an engineer failed to stop at a red signal and two Penn Central Commuter trains collided head-on.<sup>4</sup> In the early 1980s there was a serious and active exploration of implementing PTC by the railroads. In 1984, the Association of American Railroads (AAR) and the Railway Association of Canada published a report that outlined the core functions that a PTC-like system would be required to perform. During that same decade, BNSF partnered with Rockwell International to develop a system called Advanced Railroad Electronics System (ARES). ARES depended on using wayside equipment and radios like the Advanced Train Control System (ATCS) that was being developed at the same time. However, ARES would rely on Global Positioning System (GPS) to determine train locations. Both systems were eventually abandoned.

In 1990, after years of recommending railroads adopt PTC, the NTSB included PTC on its Most Wanted List – listing Positive Train Control as one of the top 10 most important safety needs for the country. In the 1990s, Amtrak started to deploy Advanced Civil Speed Enforcement System (ACSES) on its Northeast Corridor property. By the close of the 1990s, CSX Transportation, Inc. had started to develop a PTC system that added a GPS to provide the exact location of trains.

### ***Today***

Today, Positive Train Control is statutorily defined as “a system designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zone limits, and the movement of a train through a switch left in the wrong position.” 49 U.S.C. 20157(i)(3).

Today’s PTC systems use digital radio communications, global positioning, and fixed wayside signal systems to send and receive a continuous stream of data about the location,

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<sup>2</sup> A division is an organizational unit (including line of road and yard operation) of a railroad based on common elements such as labor contracts, operating and safety rules, traffic, topography and geography. The intent is to centralize management of the railroad. The railroads have regions, divisions, and crew districts—each one more specific than the previous.

<sup>3</sup> Federal Railroad Administration. Railroad Communications and Train Control Report to Congress. July 8, 1994.

<sup>4</sup> National Transportation Safety Board. August 4, 2015.  
[http://www.nts.gov/safety/mwl/Pages/mwl8\\_2014.aspx](http://www.nts.gov/safety/mwl/Pages/mwl8_2014.aspx)

direction, and speed of trains. Such systems process this information in real time to aid dispatchers and train crews in safely and efficiently managing train movements through automatic application of train brakes whenever a train crew, for whatever reason, fails to properly operate within specified safety parameters.

There has been some successful, but limited, deployment of PTC systems in the United States. Amtrak has deployed the Incremental Train Control System (ITCS) on approximately 60 route miles between Chicago and Detroit. BNSF Railway Company (BNSF) has deployed the Electronic Train Management System (ETMS) on a limited number of pilot territories for revenue test and demonstration purposes. The most successful and widely deployed PTC system is the Amtrak Advanced Civil Speed Enforcement System (ACSES) currently along certain portions of Amtrak's Northeast Corridor.

When fully implemented, FRA expects PTC technology to have a positive, transformative, and life-saving impact on rail safety and operating efficiency in the decades to come. By automatically enforcing compliance with speed restrictions and other directives, the installation and operation of PTC systems on critical portions of the Nation's rail transportation network will positively affect the industry's already efficient capacity to safely and reliably carry freight and passengers. In the years and decades to come, PTC can help railroads satisfy projected increases in demand for freight and passenger transportation safely and efficiently.

### **3. PTC Mandate in the Rail Safety Improvement Act of 2008**

Many cite the 2008 Metrolink<sup>5</sup> accident in Chatsworth, California, as the event that propelled Congress to pass a mandate for PTC, but in addition to the increasing calls for implementation of the technology over the last 40 years, momentum had been building following a string of deadly incidents. A total of 15 freight and 10 passenger accidents over the seven-year period between 2001 and 2008 resulted in more than 34 deaths and 600 injuries. All of the accidents were PTC preventable.<sup>6</sup>

Three of those accidents—which occurred in Mississippi, Texas, and South Carolina—increased public attention on rail accidents and the need for a system that could override human error. The worst of the three accidents took place in Graniteville, South Carolina, when a Norfolk Southern train collided with a stationary Norfolk Southern train, resulting in a deadly release of chlorine killing nine people, sending 600 to the hospital, and requiring thousands of people nearby to evacuate for days.

In 2007, the House of Representatives passed legislation (H.R. 2095) requiring PTC on the track owned by the Class I railroads by December 31, 2014. While the House legislation permitted the Secretary to grant two-year extensions if he or she determined that it would

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<sup>5</sup> Formally The Southern California Regional Rail Authority.

<sup>6</sup> National Transportation Safety Board. PTC Preventable Accident List. [http://www.nts.gov/news/speeches/T-Bella-Dinh-Zarr/Documents/20150610\\_PTC\\_Preventable\\_Accident\\_List.xls](http://www.nts.gov/news/speeches/T-Bella-Dinh-Zarr/Documents/20150610_PTC_Preventable_Accident_List.xls).

lead to a more effective PTC system, Congress ultimately removed any authority to extend the deadline in the final legislation that is currently law. The Senate then passed legislation (S. 1889) on August 1, 2008, to require PTC in limited, certain circumstances with an implementation date of no later than December 31, 2018.

As negotiations were underway for a final rail bill, on September 12, 2008, a Metrolink commuter train collided head-on with a Union Pacific train in the Chatsworth district of Los Angeles, California, killing 25 people and injuring more than 100 others. The accident was deemed to have been PTC preventable – the engineer of the Metrolink train was texting and failed to stop for a red signal.

Just weeks after the Metrolink accident, Congress passed the Rail Safety Improvement Act of 2008 (RSIA) that established the current December 31, 2015, implementation deadline. President George W. Bush signed the legislation on October 16, 2008. For the first time in nearly three decades, the NTSB removed PTC from its Most Wanted list a year after the mandate became law.

But, in 2013, NTSB added PTC back to its revamped Most Wanted list as it became clear that railroads were not making enough progress to achieve the December 31, 2015, deadline. The NTSB noted that Positive Train Control implementation was part of “critical changes needed to reduce transportation accidents and save lives.”<sup>7</sup>

#### **4. Implementing the Rail Safety Improvement Act’s PTC Mandate**

FRA had been involved in establishing PTC standards for more than a decade prior to the mandate. The agency began discussions with stakeholders (including the railroad industry) in 1997, and in 2005 – three years before Congress would pass the mandate – FRA issued a final rule establishing uniform PTC standards for railroads willing to voluntarily install the technology.<sup>8</sup>

Under current law, RSIA requires PTC to be implemented on Class I railroad main lines – lines with 5 million or more gross tons annually – over which any poisonous or toxic by inhalation hazardous materials are transported (with limited exceptions and exclusions), approximately 70,000 freight rail miles and 8,000 passenger rail miles at the time. RSIA also mandates the technology on any railroad’s main line over which regularly scheduled intercity or commuter rail passenger service is conducted.

Per RSIA, FRA began to develop implementing guidance and regulations to govern implementation of PTC by engaging its diverse stakeholders. FRA convened its Railroad Safety Advisory Committee (RSAC) from January to April 2009 and tasked the Council with providing FRA with advice regarding development of implementing PTC Systems. (RSAC

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<sup>7</sup> The National Transportation Safety Board. 2013 Most Wanted List.  
<http://www.nts.gov/safety/mwl/Documents/ptc.pdf>.

<sup>8</sup> 70 Fed. Reg. 11095 (Mar. 7, 2005).

is made up of representatives from the railroad industry, labor, safety groups, and other parties potentially affected by FRA safety regulations.) Based on information gathered from this effort, FRA issued a Notice of Proposed Rulemaking (NPRM) in July 2009.

FRA issued the final rule governing PTC implementation on January 15, 2010, after consideration of public comments and further analysis of data available to the agency. The rule included the core functions required of a PTC system, and outlined the requirement for railroads to submit three plans for implementation of the technology – implementation, development and safety.

The rule required each railroad to develop a PTC Implementation Plan (PTCIP) that would document the activities needed to comply with the PTC mandate and the schedule to which the railroad would adhere to ensure complete installation on a risk-based prioritization by December 31, 2015. In addition, the final rule required each railroad to submit a development plan outlining how the system would be built and a safety plan that detailed how the railroad's PTC system would function once installed and operational. The rule included a range of civil penalties that FRA could impose if a railroad failed to meet the statutory deadline. In short, the final rule provided the railroad industry a solid baseline of the requirements that would have to be met in order to obtain system certification and satisfy its statutory safety obligation.

After the final rule was issued on January 15, 2010, FRA sought to clarify the criteria that railroads would be required to meet in order to avoid implementation of PTC on certain lines or track segments. FRA solicited additional comments from the railroad industry and the public before updating the rule in September 2010. For certain rail lines to be exempt, FRA established that a line or segment would need to pass two tests: the alternative route analysis test and the residual risk analysis test.<sup>9</sup> The Association of American Railroads (AAR) sued FRA over these tests. As part of the settlement agreement, FRA agreed to eliminate the tests and started another rule-making process that concluded in May 2012. This rule allowed railroads to not implement PTC on rail segments that will not transport toxic-by-inhalation contents, poisonous-by-inhalation contents, or passengers as of December 31, 2015. FRA finalized the additional rule modifications that simplified the restrictions in August 2014.

Although FRA issued multiple modifications to the original, final PTC rule of January 15, 2010, these modifications did not affect the technical regulatory requirements of PTC. The changes simply reduced the scope of the deployment from approximately 70,000 miles to approximately 60,000 miles. The technical requirements were first made available to railroads nine months after the RSIA was signed into law, and finalized just seven months later. Those technical requirements have not fundamentally changed.

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<sup>9</sup> Under this test, the railroad must establish that current or prospective rerouting of PIH materials traffic to one or more alternative track segments is justified. If a railroad reroutes all PIH materials off of a track segment requiring PTC system implementation under the 2008 baseline, and onto a new line, PTC system implementation on the initial line may not be required if the new line would have substantially the same overall safety and security risk as the initial line, assuming PTC system implementation on both lines. If the initial track segment, despite the elimination of all PIH materials traffic, is determined to pose higher overall safety and security risks under this analysis, then a PTC system must still be installed on that initial track segment.

## 5. Ongoing Challenges

Railroads have stated that they have faced a number of challenges as they have worked to implement PTC, including:

- **Wireless Spectrum Availability:** Individual railroads continue to encounter difficulty in secondary market spectrum acquisitions. There are a number of different issues that affect acquisition efforts that vary depending on the particulars of the secondary market where the railroad must obtain the spectrum. In some situations, incumbent license holders are unwilling to sell or lease their license to railroads at all because the incumbent is actively using the licensed spectrum. In other situations, incumbent license holders, while willing to sell or lease their license, are proffering the spectrum under terms and conditions that the railroads believe are neither fair nor reasonable. In other situations, ownership of the spectrum, and the identity of the actual license holder who can legally proffer the spectrum for sale or lease is tied up in legal proceedings. In these situations, neither the railroads, nor the Federal Communications Commission (FCC), can complete the transactions until the court cases have been settled.
- **Limited Number of Suppliers of PTC technology:** The number of suppliers who currently manufacture PTC system components is limited. The major suppliers with proven capability to deliver the technology in use in the US include:
  - General Electric Transportation Systems (GETS), which manufactures Incremental Train Control System (I-ITCS) and Enhanced-Automatic Train Control (E-ATC);
  - Wabtec Railway Electronics Systems (WRE), which manufactures I-ETMS;
  - Alstom Signaling Solutions, which manufactures Advanced Civil Speed Enforcement System (ACSES); and
  - Siemens Rail Automation, which manufactures communications-based train control (CBTC).
- **Potential Radio Interference:** Different PTC technologies adopted by the railroads use different radios operating with different communications protocols in similar frequency bands. These differences can give rise to desensitization.<sup>10</sup>
- **Safety Plans:** To date, FRA has received three of 38 required PTC safety plans. For years, FRA has been in constant and consistent contact with railroads to assist on safety plans and offer guidance. This includes conducting preliminary reviews of

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<sup>10</sup> Desensitization is a form of electromagnetic interference where a radio receiver is unable to receive a weak radio signal that it might otherwise be able to receive when there is no interference. This is caused by a nearby transmitter with a strong signal on a close frequency, which overloads the receiver and makes it unable to fully receive the desired signal. There are a number of potential work-arounds to address this issue such as increased spectral separation of the radio's operating frequency, introduction of blocking filters, and use of directional antennas.

required submission documents to try and identify regulatory noncompliance as soon as possible to minimize the cost and schedule impact of changes. Additionally, to make the review of these documents as efficient as possible, in early 2015 FRA sent a letter to each railroad outlining specific items and the level of data quality FRA requires to approve safety plans. In order to provide additional guidance, the letter also identified omissions that would result in the plans being rejected and considered incomplete.

## **6. FRA's Actions and Financial Support to Assist Railroads to Meet Deadline**

In the seven years since passage of RSIA, FRA has dedicated significant resources and worked closely with the railroad industry to ensure timely compliance with the PTC safety mandate, including taking the following steps:

- Approving all 41 railroads' PTC implementation plans on time;
- Starting in March 2010, dedicated staff to work on PTC implementation. FRA continually reevaluates personnel requirements and needs to ensure adequate resources are available to support timely implementation of PTC;
- Worked directly with the Federal Communications Commission and the Advisory Council on Historic Preservation to resolve issues related to spectrum use and improve the approval process related to PTC communication towers and ancillary equipment;
- Actively supporting deployment of PTC through the issuance of RSIA-mandated performance-based regulations in January 2010, as well as additional regulations that lightened the regulatory burden and technical assistance documents to aid railroads, manufacturers, and suppliers to achieve full PTC functionality and interoperability;
- Built a PTC system test bed at the Transportation Technology Center in Pueblo, Colorado (which is available to railroads as they work to successfully integrate and test all of the component technologies necessary to achieve implementation);
- Making loans available through the Railroad Rehabilitation and Improvement Financing (RRIF) program to applicants interested in assistance in paying for PTC implementation. (In 2015, FRA issued a nearly \$1 billion loan to the Metropolitan Transit Authority in New York for implementation of PTC on the Long Island Rail Road and Metro-North Commuter Railroad Company);
- Participating in system design reviews, test readiness reviews, lab testing, and field testing as well as conducting preliminary reviews of the required submissions in an attempt to identify regulatory noncompliance as soon as possible to minimize cost and schedule impact; and
- Providing information on specific items and the level of data quality FRA requires in order to approve safety plans and identify omissions that would result in the plan being rejected and considered incomplete.

To facilitate implementation, FRA also has established a PTC Implementation Task Force that is managing and monitoring railroads' progress to ensure that FRA has real-time information on the status of PTC implementation. This team supplements FRA staff working

on PTC implementation full time. The team monitors the status of each railroad’s PTC implementation, works with the railroad to gather data and answer questions, and tracks when the railroad will have a fully operational system.

FRA has long stated that a lack of public sector funding may result in unwanted delays in fully implementing PTC, especially on commuter railroads. FRA has requested funding for PTC development and implementation in every budget request dating back to Fiscal Year (FY) 2011. Congress has not provided a guaranteed, reliable revenue stream for implementation on commuter railroads.

Positive Train Control Funding  
President’s Budget Requests vs. Congressional Enacted Levels  
FY 2011 – FY 2016

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Request	\$50M	\$50M	\$74M	\$4.17B	\$825M	\$825M
Enacted	\$0	\$0	\$0	\$42M	\$0	TBD

For the last two years, as part of the Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America Act (GROW AMERICA Act) and the agency’s annual budgets, FRA has requested \$825 million to assist commuter railroads with the implementation of PTC. Additionally, FRA has requested dedicated funds to aid with the implementation of PTC on Amtrak’s national network.

It is important to note that safety benefits, including those generated through the implementation of PTC, are a key criterion in FRA’s grant programs. To that end, FRA has provided approximately \$650 million in grant funds to support PTC. This includes nearly \$400 million in American Recovery and Reinvestment Act of 2009 grants through the High-Speed Intercity Passenger Rail program, as well as Amtrak grants and other annual appropriations.

In addition to mandating the December 31, 2015, PTC implementation deadline, the RSIA authorized a grant program to assist in the deployment of PTC and other rail safety technology. While the program was authorized at \$50 million for five years, Congress appropriated \$50 million for the program in FY 2010 only. FRA awarded these funds to 10 projects to help mitigate technical PTC deployment challenges affecting stakeholders. FRA recently added an additional \$11 million from new authority provided under the FY 2014 Consolidated Appropriations Act for a total of \$61 million in Railroad Safety Technology Grants.

Despite the lack of sufficient funding directed to commuter railroads, FRA is using the resources it has available to help railroads implement PTC. On May 6, 2015, FRA issued a \$967 million loan through the RRIF program to the New York Metropolitan Transportation Authority, the Nation’s largest commuter railroad provider, to facilitate

deployment of the technology by Metro-North Commuter Railroad Company and Long Island Rail Road.

## **7. Status of PTC Implementation**

FRA has advised Congress that most railroads have not made sufficient progress to meet the December 2015 implementation deadline. FRA highlighted its concerns about delayed PTC implementation in its August 2012 PTC report to Congress, as well as in the GROW AMERICA Act, and in other multiple public remarks, statements, and congressional testimony.

As of June 2015, aggregate analysis of data from the railroads, along with supplementary data from AAR, indicates:

Class I railroads have:

- Completed or partially completed installations of more than 50% of locomotives that require PTC equipment;
- Deployed approximately 50% of wayside units;
- Replaced approximately 50% of signals that require replacement; and
- Completed most of the required mapping for PTC tracks.

By the end of 2015, AAR projects that:

- 39% of locomotives will be fully equipped;
- 76% of wayside interface units will be installed;
- 67% of base station radios will be installed; and
- 34% of required employees will be trained.

According to APTA, 29% of commuter railroads are targeting to complete installation of PTC equipment by the end of 2015. Full implementation of PTC for all commuter lines is projected by 2020.

FRA has received three of the 38 required PTC Safety Plans (PTCSP) that FRA must evaluate to provide system certification. It is difficult to reliably estimate a firm, network-wide PTC implementation date due to the varying rate of progress and incomplete data provided by the railroads, but it is highly likely that the industry will not be in complete compliance by December 31, 2015.

Since passage of RSIA, FRA has been in close touch with railroads regarding PTC implementation. We have collected implementation data and updates from those railroads via email conversations, in person meetings, technical assistance, and other interactions. We have also collected data more formally and via reports. Most recently, FRA has been in more frequent contact with the railroads – including recent letters from Acting Administrator Feinberg to the railroads, and from FRA Chief Safety Officer Robert Lauby to the railroads – in order to ensure we have the latest and most up to date information regarding implementation. Based upon this data and FRA’s own observations, only a small percentage

of railroads are expected to obtain system certification and complete PTC implementation by December 31, 2015.

Recently, Congress has requested specific data on the PTC implementation process as well. That specific information is included in this report.<sup>11</sup>

Despite FRA's actions to inform and assist railroads in collecting this data—along with looming statutory deadline and the threat of aggressive enforcement actions (including the imposition of significant civil penalties)—some railroads have not provided complete information or stepped up efforts to comply with the end-of-the-year implementation deadline.

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<sup>11</sup> This new data collection has been approved by the Office of Management and Budget (OMB No. 2130-0612).

## 8. Individual Railroad PTC Implementation Status<sup>12</sup>

Railroad/Agency Name	Docket Number (PTC Implementation Plans)	Number of Locomotives to be Equipped	Number of Locomotives Completely Equipped to Date	Locomotive: Number of Radios to be Installed	Locomotive: Number of Radios Installed to Date	Miles of Track to be Mapped	Miles of Track Mapped to Date	Spectrum Obtainment Complete	Estimated Spectrum Obtainment Date	Submitted Safety Plan	Estimated Revenue Service Demo Start Year ‡
Alaska Railroad	FRA-2010-0054	54	54	54	54	535	130	Yes	NA	No	2016
Amtrak	FRA-2010-0029	193 (NEC) 17 (ITCS) 310 (I-ETMS)	189 (NEC) 17 (ITCS) 240 (I-ETMS)	310 (NEC) 17 (ITCS) 310 (I-ETMS)	40 (NEC) 17 (ITCS) 27 (I-ETMS)	367	232	No	12/1/2015	No	2015 (Northeast Corridor) 2016-2018 (other routes)
Belt Railway *	FRA-2010-0062	*	*	*	*	*	*	*	*	No	*
BNSF Railway	FRA-2010-0056	6,000	2,389	6000	2389	22,050	19,886	Yes	NA	Yes	2015
Canadian National	FRA-2010-0057	1,546	12	1546	72	4,300	257	Yes	NA	No	2016
Canadian Pacific	FRA-2010-0058	1,000	146	1,000	75	2,211	1,515	Yes	NA	No	2015
Capital Metro	FRA-2010-0072	6	0	6	0	NA †	NA †	NA †	NA †	No	2016
Central Florida Rail Corridor	FRA-2011-0104	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	No	Information not provided yet
ConRail *	FRA-2010-0064	76	*	76	*	*	*	*	*	No	*
CSX	FRA-2010-0028	3,900	812	3,600	812	21,565	21,565	Yes	NA	No	2015
Denton County	FRA-2010-0074	11	0	11	0	21	21	No	Information not provided yet	No	2018
Kansas City Southern	FRA-2010-0059	614	0	614	0	2,227	0	Yes	NA	No	2016
Kansas City Terminal *	FRA-2010-0065	*	*	*	*	*	*	*	*	No	*

<sup>12</sup> While FRA is tracking other granular data, this table includes some of the significant components that are common to both hosts and tenant railroads. This data are the most useful indicators of a railroad's general PTC implementation progress, regardless of system type. FRA obtained the data presented in this chart from the Association of American Railroads, the American Public Transportation Association and individual railroads. The table was updated of July 29, 2015. As noted above, if railroads do not provide the information FRA has requested, FRA has authority to subpoena the information.

\*Railroad has indicated it will provide information as part of the American Short Line and Regional Railroad Association's August report.

† Current system design uses other methods to achieve train location information.

‡ Some railroads use revenue service demo to indicate full PTC implementation while others consider it when they have finished the portions of the PTC system they are responsible to complete.

Railroad/Agency Name	Docket Number (PTC Implementation Plans)	Number of Locomotives to be Equipped	Number of Locomotives Completely Equipped to Date	Locomotive: Number of Radios to be Installed	Locomotive: Number of Radios Installed to Date	Miles of Track to be Mapped	Miles of Track Mapped to Date	Spectrum Obtainment Complete	Estimated Spectrum Obtainment Date	Submitted Safety Plan	Estimated Revenue Service Demo Start Year‡
Long Island Rail Road	FRA-2010-0031	776	0	776	0	611	63	Yes	NA	No	2016
MARC	FRA-2010-0038	62	0	62	0	NA	NA	No	Information not provided yet	No	Information not provided yet
Massachusetts Bay Transit Authority	FRA-2010-0030	310	0	310	0	350	0	Yes	NA	No	2020
Metro-North Commuter Railroad	FRA-2010-0032	681	0	681	0	765	765	No	Information not provided yet	No	2016
Nashville Regional Transportation Authority	FRA-2010-0040	14	0	14	0	32	32	No	Host railroad is acquiring	No	2016
New Jersey Transit	FRA-2010-0033	433	2	433	0	544	544	No	July 2016	No	2016
New Mexico Rail Runner Express	FRA-2010-0045	23	16	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	No	Information not provided yet
Norfolk Southern	FRA-2010-0060	3,400	0	3,411	310	10,904	10,904	Yes	NA	No	2015
North County Transit District (San Diego)	FRA-2010-0049	17	17	17	17	60	60	Yes	NA	No	2016
Northeast Illinois Regional Commuter Rail Corp. (Metra)	FRA-2010-0042	526	226	526	225	438	0	No	Information not provided yet	No	2018
Northern Indiana Commuter Transportation District	FRA-2010-0043	73	0	73	0	103	0	No	Information not provided yet	No	2018
Peninsula Corridor Joint Powers Board (San Fran)	FRA-2010-0051	67	63	67	63	52	52	Yes	NA	No	2015
Port Authority Trans-Hudson (PATH)	FRA-2010-0034	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	Information not provided yet	No	2016
Portland & Western Railroad	FRA-2010-0073	33	13	NA	NA	Host railroad is acquiring	Host railroad is acquiring	Host railroad is acquiring	NA	No	2015
San Joaquin Regional Rail Commission	**	15	0	15	0	Host railroad is acquiring	Host railroad is acquiring	Yes	NA	No	2016
Souder Commuter Rail	FRA-2010-0053	32	28	32	28	10.4	10.4	Yes	NA	No	2015

\*Railroad has indicated it will provide information as part of the American Short Line and Regional Railroad Association's August report.

\*\*Implementation details contained in host railroad's implementation plan file.

‡Some railroads use revenue service demo to indicate full PTC implementation while others consider it when they have finished the portions of the PTC system they are responsible to complete.

Railroad/Agency Name	Docket Number (PTC Implementation Plans)	Number of Locomotives to be Equipped	Number of Locomotives Completely Equipped to Date	Locomotive: Number of Radios to be Installed	Locomotive: Number of Radios Installed to Date	Miles of Track to be Mapped	Miles of Track Mapped to Date	Spectrum Obtainment Complete	Estimated Spectrum Obtainment Date	Submitted Safety Plan	Estimated Revenue Service Demo Start Year ‡
South Florida Regional Transit Authority	FRA-2010-0039	47	12	47	0	72.6	14.5	No	Information not provided yet	No	2017
Southern California Regional Rail Authority	FRA-2010-0048	109	109	109	109	361	361	Yes	NA	Yes	2015
Southern Pennsylvania Transportation Authority	FRA-2010-0036	290	142	290	142	252	240	Yes	NA	Yes	2015
Terminal Railroad Association of St. Louis Railroad *	FRA-2010-0070	*	*	*	*	*	*	*	*	No	*
Tri Met Commuter Rail	FRA-2010-0055	33	6	NA †	NA †	NA †	NA †	No	Information not provided yet	No	2015
Trinity Railway Express	FRA-2010-0044	17	0	17	0	34	0	No	Information not provided yet	No	2018
Union Pacific	FRA-2010-0061	6,532	0	6,532	1855	21,150	21,150	Yes	NA	No	2015
Utah Transit Authority Frontrunner Commuter Rail	FRA-2010-0052-	40	40	40	0	0	0	Yes	NA	No	2017
Virginia Railway Express	FRA-2010-0037	41	0	Information not provided yet	Information not provided yet	Host railroad is acquiring	Host railroad is acquiring	Yes	NA	No	Information not provided yet

\*Railroad has indicated it will provide information as part of the American Short Line and Regional Railroad Association's August report.

‡Some railroads use revenue service demo to indicate full PTC implementation while others consider it when they have finished the portions of the PTC system they are responsible to complete.

## 9. Enforcement

In the nearly seven years since RSIA was enacted and in the four and a half years since the railroads submitted their PTCIPs, FRA has observed a wide range of efforts and resources that have been applied to PTC by different railroads. For railroads that are not in full compliance with the PTC statute and regulations on the date of the implementation deadline, and in keeping with the clear direction of the RSIA statute, FRA will pursue enforcement efforts against these railroads.

As with all FRA enforcement action, FRA's use of its enforcement tools will be targeted to maximize safety, save lives in the event of an accident, and bring railroads into compliance with the PTC statute and regulations. Certain enforcement actions, such as prohibiting service on specific routes, may potentially result in sustained and disruptive impacts on the movement of freight and passengers in those locations until full implementation is achieved.

FRA has a number of enforcement tools, including assessment of civil penalties, issuance of compliance or emergency order, and pursuit of injunctions or criminal penalties with the Department of Justice. Assessment of civil penalties is the most often used enforcement tool most often used to gain compliance.

As stated in FRA's long-standing enforcement policy in 49 C.F.R. Part 209 Appendix A, FRA weighs the following factors in determining which instances of noncompliance merit penalties and the amount of penalties that should be imposed:

- (1) The inherent seriousness of the condition or action;
- (2) The kind and degree of potential safety hazard the condition or action poses in light of the immediate factual situation;
- (3) Any actual harm to persons or property already caused by the condition or action;
- (4) The offending person's (i.e., railroad's or individual's) general level of current compliance as revealed by the inspection as a whole;
- (5) The person's recent history of compliance with the relevant set of regulations, especially at the specific location or division of the railroad involved;
- (6) Whether a remedy other than a civil penalty (ranging from a warning on up to an emergency order) is more appropriate under all of the facts; and
- (7) Such other factors as the immediate circumstances make relevant.

The amount of the civil penalty assessment will be based on the penalty guidelines, which were outlined in FRA's first PTC regulation issued in 2010 (see chart below)<sup>13</sup>. Penalties can be assessed per violation per day. In the instance of the expected widespread PTC noncompliance on January 1, 2016, and the railroads' admission that it may take up to five years for them to come into full compliance, the potential civil penalties that FRA could assess are substantial. As with all enforcement actions, FRA has inherent discretion to ensure penalties imposed are aimed at increasing compliance and raising the level of safety.

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<sup>13</sup> 75 Fed. Reg. 2715 (Jan. 15, 2010) and 49 C.F.R. part 236 appendix A.

<b>Subpart I—Positive Train Control Systems</b> <i>All numbers in U.S. dollars.</i>		
236.1005 Positive Train Control System Requirements:	Violation	Willful Violation
Failure to complete PTC system installation on track segment where PTC is required prior to 12/31/2015	16,000	25,000
Commencement of revenue service prior to obtaining PTC System Certification	16,000	25,000
Failure of the PTC system to perform a safety-critical function required by this section	5,000	7,500
Failure to provide notice, obtain approval, or follow a condition for temporary rerouting when required	5,000	7,500
Exceeding the allowed percentage of controlling locomotives operating out of an initial terminal after receiving a failed initialization	5,000	7,500
236.1006 Equipping locomotives operating in PTC territory:		
Operating in PTC territory a controlling locomotive without a required and operative PTC onboard apparatus	15,000	25,000
Failure to report as prescribed by this section	5,000	7,500
Non-compliant operation of unequipped trains in PTC territory	15,000	25,000
236.1007 Additional requirements for high-speed service:		
Operation of passenger trains at speed equal to or greater than 60 mph on non-PTC-equipped territory where required	15,000	25,000
Operation of freight trains at speed equal to or greater than 50 mph on non-PTC-equipped territory where required	15,000	25,000
Failure to fully implement incursion protection where required	5,000	7,500
236.1009 Procedural requirements:		
Failure to file PTCIP when required	5,000	7,500
Failure to amend PTCIP when required	5,000	7,500
Failure to obtain Type Approval when required	5,000	7,500
Failure to update NPI	5,000	7,500
Operation of PTC system prior to system certification	16,000	25,000
236.1011 PTCIP content requirements:		
Failure to install a PTC system in accordance with subpart I when so	11,000	16,000

required		
236.1013 PTCDP content requirements and Type Approval:		
Failure to maintain quality control system	5,000	7,500
Inappropriate use of Type Approval	5,000	7,500
236.1015 PTCSP content requirements and PTC System Certification:		
Failure to implement PTC system in accordance with the associated PTCSP and resultant system certification	16,000	25,000
Failure to maintain PTC system in accordance with the associated PTCSP and resultant system certification	16,000	25,000
Failure to maintain required supporting documentation	2,500	5,000
236.1017 Independent third party Verification and Validation:		
Failure to conduct independent third party Verification and Validation when ordered	11,000	16,000
236.1019 Main line track exceptions:		
Revenue operations conducted in non-compliance with the passenger terminal exception	16,000	25,000
Revenue operations conducted in non-compliance with the limited operations exception	16,000	25,000
Failure to request modification of the PTCIP or PTCSP when required	11,000	16,000
Revenue operations conducted in violation of (c)(2)	16,000	25,000
Revenue operations conducted in violation of (c)(3)	25,000	25,000
236.1021 Discontinuances, material modifications, and amendments:		
Failure to update PTCDP when required	5,000	7,500
Failure to update PTCSP when required	5,000	7,500
Failure to immediately adopt and comply with approved RFA	5,000	7,500
Discontinuance or modification of a PTC system without approval when required	11,000	16,000
236.1023 Errors and malfunctions:		
Railroad failure to provide proper notification of PTC system error or malfunction	5,000	7,500
Failure to maintain a PTC Product Vendor List	2,500	5,000
Supplier failure to provide proper notification of previously	5,000	7,500

identified PTC system error or malfunction		
Failure to provide timely notification	5,000	7,500
Failure to provide appropriate protective measures in the event of PTC system failure	15,000	25,000
236.1027 Exclusions:		
Integration of primary train control system with locomotive electronic system without approval	5,000	7,500
236.1029 PTC system use and en route failures:		
Failure to determine cause of PTC system component failure without undue delay	5,000	7,500
Failure to adjust, repair, or replace faulty PTC system component without undue delay	5,000	7,500
Failure to take appropriate action pending adjustment, repair, or replacement of faulty PTC system component	15,000	25,000
Non-compliant train operation within PTC-equipped territory with inoperative PTC onboard apparatus	5,000	7,500
Interference with the normal functioning of safety-critical PTC system	15,000	25,000
Improper arrangement of the PTC system onboard apparatus	2,500	5,000
236.1033 Communications and security requirements:		
Failure to provide cryptographic message integrity and authentication	5,000	7,500
Improper use of revoked cryptographic key	5,000	15,000
Failure to protect cryptographic keys from unauthorized disclosure, modification, or substitution	5,000	15,000
Failure to establish prioritized service restoration and mitigation plan for communication services	5,000	7,500
236.1035 Field testing requirements:		
Field testing without authorization or approval	10,000	20,000
236.1037 Records retention:		
Failure to maintain records and databases as required	7,500	15,000
Failure to report inconsistency	10,000	20,000
Failure to take prompt countermeasures	10,000	20,000

Failure to provide final report	2,500	5,000
236.1039 Operations and Maintenance Manual:		
Failure to implement and maintain Operations and Maintenance Manual as required	3,000	6,000
236.1043 Task analysis and basic requirements:		
Failure to develop and maintain an acceptable training program	10,000	20,000
Failure to train persons as required	2,500	5,000
Failure to conduct evaluation of training program as required	2,500	5,000
Failure to maintain records as required	1,500	3,000
236.1045 Training specific to office control personnel:		
Failure to conduct training unique to office control personnel	2,500	5,000
236.1047 Training specific to locomotive engineers and other operating personnel:		
Failure to conduct training unique to locomotive engineers and other operating personnel	2,500	5,000
236.1049 Training specific to roadway workers:		
Failure to conduct training unique to roadway workers	2,500	5,000

The Department’s GROW AMERICA Act, submitted to Congress in April 2014 and again in March 2015, proposed that Congress provide FRA with additional authorities that would address the “safety gap” that will exist for many railroads between January 1, 2016, and full PTC implementation. The goal of all of these potential interim safety measures would be to enhance adequate safety between now and the time that the railroads come into full compliance with PTC requirements.

The Department also requested these new authorities to allow FRA to review, approve, and require interim safety measures for individual railroads that may fail to meet the PTC deadline, such as allowing portions of PTC to be turned on for certain segments of track rather than waiting for an entire system to be operational.

These interim requirements will not serve as an extension of the PTC deadline; rather, they are strictly designed to protect the public safety while bringing the railroads into compliance quickly, completely, and safely.

GROW AMERICA request that Congress grant FRA, among other authorities, to:

- (1) Provide FRA authority over PTC system oversight and their operation under controlled conditions before final system certification is complete. This would allow for the incremental use of PTC systems as they are progressively rolled out and

simultaneously increase operating safety because railroads could “turn on” portions of PTC on certain segments of track prior to turning on the technology for the entire system; and

- (2) Authorize FRA to require railroads to use alternative safety technologies on specified line segments in lieu of PTC until PTC is fully implemented.

Congress has not acted on these measures.

FRA believes these interim requirements will save lives while bridging the gap to successful PTC implementation.

## **10. Conclusion**

Safety is the Federal Railroad Administration’s top priority, and safety drives everything that we do at FRA. The rail system is not as safe as it could be without full implementation of PTC. On January 1, 2016, FRA intends to enforce the PTC mandate that Congress established in 2008.

## **Appendix A: Amtrak-Specific PTC Implementation Data**

As of June 9, 2015, Amtrak states:

- 85% of locomotives to date have been equipped with PTC, including approximately 97% of locomotives for the Northeast Corridor (NEC);
- 63% of track miles have been mapped;
- Currently on the NEC, New Haven, CT to Boston, MA and portions of the railroad between New York, NY and Washington, DC, have PTC in service;
- By December 2015, PTC will be in service throughout the sections of the NEC operated and maintained by Amtrak. This will leave a 56 mile section without PTC on the segment owned by the states of New York and Connecticut, and operated and maintained by Metro-North Commuter Railroad Company. The Harold Interlocking in Queens, N.Y. additionally lacks PTC deployment; this section of the NEC is owned by Long Island Rail Road; and
- Outside of the NEC, PTC is currently in service on the 97 miles of the Michigan Line owned by Amtrak between Porter, IN and Kalamazoo, MI. By December 2015, the Amtrak-owned Keystone Corridor from Philadelphia, PA to Harrisburg, PA and the Empire Connection in New York will also be completed and in service.

## **EXHIBIT 2**

UNION PACIFIC CORPORATION  
1400 Douglas Street, 19th Floor  
Omaha, Nebraska 68179

Lance M. Fritz President and Chief Executive Officer

P 402 544 5858  
F 402 501 2130  
lfritz@up.com

September 9, 2015

Cal Dooley  
President and CEO  
American Chemistry Council  
700 Second St., NE  
Washington, D.C. 20002

Chris Jahn  
President  
The Fertilizer Institute  
425 Third St., SW, Suite 950  
Washington, D.C. 20024

Frank Reiner  
President  
The Chlorine Institute  
1300 Wilson Blvd., Suite 525  
Arlington, VA 22209

Dear Messrs. Dooley, Jahn and Reiner:

Thank you for your letter requesting information regarding Union Pacific's Positive Train Control ("PTC") plan. We share your concern over the pending implementation deadline and the need for a timely extension from Congress.

Union Pacific is committed to implementing PTC as safely and as rapidly as possible. We have dedicated tremendous resources to developing and installing this complex technology. We have hired 1,000 workers dedicated to PTC. We have invested \$1.8 billion through mid-2015 and plan on investing another \$200 million before the end of this year. As a result, we are making significant progress:

- 6,275 of 10,000 wayside antennas installed,
- 4,500 of 6,500 locomotives with PTC hardware partially installed (because we are installing as soon as the necessary components are designed and built),
- 13,480 miles of track out of 20,000 miles have PTC hardware and software installed, and
- spectrum is being acquired and custom radio equipment is being developed to satisfy the interoperability requirement.

PTC is not an off-the-shelf technology. After the mandate passed in 2008, we (and the other railroads) had to first design and preliminarily test the system. As with any new technology, there are complexities in its development, including regulatory and supplier delays. These will prevent all freight railroads and virtually every passenger rail carrier from achieving the December 31, 2015 deadline



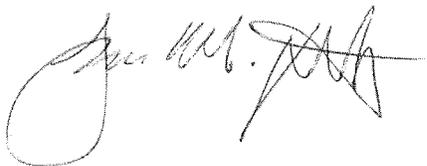
Messrs. Dooley, Jahn and Reiner  
September 9, 2015  
Page Two of Two

established by Congress. We have communicated frequently with the FRA, members of Congress and other government officials about the need for an extension of the 2015 deadline. We appreciate that you and many of your members have also communicated with elected officials on this important issue and conveyed the need for a realistic deadline. While we are still hopeful that Congress will pass, and the President will sign, a bill that extends the PTC deadline (and we intend to do everything we can to get such legislation passed), we also recognize that our TIH customers need to prepare in case the deadline is not extended soon.

Union Pacific has been considering how we can best meet the goals of safety, compliance with applicable regulations and our responsibilities to our customers. We have come to the reluctant conclusion that, without a timely extension, Union Pacific must embargo TIH shipments. We understand that an orderly shut-down of TIH shipments requires advance planning for the many reasons stated in your letter. Accordingly, we anticipate issuing the embargo notice before Thanksgiving to ensure that all TIH carloads or residue empties arrive at their destination or interchange and to avoid stranding any on Union Pacific lines when the deadline takes effect. After the embargo notice is issued, Union Pacific will accept no more TIH loads or residue empties from shippers or consignees at points it serves. Within 48 hours of the embargo notice, Union Pacific will accept no TIH loads or residue empties in interchange from other rail carriers. We are communicating directly with our TIH customers about their contingency plans to deepen our understanding of their concerns and to minimize disruption. We will provide advance notice of when Union Pacific will actually issue its embargo if there is no extension.

We sincerely hope that it will not be necessary to embargo TIH and empty residue shipments. While you can be assured that we will continue to communicate with government officials about the importance of a timely extension, we encourage you and your members to reach out to members of Congress to support a PTC extension.

Sincerely,

A handwritten signature in black ink, appearing to read "James M. Jahn". The signature is stylized and written in cursive.

# **EXHIBIT 3**



500 Water Street  
Jacksonville, Florida 32202  
(904) 366-5210  
(904) 359-1216 (Fax)

---

Michael J. Ward  
Chairman and CEO

September 9, 2015

The Honorable John Thune  
Chairman  
Committee on Commerce, Science, and Transportation  
United States Senate  
Washington, DC 20510

Dear Chairman Thune,

Thank you for the opportunity to provide this update on CSX's ongoing commitment to implementing Positive Train Control (PTC) on the company's rail network. CSX very much appreciates your timely inquiry, because a failure to extend the PTC deadline would pose profoundly serious consequences and costs for the United States. Harsh impacts would immediately be felt by the traveling public and businesses serving U.S. communities and competing around the world.

As you know, the requirement to adopt PTC by December 31, 2015 under the Rail Safety Improvement Act of 2008 (RSIA) was a legislative compromise reached despite widespread recognition that many obstacles would stand in the way. Many of the hurdles we contemplated in 2008 remain as challenges today, and many new hurdles have arisen as we have diligently worked toward successfully implementing PTC. For example, nearly seven years after passage of RSIA, we still do not have final, defect-free versions of the various software components from the railroad supplier community necessary to deploy PTC broadly across the CSX rail network.

Because of the PTC mandate and the nascent technology it represents, CSX's investment for development and installation to date totals more than \$1.3 billion, and will ultimately reach at least \$1.9 billion. As part of that substantial investment, we must replace nearly 52% of our existing signaling system at a cost of over \$800 million. Even beyond technology and transition issues, short line railroads and commuter agencies lack the funding they need to install PTC; the Federal Communications Commission's environmental review process (while since improved) caused significant construction delays; and, the Federal Railroad Administration (FRA) has not always been able to respond to railroads in a timely manner at important milestones.

Through RSIA, Congress required PTC on lines that carry passengers as well as products classified by the U.S. Department of Transportation as toxic inhalation hazards (TIH). Thousands of Amtrak passengers and commuters enjoy the convenience of safe, comfortable rail transportation over CSX's lines every day. Our TIH customers, and significant sectors of the American economy, depend on CSX to deliver important and necessary products safely, securely, and efficiently.

To be clear, CSX and its employees have achieved significant, in fact remarkable, progress toward PTC implementation. More than 1,000 CSX employees and supplier resources have

been hard at work on this complex project. However, as the Association of American Railroads (AAR) made clear in 2012 and repeatedly since, the immense technological hurdles of creating and implementing a previously non-existent system are such that a safe, reliable, nationwide and interoperable PTC network cannot be completed by the deadline of December 31, 2015.

As requested, below we have detailed many of the consequences of not granting a reasonable extension, including the potential cessation of Amtrak and commuter operations, as well as the interrupted delivery of critical supplies, not the least of which are chemicals used for water purification, crop fertilization, and pharmaceutical products. The consequences, in short, are dire.

### **Accomplishments and Outlook**

It is important to acknowledge the work CSX has done to bring PTC to the point that field testing commenced earlier this year. To keep pace with our aggressive timeline, we have been taking locomotives out of service to install PTC hardware on them. We then must take them out of service again to install final hardware and software and to test the units with the PTC system. By taking this costly two-step approach, we hope to accelerate implementation, though 2018 remains the earliest date by which locomotive hardware installations can be fully accomplished. Proudly, we currently have more than 2,700 locomotives at least partially equipped with PTC components.

Along CSX's tracks, more than 2,500 PTC wayside interface units and 465 PTC radio base stations have been installed. A total of 7,500 miles of railroad signal system need to be replaced to enable PTC integration. We have completed the arduous and disruptive task of signal system replacement on 4,700 miles and will have the remaining 2,800 miles completed by the end of 2018. In addition, CSX has mapped its entire network to the precise GPS coordinates required for PTC operation. The success of these efforts was shown recently when CSX recently became the second class I railroad to enter Revenue Service Demonstration.

### **Factors Inhibiting Deadline Compliance**

As mentioned previously, the development and implementation of PTC constitutes an unprecedented technological challenge for America's railroads. 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 prompt action if the operator does not respond. Such a system requires highly complex technologies able to analyze and incorporate the large number of variables that affect train operations. The length of time it takes to stop a train depends on train speed, terrain, weight and length, the number and distribution of locomotives and loaded and empty rail cars in the train consist, and other factors.

A PTC system must be able to consider all these factors simultaneously, reliably, and accurately to safely stop the train when and where necessary. Given the nascence of the PTC suite of technologies, and the impact that an immature PTC system will have on the nation's rail network, adequate time must be afforded to complete development and to allow for continued field testing, evaluation, and deployment. Only by doing so can CSX ensure a safe, effective rollout of a PTC system that meets all requirements, including interoperability among the nation's railroads.

In addition to technology development and testing, and supplier capacity to meet the collective needs of all railroads implementing PTC, other factors have clearly impacted railroads' ability to meet the RSIA deadline. Those include limited radio spectrum that was ultimately secured through a cooperative effort by the Class I freight railroads; federal requirements for public hearings on proposed antenna placements; and, a Federal Railroad Administration Final Rule for PTC standards that was not issued until 2010, challenged by AAR through litigation when normal advocacy channels were not successful, revised, and finally published in 2014. The Final Rule sets standards that must be incorporated into a compliant PTC system.

### **Consequences if No Deadline Extension**

A reasonable extension of the December 31, 2015, deadline is necessary to ensure an effective implementation that meets safety objectives, preserves the fluidity of the nation's passenger and freight rail system, and supports American commerce. Rushed implementation jeopardizes safety, rail fluidity and the U.S. economy.

Without an extension, railroads will be in violation of the RSIA if they continue to move passengers or certain hazardous materials. At the same time, ceasing these types of rail service will have significant consequences to the economy and environment, with industries unable to receive raw materials or ship finished products designated as TIH, which could lead to substantial hazardous freight volumes moving to already congested highways. Taken further, indirect consequences could be an economic slowdown and employment impacts.

Operation of trains after the deadline, even in the absence of any incident, would be an outright, and untenable, violation of law giving rise to fines and the loss of public confidence. In the unlikely event of an accident, CSX would be judged in an unforgiving, and often unfair, tort liability system. Put another way, any accident involving Amtrak, commuters, or TIH products would expose CSX to huge potential liability for operating in violation of federal law. We must act consistently with respect to Amtrak service, commuter operations, and the transport of TIH products on CSX lines, and we do not, at this juncture, believe we can undertake the legal exposure that would result from continuing those operations after the statutory deadline for PTC implementation.

Added to this predicament is a legal requirement imposed on CSX and other rail carriers – the common carrier obligation to transport shipments tendered in safe, approved containers and rail cars. This obligation reflects policymakers' recognition of the railroads' vital importance to our nation's economy. However, the common carrier obligation is not an unqualified or absolute legal duty, because carriers must only "provide transportation on reasonable request" of a customer. CSX believes a request to accept and transport certain products on or after January 1, 2016, without the implementation of PTC fails this reasonableness test because it would require CSX to choose to violate either the RSIA or abandon its common carrier obligation.

More specifically, the anticipated consequences of Congress' failure to extend the PTC deadline include the following:

*Intercity Passengers and Commuters:* On CSX, more than 100 commuter and Amtrak passenger trains operate daily. Many provide service in the Washington, D.C., metropolitan area, including Maryland Area Regional Commuter (MARC) and Virginia Railway Express (VRE) service.

Amtrak suspension on CSX would affect as many as 13 million passengers per year, requiring them to find alternative transportation. Commuter operations on CSX also would be affected. MARC trains handle 14,000 commuters per weekday on CSX, or about 3.6 million per year. VRE averages 17,900 commuters per weekday on CSX, or about 4.5 million per year. Together, MARC and VRE trains on CSX carry 32,000 riders per weekday in the Washington area. Further, VRE is a component of the National Capital Area Evacuation plan, and its readiness for that role could be affected.

CSX extensively uses commuter lines to provide freight rail service to major metropolitan areas like New York, Chicago, Boston, Miami, and Orlando. CSX operates over the following commuter railroads: Massachusetts Bay Transportation Authority in New England; Metro North in New York and Connecticut; METRA in the Chicago region; and SunRail in central Florida and Tri-Rail in south Florida. We do not expect that any of these commuter railroads will be PTC-capable on January 1, 2016. As a result, due to the comingling of CSX freight trains with passenger trains, CSX is seriously considering suspending freight operations over these lines. This would be not only for TIH product, but also for all goods moving to and from these regions. Notably, municipal solid waste trains operate over Metro North to move refuse from New York City to approved landfills.

*TIH Shipments:* Toxic by inhalation (TIH) chemicals, including chlorine and anhydrous ammonia, are used in processes that are critical to contemporary life. The U.S. Department of Transportation has stated, “TIH materials are essential to the economy and national health,” and “rail movement of these materials is extremely safe, and diversion of TIH materials traffic from rail to other modes is not practical.” As you know, four TIH shipper associations recently said in a letter to you that they are “very concerned that we will be unable to ship and receive (TIH) chemicals by rail once the (PTC) deadline passes at the end of this year. Halting the movement of these critical materials could have a negative ripple effect throughout many aspects of the economy.”

CSX transported more than 17,000 carloads of TIH chemicals in 2014. We expect that the possibility of cessation of TIH rail shipments will encourage pre-shipping to the extent that manufacturing processes and rail car supplies will allow. This pre-shipping could complicate network logistics in the midst of the traditional fall peak in which intermodal and other traffic increases in advance of the holiday season. What is more, under federal regulations, TIH cars cannot be held at intermediate rail facilities for more than 48 hours. CSX currently estimates that it will take 30 days to purge loaded and empty TIH cars from our system. Without the certainty of a PTC extension in the very near future, CSX will need to begin preparatory actions no later than November 1 to suspend TIH traffic on December 1 in an orderly manner and have all TIH cars off the CSX system by December 31.

### **Indirect Impacts**

As rail operations are constrained, manufacturers and distributors would be negatively impacted and workers could be idled by cessation of TIH shipments, passenger operations, and freight operations over commuter lines. Commuters, hazardous commodities and other freight in large cities like New York, Chicago, and Boston would move back to already congested highways. Without proper development and testing, in the laboratory and in the field, the congressional mandate for PTC implementation by December 31 places the U.S. economy in jeopardy.

## Conclusion

In the face of continuing uncertainty over an extension, CSX is preparing a series of steps over the next several weeks to ensure that Amtrak and commuter agencies and our freight customers are fully informed about actions that may be necessary. The steps we are evaluating include formal notifications to Amtrak and the commuter agencies, notice of embargoes on TIH traffic, and interim communications so that all options can be fully communicated and vetted.

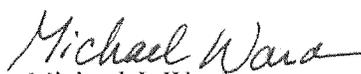
That uncertainty is compounded by the threat of FRA enforcement actions that range from significant daily fines to operating mandates that could include complete cessation of operations over non-compliant lines.

CSX is in an untenable position. On the one hand, we will be unable to comply with the RSIA on January 1, yet continuing operations to satisfy our common carrier obligation would mean CSX would be violating that law. It cannot be in the interest of U.S. transportation to sharply impair rail operations solely because of an unstudied deadline achieved through political compromise. The devastating consequences of crippling the U.S. rail network, and the threat of massive FRA fines, cannot change the reality that the deadline is impossible.

The American freight railroads are on pace for another record year in safety, and are investing billions to develop and expand critically needed transportation infrastructure. Adjusting the implementation deadline would more accurately reflect railroads' considerable efforts to design, test, deploy, and install PTC, and train tens of thousands of railroad employees on the operation, use, and maintenance of this incredibly complex technology.

Senator, your leadership regarding PTC is greatly appreciated, and the Senate Committee on Commerce, Science, and Transportation's passage of the Comprehensive Transportation and Consumer Protection Act of 2015 is encouraging. CSX remains committed to installing PTC hardware by the end of 2018 and implementing PTC in daily train operations by the end of 2020. We urge your continued support for a reasonable deadline extension.

Sincerely,

  
Michael J. Ward

cc: The Honorable Bill Nelson  
The Honorable Deb Fischer  
The Honorable Cory Booker  
The Honorable Anthony Foxx, United States Secretary of Transportation  
The Honorable Sarah Feinberg, Acting Administrator, Federal Railroad Administration  
The Honorable Daniel R. Elliott III, Chairman, Surface Transportation Board  
The Honorable Ann D. Begeman, Vice Chairman, Surface Transportation Board  
The Honorable Deb Miller, Board Member, Surface Transportation Board

# **EXHIBIT 4**



**Carl R. Ice**  
*President and  
Chief Executive Officer*

**BNSF Railway Company**  
P.O. Box 961052  
Fort Worth, TX 76161-0052

2650 Lou Menk Drive  
Fort Worth, TX 76131-2830  
(817) 352-1400  
(817) 352-7488 fax  
carl.ice@bnsf.com

September 9, 2015

The Honorable John Thune  
Chairman, Committee on Commerce, Science and Transportation  
United States Senate  
Washington, DC 20510

Dear Senator Thune:

I write in response to your letter of August 28, 2015, regarding the potential consequences of a failure to extend the current December 31, 2015, Positive Train Control (PTC) implementation deadline contained in the Rail Safety Improvement Act of 2008 (RSIA).

BNSF has invested over \$1.5 billion in the testing, development, purchase, and installation of PTC components out of an estimated total exceeding \$2 billion. PTC will be deployed on roughly half of our system; these lines host 80 percent of BNSF's freight density. We expect to have a significant portion of the necessary PTC system implemented on the network by the current December 31, 2015, deadline, but after that date we still require ongoing installation and extensive testing, as discussed below.

PTC deployment is an unprecedented technical and operational challenge that requires the entire U.S. railroad network to develop, test and implement this new safety system, and avoid impacts to network capacity and fluidity as we do. Despite our strong commitment to this technology, BNSF has faced significant technical, regulatory and operational obstacles to meeting the PTC implementation deadline imposed by the RSIA and will not meet the RSIA deadline for deployment. As a result, BNSF believes that Congress must move the PTC deadline in order to achieve successful PTC implementation and to avoid potential significant and unnecessary congestion and shipper service impacts.

#### Challenges to PTC Deployment and Related Impacts on Train Operations

As should be expected in the development and implementation of any "Next Generation" technology, there have been significant challenges to nationwide, interoperable PTC deployment. First, fully functional, interoperable and production-ready PTC hardware or software did not exist in 2008. The development and production of PTC systems has been affected by the availability and reliability of hardware components, spectrum and software.

Second, as you know, one of the biggest impediments to PTC deployment was the more than a year period of time during which railroads were unable to obtain necessary Federal Communications Commission permits for radio tower and antennae construction. Third, as we deploy and test PTC on BNSF, we continue to experience technical issues related to software, component reliability and availability. In addition, construction and “cut-over” (or turning on) of PTC systems across subdivisions must be carefully timed, as it can impact network capacity.

The component and software challenges that our real world use of PTC in revenue service continue to uncover adverse impacts to train operations. For example, we are seeing the PTC system trigger unnecessary braking events in which trains are stopped with a full-service brake application. This means that significant work has to occur before the train can re-start. These kinds of delays are numerous and cumulatively consume railroad capacity. Our experience thus far shows that railroads will need a reasonable period of time to test PTC and “work the bugs out” after PTC is deployed to avoid significant service impacts.

#### Legal Considerations if PTC Deadline is Not Extended

BNSF has evaluated the competing statutory and regulatory requirements regarding operations on mandated lines where PTC has not been installed and operational as of January 1, 2016, and our legal analysis calls into question whether we legally may operate any freight or passenger service on such lines. There are several legal and policy reasons why BNSF believes this is so.

First, BNSF reads the RSIA and the Federal Railroad Administration’s (FRA) PTC implementing regulations as requiring PTC on lines that are part of the FRA-approved PTC Implementation Plan in order for *any train* to originate on such a line as of January 1, 2016. Under this plain reading of the RSIA, the deadline will impact all freight service, as opposed to only TIH-PIH and passenger trains, on the lines where PTC is not fully installed and implemented, which we noted in our recent “Fall Peak” letter to the Surface Transportation Board.

Second, BNSF recognizes that, in addition to the RSIA PTC requirement, it continues to have a common carrier obligation to provide service upon reasonable request pursuant to 49 U.S.C. 11101, but is concerned whether it can reconcile its duty to provide common carrier service on lines not in compliance with the PTC mandate as of January 1, 2016. BNSF believes that the common carrier obligation is tempered by reasonableness, and must be read as subject to the later-enacted RSIA safety rules, such as the requirement to have an interoperable PTC system. BNSF is concerned that it is not reasonable to operate in violation of a legal safety requirement in order to fulfill its common carrier obligation.

Third, BNSF, as a matter of law, corporate policy and principle, does not willfully violate safety statutes or regulations or ask our employees to do so. The announced enforcement policy by the FRA of imposing fines for non-performance puts BNSF in a position that will be difficult to reconcile with our aforementioned unwillingness to willfully violate safety laws or regulations. BNSF does not believe that it can pick and choose which safety rules must be followed. And even if a railroad, in theory, was ordered by a governmental entity to or simply was inclined to direct its employees to operate over lines where PTC is required but is not yet installed, another

federal statute protects employees from acting to perform tasks in violation of law. (Specifically, 49 U.S.C. 20109(a)(2) protects employees who “refuse to violate or assist in the violation of any Federal law, rule, or regulation relating to railroad safety or security.”)

Fourth, in addition to the statutory PTC deadline, BNSF’s commuter contracts generally require that such service be operated in compliance with all applicable laws and regulations, which we believe would include the current mandate for PTC operation over certain rail lines. That is, BNSF may not be able to provide all existing commuter service to various agencies, such as Chicago, Seattle and Minnesota, as well as certain Amtrak lines. Thus, BNSF would be faced with the difficult choice of operating in violation of the PTC statute or risking breach of contract claims for not operating the service. This does not even take into account the potential social and economic costs to communities were BNSF to not operate commuter service.

Finally, were BNSF or any other railroad to attempt to operate over lines where PTC is not yet in place and an accident were to occur that is found to be PTC-preventable, the exposure to legal claims, including punitive damages, would pose a significant financial and reputational risk.

#### Consequences of Failing to Extend the PTC Deadline

As I have indicated above, BNSF has serious questions whether it should operate on subdivisions that have not been equipped with PTC in knowing violation of the federal law that mandated PTC as of January 1, 2016. Enormous congestion could result from efforts to re-route traffic that moves on the PTC lines, which are maintained to handle the most density, to lines on which PTC is not required. These are generally low-density territories where we do not have crews and maintenance resources positioned for those volumes. We have analyzed what train operations could continue if operations are halted on mandated subdivisions without PTC installed and believe that operations across our entire network will likely be compromised by congestion and effectively shut down. BNSF would do whatever is reasonably possible to mitigate this impact, but the consequences for the economy and for our company would be substantial.

Furthermore, if we knowingly operate in violation of the law on mandated portions of the network without PTC and FRA engaged in enforcement against BNSF, it’s unclear what kind of operational choices, and related network impacts, BNSF would face in order to minimize its exposure to enforcement and liability risk.

If Congress does not act to move the deadline and BNSF operations are out of compliance with the PTC statute and regulations, BNSF could be left with few acceptable options. You may be assured that we have, and will continue, to update Congress and our customers on whatever actions we believe we are compelled to take in that circumstance. We are developing potential communications to our customers and passenger rail tenants in the event that no extension is enacted by the end of October, as these stakeholders may need to make preparations or alternative plans well before the current December 31, 2015, deadline.

BNSF Railway Company  
September 9, 2015  
Page -4-

We appreciate the action that you and your colleagues in the Senate have taken to responsibly extend the PTC deadline, thereby ensuring that railroads can deploy reliable PTC as soon as possible. We remain hopeful that Congress will take appropriate action.

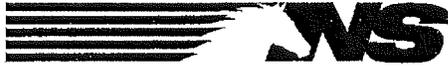
Sincerely,

A handwritten signature in black ink, appearing to read 'Carl R. Ice', written in a cursive style.

Carl R. Ice  
President & CEO

cc: The Honorable Bill Nelson  
The Honorable Deb Fischer  
The Honorable Cory Booker  
The Honorable Anthony Foxx, United States Secretary of Transportation  
The Honorable Sarah Feinberg, Acting Administrator, Federal Railroad Administration  
The Honorable Daniel R. Elliott III, Chairman, Surface Transportation Board  
The Honorable Ann D. Begeman, Vice Chairman, Surface Transportation Board  
The Honorable Deb Miller, Board Member, Surface Transportation Board

# **EXHIBIT 5**



Norfolk Southern Corporation  
Three Commercial Place  
Norfolk, Virginia 23510-2191  
Telephone (757) 629-2370  
Fax (757) 629-2345

**James A. Hixon**  
Executive Vice President  
Law and Corporate Relations

September 9, 2015

Mr. Cal Dooley  
President and CEO  
American Chemistry Council  
700 Second St., NE  
Washington, DC 20002

Mr. Chris Jahn  
President  
The Fertilizer Institute  
425 Third St., SW, Suite 950  
Washington, DC 20024

Mr. Frank Reiner  
President  
The Chlorine Institute  
1300 Wilson Blvd., Suite 525  
Arlington, VA 22209

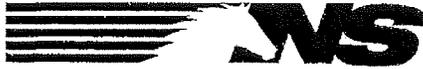
Gentlemen:

Norfolk Southern is in receipt of your letter dated August 18, 2015, to Jim Squires. Enclosed please find a response letter to Senator John Thune, which we believe also answers your letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim". The signature is written in a cursive, flowing style.

Enclosure



Norfolk Southern Corporation  
Three Commercial Place  
Norfolk, Virginia 23510-2191  
Telephone (757) 629-2845  
Fax (757) 533-4954

**James A. Squires**  
President and  
Chief Executive Officer

September 9, 2015

The Honorable John Thune  
Chairman, Committee on Commerce,  
Science, and Transportation  
United States Senate  
Washington, DC 20510-6125

Dear Senator Thune:

Thank you for your inquiry of August 28, 2015, regarding the effects of Congress not extending the deadline for implementation of Positive Train Control ("PTC") on Norfolk Southern Railway Company ("NS"), its customers, the people who ride passenger trains that operate over NS's tracks, and the economy. As you know, NS has long been committed to the safety of our employees, our customers' shipments, and the communities in which we operate and that we serve. Before we address the specific questions presented in your letter, I think it would be helpful to review how we got here.

### **Statutory and Regulatory Background**

On October 16, 2008, Congress enacted the Rail Safety Improvement Act of 2008 ("RSIA"). That legislation established a deadline to complete the installation of an interoperable PTC system by December 31, 2015. The December 31, 2015 deadline was established without any analysis that it could be achieved. In short, the deadline was an arbitrary date, and there was no rational basis for the deadline Congress established.

Furthermore, enactment of RSIA was not the government's last word in describing the PTC mandate imposed on rail carriers. Although RSIA was passed in October 2008, the FRA's final PTC regulation was not promulgated until January 2010, and that regulation required two additional amendments (in 2012 and 2014) to clarify the requirements for implementation. Pursuant to the rules promulgated by the Federal Railroad Administration ("FRA"), PTC must be installed on Class I rail carrier mainlines over which Toxic Inhalation Hazards ("TIH") are transported or over which intercity or commuter passenger service is regularly provided. Today, NS estimates that it is required to install PTC on approximately 9,560 miles of its network.

The repeated amendments to the rule have presented the railroads with something of a moving target. The PTC Development Plan ("PTCDP") for I-ETMS (which is the PTC system that will be used by the freight carriers) has required three revisions to satisfy FRA's

requirements to alter or to refine the system's scope and function. Changes to the PTCDP have an effect on deployment of I-ETMS in revenue service, as the deployed system must be built according to the approved Plan. The latest version of the PTCDP was jointly submitted to FRA by NS, UP, and CSX on July 8, 2015, and as of the date of this letter has not been addressed by FRA. So, to the best of our knowledge, the plan for the system we are required to build is still in flux even at this late date.

### **Norfolk Southern Implementation Efforts**

Having begun to look at PTC as early as 2005, NS recognized that there would be significant challenges ahead to meet the arbitrary deadline set by Congress. So, immediately after RSIA was enacted, NS began to work on multiple fronts to develop the many systems and subsystems necessary to implement PTC. NS began to enter into agreements with other railroads of all sizes regarding standards to ensure that PTC systems would be interoperable across multiple railroads. With industry partners, it created a new company, called PTC 220, to go into the market and acquire the wireless spectrum needed for PTC systems (at the 220 MHz frequency) because of the need for greater coverage, reliability and security than provided by the cellular networks in the U.S. In essence, NS and the other Class I railroads were forced to create a private radio frequency network capable of transmitting and receiving data necessary to support an interoperable PTC network. NS also invested to become a 25% owner of Meteorcomm, along with BNSF, CSXT and UP, to design a software-defined radio capable of operating on the 220 MHz frequency as no manufacturers were producing radios meeting those standards at the time. Meteorcomm also worked to design a robust messaging system that would be able to securely transmit the millions of messages an interoperable PTC system requires.

But that was just the beginning. Before it can fully implement PTC, NS must also:

- Install almost 5,000 wayside devices along its PTC "footprint;"
- Install PTC equipment in 3,400 locomotives;
- Replace nearly 2,700 existing signals;
- Complete GIS mapping and attributing of over 16,000 track miles; and
- Train over 20,000 employees.

All of these efforts are well under way. To date, NS has spent nearly \$1 billion and hired or retained 698 signal-related personnel to implement PTC on its system.

NS has gone to these great lengths despite the government's own reports that the costs of PTC outweighed the safety benefits by a ratio of 22 to 1. See 77 Fed. Reg. 28286-7. As Secretary of Transportation Anthony Foxx has observed, "We know that 99.9% of shipments reach their destination safely" even without PTC. Accident statistics further show that 98% of accidents reported by all railroads would not have been prevented by having PTC.<sup>1</sup>

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<sup>1</sup> Letter from Acting Administrator Betty Munro to Senator Robert Byrd, Aug. 17, 2004.

In its PTC Implementation Plan (PTCIP), submitted to the FRA on April 16, 2010, NS outlined both its plan for implementation of PTC and the nearly 80 risks it could then identify to successful implementation by the deadline. See NS PTCIP at 22-26. Frankly, some of those risks have, in fact, arisen, and others that neither NS nor Congress could then anticipate have occurred as well.

For example, supply chain and quality control issues arose for various components of PTC--equipment suppliers did not have the capacity to supply the entire industry at once; existing equipment had to undergo design changes; and on-board and radio software development hit issues that caused delays. Although some components of a PTC system existed prior to the law, they were not designed for PTC or to work in concert with so many other components. Other components have been conceived, designed, and developed for PTC since the enactment of the law. All of the more than 20 major components of a PTC system that underlie a nationwide PTC network had to be tested to ensure they could work together reliably, which is a concept known as system integration. Testing is obviously an iterative process, and some components have had to be redesigned and retested. With each iteration of a component or its interface to other components, the likelihood of related programmatic changes occurs because of the dependency between the many components of a system of systems. These obstacles to implementation, and others, were reported by the Association of American Railroads in a January 18, 2012, report to the FRA entitled "PTC Implementation: The Railroad Industry Cannot Install PTC on the Entire Nationwide Network by the 2015 Deadline," which I will refer to as the "AAR 2012 Report."

As just one example of an unanticipated risk, PTC requires wayside antennas along the rights-of-way to permit the transmission of information specific to the system. Each of these antennas will transmit signals using radio spectrum licensed by the Federal Communications Commission ("FCC"), and must be mounted to a pole that is installed in the right-of-way. The FCC has taken the position that the construction of these poles is a federal undertaking triggering Section 106 of the National Historic Preservation Act (NHPA). In the spring of 2013, the FCC instituted a thirteen-month long moratorium and directed the railroads to cease installation of wayside pole structures needed for PTC communications while the agency sought to develop a process for review of the structures under Section 106. The industry reported to the FRA on this government-imposed obstacle to implementation in the March 2014 update to the AAR 2012 Report. Even as the moratorium was lifted, the FCC rejected a plea from the railroad industry to categorically exclude these structures from review (just as the Federal Highway Administration categorically excludes installation of communications systems within railroad rights-of-way) and instead required the railroads to painstakingly submit each location for individual review. This issue not only resulted in a delay in installing the poles themselves, but also delayed the

construction schedule for the completion of PTC signal projects (to say nothing of the significant additional expense required to submit each pole for review under Section 106).

In June 2012, the FRA itself issued a report to Congress entitled “Positive Train Control Implementation Status, Issues, and Impacts.” The FRA found that “both freight and passenger railroads have encountered significant technical and programmatic issues that make accomplishment of those plans questionable.” See FRA 2012 Report at 1. It further observed that “[w]here solutions have been identified, all attempts are being made to accelerate their implementation.” See FRA 2012 Report at 2. More than three years ago, the FRA concluded that “the majority of railroads will not be able to complete PTC implementation by the 2015 deadline.” See FRA 2012 Report at 2. FRA reiterated this finding in its August 2015 report to the House and Senate Committees on Appropriations entitled “Status of Positive Train Control Implementation.” See FRA August 2015 Report at 9. Not once – in either report – did FRA identify anything that the railroads could have done differently. Despite its overall finding, the FRA recognized the substantial resources the railroads were directing toward PTC implementation. “To date, the railroads have raised and expended more than \$1.5 billion of private capital to try to resolve [the issues with implementation of PTC by the deadline].” See FRA 2012 Report at 1. As I mentioned above, by now NS has spent nearly that much on its own.

That most railroads would not be able to make the deadline was confirmed in the United States Government Accountability Office report to Congress in August of 2013. GAO’s explanation confirms what the railroads had said over 18 months earlier and is worth quoting at some length:

Challenges to meeting the 2015 deadline are complex and interrelated. For instance, many of the PTC components had not been developed before RSIA was enacted, and some continue to be in various stages of development. In addition, all components, once developed must be assembled and integrated to achieve the overall safety function of PTC. Likewise, the steps involved with implementing PTC are interrelated, with delays or problems with one component or process resulting in additional delays. Railroad representatives told us that once all the components have been assembled, integrated, and tested for reliability, rolling out and phasing in a PTC system into each railroad’s network will take a considerable amount of time. For example, Amtrak first conducted a demonstration test of its PTC system on its Michigan line in 1996, but it was 5 years later, in 2001, when the system was put into service.<sup>2</sup>

GAO further reported that “[b]y attempting to implement PTC by the 2015 deadline while key components are still in development, railroads may be making choices that could introduce financial and operational risks to PTC implementation.” See GAO Report at p. 22. Given these

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<sup>2</sup> *Positive Train Control: Additional Authorities Could Benefit Implementation*, United States Government Accountability Office Report to the Chairman, Committee on Commerce, Science, and Transportation, U.S. Senate, August 2013 at pp. 17-18.

risks and the then-current state of PTC technology, GAO recommended that Congress consider amending RSIA to grant FRA the authority to extend the deadline.

Consistent with our message since January 2012 and as subsequently confirmed by both FRA and GAO, NS can again state that it will not meet the December 31, 2015, deadline. But I should also be clear that it is not because of a lack of attention, money, or effort contributed by NS. The deadline was simply unattainable despite diligent, good faith efforts. How arbitrary and unrealistic was the deadline? The current status speaks volumes given the undisputed fact that railroads – big and small, freight and passenger – have been focused on developing and deploying an interoperable PTC system solution since the adoption of the deadline. FRA recently reported that:

“Class I railroads have:

- Completed or partially completed installations of more than 50% of locomotives that require PTC equipment;
- Deployed approximately 50% of wayside units;
- Replaced approximately 50% of signals that require replacement; and
- Completed most of the required mapping for PTC tracks.

By the end of 2015, AAR projects that:

- 39% of locomotives will be fully equipped;
- 76% of wayside interface units will be installed;
- 67% of base station radios will be installed; and
- 34% of required employees will be trained.

According to APTA, 29% of commuter railroads are targeting to complete installation of PTC equipment by the end of 2015. Full implementation of PTC for all commuter lines is projected by 2020.”

See FRA August 2015 Report at 9.

### **Consequences of Failure to Extend the Deadline**

I now turn to each of your questions.

#### **What Are the Issues and Challenges That Could Arise if Congress Does Not Extend the Statutory Deadline?**

As I have said, NS has already made substantial investment and made Herculean efforts to implement PTC by the December 31, 2015, deadline. However, the existence of that deadline

creates substantial risk to NS that NS cannot ignore. Some of the risks and challenges that NS is evaluating include the following.

First, there is the obvious risk of financial penalties associated with enforcement of the deadline. FRA's Acting Administrator Sarah Feinberg has made clear her intent to "enforce the Dec. 31, 2015 deadline for implementation, just as Congress mandated." In fact, she has stated that:

Starting on January 1, 2016, FRA will impose penalties on railroads that have not fully implemented PTC. Fines will be based on FRA's PTC penalty guidelines, which establish different penalties depending on the violation. There are many potential violations, such as: \$15,000 to \$25,000 fine for failure to equip locomotives. The penalties may be assessed per violation, per day and may be raised or lowered depending on mitigating or aggravating factors.<sup>3</sup>

The penalties FRA can assess are not just in the nature of fines for failure to equip; FRA's penalties include penalties for operating while not in compliance with the PTC mandate. For example, there are fines for operating passenger trains at speeds equal to or greater than 60 miles-per-hour on non-PTC-equipped territory where PTC is required and for operating freight trains at speeds equal to or greater than 50 miles-per-hour on non-PTC equipped territory where PTC is required. See FRA 2015 Report at 15.

Second, NS faces the risk of other possible enforcement actions by the FRA. For example, Acting Administrator Feinberg has stated that "FRA will also use additional, appropriate enforcement tools to ensure railroads implement PTC on the fastest schedule possible – be it emergency orders, compliance orders, compliance agreements, additional civil penalties or any other tools at our disposal."<sup>4</sup>

Third, there are additional challenges created in the event that an accident involving TIIH traffic or passengers were to occur on NS after December 31, 2015. In any lawsuit arising from such an accident, plaintiffs could attempt to claim that NS is negligent per se because it had not complied with the PTC implementation deadline. NS would vigorously defend against such a claim, but the fact that someone could raise such a claim is a risk.

### **What Are the Actions That NS Is Considering or Analyzing as a Result of These Issues and Challenges?**

NS is currently evaluating its options to address the risks and challenges mentioned above.

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<sup>3</sup> <http://utu.org/2015/06/26/fra-the-state-of-ptc-implementation-in-the-u-s/>.

<sup>4</sup> <http://utu.org/2015/06/26/fra-the-state-of-ptc-implementation-in-the-u-s/>.

First, NS is considering taking legal action to invalidate the deadline as a violation of due process given its arbitrary nature and the potential to deprive the railroad of cash through fines imposed by FRA. This deadline appears to have been selected with no analysis or feasibility inquiry.

Second, NS independently is considering ceasing to ship TIH commodities and declining to host passenger trains on its network effective January 1, 2016. NS does not believe that such an approach would violate the common carrier obligation because the request for service that requires NS to violate federal law and which would subject NS to penalties is not reasonable. This approach is the only complete solution to the risk of fines from the FRA for operating in non-compliance with the PTC mandate after December 31, 2015, and to the risks associated with plaintiffs' litigation in the event of an accident involving TIH or passengers that occurs after that deadline.

**What Are the Potential Overall Effects on Freight and Passenger Transportation, Including Any Economic Effects and Unintended Consequences for Safety if the December 31 Deadline Is Not Modified?**

Obviously, ceasing to haul TIH commodities would be disruptive to certain of NS's customers. The downstream effects are better explained by those customers, although one could envision that supply chains that involve those commodities would be disrupted. As an example, on August 19, 2015, NS received a letter from the American Chemistry Council, the Fertilizer Institute and the Chlorine Institute asking questions similar to those asked in your letter because of their concerns about these downstream effects. Of course, those effects would also ripple through the American economy.

The downstream effects on the traveling public from NS having to cease hosting Amtrak and commuter trains is similarly obvious. For example, Virginia Railway Express had approximately 409,000 riders during the month of June 2015.<sup>5</sup> During the same month, there were 2.68 million trips taken on Amtrak trains across the country.<sup>6</sup>

Finally, NS's ability to conduct freight operations on the Amtrak-owned Northeast Corridor (NEC) and other passenger lines after December 31 is uncertain. NS operates over passenger lines, including the NEC, to reach over \$1 billion of its business. Our customers accessible only via passenger lines include automobile plants, major coal export terminals, chemical complexes, crude oil receivers, power plants, and even feed mills on the Delmarva Peninsula. Interoperability between NS and these passenger lines, including Amtrak, NJT, and SEPTA, is still in the technical design and commercial agreement phase. Much like NS is evaluating the risk of hosting passenger trains on its lines without PTC after the

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<sup>5</sup> [http://m.vre.org/about/Ops\\_board\\_items/2015/July/15-VRE-114\\_July\\_CEO\\_Report\\_R6\\_LowRes.pdf](http://m.vre.org/about/Ops_board_items/2015/July/15-VRE-114_July_CEO_Report_R6_LowRes.pdf)

<sup>6</sup> <http://www.amtrak.com/ccurl/494/528/Amtrak-Monthly-Performance-Report-June-2015.pdf>

The Honorable John Thune  
September 9, 2015  
Page 8

deadline, we assume Amtrak, NJT and SEPTA could be similarly evaluating the risk of hosting freight trains on passenger lines without PTC.

**Conclusion**

In closing, I hope it is clear that NS and the industry have been working hard on PTC development and implementation. However, the PTC deadline is arbitrary and disconnected from the great task and inevitable delays, including those created by the government itself, associated with developing, testing, integrating, and installing PTC components, and with ensuring that the system is interoperable and safe. Even after PTC is installed, there will be significant amounts of testing and work to make sure that it actually functions properly to make the railroad safer rather than less safe. In short, we are years away from full deployment of the system. I urge Congress to recognize this reality and adopt an extension of the deadline. The issues and challenges NS will face absent an extension of the deadline are real and the choices NS will have to make are not ones it relishes because NS is fully aware of the adverse impacts those choices would have on the movement of freight and passengers in the United States. Without an extension, however, NS will have to take actions to mitigate the risks associated with operating a railroad that will inevitably be non-compliant with the deadline.

Sincerely,



cc: The Honorable Bill Nelson  
The Honorable Bill Shuster  
The Honorable Peter A. DeFazio  
The Honorable Anthony Foxx  
The Honorable Daniel R. Elliott  
The Honorable Ann D. Begeman  
The Honorable Deb Miller  
The Honorable Sarah Feinberg

# **EXHIBIT 6**

## KANSAS CITY SOUTHERN

MAILING ADDRESS: P.O. BOX 219335 • KANSAS CITY MO 64121-9335

PATRICK J. OTTENSMEYER  
PRESIDENT  
PHONE (816) 980-1702



FOUNDED 1887  
[www.kcsouthern.com](http://www.kcsouthern.com)

September 1, 2015

Mr. Calvin M. Dooley, President & CEO  
American Chemistry Council  
700 Second Street, N.E.  
Washington, DC 20002

Mr. Frank Reiner, President  
The Chlorine Institute  
1300 Wilson Blvd., Suite 525  
Arlington, VA 22209

Mr. Christopher L. Jahn, President  
The Fertilizer Institute  
425 Third Street, SW, Suite 950  
Washington, DC 20024

Dear Messrs. Dooley, Jahn and Reiner:

Thank you for your August 18, 2015 letter regarding implementation of Positive Train Control (PTC). Kansas City Southern (KCS) agrees that safety and security of rail shipments is the paramount concern for our company and for its shippers.

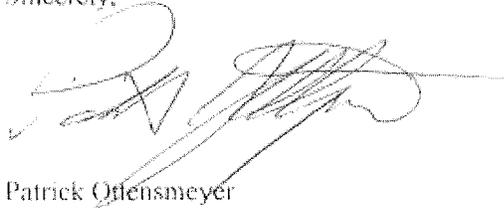
As you know, KCS works closely with the Association of American Railroads (AAR), the Pipeline and Hazardous Materials Safety Administration (PHMSA), Federal Railroad Administration (FRA), our customers, our peers and others to transport hazardous and other materials as safely as possible. KCS has been a Responsible Care® partner company since 1999. KCS also collaborates with TRANSCAER®, a community outreach program designed to address community concerns regarding the transportation of hazardous materials through planning and cooperation.

The Kansas City Southern Railway Company (KCSR) is implementing PTC, but as is the case with other carriers and as has been widely recognized for several years, full implementation of interoperable PTC by the current statutory deadline will be technologically impossible. KCSR has and continues to invest in PTC technology to ensure regulatory compliance and to support our core business objective of building upon our already strong safety culture.

As you know, legislation to modify the current PTC implementation deadline was included in the multi-year surface transportation reauthorization, H.R. 22 Developing a Reliable and Innovative Vision for the Economy (DRIVE) Act which was passed by the U.S. Senate before the August recess and will be considered in the House of Representatives when Congress returns. Also, the FRA has stated that it is working on "alternative safety measures" for carriers who do not meet the December 31 implementation deadline if Congress does not modify that deadline before December 31.

Until FRA announces these measures and KCS has had a chance to assess their operational impact, or until Congress passes an extension of the PTC deadline, it is not possible to know precisely what effect the unworkable current PTC obligation will have on Toxic Inhalation Hazard (TIH) movements come January 1, 2016. That said, KCSR intends to comply with its common carrier obligation just as it strives to comply with all applicable laws and regulations.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Offensmeyer", with a long horizontal flourish extending to the right.

Patrick Offensmeyer

# **EXHIBIT 7**



Scott S MacDonald  
Senior Vice-President  
Operations (System)

7550 Ogden Dale Road SE  
Calgary Alberta  
Canada T2C 4X9

T 403 319 6574  
scott\_s\_macdonald@cpr.ca

September 1<sup>st</sup>, 2015

Cal Dooley  
President and CEO  
American Chemistry  
Counsel  
700 Second St, NE  
Washington, DC 20002

Chris Jahn  
President  
The Fertilizer  
Institute  
950-425 Third St, SW  
Washington, DC 20024

Frank Reiner  
President  
The Chlorine  
Institute  
525-1300 Wilson Blvd  
Arlington, VA 22209

Dear Sirs:

Thank you for your letter dated August 18, 2015 addressed to Mr. Harrison.

As your letter reflects, the issue of a Congressional extension of the PTC implementation deadline is currently before Congress with no clear indication as to when a decision might issue. This creates uncertainty for both railroads and shippers. TIH shippers and their representatives are better placed to determine what contingency plans are required by the chemical industry in the face of this uncertainty.

CP intends to comply with regulations and its common carrier obligation.

Yours Truly,

Scott MacDonald  
Senior Vice President  
Operations (System)

# **EXHIBIT 8**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

\_\_\_\_\_  
 AMERICAN CHEMISTRY COUNCIL, )  
 THE CHLORINE INSTITUTE, AND )  
 THE FERTILIZER INSTITUTE )  
 )  
 Plaintiffs, )  
 )  
 v. )  
 )  
 BNSF RAILWAY COMPANY, et al., )  
 )  
 Defendants. )  
 \_\_\_\_\_

Civil Action No. \_\_\_\_\_

**AFFIDAVIT OF CHRISTOPHER D. BOHN  
IN SUPPORT OF THE  
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION**

I, Christopher D. Bohn of Deerfield, Illinois, of lawful age, being first duly sworn upon oath deposes and states as follows:

*Introduction of Witness and Purpose of Affidavit*

1. My name is Christopher D. Bohn. I am Senior Vice President, Supply Chain at CF Industries Holdings, Inc. My business address is: 4 Parkway North, Suite 400, Deerfield, IL 60015.

2. CF Industries Holdings, Inc. ("CF") is a U.S. corporation, with its corporate headquarters in Deerfield, Illinois.

3. I joined CF in September 2009 as Director, Corporate Planning and Analysis. In October 2010, I became the company's Vice President, Corporate Planning. More recently, in January 2014, I became CF's Vice President, Supply Chain, and was subsequently promoted to Senior Vice President, Supply Chain in January 2015. Prior to joining CF, I served as the Chief

Financial Officer for Hess Print Solutions and as Vice President Global Financial Planning and Analysis for Merisant Worldwide, Inc. I earned a Bachelor of Science degree in Finance at Indiana University and obtained a Master of Business Administration degree from Northwestern University's Kellogg Graduate School of Management.

4. As a global leader in nitrogen fertilizer manufacturing and distribution, CF owns and operates world-scale nitrogen complexes and serves agricultural and industrial customers through its best-in-class distribution system. CF is one of the world's largest producers of nitrogen-based fertilizer, the only non-discretionary, non-substitutable crop nutrient, which farmers must apply every year or face an immediate reduction in yield. All of CF's nitrogen sales are derived from anhydrous ammonia, either through direct sales of anhydrous ammonia, or through sales of ammonia-based nitrogen products that CF produces, such as urea, urea ammonium nitrate ("UAN") and ammonium nitrate ("AN"). Accordingly, CF's business is heavily dependent upon anhydrous ammonia production for its success.

5. Each of CF's anhydrous ammonia production facilities has an established distribution pattern based on its production and storage capacity, end-products, and location. In the course of performing my various duties for CF, I have had responsibility for the transportation of CF's products by various transportation modes, including rail, pipeline, barge, and truck. As a result, I have personal knowledge of the transportation arrangements that CF has utilized over the years to transport its nitrogen products, including anhydrous ammonia, from its production facilities to its customers and its distribution and storage facilities throughout the United States and Canada.

6. CF depends heavily upon rail transportation to distribute anhydrous ammonia from its production facilities to storage terminals and customers. Recently, the nation's Class I

railroads, including railroads upon which CF depends for consistent and reliable transportation of anhydrous ammonia, stated that they will refuse to transport anhydrous ammonia, beginning as soon as Thanksgiving, if Congress does not extend the existing statutory deadline of December 31, 2015 for those carriers to implement operable Positive Train Control (“PTC”) systems on their rail mainlines. Because the inability to transport anhydrous ammonia by rail will have an immediate and substantial impact upon both CF’s business and the nation’s health, safety, and economy, I am submitting this affidavit in support of the Motion for Temporary Restraining Order filed in this proceeding by the Plaintiffs, which includes The Fertilizer Institute of which CF is a member company.

*The Importance of Anhydrous Ammonia*

7. Anhydrous Ammonia is an essential source of Nitrogen fertilizer to grow our nation’s food supply. Of the primary plant nutrients, nitrogen is the most important because it is fundamental to the formation of proteins that spur growth and development. Though nitrogen is all around us in the air, most plants can only absorb nitrogen from nitrogen compounds in the soil. Every year farmers apply nitrogen-based fertilizer products to the soil to support healthy plant growth and bountiful harvests. The building block for nitrogen-based fertilizers is anhydrous ammonia, which either can be applied directly into the soil or used to produce other nitrogen-based fertilizers such as urea, UAN, or AN. Direct application of ammonia is the most efficient source of nitrogen because ammonia has the highest nitrogen content by weight of any nitrogen fertilizer and direct application ammonia bonds with the soil. Ammonia is a cost effective fertilizer for farmers and cannot be readily or economically replaced. Currently about 28 percent of nitrogen fertilizer used by farmers in the U.S. is applied as direct application ammonia.

8. While over 85% of the consumption of anhydrous ammonia in the United States is for fertilizer use, the commodity is also used in a variety of industrial applications and is the only raw material available for the production of some consumer goods. For example, anhydrous ammonia is a key material in certain pharmaceuticals, adhesives, feed supplements, personal care products, and nylon fibers. It is a critical input required in the production of nitrate used in explosives required for mining of coal and other minerals. It is also used by coal-fired electric generating stations to comply with Clean Air Act emissions standards. Similarly ammonia is used to produce diesel exhaust fluid (“DEF”), which is used to lower nitrogen oxide (“NOx”) concentration in diesel engine exhaust emissions. CF supplies anhydrous ammonia to several electric utilities and also produces DEF.

*The Critical Role of Rail In Transporting Anhydrous Ammonia*

9. Farmers apply ammonia and ammonia-based fertilizers during the Spring and Fall seasons. Fertilizer use is time-sensitive. Farmers race the clock to get their crops into the field, planting and fertilizing millions of acres across the country in a matter of weeks. In order to meet this enormous demand for fertilizer, CF and other ammonia suppliers must produce ammonia year-round and transport it to massive storage terminals throughout the American farmland, from which it is distributed to nearby farms when needed. CF alone accounts for 1.3 million tons of anhydrous ammonia storage capacity.

10. Anhydrous ammonia is a toxic inhalation hazard (“TIH”), which means that it is toxic to human beings when inhaled. Therefore, when transporting anhydrous ammonia, it is desirable to segregate the transportation modes from the general public as much as possible. The means of transportation are pipeline, followed by barge, rail, and finally trucks.

11. The ability to ship by pipeline is limited to geographic areas served by just a handful of pipelines in this country and both the production facility and storage terminal must be connected to the pipeline.

12. Similarly, barges are an option only when both the production facility and storage terminal are situated on the Mississippi River or its navigable tributaries and only during the navigation season, due to the inaccessibility of many northern barge terminals during the Winter.

13. Because rail networks have a far more extensive reach than either pipelines or barges, those production facilities and storage terminals that do not have access to pipelines or barges depend almost entirely upon rail for the transportation of anhydrous ammonia. In addition, rail transportation supplements pipeline and barge transportation during the planting season and when rivers are closed during the Winter.

14. Replacing rail with trucks is not a viable alternative for transporting anhydrous ammonia from production facilities to storage terminals. Although trucks can reach more places than any other mode, it is the least desirable mode because ammonia is a TIH and trucks share our roads with the general public. Moreover, it takes 3-4 trucks to transport the same volume of ammonia as a single rail car. The volumes that typically move by rail from production plants to storage terminals would require convoys of trucks operating continuously over the highway. There also is a limited quantity of the specialty tanks required to truck ammonia and there is a shortage of specially-licensed truck drivers. Furthermore, many ammonia trucks perform double-duty during the Winter months by hauling propane. Therefore, trucks are used primarily for short distance transportation of ammonia from storage terminals to nearby farms during the Spring and Fall application seasons, most often in rural areas and are not a viable alternative to transport by rail over longer distances.

*The Importance of Rail Transportation to CF's Production and Distribution of Anhydrous Ammonia*

15. CF's anhydrous ammonia production and distribution segments are highly dependent upon rail for transportation from its production facilities to distribution terminals and customer locations. CF's continuing ability to succeed as a business and serve its core consumers, farmers, is directly tied to its ability to transport anhydrous ammonia by rail.

16. CF owns and operates seven (7) nitrogen fertilizer manufacturing complexes located in Canada and the U.S. that produce anhydrous ammonia and other products dependent upon anhydrous ammonia. Anhydrous ammonia production at three (3) of those complexes will be seriously harmed by the inability to transport ammonia by rail and include: the Medicine Hat Nitrogen Complex located near Medicine Hat, Alberta Canada; the Courtright Nitrogen Complex located in St. Clair Township, Ontario, Canada; and the Yazoo City Nitrogen Complex located in Yazoo County, Mississippi. All three facilities sell their production to agricultural and industrial consumers in the United States.

17. From January 2014 to August 31, 2015, BNSF Railway Company ("BNSF"), Canadian Pacific Railway Company ("CP"), Canadian National Railroad Company ("CN"), and CSX Transportation, Inc. ("CSX") originated over { } tons of anhydrous ammonia by rail at CF's Courtright, Medicine Hat, and Yazoo City production facilities. The Courtright complex tendered { } rail cars, totaling { } tons of anhydrous ammonia, to CN and CSX. The Medicine Hat complex tendered { } rail cars, totaling { } tons of anhydrous ammonia, to CP. The Yazoo City complex tendered { } rail cars, totaling { } tons of anhydrous ammonia, to CN. Approximately { } truck shipments (an average of ~{ }/day) would have been needed to transport the same amount of anhydrous ammonia to supply CF's customers and distribution facilities during this time period.

18. The Medicine Hat complex has two separate ammonia plants that produce a combined {█} tons of anhydrous ammonia per day. A third plant consumes a portion of that anhydrous ammonia in the production of urea. Between {█} and {█} percent of Medicine Hat's anhydrous ammonia production is shipped by rail to massive storage terminals near the farms that will consume the ammonia as fertilizer during the Spring and Fall and to industrial consumers. CF transports nearly all of its anhydrous ammonia production destined to the United States from Medicine Hat by rail because it does not have access to a pipeline or navigable river network. CF does not use trucks because the distances are over 500 miles, 3-4 trucks are needed to transport the same volume of ammonia as a single rail car, there is an insufficient number of specialty trucks or qualified drivers to handle this volume, several of the storage terminal destinations cannot receive truck shipments, and rail is a safer mode for transporting this TIH material. Without the ability to transport ammonia from Medicine Hat by rail, CF more than likely would be required to shut down completely one of its two ammonia production plants at Medicine Hat due to inventory containment issues and reduce production at the second plant to produce only the amount of ammonia that can be consumed for its urea production. At capacity operation, the Medicine Hat urea plant can consume about {█} percent of the capacity of one Medicine Hat ammonia plant. The Medicine Hat ammonia plants can be cut back to about {█} percent of capacity, then must be shut down. Because of the limit on how much CF can reduce a Medicine Hat ammonia plant's production, CF also more than likely would need to shut down its other ammonia plant at Medicine Hat if urea production plus local non-rail dependent ammonia sales cannot consume at least {█} percent of the remaining plant's ammonia production capacity. That, in turn, could result in CF also ceasing urea production at Medicine Hat until

such time as the urea plant plus local ammonia sales could again utilize at least { }% of one ammonia plant's capacity.

19. The Courtright complex contains a single anhydrous ammonia plant as well as plants that produce DEF, UAN and urea. Courtright produces approximately { } tons of ammonia per day, half of which is sold directly to consumers and the other half is consumed by CF in the production of DEF, UAN and urea. Courtright does not have pipeline or barge transportation options. CF sells over { } tons of Courtright's ammonia production annually to a single purchaser which can only receive rail deliveries. CF also ships ammonia by rail from Courtright to coal plants operated by { } and { } for NOx emissions abatement. Because Courtright cannot store large quantities of ammonia, or curtail production to levels required just for the production of DEF, UAN and urea, CF more than likely will need to shut down the Courtright complex, including the production of DEF, UAN and urea, if it is unable to transport anhydrous ammonia by rail.

20. The Yazoo City complex produces anhydrous ammonia, UAN, urea liquor, and ammonium nitrate. Yazoo City does not have access to pipeline or barge transportation. Because Yazoo City cannot store large quantities of ammonia and it produces more ammonia than it can currently consume in the production of other products even at the lowest ammonia production levels, CF must shut down the facility, including the production of UAN, urea liquor, and ammonium nitrate, if it cannot transport anhydrous ammonia by rail.

21. The inability to transport anhydrous ammonia by rail will adversely affect CF at many of its storage terminals in addition to its production facilities.

22. Four of CF's U.S. distribution terminals are solely dependent on rail transportation: the Ritzville Ammonia Terminal located in Ritzville, WA receives ammonia by

rail from the BNSF; the Grand Forks Ammonia Terminal located in Grand Forks, ND receives ammonia from CF's Medicine Hat complex via the CP and BNSF; the Velva Terminal located in Velva, ND receives ammonia from CF's Medicine Hat complex via the CP; and the Glenwood Ammonia Terminal located in Glenwood, MN receives ammonia from CF's Medicine Hat complex via the CP. These terminals will have an insufficient inventory of anhydrous ammonia for the Spring planting season if CF is unable to transport anhydrous ammonia via rail.

23. Two additional CF distribution terminals are solely dependent upon rail during the Winter months, when barge transportation is unavailable, and all year round when receiving ammonia from CF production facilities that do not have barge access. These terminals also will have an insufficient inventory of anhydrous ammonia for the Spring planting season if CF is unable to transport anhydrous ammonia via rail.

- a. The Albany Ammonia Terminal is located in northwest Illinois on the Mississippi River to serve agricultural customers in Illinois, Iowa and Wisconsin for crops such as corn and wheat. It receives ammonia via barge from CF's Donaldsonville, LA nitrogen complex on the Mississippi River and also by rail from Medicine Hat, Courtright, and Yazoo City. CF must rely solely upon rail to transport ammonia to Albany during the Winter months.
- b. The Pine Bend Ammonia Terminal is located in east central Minnesota near Minneapolis on the Mississippi River to serve local agricultural customers for crops such as corn and wheat. Although it receives ammonia via barge on the Mississippi River, Pine Bend is inaccessible to barges for at least four months per year during which it must depend solely upon ammonia supplied by rail mostly from Medicine Hat.

*Adverse Effects Upon CF and its Customers if  
Anhydrous Ammonia Cannot be Transported by Rail*

24. The refusal of railroads to transport anhydrous ammonia will have the effect of impeding and disrupting CF's business and creating significant business uncertainty. It threatens CF's ability to transport this business product and serve the essential needs of farmers and industrial consumers, and ultimately threatens CF's viability in nitrogen fertilizer products.

25. The forced shutdown of CF's anhydrous ammonia production plants at Medicine Hat, Courtright and Yazoo City will cause CF and farmers significant irreparable harm. As with any chemical plant, anhydrous ammonia production requires miles of pipes and valves that operate at high temperatures and pressures. CF must run these plants continuously within a narrow production range to maintain stability. The reduction of temperature and pressure that accompanies a shutdown stresses the metal pipes, which is when leaks can develop and the equipment is most prone to breaking down. The increased risk of equipment failure that is introduced when plants are unnecessarily brought down could result in risk of injury to workers and the community. Unnecessarily restarting the plant increases these risks. Because of the risks involved in bringing down and restarting plants, CF only shuts down these plants for limited time periods for scheduled maintenance. An unnecessary and unplanned shutdown caused by lack of rail transportation imposes unnecessary safety and operational risks.

26. The shutdown of an ammonia plant poses even greater risk when it occurs during the Winter due to the much higher degree of difference between the plants' operating temperature and the outside temperature when the plants are idled. The plants are also at risk because many miles of pipes and pieces of equipment, such as heat exchangers, in each plant carry steam or cooling water, and could freeze and burst if the plant is down for a significant period during the winter. This is especially true for the Medicine Hat and Courtright plants in

Canada, where the temperature dips below freezing for extended periods of time. A situation where CF is forced to unnecessarily shut down these facilities as of December 1, 2015, when several railroads have announced their intent to embargo TIH shipments, will create greater risks for CF, its employees, and the community.

27. If producers like CF are unable to produce and transport anhydrous ammonia to storage and distribution terminals across the nation's farmland throughout the Fall and Winter, there will be an insufficient supply of ammonia to satisfy farmers' demands during the Spring planting season. This situation will be greatly exacerbated by the inability for any ammonia producer, not just CF, to transport ammonia by rail. If farmers cannot obtain sufficient ammonia, their next harvest will yield substantially fewer crops, thus affecting the global food supply.

28. The shutdown of anhydrous ammonia production also will shut down the production of other nitrogen fertilizers by CF, which depends upon ammonia as a feedstock. Consequently, farmers that utilize nitrogen fertilizers other than anhydrous ammonia will similarly face fertilizer shortages.

29. The inability to produce anhydrous ammonia due to a lack of rail transportation also will have significant consequences for CF's industrial customers. Where CF cannot deliver ratably its products to coal-fired electric generating customers, their ability to comply with Clean Air Act emissions standards is at risk. They could be forced to pay fines or even shut down their coal-fired power plants altogether. Similarly, trucking companies could find their operations in jeopardy due to an inability to obtain DEF to curtail diesel emissions because DEF is produced from anhydrous ammonia.

30. CF also faces a substantial challenge to find storage for its rail cars used to transport anhydrous ammonia. CF owns or leases a total of {█} rail cars for transporting anhydrous ammonia that will be idled once railroads cease to accept TIH shipments. Accordingly, CF must find storage for all {█} rail cars, which it has never before had to do. CF has storage capacity for {█} rail cars at its various production and distribution facilities, which requires CF to find storage for {█} rail cars at other locations around the country at the same time as every other producer of any TIH material, not just anhydrous ammonia, also will need to store their rail cars. Aside from the cost of transporting and storing these rail cars, it is not known if there even is sufficient storage space for all these cars, especially as so many crude oil tank cars recently have consumed substantial storage capacity due to a reduction in North American oil production. Consequently, there are serious questions as to whether CF can obtain storage for all of its ammonia tank cars, and if so, at what price.

31. Furthermore, most storage locations are on unused tracks which tend to be in desolate and remote locations with infrequent rail service. Once railroads resume transportation of TIH shipments, it will require months for CF to retrieve all of its rail cars from storage and stage them at its production facilities. Because CF cannot resume full production of anhydrous ammonia until it has retrieved these rail cars, this will extend the impact of rail service disruptions upon CF and the public beyond just the time that railroads refuse to transport TIH materials.

32. Based on historic car storage rates, CF estimates the freight cost associated with transporting its rail cars to and from potentially remote storage facilities will be about \${█} per rail car, or approximately \${█}. Once there, monthly storage rates for rail cars are estimated at \${█} per month (or \${█}/day). These rates do not take into consideration the

potential for increased pricing associated with the simultaneous surge in demand for similar storage from all other TIH shippers.

33. CF will incur lost sales revenue that is difficult to quantify and cannot be made up through subsequent production if it cannot transport anhydrous ammonia by rail from its Courtright, Medicine Hat, and Yazoo facilities. As I have discussed above, production of anhydrous ammonia, urea, UAN, ammonium nitrate, and DEF will shut down at these facilities without the ability to transport anhydrous ammonia by rail. Fertilizer not sold during the Spring planting season will not be sold at all. Ammonia and DEF not used to reduce power plant and diesel emissions because the power plants and trucks cannot operate will not be sold at all. It will be difficult and speculative to estimate how much of these products could have been sold but were not due to their unavailability and what CF's share of those sales would have been relative to other ammonia producers.

34. The foregoing effects upon the viability of CF's anhydrous ammonia operations due to the unavailability of rail transportation also will impact CF's workforce, which encompasses approximately 2,000 U.S. and Canadian employees, who call more than 60 communities "home." In these communities, CF is often the largest contributor to the local tax base and the largest employer (particularly in its manufacturing communities). These jobs may be jeopardized where significant CF manufacturing and distribution facilities are forced to stop their operations due to an inability to ship anhydrous ammonia by rail.

35. In sum, the rail industry's refusal to transport TIH materials not only will cause immediate and substantial harm to CF, but will extend to farmers, electric utilities, the trucking industry, and ultimately will ripple through the entire U.S. economy and population as a whole.

36. Further affiant sayeth not.

I declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 25 day of September 2015.

Christopher D. Bohn

Christopher D. Bohn  
Senior Vice President, Supply Chain  
CF Industries Holdings, Inc.

# **EXHIBIT 9**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

_____	)	
AMERICAN CHEMISTRY COUNCIL,	)	
THE CHLORINE INSTITUTE, AND	)	
THE FERTILIZER INSTITUTE	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. _____
	)	
BNSF RAILWAY COMPANY, et al.,	)	
	)	
Defendants.	)	
_____	)	

**AFFIDAVIT OF ROBIN A. BURNS  
IN SUPPORT OF THE  
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION**

I, Robin A. Burns of Dallas, Texas, of lawful age, being first duly sworn upon oath deposes and states as follows:

1) My name is Robin A. Burns. I am Vice President of Supply Chain for Occidental Chemical Corporation (OxyChem). My business address is: 5005 LBJ Freeway, Dallas, TX 75244.

2) I have been in my role for almost eight years. My responsibilities include Purchasing, Logistics, Customer Service and Production Planning for all OxyChem locations.

3) In the course of my duties for OxyChem, I have responsibility for the transportation of OxyChem's products by various transportation modes, including rail, pipeline, barge and truck. As a result, I have personal knowledge of the transportation arrangements that

OxyChem has utilized to transport its products from production facilities to its customers throughout the United States.

4) OxyChem employs approximately 3,000 people at 24 North American manufacturing locations. Our products, which are used in critical segments of the economy including food and water, transportation, defense, building and construction, and healthcare, are vital to the economy of the United States and make lives safer and healthier.

5) OxyChem is a leading North American manufacturer of basic chemicals and vinyl resins, including chlorine, caustic soda and polyvinyl chloride (PVC) – the building blocks for a range of products. { [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] } In 2014, annual sales for OxyChem were \$4.8 billion dollars, with the majority of our earnings coming from the chlor-alkali business that is dependent upon the production of chlorine.

6) OxyChem's chlorine is transported by rail and pipeline to customers across the United States. While pipeline transportation is the preferred mode of transportation, it is not always feasible for small or geographically distant customers. In these instances, rail is the only means of transportation to deliver our product to our customers. OxyChem continues to minimize chlorine ton miles. { [REDACTED]  
[REDACTED]  
[REDACTED] } OxyChem does not truck or barge chlorine. Facilities that are not served by pipeline rely on rail to transport chlorine and other materials produced or consumed at those locations.

7) Three OxyChem chlorine production facilities – located in Niagara Falls, NY, Wichita, KS, and Convent, LA – have no pipeline chlorine consumers. These facilities and their customers rely 100% on rail to transport the chlorine they produce. OxyChem also manufactures chlorine at five additional locations which are served by a combination of pipeline and rail transportation. Railroads that serve OxyChem at locations where chlorine is manufactured or consumed include CSX Transportation, Inc. (CSX), Union Pacific Railroad Company (UP), BNSF Railway Company (BNSF), Canadian National Railroad Company (CN) and Kansas City Southern Railway Company (KCS).

8) Chlorine is an essential building block in thousands of products that make our lives safer, healthier and more convenient. It plays a vital role in keeping the world's water supplies safe by controlling harmful bacteria and viruses that can cause potentially deadly diseases such as typhoid and cholera. Approximately 98% of public water treatment systems use some form of chlorine-based disinfecting, according to a 2007 survey of water treatment facilities by the American Water Works Association. Chlorine is also a key raw material in manufacturing PVC resins and about 88% of all pharmaceuticals. In addition, chlorine chemistry is essential in the production of energy efficient materials, building and automotive plastics, defense and law enforcement applications such as bullet resistant vests, and high tech materials including digital technology and rare earth metals. OxyChem's chlorine goes into the purification of municipal drinking water and manufacturing of blood bags, medical tubing, bleach, and cleaning supplies, as well as construction projects, housing and many other applications.

9) In the production of chlorine, OxyChem produces two other materials, caustic soda and caustic potash. While caustic soda and caustic potash are not considered TIH, they are

co-products of chlorine in the manufacturing process. Curtailment of chlorine production necessarily curtails production of the co-products, directly impacting the supply of key raw materials for other U.S. manufacturers. Caustic soda is used in pulp and paper industries, food preparation, cleaning agents and other applications. Caustic potash is used in agriculture, de-icing, pharmaceuticals and food applications.

10) The inability to transport OxyChem's TIH products by rail will have an immediate impact on OxyChem's business and its customers who rely upon receiving chlorine by rail. OxyChem is very concerned about what will happen to our business and our customers if the Class I railroads refuse to carry TIH products because they cannot comply with the statutory requirement to install Positive Train Control (PTC) by December 31, 2015.

11) While OxyChem believes that PTC is a technology that will reduce accidents and minimize the release of transported materials, it is critical for TIH materials to continue to be transported by rail until PTC technology can be fully-implemented. U.S. manufacturers, who depend on the timely delivery of chlorine and other TIH chemicals, must be able to operate without interruption. Without reliable shipment of chlorine by rail, OxyChem will suffer irreparable harm.

12) For the aforementioned reasons, OxyChem needs certainty that we will be able to transport chlorine via rail despite the rail industry's failure to meet the deadline for PTC implementation. Recent letters from the Railroads to Senator John Thune indicate that several, and perhaps all, Class I railroads will embargo TIH materials, including chlorine, as early as Thanksgiving. Furthermore, BNSF has indicated that it may not move any traffic on lanes that require PTC, not just TIH traffic. This has created a significant amount of confusion and concern amongst shippers and customers that rely upon the shipment of chlorine every day.

13) While we will continue to operate at reduced operating rates at locations where chlorine is transported via pipeline, our plants that rely solely on rail and many of our customers that are dependent upon rail shipments will shut down without rail service.

14) Neither OxyChem nor our customers have significant chlorine storage capabilities. Therefore, the impact of the shipment embargo will be felt immediately. In fact, we will have to prepare an orderly shutdown plan for Niagara Falls, NY; Wichita, KS; and Convent, LA that will likely cause us to cease operating at these facilities prior to the deadline. In addition, without the ability to make chlorine, we will not produce the associated caustic soda or caustic potash, impacting our customers who use these raw materials to manufacture widely used consumer products.

15) Not only will this have a financial impact on our company and our customers' businesses, it will also have a dramatic impact on consumers and ultimately the U.S. economy. If the railroads embargo TIH shipments, the impact will be felt in the following sectors, among others:

a. Public health. Many public water municipalities utilize elemental chlorine to treat water. Chlorine is used to produce bleach disinfection, food safety and water treatment products.

b. Agriculture. Chlorine is used in many crop protection products, including herbicides, insecticides and fungicides and potassium from caustic potash is necessary to produce fertilizers.

c. Construction. Products including vinyl, polyurethanes, and titanium dioxide – all manufactured using chlorine – will be impacted and the loss in United States production could increase the imports from overseas.

d. Public Safety and Medical. Chlorine is vital to the production of specialty materials including bullet-resistant clothing, parachutes, blood bags, pharmaceuticals, and materials for unmanned aerial vehicles.

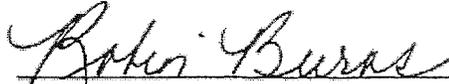
16) The problems become increasingly dire if BNSF follows through on its plan to not move ANY traffic without a PTC extension. If that occurs and other railroads follow suit, OxyChem will be forced to evaluate if it needs to shut down all 24 of its facilities, a situation that would impact 3,000 employees at our facilities and the operations of our customers. Every one of our producing locations is dependent on rail transportation. Although some of our non-TIH products move by other modes (truck and barge), neither our facilities nor our customers' facilities will be able to transition to alternative modes or handle the volume of trucks required to replace rail.

17) In summary, the rail industry's refusal to transport TIH materials will harm OxyChem, its customers and the people of the United States who rely on chlorine for water treatment, crop protection, and materials used in public safety and medical equipment.

18) Further affiant sayeth not.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 25<sup>th</sup> day of September 2015.



Robin Burns

Vice President –Supply Chain

Occidental Chemical Corporation

# **EXHIBIT 10**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

_____	)	
AMERICAN CHEMISTRY COUNCIL,	)	
THE CHLORINE INSTITUTE, AND	)	
THE FERTILIZER INSTITUTE	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. _____
	)	
BNSF RAILWAY COMPANY, et al.,	)	
	)	
Defendants.	)	
_____	)	

**AFFIDAVIT OF JACQUELINE FASELER  
IN SUPPORT OF THE  
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION**

I, Jacqueline Faseler of Lake Jackson, Texas, of lawful age, being first duly sworn upon oath depose and state as follows:

***Introduction of Witness and Purpose of Affidavit***

1. My name is Jacqueline Faseler, and I am the Director for Supply Chain Environmental, Health and Safety, Sustainability, and Public Policy Advocacy for The Dow Chemical Company (“Dow”). My business address is the A.P. Beutel Building at 332 W SH 332, in Lake Jackson, Texas 77566.

2. I am submitting this affidavit (the “Affidavit”) to assist the Court and other interested parties in understanding the negative societal and financial impacts that would result if toxic inhalation (“TIH”) materials are embargoed by Class I railroads (“the Railroads”) due to

the inability of the Railroads to fully implement Positive Train Control (“PTC”) by the Congressionally-mandated deadline of December 31, 2015.

3. I have been employed by Dow for 20 years, having joined the company in 1995 after graduating from Texas A&M with a bachelor’s degree in chemical engineering. I have held a number of manufacturing and supply chain roles in Dow’s Industrial Solutions business, including run plant and improvement engineer, six sigma black belt, supply chain planner, and global supply chain manager.

4. In 2005, I joined Dow’s Supply Chain Expertise Center, assuming leadership for the Planning Expertise Center team in 2007. In 2010, I was named the Global Director of the Supply Chain Technology and Expertise Center. In 2013, I incorporated the Asset, Maintenance, and Reliability group into the Global Technology Center. I assumed my current position in 2014. In this role I am responsible for building the strategy and related organizational design for Supply Chain advocacy and sustainability, while maintaining Dow’s excellence in transportation safety, security, and risk management.

5. In my various roles at Dow, I have become very familiar with Dow’s production, consumption, and transportation of TIH materials. Although I will briefly discuss Dow’s production and use of multiple TIH materials and the critical roles that they play in our economy as the “building blocks” of many consumer and industrial products that are essential to the safety and welfare of society, I will focus primarily upon Ethylene Oxide, as its widespread role in the manufacture of essential products for society may not be well understood.

6. Dow is a global company headquartered in Midland, Michigan since 1897. In the United States today, Dow and its consolidated subsidiaries employ more than 21,000 employees at 45 sites. As an employer, manufacturer, and U.S.-based company operating globally, Dow is

committed to playing a role in shaping and promoting public policies that will benefit companies, people, and economies in the United States and around the world.

7. Dow's products help address many of the world's most challenging problems, such as the need for clean water, renewable energy generation and conservation, effective medical treatments, and increased agricultural productivity. Dow's portfolio of specialty chemical, advanced materials, agrosciences, and plastics businesses delivers a broad range of technology-based products and solutions to customers in approximately 160 countries and in high growth sectors such as electronics, water, energy, coatings and agriculture.

8. Dow is one of the largest bulk chemical shippers in the U.S. Dow operates a rail fleet of over 20,000 rail cars which carry over 110,000 rail shipments annually from multiple North America production facilities. Of this fleet, approximately 9,000 are rail tank cars ("tank cars") that carry chemical products.

9. Rail transportation of chemicals is vital to U.S. competitiveness in the global marketplace, and to the health, safety, and welfare of the American public. Dow's businesses rely on the rail shipment of large volumes of products across the country to other Dow facilities, intermediate manufacturing facilities, and other third parties. Rail is the safest, most efficient way to transport Dow's high volume raw materials and products.

10. Although less than 3% of Dow's rail shipments are TIH materials, these materials serve vital purposes in our nation. If railroads cease transporting TIH materials, there would be significant negative impacts to the health, safety, and welfare of the American public, as well as to our national economy.

*Description of the TIH Materials Produced and Consumed by Dow*

11. Dow produces and internally consumes several TIH materials, including Ethylene Oxide (“EO”), Chlorine (“Cl<sub>2</sub>”), Anhydrous Hydrogen Chloride (“AHCl”), and Telone C-17. Additionally, Dow utilizes certain TIH materials acquired from third parties, namely Anhydrous Ammonia (“ANH<sub>3</sub>”), Anhydrous Hydrogen Fluoride (“AHF”), Sulfur Dioxide (“SO<sub>2</sub>”), and Methyl Mercaptan.

12. Dow AgroSciences and Industrial Solutions are two Dow businesses that produce, use, and sell TIH materials designed for several essential markets.

13. The Dow AgroSciences business utilizes TIH materials as essential components in the manufacture of several of Dow’s leading-edge, sustainable solutions for modern agriculture. Dow AgroSciences employs TIH materials to increase crop productivity through higher yields, better varieties, and more targeted pest management control; these products are designed to solve pressing crop production problems for our customers, boosting agriculture productivity to maximum sustainable levels to keep pace with the growing needs of our world’s rapidly expanding population.

14. Cl<sub>2</sub> is delivered by rail into a Dow facility { [REDACTED] }. Cl<sub>2</sub> is a necessary component in the manufacture of { [REDACTED] }, protecting agricultural crops, non-crop and aquatic areas, turf grass and environmentally sensitive areas from weeds and invasive species. { [REDACTED] }

15. Cl<sub>2</sub>, SO<sub>2</sub>, and HF are delivered by rail into a Dow facility { [REDACTED] }. They are used in the production of { [REDACTED] } fumigants for agricultural and industrial use (in locations such as grain mills, warehouses, food production facilities, and transportation vehicles)

to protect stored materials from rodents and other pests. These materials are also used in the { [REDACTED] } production of { [REDACTED] } a fumigant widely used in urban pest control to eliminate termites and bedbugs.

16. Like Dow AgroSciences, the Dow Industrial Solutions business also relies on TIH materials to produce numerous products that are crucial for human health, safety, and welfare. For example, Dow's Amines & Chelants is a business unit within Industrial Solutions that relies upon inbound rail shipments of ANH<sub>3</sub> for production of amines that are used as intermediates in a wide variety of applications, including pharmaceuticals, veterinary preparations, herbicides, corrosion prevention, fuel additives, detergents, and personal care products such as shampoos, shaving cream, and lotions.

#### *Production and Use of Ethylene Oxide*

17. Within Dow Industrial Solutions, the Ethylene Oxide-Ethylene Glycol ("EO-EG") business unit manufactures EO as well as many other products derived from EO, such as Ethylene Glycol ("EG"). EO and EG play a significant role in industry due to their physical properties, and function as versatile intermediates in a wide range of applications, including use in production of several critical safety products, as described below.

18. { [REDACTED] } EO is used by other Dow businesses to produce materials for aircraft and runway deicers, coatings for safety glass, shatter-proof beverage bottles, automotive components, adhesives, paints, and textiles.

19. Products derived from EO or other TIH are known as "derivatives." EO derivatives (especially EG) are commonly used for manufacturing bottles, polyester fibers for clothing and furniture, automotive coolants, industrial coolants, heat transfer fluids, detergents,

and surfactants. EO is also an intermediate used in the manufacture of flexible and rigid polyurethane foams (used in medical components, automobiles, flooring, insulation, and a myriad of applications), brake fluids, and water-soluble solvents. Products derived from EO are also used in the manufacture of pharmaceuticals, cosmetics, ointments, and soaps.

20. EO is consumed internally by Dow as an intermediate in the production of several materials, including:

{ [REDACTED]  
[REDACTED]  
[REDACTED] };

Polyols, which go into construction materials, adhesives and sealants, refrigeration, and multiple aspects of automobile production;

Surfactants which are used in household and institutional cleaners and agricultural formulations;

Glycol ethers which are ingredients in electronics applications, various industrial applications, fuel additives, cosmetics and personal care products;

Amines which go into various industrial applications, gas treatment and oil field applications, and agricultural formulations; and

Polyglycols which are used in fuel additives, personal care products, laxatives, and various industrial applications.

21. { [REDACTED]  
[REDACTED] }

22. EO is also used in several markets not supplied by Dow, including hospital/medical equipment sterilization, munition manufacture, and e-cigarette mist.



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

28. { [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

29. { [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

30. { [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

31. Dow has an extensive Risk Management Program where modes of transportation and equipment designs for our supply chains are selected to reduce risks to society and the environment. Rail is the safest, most efficient way to ship Dow's bulk volume materials,



36. Without rail transportation of EO, Dow's production of necessary intermediates at consumption locations also would be curtailed, and these intermediates would therefore not be available for downstream users.

37. Due to the high consumption rate of EO and EO derivatives, it would be impossible for Dow to build a substantial inventory of EO or EO derivatives prior to a rail service embargo. Internal Dow users and third parties would exhaust existing inventories within a few days, after which time Dow's derivative plants that consume EO and the plants of downstream customers would be shut down.

38. { [REDACTED]  
[REDACTED]  
[REDACTED] }

39. Global implications would also result from a cessation of EO rail transportation, with shut-downs of facilities { [REDACTED] }.

40. Not only would a TIH rail embargo have devastating impacts upon Dow and other companies, it also would cause a shortage of many products necessary for the health and welfare of the American public. Scarcity would begin to affect products such as effective, time-released medications; automobiles (which cannot be produced without adhesives, a significant portion of which are EO-based); antifreeze; and runway deicers.

41. Tank cars would be idled, production of EO would be reduced, plants would shut down, and jobs would be lost. Plants might not be restarted for months, and, if the downstream users have closed doors, maybe not at all. Given the ubiquity of EO in U.S. manufacturing, the unrecoverable cost to Dow and others in industry could easily be in the tens of billions of dollars.

*Details Regarding a Slow-Down or Shut-Down of Dow Production Facilities*

42. Making a decision to shut down a plant is always a difficult one, but should rail transportation of EO not be possible, Dow would be forced to reduce production to rates that would match intra-plant consumption at each of Dow's EO production sites. { [REDACTED]

[REDACTED]

[REDACTED] }

43. Shutting down and restarting a production plant is complex, time-consuming, and must be managed very carefully to prevent industrial accidents such as explosions, fires, and toxic releases that could result in harm to workers and surrounding communities. The consequences of either a production or consumption shut-down are highly intertwined. EO plants are large, world-scale, continuous running plants that do not function reliably when shut down and restarted frequently. { [REDACTED]

[REDACTED] } The production plants that also consume EO provide only a limited amount of the derivatives used by the downstream marketplace; derivatives are also produced by facilities that receive EO by rail. If rail service of EO ceased, then these facilities could no longer produce derivatives, and the downstream derivative users would be forced to either shut down or curtail production of their end products.

44. The shut-down process at a plant could take from a week for an intermittent shut-down, to two months should the plant is completely decommissioned with no indication of restarting.

45. If, after shut-down, Dow decided to re-start production at an EO plant, the process could be even more complicated, requiring weeks or months to complete.

46. When a plant shuts down, tank cars must be put into storage. Resuming normal production rates would require Dow to reposition rail tank car assets from their storage locations. This could take several months to accomplish, as tank cars would need to be thoroughly cleaned and prepared for service prior to resuming EO service. Depending on the amount of time in storage, some rail cars would need to undergo maintenance and periodic qualification inspections required by the Department of Transportation. Rail car shop capacity is limited and long wait times would be expected due to a flood of cars from other TIH shippers returning to the rail system all at the same time across the entire country.

47. If TIH transportation by rail were not possible, even for a short period of time, there would be significant impact to Dow and Dow's internal consumers (derivative manufacturers), as well as to direct EO customers and derivative users of Dow and other EO suppliers. Given the need to ship EO by rail to Dow derivative manufacturing locations, and the necessity of those derivatives in the manufacture of products critical to the health, safety, and welfare of the American public, loss of rail transportation would be devastating to the nation, to society, and to our economy.

48. Damages from plant shut-downs are very difficult to quantify due to the intertwined nature of production and consumption in the U.S. A shut-down of one plant – producer or user – can have a domino impact on the ability of other plants to continue operation. For example, if Dow cannot produce derivatives, downstream users who require these materials in their manufacture of pharmaceuticals, automobiles, etc. will no longer be able to continue operating. If they go out of business, then Dow may not re-start up its production facilities as the need for Dow's product would be greatly reduced. While the potential impact is difficult to estimate, it is expected to easily reach devastating levels for Dow.

49. Should EO no longer be transported by rail, similarly devastating effects are expected for Dow derivative manufacturing sites, all downstream derivative users, and all EO direct consumers.

50. Within days, if EO could not be delivered to Dow's EO derivative manufacturing plants, downstream EO derivative users would be forced to shut down due to a lack of this essential raw material. { [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] }

51. All third party EO consumers receiving EO by rail would be forced to reduce or completely shut down production.

***Details Regarding a Slow-Down or Shut-Down of Dow Consumption Facilities***

52. If rail transportation of EO were not possible, then Dow's derivative plants that receive EO by rail would have no choice but to shut down. As I mentioned previously, the production to consumption rate is such that building inventory of EO or of EO derivatives would be an extremely short-lived option (on the order of days), after which derivative plants and the plants of downstream customers would be shut down. The lead-time to shut-down would be a month at maximum, but just days or weeks for many users.

53. The process to restart production at an EO consumption facility would be lengthy. Plants would have to be restarted one at a time as EO replenishments arrive.

54. Restarting some plants could be delayed months after TIH rail service resumes because tank cars would need to be taken out of storage and prepared for transportation, which would include scheduling shop time for cleaning and any required maintenance/qualification as required by applicable regulations. As mentioned previously, rail car shop capacity is limited, and long wait times would be expected to get the cars in for necessary inspections and maintenance.

55. The consequences of a TIH rail service embargo on Dow consumption facilities, and on other manufacturers and American society at large, would be similar to those affecting Dow production facilities. As I previously described, these consequences would be devastating for Dow and American society.

*Consequences of a Rail Service Cessation on Dow's Tank Cars*

56. If TIH rail service ceases, Dow would need to store its EO tank cars. The first options for storage would be existing Dow sites that produce EO or receive it via tank cars today. However, available in-plant storage capacity is not large enough to store all of Dow's EO tank cars. Offsite storage would be required and would likely be difficult to obtain given that other TIH shippers would also be seeking storage space.

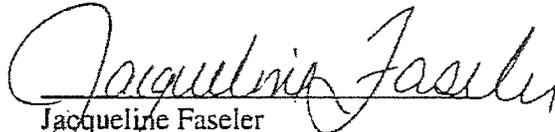
57. Whether or not Dow would need to clean these tank cars prior to storage would depend on the conditions set by the entity leasing the storage space to us. It is highly conceivable that the lessor would require tank cars to be cleaned of any TIH residue before storage. If cleaning is required prior to storage, Dow must begin now to move tank cars to cleaning facilities so that they could be situated in storage prior to January 1, 2016. However,

cleaning facilities are likely to be experiencing increased demand from other TIH shippers, and it is expected that there could be a significant wait time.

58. Damages associated with cleaning and storing tank cars are difficult to estimate because available storage facilities, lessor requirements, and storage costs are not known. However, damages could extend { [REDACTED] } depending on the length of storage and extent of maintenance that would need to be done to return the cars to service.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 24<sup>th</sup> day of September 2015.



Jacqueline Faseler  
Director for Supply Chain Environmental, Health  
and Safety, Sustainability, and Public Policy  
Advocacy  
The Dow Chemical Company

# **EXHIBIT 11**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

_____	)	
AMERICAN CHEMISTRY COUNCIL,	)	
THE CHLORINE INSTITUTE, AND	)	
THE FERTILIZER INSTITUTE	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. _____
	)	
BNSF RAILWAY COMPANY, et al.,	)	
	)	
Defendants.	)	
_____	)	

**AFFIDAVIT OF JEFFREY B. KLOPFENSTEIN  
IN SUPPORT OF THE  
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION**

I, Jeffrey B. Klopfenstein, of lawful age, being first duly sworn upon oath, depose and state as follows:

1. My name is Jeffrey B. Klopfenstein. I am the President of the Methionine Business Unit for Novus International, Inc. ("Novus"), a company headquartered in St. Charles, Missouri.

2. I have more than 30 years of experience in the production and sale of methionine hydroxy analogue into the animal feed industry, and have served 4 years as the President of Novus's Methionine Business Unit.

3. This affidavit is made for the sole purpose of communicating the reasonably anticipated negative impact that Novus and the animal feed industry would suffer, and the indirect negative impact that would occur to the supply of protein into the food industry as the

result of an embargo on or severe restriction of the rail carriage of Toxic Inhalation Hazard (“TIH”) chemicals as the result of delay in the implementation of Positive Train Control by the Class I railroads.

4. A rail embargo of TIH commodities by the Class I railroads would result in a significant impact directly on Novus and the animal feed industry, and indirectly to the supply of protein into the food industry.

5. Novus is engaged in the sale of methionine hydroxy analogue under the trade name ALIMET® from its Chocolate Bayou, Texas facility. Methionine hydroxy analogue is directly added to the animal feed of poultry, swine and dairy cattle to improve the production of protein and allow the proper growth of each animal.

6. Novus also produces and sells a number of specialty products derived from the methionine hydroxy analogue product at its Little Rock, Arkansas facility for use in the animal feed industry. These products deliver trace mineral and improved nutritional supplementation under the trade names MHA® and MINTREX®.

7. At present, all commercial forms of methionine, including methionine hydroxy analogue, are chemically derived from the reaction of TIH raw materials, including methyl mercaptan.

8. Methyl mercaptan is produced for Novus both at CPChem, LLC’s facility in Borger, Texas and by Arkema, Inc. in Beaumont, Texas. The methyl mercaptan produced for Novus is then either shipped by rail to the Union Carbide Corporation plant in Taft, Louisiana or consumed directly at the Arkema, Inc. facility in Beaumont, Texas. It is then converted into a key intermediate for Novus’s production process.

9. BNSF Railway Company (“BNSF”), Union Pacific Railroad Company (“UP”) and Panhandle Northern Railroad (“PNR”) transport methyl mercaptan in support of Novus’s methionine hydroxy analogue production in Texas and Louisiana. As a result, the proposed rail embargo represents a significant risk to Novus’s business and customers in the animal feed industry.

10. Novus is a leading producer of methionine hydroxy analogue, producing approximately half of the world’s supply of methionine hydroxy analogue per year. If there were a severe restriction of or embargo on TIH rail freight, Novus estimates that it would lose { [REDACTED] } capacity to produce methionine hydroxy analogue and, because Novus is such a large supplier, the animal feed industry would then suffer a shortage of methionine hydroxy analogue.

11. The impact directly to Novus would result in an estimated loss in revenue { [REDACTED] } and result in the elimination of a significant number of jobs in the United States and globally as a result of Novus not being able to produce and sell methionine hydroxy analogue to its customers. In effect, it would result in potentially unrecoverable losses for Novus and the industries it serves and supports.

12. A rail embargo on shipping TIH within the U.S. would result in an estimated global capacity shortage of methionine hydroxy analogue { [REDACTED] }. This would result in significant price increases and capacity allocation for all forms of methionine, including methionine hydroxy analogue.

13. The ramifications of such a shortage would be higher costs to animal feed producers, who would need to pass these higher costs on to their customers. This would also

result in the reduced utilization of methionine in poultry, swine and dairy cow production to continue to enable producers to sell their feed formulations at a competitive price.

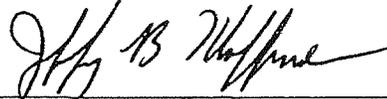
14. Novus and its raw material suppliers could not respond fast enough to a rail embargo to off-set the potential losses. There are no real expedient options for overcoming such an impediment. The two main options available to Novus to overcome the impact of an embargo would be: capital investment in a new methyl mercaptan production facility on-site within Novus's current methionine hydroxy analogue production, or developing a technology that does not consume TIH chemicals.

15. A capital investment in the production of methyl mercaptan would take time to construct and be expensive. The investment typically exceeds \$200,000,000 and takes nearly 5 years to complete. As a result, it would not be possible to develop this alternative production in enough time to overcome the detrimental effects of a rail embargo.

16. The endeavor to find the next production technology for methionine hydroxy analogue has been ongoing for more than 10 years. To date, no company has been able to replace its existing process to produce methionine without utilizing methyl mercaptan. As such, we do not see this as a realistic or at present possible alternative to respond to a potential embargo on the rail shipping of TIH chemicals.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 25<sup>th</sup> day of September 2015.

A handwritten signature in black ink, appearing to read "Jeffrey B. Klopfenstein", written over a horizontal line.

Jeffrey B. Klopfenstein  
President – Methionine Business Unit  
Novus International, Inc.

# **EXHIBIT 12**



and New Product Development. In 2005, I became Agrium's Manager of Industrial Ammonia Sales and held this position until 2014 when I was promoted to my current position, Director of Rail Logistics. I received a Bachelor of Science degree from the University of Winnipeg in 1982, and received a Master of Science degree in Soil Chemistry and Fertility from University of Manitoba in 1989.

4. Agrium is one of the world's largest producers, marketers, and distributors of nitrogen-based fertilizer, which includes anhydrous ammonia and derivative products, such as urea, urea ammonium nitrate ("UAN"), and ammonium nitrate ("AN"). Agrium owns and operates large-scale production and storage facilities for these products to serve both agricultural and industrial customers. The success of Agrium's wholesale and retail businesses is heavily dependent upon maintaining efficient and reliable anhydrous ammonia production and transportation systems.

5. As part of my various duties for Agrium, I am responsible for the rail transportation and logistics of over 8 million metric tons of Agrium products. As a result, I have personal knowledge of the transportation arrangements that Agrium has utilized over the years to transport its nitrogen products, including anhydrous ammonia, from its production facilities to its agricultural and industrial customers throughout the United States and Canada.

6. As explained further below, Agrium relies heavily upon rail transportation to distribute anhydrous ammonia from its production facilities to its U.S. facilities and customers. Recently, Class I railroads operating in the United States, including railroads upon which Agrium depends for consistent and reliable transportation of anhydrous ammonia, stated that they will refuse to transport anhydrous ammonia on their lines in the United States, beginning as soon as Thanksgiving, if Congress does not extend the existing statutory deadline of December

31, 2015 for those carriers to implement operable Positive Train Control (“PTC”) systems on their rail mainlines. Because the inability to transport anhydrous ammonia by rail would have an immediate and substantial impact upon both Agrium’s business and the nation’s health, safety, and economy, I am submitting this affidavit in support of the Motion for Temporary Restraining Order filed in this proceeding by the Plaintiffs, which includes The Fertilizer Institute of which Agrium is a member company.

*Anhydrous Ammonia is Essential to the U.S. Economy*

7. Agrium produces the vast majority of its anhydrous ammonia for agricultural use and has been an important supplier of ammonia fertilizer to U.S. farmers for over 40 years. As a nitrogen-based fertilizer, anhydrous ammonia is essential to abundant crop yields which exhibit improved quality. Nitrogen is fundamental to the formation of proteins that spur growth and development. Most plants can only absorb nitrogen from compounds in the soil. The building block for virtually all nitrogen-based fertilizers is anhydrous ammonia, which either can be applied directly into the soil or used to produce other nitrogen-based fertilizers such as urea, UAN or AN. Agrium produces all four of these nitrogen-based fertilizers.

8. Farmers rely upon and demand this important product. At 82% nitrogen, anhydrous ammonia has the highest nitrogen content by weight of any nitrogen fertilizer. Because ammonia bonds with the soil and is immediately available to the crop, it can be more efficient than other nitrogen fertilizers and reduces potential environmental issues. Direct application of anhydrous ammonia accounts for nearly 30% of all nitrogen fertilizer use in the United States and Canada. While it is theoretically possible to substitute other forms of nitrogen-based fertilizer for anhydrous ammonia under certain conditions, ammonia is a unique and cost effective fertilizer for farmers that cannot be readily or economically replaced. For example,

urea is 46% nitrogen by weight and UAN contains 28% - 32% nitrogen, which requires farmers to apply more of those fertilizers to achieve the same amount of nitrogen as ammonia. Furthermore, farmers who have invested in the special equipment needed to apply ammonia would have to first acquire different equipment to apply urea or UAN. Most importantly, however, if Agrium cannot produce and transport anhydrous ammonia, it cannot produce alternative nitrogen sources because ammonia is essential to their production.

9. Given the highly seasonal nature of crop production, farmers need to apply nitrogen fertilizers within brief 4-6 week windows in the Spring and Fall. As a result, the demand within these periods is enormous and meeting that demand is critical for farmers. Domestic U.S. production of anhydrous ammonia, which is concentrated in the Southeast, does not fulfill this demand on its own. Approximately 5 million metric tonnes of anhydrous ammonia is imported into the United States annually. Exports from Canada represent approximately 20% of this volume. In 2013, Agrium shipped approximately 500,000 metric tonnes into the United States by rail. Additionally, Agrium's U.S.-based production operations transport approximately 50,000 metric tonnes of anhydrous ammonia by rail annually to U.S. domestic locations.

10. In order to satisfy the demand, anhydrous ammonia producers, including Agrium, must produce the product year-round and transport it to large storage terminals throughout America's farming regions to be drawn upon by customers when ultimately needed during the Spring and Fall application seasons. A large number of these terminals depend upon rail deliveries of ammonia to maintain their inventories year-round. However, that storage capacity is limited. Without consistent, continuing rail shipments, there will be an ammonia shortage for

the next Spring planting season for a critical commodity that is essential to farmers for growing food for Americans.

11. Besides agriculture, shortages of anhydrous ammonia would also adversely impact other industries. Agrium supplies anhydrous ammonia to a wide range of important industrial users in the United States for which ammonia is a critical component of their business or products. For example, anhydrous ammonia is a key raw material in the production of nylon fibers, paper coating, refrigeration, water treatment, paint coatings, household products and sodium azide, which is the main chemical found in automobile airbags. Other industrial customers use anhydrous ammonia in various industrial process applications and to produce phosphate fertilizers. Anhydrous ammonia is also a critical input in the production of ammonium nitrate used in as explosives for mining coal, gold, copper and other materials. In addition, it is critical for emissions control from smelters and coal-fired electric generating stations complying with Clean Air Act emissions standards.

*Rail Transportation is Critical to Agrium's Production and Consumption of Anhydrous Ammonia*

12. As stated above, Agrium's multiple facilities across North America rely mostly, if not exclusively, upon rail transportation of anhydrous ammonia to meet its business needs. Agrium's continuing ability to succeed as a business is directly tied to its ability to transport anhydrous ammonia by rail. Agrium operates a major anhydrous ammonia production facility in Canada that ships half of its production to the U.S. by rail. The Joffre Nitrogen Production Facility located in Joffre, Alberta, Canada, which is Agrium's largest capacity ammonia plant, produces approximately 440,000 metric tonnes of anhydrous ammonia annually. The Canadian Pacific Railway Company ("CP") originates the U.S.-bound anhydrous ammonia in Canada, transports it to the border and either delivers the ammonia to its final destination or interchanges

it with the Union Pacific Railroad (“UP”), BNSF Railway (“BNSF”), or CSX Transportation, Inc. (“CSX”) for delivery to the final destination. Joffre does not have access to pipeline or barge transportation options.

13. Although Joffre can theoretically use trucks to transport ammonia, this practice would be infeasible for several reasons. First, because anhydrous ammonia is a toxic inhalation hazard (“TIH”), we prefer to ship long distance volumes via the safest transportation mode available: rail. Over half of Agrium’s truck shipments of anhydrous ammonia travel less than 100 miles and 93% less than 200 miles. Long distance shipments occur only in limited circumstances involving small volumes. Second, trucks are not feasible because it takes 3 - 4 trucks to transport the same volume of ammonia as a single rail car. The volumes that typically move by rail from Joffre to U.S. locations would require convoys of trucks operating continuously over public highways for 500 or more miles. Such convoys would place significant additional strain and costs on roadways across the United States, with greater risk of accidents. Third, even if Agrium wanted to substitute trucks for rail transportation, there are not nearly enough specialty tanks and specially-licensed truck drivers. The motor carriers that currently handle truck movements from Joffre have a combined total of just 161 trucks, which is the equivalent of less than 40 rail cars. This is a fraction of what would be needed to convert Joffre’s rail shipments to trucks. Finally, most of Agrium’s U.S. anhydrous ammonia consumers which receive the product by rail lack the capability to receive anhydrous ammonia by truck.

14. Agrium operates two facilities in the U.S. that produce phosphate fertilizers, UAN, and/or nitric acid. These facilities, located in Conda, Idaho, and Kennewick, Washington require rail deliveries of anhydrous ammonia, which is an essential feedstock in the manufacture of these products. Between them, they consume approximately 150,000 metric tonnes of

anhydrous ammonia annually. Without rail deliveries of ammonia, these plants will shut down which will impact farmers who use products produced from these facilities. Furthermore, fertilizer plants require weeks, if not months, of planning to execute an orderly shutdown. An unnecessary and unplanned shutdown caused by lack of rail transportation imposes unnecessary safety and operational risks, and potential damage to equipment. Safety inspections and testing of equipment and materials would be necessary before restarting these plants, as well.

15. Agrium's Leal, North Dakota facility is a storage terminal and distribution facility for anhydrous ammonia where anhydrous ammonia produced in Agrium's Canadian facilities is transported for storage and distribution to U.S. farmers. The Leal facility receives 70,000 metric tonnes a year via rail service provided by CP. Without this rail transportation to replenish inventory after the Fall application season, the Leal facility would not be able to satisfy the demand for ammonia during the Spring planting season.

16. Beyond supplying its own facilities, Agrium's agricultural and industrial customers relied on the UP, BNSF, CSX, Canadian National ("CN"), and Norfolk Southern ("NS") rail lines to transport over 325,000 metric tonnes of anhydrous ammonia to U.S. destinations from January 2014 to August 2015. That demand continues. If Agrium cannot deliver its products to industrial customers in the mining industry, the ability of the mining industry to extract resources may be impeded. Coal-fired electric generating plants also may be unable to meet clean air emissions standards because anhydrous ammonia is critical to their compliance. Phosphate fertilizer producers could not conduct their business without this critical feedstock. Production of a host of other products may be jeopardized because they rely on anhydrous ammonia for their production and most of that ammonia is transported by rail.

17. Agrium also would be challenged to find storage for its rail cars used to transport anhydrous ammonia. Agrium leases approximately 1,200 pressurized rail cars for transporting anhydrous ammonia, a significant portion of which would need to be relocated before being idled and stored if railroads were to cease accepting TIH shipments. Although Agrium may be able to store these rail cars within its various facilities around North America that would be shut down by the rail embargo, it would disrupt many of Agrium's other businesses by congesting their rail facilities. Aside from the cost of transporting and storing rail cars, it is not known if there even is sufficient storage space for all these cars.

18. Agrium will incur lost sales revenue from its inability to produce anhydrous ammonia or various derivative products that is difficult to quantify and cannot be made up through subsequent production if Agrium would be unable to transport anhydrous ammonia by rail from its Joffre production plant to its U.S. facilities and customers. As I have discussed above, in addition to its ammonia production at Joffre, without the ability to receive anhydrous ammonia shipments by rail, Agrium's production of agricultural fertilizers will shut down the Conda and Kennewick facilities. In addition, Agrium would be unable to rebuild anhydrous ammonia supplies at Leal for the Spring planting season. If the fertilizer application window is missed, there is no opportunity to make up those sales. It would be difficult and speculative to estimate how much of Agrium's products could have been sold to farmers but was not, due to their unavailability or what Agrium's share of those sales would have been relative to other ammonia and fertilizer producers.

19. In sum, the rail industry's refusal to transport TIH materials will not only cause immediate and substantial harm to Agrium's wholesale and retail operations that cannot be estimated, but will also extend to farmers and their ability to produce crops. It will also impact

participants in the mining, energy and manufacturing industries, which ultimately will ripple through the U.S. economy in both predictable and unpredictable ways.

20. Further affiant sayeth not.

I declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 26 day of September 2015.

A handwritten signature in black ink, appearing to read "Dale Marantz", written over a horizontal line.

Dale Marantz  
Director of Rail Logistics  
Agrium Inc.

# **EXHIBIT 13**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

_____	)	
AMERICAN CHEMISTRY COUNCIL,	)	
THE CHLORINE INSTITUTE, AND	)	
THE FERTILIZER INSTITUTE	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. _____
	)	
BNSF RAILWAY COMPANY, et al.,	)	
	)	
Defendants.	)	
_____	)	

**AFFIDAVIT OF SHARON G. PICIACCHIO  
IN SUPPORT OF THE  
PLAINTIFFS’ APPLICATION FOR PRELIMINARY INJUNCTION**

I, Sharon G. Piciacchio, being of lawful age and first duly sworn upon oath, hereby  
depose and state as follows:

***Introduction of Witness and Purpose of Affidavit***

1. My name is Sharon G. Piciacchio, and I am the Senior Vice President for Supply Chain of Axiall Corporation (“Axiall”). My business address is 11 Stanwix, Suite 1900, Pittsburgh, Pennsylvania 15222.

2. I am submitting this affidavit (the “Affidavit”) in order to explain the significant and far-reaching negative consequences that would result from a railroad embargo of toxic inhalation hazard (“TIH”) commodities such as chlorine due to the railroads’ failure to implement Positive Train Control (“PTC”) by the statutory deadline of December 31, 2015.

3. I have a Bachelor’s degree in Logistics from Penn State University and I have been employed in multiple supply chain leadership roles during my 36-year professional career.

I currently serve as a Board Member of The Chlorine Institute (“CI”) and a member of the Executive Rail Group of the American Chemistry Council. Previously, I was the Board Chair of CI.

4. Axiall is a leading company in the chemistry sector, with holdings and expertise in chlor-alkali and chlorovinyl materials. Axiall provides products and derivatives which are essential to the creation of a vast array of consumer, professional, and industrial products and applications. Axiall’s operations are primarily focused in the United States and Canada.

***Description of the TIH Materials Produced and Consumed by Axiall***

5. The only TIH material produced by Axiall is chlorine. Axiall has produced {REDACTED} chlorine annually in recent years. Axiall produces and/or consumes chlorine at the following six locations:

- Natrium, West Virginia
- Lake Charles, Louisiana (south plant)
- Beauharnois, Quebec
- Longview, Washington
- Plaquemine, Louisiana
- Lake Charles, Louisiana (north plant)

6. {REDACTED} the chlorine produced by Axiall is consumed internally, either at the same site where it is produced or transported to another Axiall facility via barge, rail, or pipeline. {REDACTED} is sold to third parties. Other than a small portion moved via pipeline, Axiall’s chlorine transportation to third parties occurs exclusively via rail.

7. Chlorine produced by Axiall is utilized in a wide variety of applications that are critical to innumerable consumer, health, and industrial products. For example, chlorine is frequently used for water treatment in order to ensure safe drinking water. {REDACTED}

{REDACTED}

{REDACTED}

[REDACTED]  
[REDACTED]  
[REDACTED] } Chlorine sold by Axiall to third parties is also utilized to make { [REDACTED] } numerous other products.

*Description of Rail Transportation of Chlorine Produced by Axiall*

8. The majority of chlorine that Axiall sells to third parties is transported via rail. In 2014, Axiall shipped { [REDACTED] } rail cars of chlorine, { [REDACTED] } originated on the Class 1 railroads. Axiall uses all seven of the major U.S. railroads for transportation of this chlorine, but the most commonly used railroad is CSX Transportation, Inc. (“CSXT”). In descending order of volumes shipped, the other Class I railroads used by Axiall are BNSF Railway Company (“BNSF”), Kansas City Southern Railway (“KCS”), Union Pacific Railroad Company (“UP”), Canadian National Railway (“CN”), Norfolk Southern Railway (“NS”), and Canadian Pacific Railway (“CP”).

9. There are four Axiall production facilities that ship outbound chlorine via rail. The railroads serving these four facilities are:

- Natrium, West Virginia (CSXT)
- Lake Charles, Louisiana (south) (KCS, UP, and BNSF)
- Beauharnois, Quebec (CSXT and CN)
- Longview, Washington (UP and BNSF)

Axiall’s Plaquemine, Louisiana plant, which is served by UP, makes infrequent and low volume rail shipments.

10. Based on the number of loaded outbound chlorine rail cars, the Natrium facility originates the greatest number of chlorine rail shipments. In descending order of volume, the other origins are Lake Charles, Beauharnois, and Longview. For the most part, each of the four

Axiall origins ships to third party destinations in adjacent or nearby states. Shipments from Natrium are primarily destined to locations in Mississippi, West Virginia, Ohio, Kentucky, Florida, Pennsylvania, and other nearby states. Conversely, shipments originating at Lake Charles are destined to states such as Texas, Louisiana, Florida, Mississippi, and Missouri. Beauharnois ships to locations in the Northeast, Upper Midwest, and Eastern Canada. Lastly, shipments originating at Longview are destined to locations in the Western United States and Western Canada.

11. Most chlorine shipments to third parties are via rail transportation. Axiall does not ship chlorine by truck due to safety concerns. Due to geographic and infrastructure limitations, there are no current Axiall chlorine customers with the ability to accept barge transportation. There are no pipelines to transport chlorine over long distances. All chlorine pipelines extend only short distances between adjacent chlorine production and consumption plants.

***Description of Plant Shut-Downs and Other Consequences of a  
Cessation in Rail Transportation of Chlorine***

12. As a result of an inability to ship chlorine by rail, production would need to be curtailed at each of the four Axiall North American chlor-alkali production facilities.

13. A rail embargo of TIH shipments would not only result in curtailment of chlorine production, but it would also reduce the amount of caustic soda that is produced because caustic soda is a co-product of chlorine production, which means that one cannot be produced without also producing the other. The reduction in caustic soda production would force Axiall to reduce sales of caustic soda to third parties. Caustic soda is an essential ingredient in a variety of industrial applications and is used in the manufacturing of pulp and paper, soap and detergent, textiles, aluminum and petrochemical refining.

14. Not only do production shutdowns and restarts interrupt Axiall's business, they also adversely affect Axiall's customers, potentially causing shut downs of their facilities, with similar adverse effects on the U.S. economy.

***Description of Impact to Rail Car Fleet Due to an Embargo of Chlorine Rail Transportation***

15. Axiall currently owns or leases { [REDACTED] } tank cars used for chlorine rail transportation.

16. If rail transportation of chlorine were to cease, Axiall would need to store these cars. Axiall does not have adequate capacity to store all these cars at its facilities, and, consequently, cars would need to be re-positioned to outside storage yards, such as on short-line railroads. It would be cost-prohibitive to use Class I railroads for storage of chlorine cars because they charge in excess of \$1,000 per day per car for storage of these cars.

17. Cars would need to be cleaned prior to offsite storage because, without cleaning, it is likely that no shortline railroad would even accept the cars due to liability issues arising from chlorine residue.

18. However, cleaning facility space would be very tight due to simultaneous demand by all TIH rail car owners as a result of the nationwide embargo of all TIH commodities. There is a very real potential that cleaning facilities would not be willing to take all the cars for cleaning due to the risk of not being able to turn around the cars quick enough before the embargo of rail service is effective. If the cars are not cleaned in time, the cleaning facility may not have the desire or space available to temporarily store residue cars.

19. If TIH rail service were to cease effective January 1, 2016, Axiall would need to begin pulling all its cars back from the national rail system and putting a plan in place starting in

mid-October 2015 because neither loaded nor residue cars would be permitted to move on the rails starting January 1st.

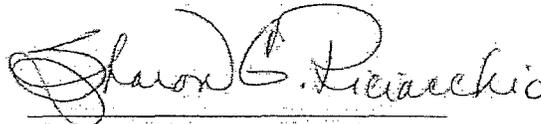
20. The costs associated with retrieving (i.e., transportation charges), cleaning, and storing these cars would be significant across all of Axiall's plant locations.

21. A cessation of chlorine rail transportation would create a domino effect because, if Axiall reduces chlorine production, then shipments of caustic soda would be significantly reduced.

22. Obviously, a cessation in chlorine rail transportation would be a significant impact to our business.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 25<sup>th</sup> day of September 2015.

A handwritten signature in cursive script that reads "Sharon G. Piciacchio". The signature is written in black ink and is positioned above a horizontal line.

Sharon G. Piciacchio  
Senior Vice President for Supply Chain  
Axiall Corporation

# **EXHIBIT 14**



Economics from Case Western Reserve University and a Doctorate in Business Administration from Anglia Polytechnic University.

4. The purpose of this affidavit is to highlight the significant damage that a rail embargo on toxic inhalation hazard (TIH) chemicals would have on the nation's chemical producers and the cascading impacts on the nation's food, energy, and water supplies.

5. Under the Rail Safety Improvement Act (RSIA) of 2008, railroads are required to implement Positive Train Control (PTC) on lines that ship certain hazardous materials and carry passengers by rail by December 31, 2015. Despite the efforts and investment that are ongoing to implement PTC, the Association of American Railroads (AAR), Government Accounting Office (GAO), and the Federal Railroad Administration (FRA) have clearly stated that the railroads will not be able to implement PTC by the deadline. Most railroads have publicly stated that they will embargo TIH traffic unless the deadline is extended. The economic and social costs resulting from a TIH embargo lasting as short as just one month would be long-lasting and widespread, hitting many sectors of the economy. This would include major losses in the chemical industry and specifically, to the businesses and people who rely on TIH chemicals. Clearly, the economic fallout due to the curtailment of TIH chemical shipments would be substantial. But, because TIH chemicals are critical inputs to goods and services that are essential to public health, the stability of our domestic food supply, clean water in our homes, schools, and hospitals, a rail shutdown would quickly impact our everyday modern lives.

*TIH Chemicals*

6. TIH chemicals are critical inputs to goods and services that are essential to public health, the stability of our domestic food supply, clean water in our homes, schools, and hospitals

and they are safely shipped by rail every day across the United States. More than 60 million short tons of TIH chemicals in over 75,000 carloads are delivered to customers by rail<sup>1</sup>.

7. In 2014, manufacturers of TIH chemicals produced \$29.6 billion of these materials and directly employed more than 20,000 people<sup>2</sup>. While most shipments of TIH chemicals are moved by rail, some move by other modes and some are consumed at the plant site. These chemicals are essential to a wide variety of industries and economic activities. Figure 1 shows how selected TIH chemicals are used (either directly or indirectly) to support a wide band of economic activity in the U.S.

**Figure 1**  
**The Use of Selected TIH Chemicals, by Sector**

Source: American Chemistry Council

	Agriculture & Food	Energy, Minerals & Water	Metals and Industrial Materials	Automotive, Electrical & Machinery	Building Materials & Other Industrial Products	Health Care & Other Consumer Products
Anhydrous ammonia	X	X	X			X
Chlorine	X	X	X	X	X	X
Ethylene oxide		X	X			X
Hydrogen fluoride		X	X	X	X	
Sulfur dioxide	X	X	X	X	X	X
Methyl mercaptan	X	X				
Hydrogen chloride	X		X	X		
Sulfur trioxide	X	X		X	X	X
Acetone cyanohydrin	X		X		X	
Hydrogen cyanide	X	X	X	X	X	X
Phosphorous trichloride	X		X			X
Chlorosulfonic acid	X		X			X
Dimethyl sulfate	X	X	X			X
Chloropicrin	X					X
Allyl alcohol	X		X			X
Bromine			X			X
Titanium tetrachloride			X			
Hexachlorocyclopentadiene	X		X			X
Hydrogen sulfide	X	X	X			
Ethyl chloroformate			X			
Dinitrogen tetroxide	X		X		X	

<sup>1</sup> Association of American Railroads, The Rail Transportation of Chemicals, Vol. 19, July 2015.

<sup>2</sup> American Chemistry Council estimate.

8. Exhibit A identifies the multiple products and services that over 20 different TIH materials make possible. For every one of these TIH materials, there is a life-saving or life-altering product or service that would be curtailed or eliminated due to shortages created by a lack of rail transportation, which will reduce the supply of these essential TIH materials. From the lack of clean drinking water, pharmaceuticals, and plastics due to chlorine shortages; to food, energy, and raw mineral shortages caused by a lack of anhydrous ammonia to fertilize, scrub coal power, or produce blasting compounds for mining operations; to antifreeze shortages that prevent the Winter operation of cars, heavy equipment, and airplanes due to lower ethylene oxide production; and a shortage of aircraft parts due to a lack of titanium tetrachloride. Exhibit A provides these examples and many more.

9. Exhibit B illustrates the ubiquity of chlorine throughout all aspects of our daily lives. Though this "Chlorine Tree," it is possible to trace back to chlorine hundreds of familiar products. Chlorine is the foundation for scores of intermediate or derivative products that ultimately produce the final products with which each of us is familiar. As with any foundation, without chlorine those other products are not possible.

10. ACC's analysis of the economic impact of TIH chemicals is focused on the value-added<sup>3</sup> and employment associated with products and services ultimately dependent upon these TIH materials and, in some cases, their derivatives. The list of products and services reflects those gathered in the qualitative assessment. The total impact estimate underrepresents the true total as many of the derivative materials are not included, due to the unavailability of data. Lack of data also precluded inclusion of a number of distinct end-use applications (coatings, rocket

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<sup>3</sup> "Value-added" represents the contributions that firms make to the economy when they transform raw materials into finished products or services. It is calculated as revenues less the cost of brought-in raw-materials, components, and services (including labor). Value-added is used to measure the value that firms add to these brought-in materials and services during their production process.

fuel, parachutes, etc.). Many downstream activities were not included as well. For example, primary magnesium and titanium are included but magnesium and titanium products are not included.

11. Table 1 presents the value-added and employment data for those industries and economic activities that are ultimately dependent upon TIH materials. The data, compiled from the Census Bureau and the Bureau of Labor Statistics, represent 2014 economic activity and employment for these industries. The data are adjusted to reflect that share of the economic activity of the sector that is dependent upon these TIH materials. For example, ammonia is used in coal-burning electric power plants in selective catalytic reduction to comply with Clean Air Act emission standards. The value-added and employment estimates reflect the fact that electricity generated using coal accounts for only 38% of all electricity generated. The remaining share is from other fuels. Thus, the notable output and value-added to the economy as well the jobs created due to electricity generated by other sources is not included in the estimates presented in Table 1.

**Table 1**  
**Industries Dependent on TIH materials:**  
**Annual Employment, Wages, Output, and Value-Added**

	Employment (thousands)	Wages (\$million)	Output (\$million)	Value-Added (\$million)
Agriculture & Food	821	29,848	415,602	185,073
Energy, Minerals & Water	200	20,590	1,014,073	212,101
Metals and Industrial Materials	233	17,363	190,012	86,992
Automotive, Electrical & Machinery	627	48,735	179,809	99,183
Building Materials & Other Industrial Products	153	6,983	51,716	21,152
Health Care & Other Consumer Products	338	31,557	204,059	130,638
<b>Total</b>	<b>2,372</b>	<b>155,077</b>	<b>2,055,271</b>	<b>735,139</b>

Source: American Chemistry Council, Census Bureau, Bureau of Labor Statistics

12. The data in Table 1 illustrate the criticality of TIH materials in a number of applications. These figures do not include all economic activities where TIH materials are critical inputs.

13. To be clear, if railroads stop shipments of TIH chemicals, a portion of our nation's economy could come to a standstill with the railcars. As presented in Table 1, TIH dependent industries employ more than 2 million people. Because rail is essential to the majority of deliveries of TIH chemicals to these segments of the economy, the wages and livelihoods of those employed in TIH consuming industries would be jeopardized by suspension of rail service. The supply shock that could occur to industries such as agriculture and food could contract output in those industries and raise associated consumer prices. The coincidence of ensuing wage cuts and hikes in food and other consumer prices would take place right at a time when Americans were finally starting to feel "back on their feet." TIH dependent industries contribute more than \$2 trillion in output and more than \$735 billion in value-added to the American economy. This is equivalent to 4.2% of US GDP.

***Public Health Consequences of a Failure to Move TIH Chemicals***

14. *Safe Drinking Water.* Starting with perhaps the most well-understood and potentially catastrophic way that this would play out, TIH chemicals are used across the country in water treatment facilities. The curtailment of chlorine shipments to water treatment facilities, which almost entirely depend on rail, could immediately incite a public health crisis. The chlorination of drinking water has been credited by the U.S. Centers for Disease Control and Prevention for helping to control infectious diseases and increase life expectancy by nearly 30

years since 1900<sup>4</sup>. Without access to chlorine for disinfection and to produce sodium hypochlorite bleach, an alternative disinfection product made from shipments of chlorine, the nation's supply of safe drinking water will be at risk. According to the U.S. Environmental Protection Agency, Americans drink more than one billion glasses of tap water each day<sup>5</sup>. Alternatives such as boiling water or expensive bottled water are not practical for many. Schools, restaurants, hospitals and households would be severely disrupted without access to publicly available clean drinking water.

15. *Farms & Food.* Fertilizer materials are essential to boosting crop yields and making the United States one of the most food-abundant nations in the world. Nitrogen, phosphate, and potassium are critical nutrients for plant growth and the supply of two of those are at risk if TIH shipments are stranded. Ammonia is applied directly as a fertilizer and it is used to make other nitrogenous fertilizers such as ammonium nitrate, urea, ammonium phosphates and ammonium sulfate. About two-thirds of another TIH chemical, sulfuric acid, is used to produce phosphate fertilizer. Both nitrogenous and phosphate fertilizers are used to grow grain and oilseed crops in the U.S. Without these essential nutrients, crop yields will be in jeopardy, resulting in lower food production.

16. *Pharmaceuticals.* Pharmaceuticals provide life-saving and life-enhancing benefits and are an essential component of the U.S. health care system. Without effective and safe pharmaceutical products, patients would place greater demands on physician visits or experience longer lengths of stays in nursing homes and hospitals. Chlorine chemistry is widely used in the production of pharmaceutical products. An analysis of the top-selling one hundred

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<sup>4</sup> U.S. Centers for Disease Control and Prevention (CDC). "Achievements in Public Health, 1900-1999: Control of Infectious Diseases." CDC Morbidity and Mortality Weekly Report. July 30, 1999.  
(<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4829a1.htm>)

<sup>5</sup> [http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009\\_08\\_28\\_sdwa\\_fs\\_30ann\\_waterfacts\\_web.pdf](http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_waterfacts_web.pdf)

drugs sold in the U.S. in 2012 found that chlorine chemistry is employed in the manufacture of 88% of these drugs – 25% contain chlorine in the dose form and over 60% of them use chlorine chemistry in the manufacturing process. The manufacturing process may use chlorine-containing intermediates, for example, which lose their identity during the course of building up the molecule from smaller constituents.

17. Ethylene Oxide and its derivatives help make many of the products we use every day, such as plastics, household cleaners, polyurethanes and ointments. One small, but important use of ethylene oxide is in the sterilization of medical supplies and devices and healthcare products such as bandages.

18. In addition, many TIH chemicals are ingredients in crop protection products, including pesticides, fungicides and herbicides. These products are also essential to protecting valuable food crops from loss due to insects, diseases, and competition from non-crop plants.

19. Though the requirements for PTC under the RSIA are directed to passenger rail and the shipments of TIH chemicals, at least one railroad, BNSF, has stated it believes it must embargo all freight that would normally be transported on its lines for which PTC is to be implemented. In that event, an extensive proportion of the nation's rail network would effectively be shutdown or curtailed.

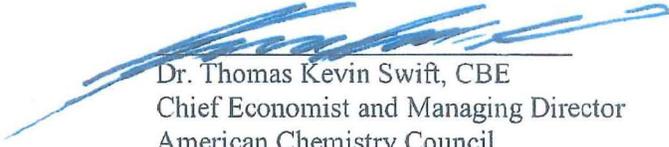
20. Rail shippers depend on railroads to deliver coal, farm products, automobiles, chemicals, building materials, and many other essential products. A major disruption of rail service would have immediate as well as cascading impacts on the nation's food, energy, and water supplies. It could also impact transportation, construction, and nearly every sector of the U.S. economy. It could hit every point across our nation's supply chain.

21. The costs of a major disruption of rail service would be felt immediately in terms of public health impacts, plant and business shutdowns, lost jobs and income, and a drop off in tax revenues for states and local governments. Even for a disruption of just a few weeks, the economic and social costs would be substantial and the harm to TIH producers, consumers, and the public health and welfare would be irreparable.

22. The recovery of the U.S. economy from the Great Recession has been slow and steady but lacking the robust pace to safeguard it from real vulnerability to a negative shock that could knock it off course. A negative supply shock arising from PTC regulation-induced rail service disruptions would most severely affect the industrial sector, resulting in less production and through various transmission channels could ripple through the U.S. economy fostering contractionary forces across wide spectrums of the economy. There could be ripple effects to associated industries and to production, employment, wage and salary income, and spending by consumers and business – inciting a vicious cycle. Consumer spending and business investment could falter. The ripple effects could be most manifested in manufacturing, mining and utilities, and industrial production could fall even further than the broader economy. The impact of the a major rail service disruption could be crippling, pushing a modest pace of economic expansion into one of contraction during 1<sup>st</sup> quarter 2016.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 28 day of September 2015.



Dr. Thomas Kevin Swift, CBE  
Chief Economist and Managing Director  
American Chemistry Council

EXHIBIT A To

AFFIDAVIT OF THOMAS KEVIN SWIFT  
IN SUPPORT OF THE APPLICATION FOR PRELIMINARY  
INJUNCTION OF PLAINTIFFS AMERICAN CHEMISTRY COUNCIL,  
THE CHLORINE INSTITUTE, AND THE FERTILIZER INSTITUTE

*TIH Materials are Essential to American commerce, Public Health, and our Modern Way of Living*

The following list of TIH chemicals produced in the U.S. and shipped by rail also provides commentary of the uses and applications of the chemicals. This information illustrates the criticality of TIH materials to national commerce, public health and our modern way of living.

**ANHYDROUS AMMONIA** is one of the largest volume chemicals produced in the United States. Most ammonia produced in the United States is used to make fertilizer. Ammonia is applied directly as a fertilizer and it is used to make other nitrogenous fertilizers such as ammonium nitrate, urea, ammonium phosphates and ammonium sulfate. Nitrogen is essential for plant growth. Ammonia is thus essential for crops such as corn and wheat. It is the least costly and most effective source of nitrogen fertilizer for American farmers. **There is no viable substitute in maintaining the nation's food supply.** The largest consuming states are California, Illinois, Indiana, Iowa, Kansas, Minnesota, Nebraska, and North Dakota. Corn is the largest direct consumer of directly applied ammonia. One of the products of corn is ethanol, which is not only an important source of revenue for railroads, but also **an important part of our national energy policy.** Industrial uses for ammonia include the making of acrylonitrile (to make resins and acrylic fibers, which are used to make apparel, blankets, and upholstery), caprolactam (to make nylon 6 for use in such products as clothing, parachutes, and rope), and aniline (to make rubber processing chemicals). Ammonia is used in the continuous cycle cooling units found in large-scale commercial air conditioning and refrigeration at large, cold storage facilities. Other uses include Pharmaceuticals (sulfa drugs, vitamins, etc.), cosmetics, adhesives, feed supplements, home and industrial cleaners, pulp and paper production, metallurgy, and in the production of sodium azide propellants for air bags. Coal-burning electric power plants use ammonia for abatement of nitrogen oxides from power plants, thus **allowing these facilities to comply with the Clean Air Act emissions standards.** Minor uses include the making of explosives and the production of rocket fuel. **For most industrial users there is no substitute for ammonia.**

**CHLORINE** is a naturally-occurring element that is essential to life. It is a high volume chemical produced in the United States and **its use in American chemistry is pervasive, with the chlorine molecule involved in 60% of the industry's products.** Approximately 98% of public drinking water treatment systems use some form of chlorine-based disinfectant, according to a 2007 survey of water treatment facilities by the American Water Works Association. **Drinking water chlorination has been used for 100 years and is the major factor in preventing cholera and other waterborne disease. Chlorine disinfectants are also used extensively in food production and healthcare settings to guard against life-threatening germs.** Chlorine is used directly in paper manufacturing, and in the production of certain lightweight metals (titanium and magnesium) used in aircraft. Indirectly, it is used to make a variety of important building block chemicals, such as trichloroethylene, phosgene, chlorinated hydrocarbons, neoprene, polyvinyl chloride (PVC), hydrogen chloride, and ethylene dichloride. In turn, these are **used to ultimately produce thousands of industrial and consumer products.** According to the Chlorine Institute, chlorine chemistry is essential to 85% of all Pharmaceuticals, 25% of all medical plastics, 70% of all disposable medical applications, and 86% of crop protection chemicals. Some indirect applications include the production of wool, flame retardant materials, and special batteries (lithium and zinc). Chlorine is also used in the processing of fish, meat, vegetables, and fruit. The

largest end uses of chlorine include the making of ethylene dichloride, vinyl chloride monomer, and PVC resins (used to make a variety of products such as medical bags and tubing, adhesives, protective clothing, pipes, siding for homes, and raincoats).

**ETHYLENE OXIDE** is primarily used to make ethylene glycol (which is used to make polyester fibers/resins and antifreeze). The next largest application is in the making of surfactants and detergents. This chemical is also used to make other chemicals, such as ethanolamines (used for gas conditioning and soap production) and glycol ethers (used to make paint, brake fluids, aircraft fuel additives). Ethylene oxide is also used as a petroleum demulsifier, as a fumigant and humectant, in the making of rocket propellant, and as a **sterilizing agent for medical supplies** (bandages, sutures, and surgical implements) and industrial applications.

**ANHYDROUS HYDROFLUORIC ACID** is the source for virtually every product containing a fluorine molecule. Nearly 30% of all agricultural chemicals and 20% of Pharmaceuticals contain a fluorine molecule. **The agricultural and pharmaceutical industries depend on the timely shipments of this chemical.** Hydrofluoric acid is mainly used for the production of fluorocarbons, which are in turn used as refrigerants, foam-blowing agents, aerosol propellants, and solvents. While ammonia (also a TIH material) is a substitute for fluorocarbons used in refrigeration, there are few if any substitutes for fluorocarbons used in insulating foam applications. Fluorocarbons are also precursors to fluoropolymers and fluoroelastomers. Polytetrafluoroethylene is used in wire and cable insulation, aircraft/aerospace, electronics applications, and in non-stick coatings for cookware and bakeware. Fluoroelastomers exhibit high heat resistance and low permeability and are used in valves and seals for automotive and aircraft applications. Nearly 20% of hydrogen fluoride produced is used in primary aluminum production. Nearly 5% is used to make high-octane blending components for gasoline, where it is **critical in today's clean fuels**. Other uses include stainless steel pickling, treatment of titanium and zirconium, uranium fuel refining, semiconductor manufacture, glass etching, and as an additive in liquid rocket propellants. Uranium is further processed to provide fuel rods for nuclear reactors and electric power generation.

About 40% of the **SULFUR DIOXIDE** produced in the United States is made into sodium hydrosulfite, which is used to bleach paper and textiles. Nearly a quarter is used by the pulp and paper industry to stabilize pulp. Agriculture and food production accounts for about 15% of production. It is used as a preservative and an antimicrobial in the production of corn syrup, wine, and beer. Sulfur dioxide is also used in water treatment to remove residual chlorine. It's used to treat water at chrome-plating facilities by converting chromate to less toxic compounds. Sulfur dioxide is also used in metal and ore refining, oil recovery, and as a catalyst in the production of phthalic anhydride used to make plasticizers (used in medical equipment, tarpaulins, cable jackets) and unsaturated polyester resins (plastics for use in construction, corrosion-resistant tanks/pipes, boats).

Two-thirds of **SULFURIC ACID** (hydrogen sulfate, battery acid, electrolyte acid) production is used to make phosphate fertilizer. A relatively small amount is used in copper refining and other metallurgical uses. Other uses include production of high-octane gasoline, methyl methacrylate, caprolactam, and in the production of lead-acid batteries. Methyl methacrylate is used to manufacture window glazing, lighting fixtures, taillights lenses, disposable medical equipment, laminates, polymeric optical fibers, and appliances and other consumer products. Caprolactam is used to manufacture nylon 6, used in tire cord and carpets.

The largest use for **METHYL MERCAPTAN** is as an intermediate for amino acids (methionine) used in poultry and swine feed. **As an important component for animal feeds for the nation's poultry and pork industry, any disruption in the methyl mercaptan supply chain will have adverse effects on the price of animal products.** Methyl mercaptan is also used to produce jet fuel additives, fungicides and as a catalyst.

**HYDROGEN CHLORIDE** (or hydrochloric acid) is used to make vinyl chloride and alkyl chlorides, and used in polymerization, hydrochlorination, isomerization, alkylation, and nitration reactions. It's also used in steel pickling (it is increasingly being used in place of sulfuric acid) and in food processing (in the making of high fructose corn syrup and dextrose).

**SULFUR TRIOXIDE** (or sulfuric anhydride) is used to produce surface-active agents such as linear alkylbenzene sulfonates, alcohol sulfates and alcohol ether sulfates, that are used in detergents. Sulfur trioxide is also used in the production of explosives and solar energy collectors. Sulfuric acid is produced by the reaction of sulfur trioxide and water. Sulfuric acid is used to produce fertilizers, explosives, and lead-acid batteries, and is used in oil refining and metallurgy.

The largest use for **ACETONE CYANOHYDRIN** is as an intermediate for methyl methacrylate used in window glazing, lighting fixtures, etc. Acetone cyanohydrin is also used to produce methacrylic acid (a monomer for high-volume resins), fungicides and 2-amino iso-butyronitrile.

About half of all **HYDROGEN CYANIDE** (hydrocyanic acid) produced goes into adiponitrile and is used in the manufacture of nylon 66 resin, an engineering thermoplastic. Because of nylon's high tensile strength, flame retardance and heat deflection properties, it is used in automotive and truck parts, electrical and electronic parts, industrial machinery parts, and in other consumer goods. About one-quarter of hydrogen cyanide produced is used to make acetone cyanohydrin, which is used to make methyl methacrylate. Methyl methacrylate is used to manufacture window glazing, lighting fixtures, taillight lenses, disposable medical equipment, laminates, polymeric optical fibers, and appliances. About 10% of hydrogen cyanide produced is used to make sodium cyanide, which is used by the mining industry for gold recovery. Some sodium cyanide is used in electroplating, caffeine synthesis, and pharmaceutical manufacture. Other products that are made using hydrogen cyanide include soaps, kidney dialysis products, herbicides, and coatings.

About two-thirds of **PHOSPHOROUS TRICHLORIDE** is used in glyphosphate herbicides and organophosphate insecticides. A small amount (13%) is converted to phosphorous oxychloride, which is used in plastics and elastomers, functional fluids (fire resistant lubricants and hydraulic fluids for industrial machinery and aircraft), and pesticides. Another 12% is used to produce surfactants. Phosphorous trichloride is used in the textile, pulp and paper, photography, and electroplating industries. Other uses include plastics and elastomer additives (antioxidants, heat stabilizers, flame retardants) and oil additives.

A derivative of **SULFUR TRIOXIDE**, *chlorosulfonic acid* (sulfuric chlorohydrins) is used to make detergents, pharmaceuticals, dyes, pesticides, intermediates ion-exchange resins, anhydrous hydrogen chloride and smoke producing chemicals.

**DIMETHYL SULFATE** (methyl sulfate) is primarily used as a methylating agent for amines and phenols. End-use products derived from dimethyl sulfate include surfactants, fabric softeners, water treatment chemicals, pesticides, pharmaceuticals, dyes, and photographic chemicals. It is less often used as a sulfonation agent, catalyst, solvent, and stabilizer.

**CHLOROPICRIN** is a rodenticide used in grain elevators, bins, and other storage places. It's also applied to soil as pre-planting soil fumigant for control of fungi, verticillium wilt, nematodes, insects and weed seeds. Used in field bean crops and with fruits, tomatoes, tobacco, potatoes, other field crops (peanuts, sugar beets, etc.), lawns and turf, and as a fumigant for structural pest control. Chloropicrin is a possible alternative for methyl bromide. Other uses include organic synthesis and as crystal violet dye. It has also been used as a tear gas agent.

**ALLYL ALCOHOL** is used to make glycerol, herbicides (acrolein), and various resins and plasticizers. Used in the manufacture of flavorings and perfumes, it is also an intermediate for many pharmaceuticals. It is also used as a military poison.

**BROMINE** is primarily used as a chemical intermediate. It's used to make a wide spectrum of commercial products. These products include flame retardant additives, fire extinguishing agents, well completion fluids, water treatment chemicals, fumigants (methyl bromide), dyes, Pharmaceuticals, photographic chemicals, and rubber products (automobile tires).

**TITANIUM TETRACHLORIDE** (or titanium chloride) is primarily used to make pure titanium metal (which is used to make aircraft parts, athletic equipment, and medical devices) and titanium dioxide (which is a pigment used in paints and foods and a whitening agent used in toothpaste). It's also used to make a variety of titanium catalysts, which, in turn are used to make various plastics, fibers, rubbers, and films. Minor uses include certain military uses (smoke screens).

**HEXACHLOROCYCLOPENTADIENE** is used to make fire-retardant chemicals. It's also used in the production of insecticides and as an intermediate for resins, dyes, and Pharmaceuticals. It's also an intermediate in shock-proof plastics.

**HYDROGEN SULFIDE** is used to make sulfuric acid (phosphate fertilizers, copper processing), sodium hydrosulfide (pulp processing for paper, copper mining, dye manufacturing, desulfurization of rayon and cellophane and leather tanning), sodium sulfide (leather tanning, polysulfide elastomers and plastics, dyes, pulp and paper, lubricating oils, wastewater treatment, photographic reagent, etc.), calcium polysulfide (a fungicide), sulfur chlorides and fluorides, and mercaptans (used in lubricating oils and cutting fluids).

**ETHYL CHLOROFORMATE** (ethyl chlorocarbonate) is used as an intermediate in making diethyl carbonate, floatation agents, polymers, and isocyanates. Diethyl carbonate is a solvent for nitrocellulose, and for synthetic and natural resins.

**DINITROGEN TETROXIDE** (nitrogen tetroxide, nitrogen dioxide) is used to produce nitric acid and as an oxidizer for spacecraft/rocket fuels, catalyst, oxidizing agent, nitrating agent, and a polymerization inhibitor for acrylates. Nitric acid is used in the manufacture of ammonium nitrate (a fertilizer providing nitrogen essential for plant growth), explosives, dyes, cellulose nitrate (used in automotive lacquers, rocket propellants, printing inks, flashless propellant powder, explosives), ore flotation, urethane polymers (used for sound and other insulation), rubber processing chemicals, and reprocessing spent nuclear fuel. Acrylates are used to manufacture acrylic polymers used in medical instruments, signs, headlight lenses, nonwoven fabrics, adhesives, and automotive coatings, and as ion exchange resins, absorbents in chromatography, among myriad uses.

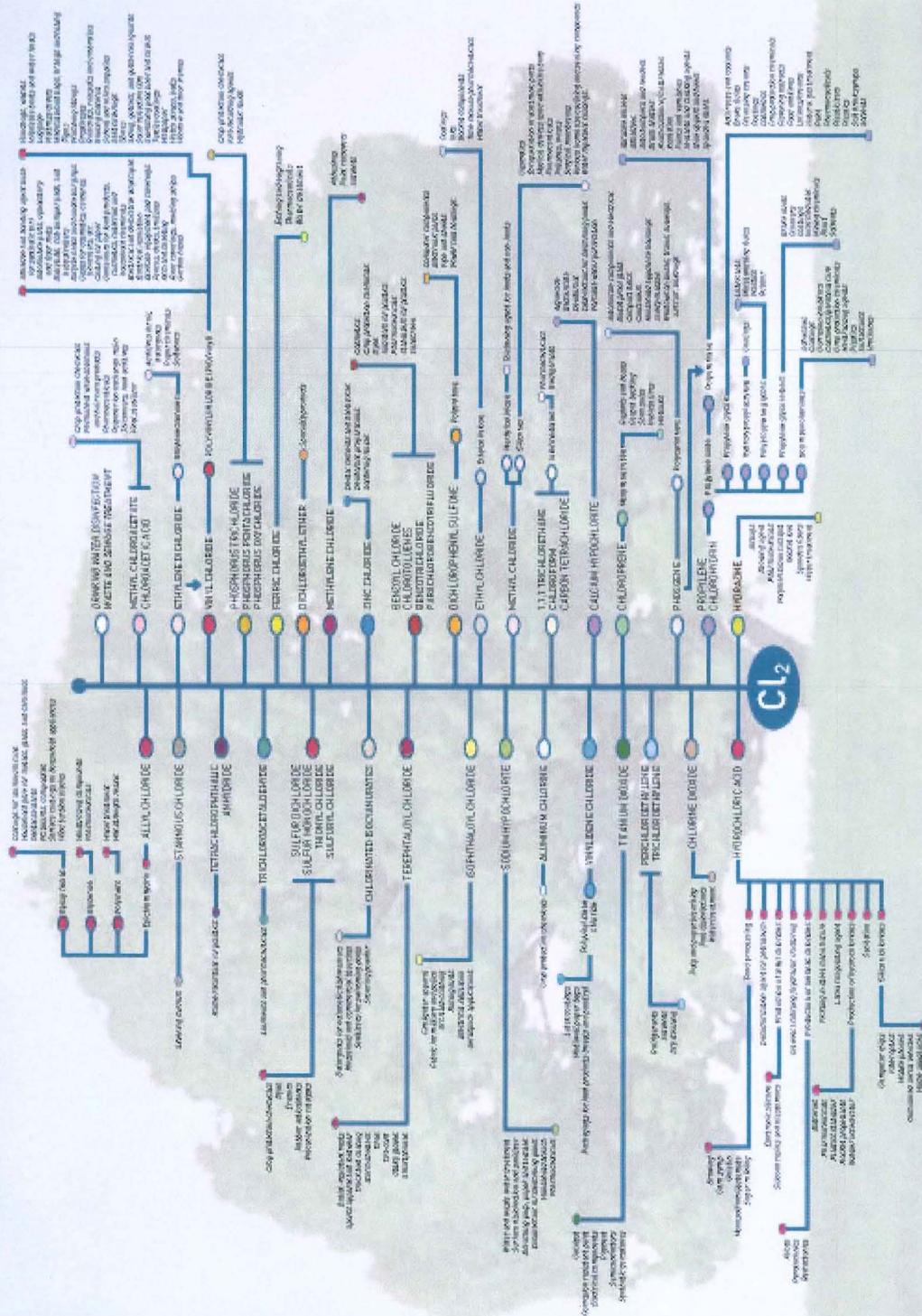
EXHIBIT B To

AFFIDAVIT OF THOMAS KEVIN SWIFT  
IN SUPPORT OF THE APPLICATION FOR PRELIMINARY  
INJUNCTION OF PLAINTIFFS AMERICAN CHEMISTRY COUNCIL,  
THE CHLORINE INSTITUTE, AND THE FERTILIZER INSTITUTE

# Products of the Chlorine Tree

Chlorine is one of the most standard naturally occurring chemical elements.

It also plays an important and significant role in the manufacture of thousands of products we depend on every day.



# **EXHIBIT 15**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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AMERICAN CHEMISTRY COUNCIL,	)	
THE CHLORINE INSTITUTE, AND	)	
THE FERTILIZER INSTITUTE	)	
	)	
Plaintiffs,	)	
	)	
v.	)	Civil Action No. _____
	)	
BNSF RAILWAY COMPANY, et al.,	)	
	)	
Defendants.	)	

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**AFFIDAVIT OF DR. HARRY VROOMEN  
IN SUPPORT OF THE  
PLAINTIFFS' APPLICATION FOR PRELIMINARY INJUNCTION**

I, Dr. Harry Vroomen of Washington, D.C., of lawful age, being first duly sworn upon oath deposes and states as follows:

*Introduction and Purpose*

1. My name is Harry Vroomen. I am the Vice President of Economic Services at The Fertilizer Institute ("TFI"). My business address is: 425 Third St., S.W., Suite 950 Washington, D.C.

2. TFI is the leading voice in the U.S. fertilizer industry, representing the public policy, communication and statistical needs of producers, manufacturers, retailers and transporters of fertilizer. Our members' areas of interests include security, international trade, energy, transportation, the environment, worker health and safety, farm bill and conservation programs to promote the use of enhanced efficiency fertilizer.

3. I have worked at TFI since 1993. In my current role as Vice President of Economic Services, I manage TFI's statistical programs and conduct market analysis on agriculture and the fertilizer industry. These statistical programs support TFI's legislative, regulatory, and public affairs efforts. Prior to joining TFI, I was an analyst with the U.S. Department of Agriculture's ("USDA") Economic Research Service. While an analyst, I authored numerous publications on the agricultural input industries. I received a Bachelor of Science degree and Master's degree in Agricultural Economics and Operation Research from Penn State University, and completed my Ph. D. in Economics at The George Washington University.

4. I have made numerous presentations on issues involved in the supply and demand of fertilizer. I have also briefed USDA's chief economist and the staffs of both the House and Senate Agriculture Committees on similar fertilizer issues multiple occasions. In 2008, I had the honor of briefing Ed Schafer, the former Secretary of Agriculture, on fertilizer supply and demand issues, in addition to briefing the Office of Trade at the White House on fertilizer trade issues.

*Anhydrous Ammonia – A Critical Nitrogen Plant Nutrient*

5. Nitrogen is the most important nutrient for crop growth, second only to water in overall importance. Both a component of chlorophyll, making it essential for photosynthesis, and a basic element of plant proteins, nitrogen is extremely important in periods of rapid plant growth. Not surprisingly, aside from the recent economic decline in 2008-2009, total nitrogen fertilizer consumption has grown modestly in the United States; of the three primary plant nutrients, nitrogen, phosphate, and potash, nitrogen accounts for 60 percent of total use, both in the United States and globally. *See generally*, Ex. A.

6. Anhydrous ammonia is the source of nearly all the nitrogen fertilizer produced in the world. It is produced by combining nitrogen from the atmosphere and hydrogen which is typically obtained from natural gas. As a crop nutrient, it can be directly applied by farmers or used as the “basic” nitrogen product fertilizer manufacturers upgrade into other nitrogen fertilizers such as urea and urea-ammonium nitrate (“UAN”) solutions. Direct application of anhydrous ammonia is the most efficient source of nitrogen as it has the highest nitrogen content by weight of any other nitrogen fertilizers. A gas under ambient conditions but a liquid when refrigerated and pressurized, anhydrous ammonia is directly applied by injecting it into the subsoil, where it reverts to a gaseous state and combines with the soil’s moisture to provide the essential nitrogen nutrient. While its interchangeable state of matter as a liquid and gas are conducive for direct application, it requires special equipment and technology to transport, store and apply.

#### *Impacts of a Deficient Supply of Anhydrous Ammonia*

7. The potential impacts of not raiing anhydrous ammonia revolve around the potential costs and availability of nitrogen materials that can be used in place of the ammonia that may no longer be available to the grower. In investigating these impacts, I considered the current U.S. nitrogen use practices and determined significant irreparable consequences will result where anhydrous ammonia is no longer able to be transported by rail.

8. The latest data available provides that of the nearly 13.5 million tons of nitrogen used in the U.S. from July 2011 to June 2012 (which is the latest data available), over 28 percent was in the form of anhydrous ammonia. *See* Ex. A, B. UAN solutions and urea account for an additional 27 and 22 percent of total nitrogen use, respectively. *See* Ex. B.

9. U.S. nitrogen fertilizer use is concentrated among several crops. Ex. C. Three crops account for two-thirds of total nitrogen use, and corn alone accounts for nearly half of the total. *Id.* This share is even more concentrated in row crop agriculture, especially in corn production. The top five corn producing states account for nearly 38 percent of total U.S. nitrogen use and the top 10 corn producing states account for more than 57 percent of total nitrogen use.

10. Anhydrous ammonia, UAN solutions, and urea, account for about 85 percent of total nitrogen fertilizer use in the top five and top 10 corn producing states. *See* Ex. D, E. The use of anhydrous ammonia is also more concentrated in these states. Anhydrous ammonia accounts for nearly 44 percent of total nitrogen use in the top five corn producing states, and for nearly 38 percent of the total in the top 10 corn producing states. *Id.*

***Anhydrous Ammonia is the Most Cost Efficient Source of Nitrogen Nutrients***

11. The primary reason for the significant use of anhydrous ammonia in the U.S. is the lower cost per unit of nitrogen. At 82 percent nitrogen, by weight, anhydrous ammonia is a more concentrated form of nitrogen compared to urea, which contains 46 percent nitrogen, and UAN solutions, which contains between 28 and 32 percent nitrogen. So even though the price of anhydrous ammonia per ton of material is higher than the price of urea or nitrogen solutions, the price of the nitrogen in those materials, which is ultimately what the grower is using to produce his crop, is lower for anhydrous ammonia. USDA data on fertilizer prices paid by U.S. from 1995 to 2013 (the data was discontinued after 2013), indicates that the cost of a unit on nitrogen in the form of urea and UAN solutions averaged 40 percent greater than the cost of a unit of nitrogen in the form of anhydrous ammonia. Ex. F. Consequently, even if enough urea and/or

UAN solutions became available to replace the ammonia used in the U.S., nitrogen fertilizer costs for U.S. farmers would be significantly higher over this period.

12. Higher nitrogen costs for farmers will result in significant impacts on U.S. agriculture and food production. Significantly higher nitrogen costs will lower grower profitability and result in both lower yields and fewer acres planted. This, in turn, will result in lower crop production, higher crop prices, and ultimately higher food costs. The resulting increase in the price of the major feed crops like corn, sorghum, barley and oats, will result in higher feed costs for livestock producers reducing both profitability and production which, in turn, will result in lower milk and meat production and higher milk and meat prices. In short, the increased nitrogen prices will provide a ripple effect throughout U.S. agriculture.

13. In addition, the impacts of the higher nitrogen prices in this case will be limited to domestic agricultural production, unlike an increase in the global price of nitrogen, which would impact all nations. That is, U.S. growers would be worse off relative to other global agricultural producers. But the costs extend beyond just U.S. growers and higher food, milk and meat prices. In 2012 and 2013, the value of U.S. agricultural production stood at nearly \$400 billion; furthermore, U.S. agriculture had a positive trade balance of nearly \$40 billion over this period. Thus, the cost impacts extend to the entire U.S. economy.

14. Coupled with the current environment of significantly lower crop prices, causing a recent USDA to report<sup>1</sup> that forecasted net farm income will hit a 10-year low, the total impact on American farmers and their families should not be taken lightly. *See Ex. G.*

***Anhydrous Ammonia is Currently Irreplaceable***

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<sup>1</sup> U.S. DEP'T. OF AGRIC., HIGHLIGHTS FROM THE 2015 FARM INCOME FORECAST (2015), available at <http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/highlights-from-the-2015-farm-income-forecast.aspx>

15. Theoretically, U.S. growers could use additional UAN solutions and/or urea as a substitute for the nitrogen nutrients anhydrous ammonia usually supplies. In fact, the above discussion relied on the assumption that in the event anhydrous ammonia could not be railed and substitute materials are required, status quo, to some extent, could be maintained as long as affected parties were willing to incur greater costs. However, the availability of these substitutes under these circumstances is extremely unlikely. The 4,660,273 short tons of anhydrous ammonia used in agriculture in the U.S. during FY2011/12 (July 2011 to June 2012) contained 3,821,246 short tons of nitrogen.<sup>2</sup> Given their lower nitrogen content, it would take 12.747 million material tons of UAN solutions (30% nitrogen) or 8.31 million material tons of urea (46% nitrogen) to replace the nitrogen in the ammonia applied in the United States during FY2011/12.

16. Additional supplies of UAN solutions and urea would have to either be produced domestically or imported. The U.S. is already the largest importer of nitrogen fertilizers in the world. The U.S. Census Bureau reports that U.S. imports of UAN solutions stood at 3.444 million tons of material in 2014. According to data from the International Fertilizer Industry Association,<sup>3</sup> 18 countries produce UAN solutions, and 14 countries export UAN solutions. The top five countries account for 80 percent of production, and the top six account for 81 percent of exports. In 2013, the U.S. was the largest producer (52 percent), importer (38 percent) and consumer (57 percent) of UAN solutions. Accounting for the UAN solutions the U.S. imports, total global imports of UAN solutions by all other countries stood at 1.5378 million tons of nitrogen. These nitrogen imports translate to, at 30 percent nitrogen, 5.1261 million material tons of UAN solutions – only 40 percent of the UAN solutions the U.S. would require to replace the

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<sup>2</sup> The Fertilizer Institute & Assoc. of Am. Plant Food Control Officials, *Report*, 2012 COMMERCIAL FERTILIZERS.

<sup>3</sup> International Fertilizer Industry Assoc., <http://ifadata.fertilizer.org/ucSearch.aspx>.

nitrogen in the 4.66 million material tons of anhydrous ammonia currently used. Even if the U.S. was able to import all the UAN solutions available in the world, an impossibility which could only be accomplished by driving prices to astronomic levels, it would still fall short 7.62 million tons of UAN solutions.

17. The U.S. Census Bureau also reports that U.S. imports of urea stood at 8.294 million tons in 2014. In general, a larger quantity of urea than UAN solutions are available globally. The top four exporting countries are China, Russia, Qatar and Saudi Arabia, accounting for more than half of all urea exports. Aside from infrastructure and logistics limitations, importing an additional 8.31 million tons of urea from the world market would theoretically be possible; however it could only be accomplished by driving up U.S. and global urea prices significantly.

18. Additional supplies of UAN solutions and urea from greater domestic production would also be limited. Over the past two fiscal years (July 2013 – June 2015), U.S. operating rates stood at 81 percent for UAN solutions and 88 percent for urea.<sup>4</sup> Even if the industry operated at 100 percent of operating capacity for these materials, the U.S. could only produce an additional 400,000 tons of solid urea and 2.5 million tons of UAN solutions. This is not near enough nitrogen substitutes to replace even a portion of the nitrogen in the anhydrous ammonia currently used. Furthermore, this estimate assumes that domestic urea and UAN producers are able to obtain the anhydrous ammonia, required in their upgrading productions. However, this will be impossible to the extent these producers are dependent upon rail transportation for their supply of anhydrous ammonia. Accordingly, American consumers will be forced to look to global markets for additional sources of nitrogen substitutes.

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<sup>4</sup> Semiannual Production Survey, The Fertilizer Record (Mar. 16, 2015).

19. Even where additional UAN solutions and/or urea could be obtained, at significantly greater costs, the equipment and infrastructure required to import, store, transport and apply these materials is unavailable. As noted earlier, anhydrous ammonia is a gas under ambient conditions but a liquid when refrigerated and pressurized, and requires special equipment and technology to transport, store, and apply. Urea is a solid material and thus the equipment and technology required to transport, store, and apply it differs from ammonia. Similarly, as the name implies, UAN solutions are a liquid and also requires equipment and technology to transport, store, and apply that differs from both ammonia and urea.

20. The infrastructure necessary to import, transport, store, and apply nitrogen materials in amounts different from existing use patterns will require an investment of millions of dollars by the industry. The level of infrastructure currently in place reflects current use patterns of these nitrogen materials. Where more urea and/or UAN solutions could be obtained from either foreign and domestic sources, the infrastructure currently in place to import, transport, store, and apply these materials is simply not available.

21. Another significant factor involved in finding a substitute for anhydrous ammonia is that there is only about a 4-6 week window where the nitrogen fertilizer can be applied. This window can be shortened significantly if the weather does not cooperate. Thus, the materials have to be in place when the product is needed. A failure to timely apply nitrogen fertilizers can result in reductions of grower profitability and agricultural production. In addition, certain environment concerns arise if the grower is forced to apply the material at the non-optimal time due to limitations of available product.

22. In sum, an inability to deliver anhydrous ammonia across the country will cause immediate and substantial harm to U.S. farmers and the domestic agricultural industry, but will ultimately ripple through the entire U.S. economy and population as a whole.

23. Further affiant sayeth not.

I declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Affidavit.

Executed on this 24th day of September 2015.

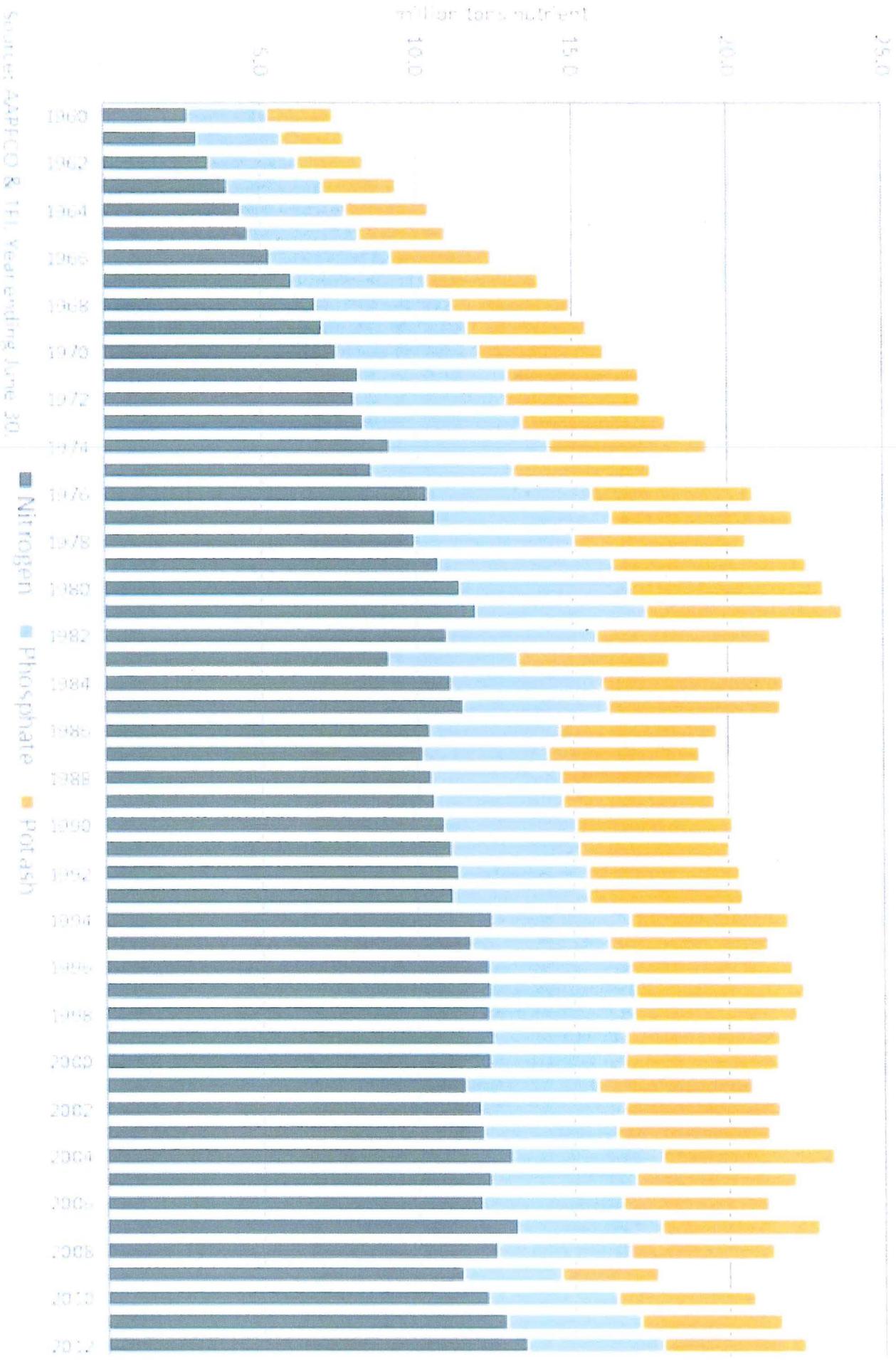


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Dr. Harry Vroomen  
Vice President of Economic Services  
The Fertilizer Institute

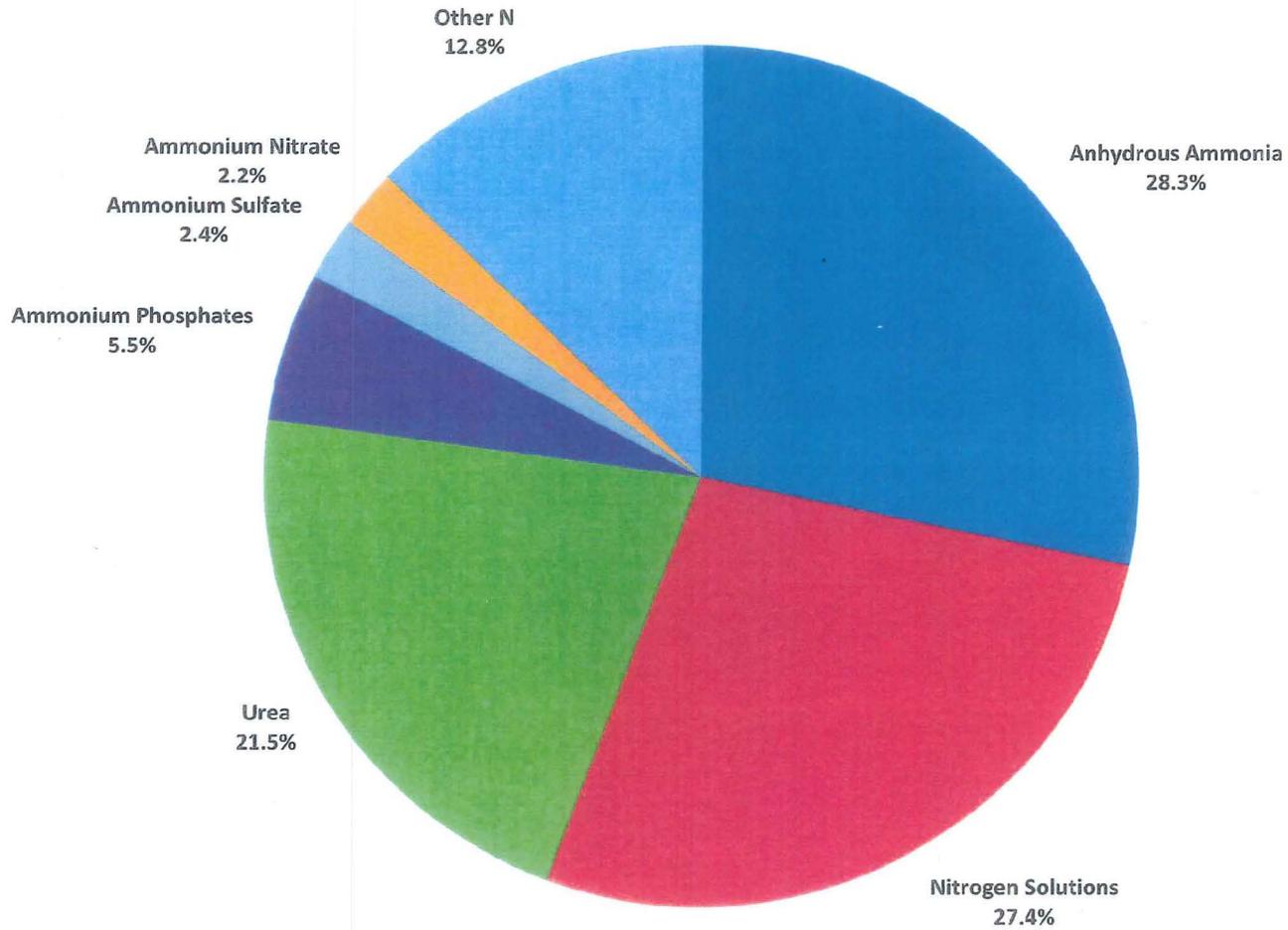
**EXHIBIT A**

**U.S. Consumption of Primary Plant Nutrients**



## EXHIBIT B

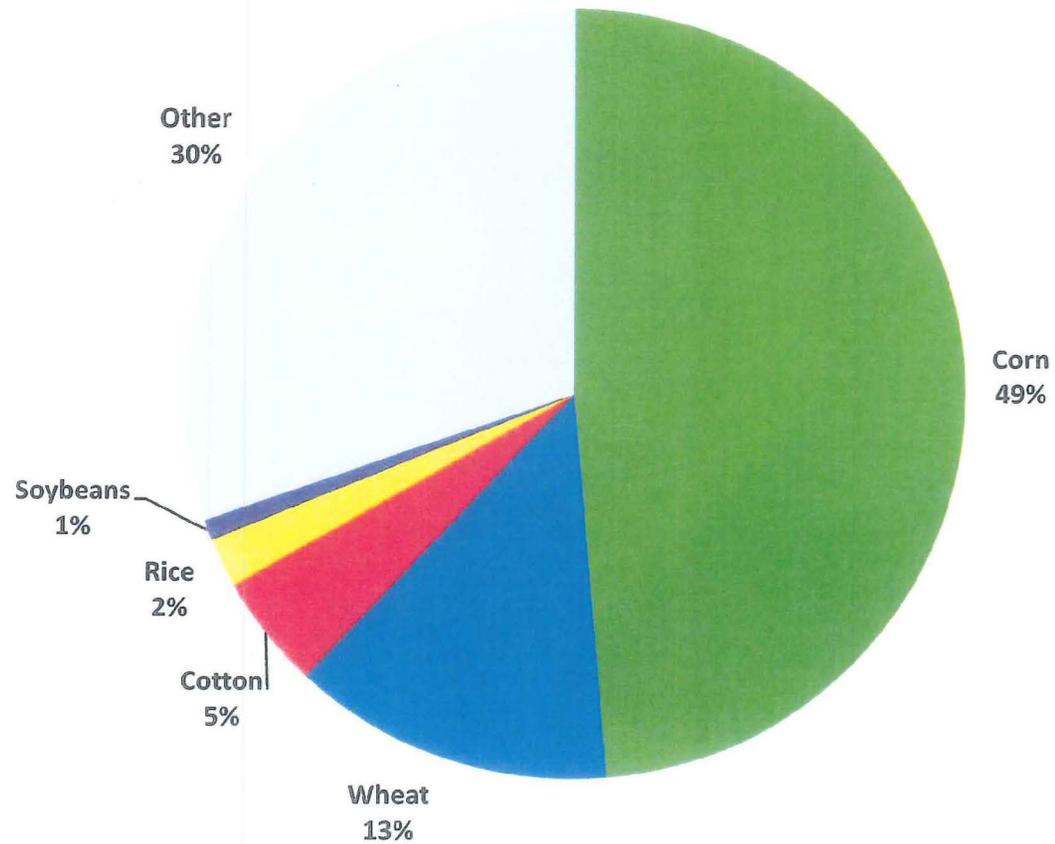
### U.S. Nitrogen Fertilizer Use FY2011/12 - 13.497 million tons N



Source: Commercial Fertilizers, 2012, Association of American Plant Food Control Officials and The Fertilizer Institute, January 2014.

EXHIBIT C

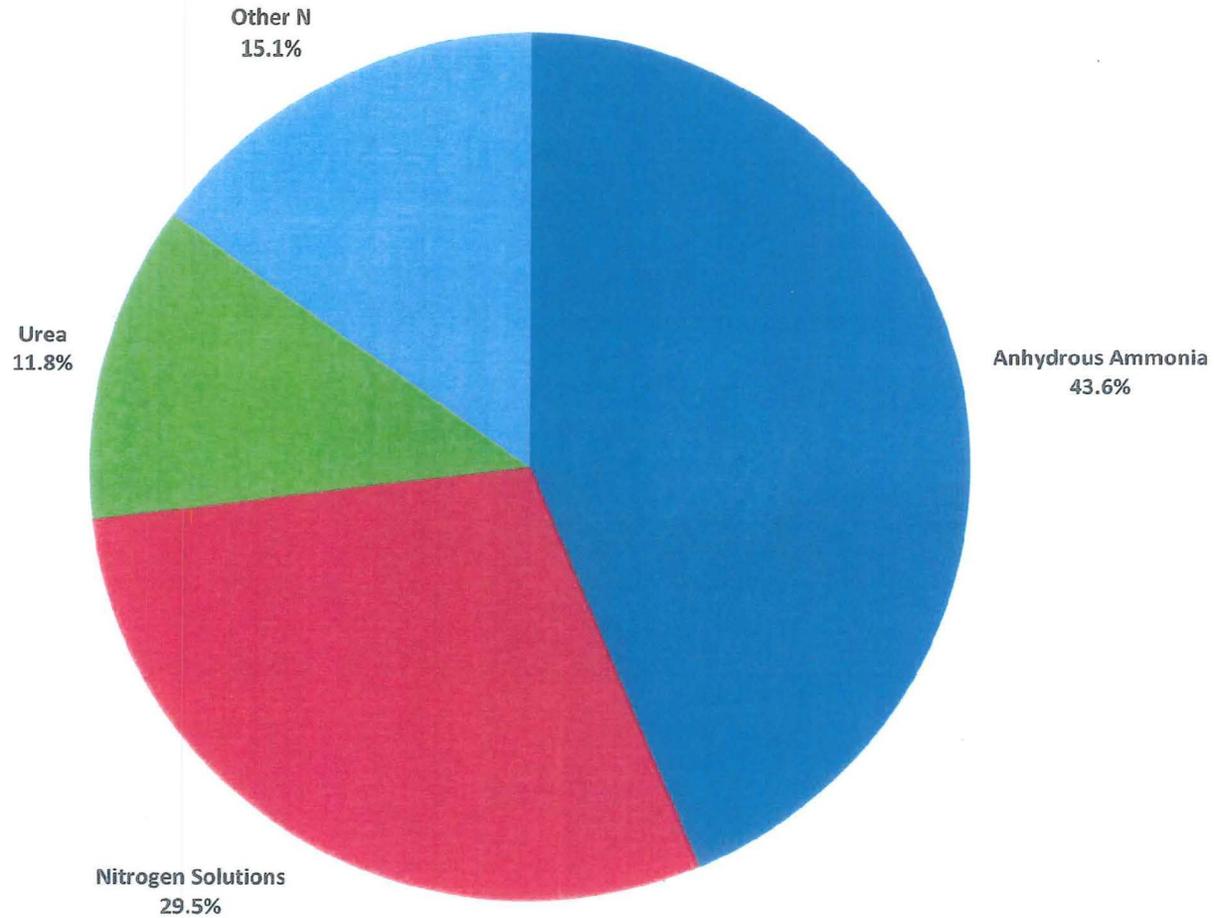
Estimated U.S. Nitrogen Use By Crop - 2010/11



Source: Computed from data reported by USDA and AAFPCO/TFI.

**EXHIBIT D**

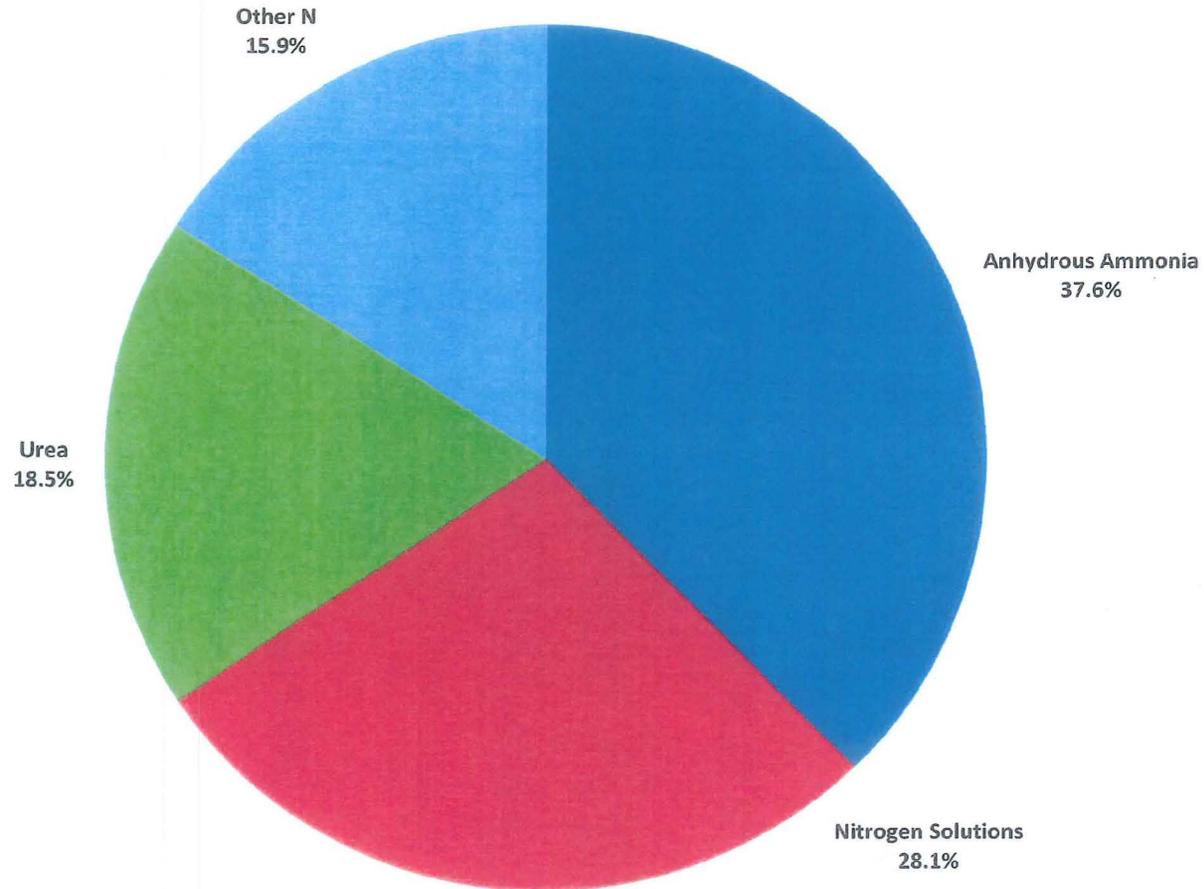
**Nitrogen Fertilizer Use - Top 5 Corn States 1/  
FY2011/12 - 5.059 million tons N**



Source: Commercial Fertilizers, 2012, Association of American Plant Food Control Officials and The Fertilizer Institute, January 2014.  
1/ Iowa, Illinois, Nebraska, Minnesota and Indiana.

**EXHIBIT E**

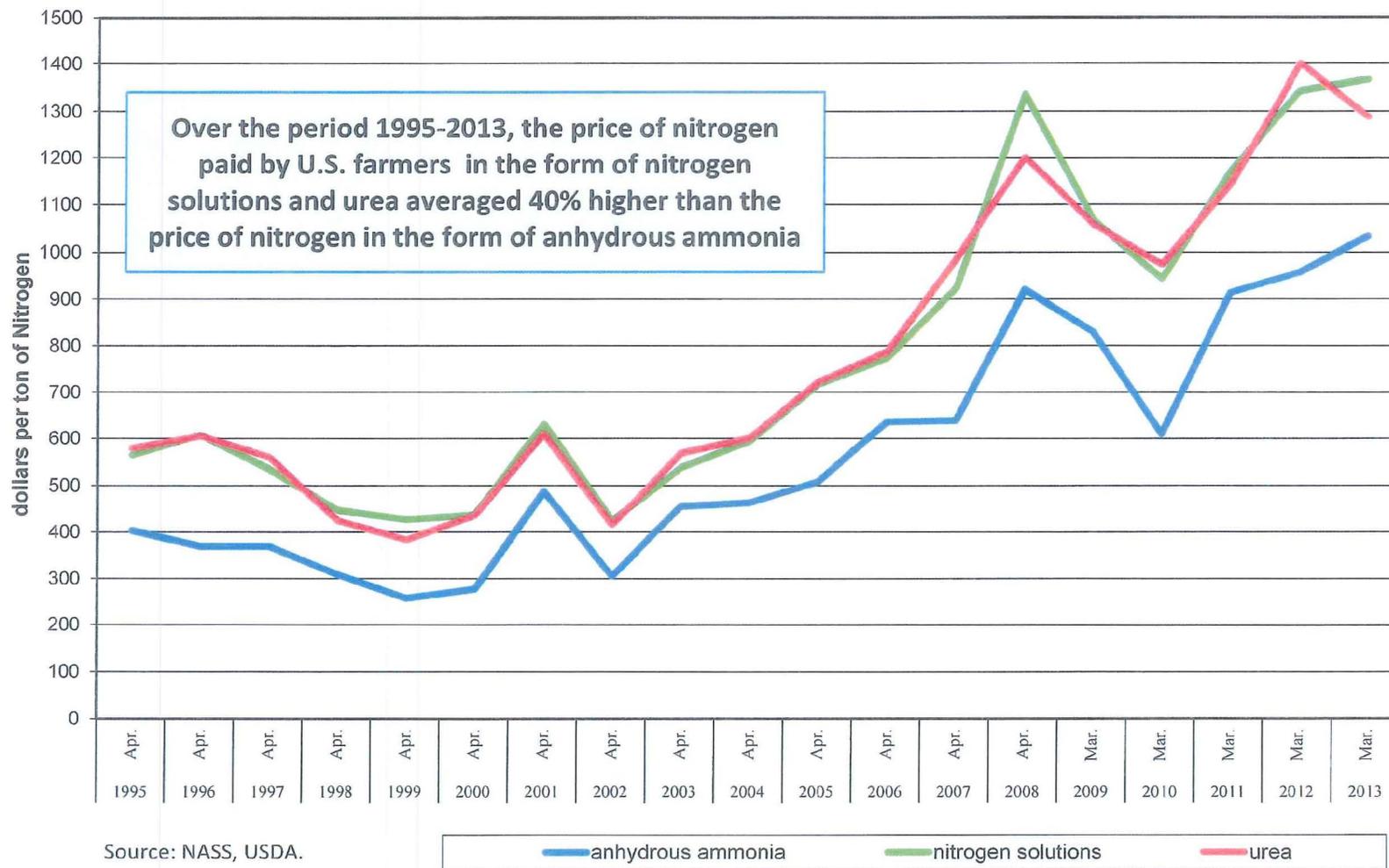
**Nitrogen Fertilizer Use - Top 10 Corn States 1/  
FY2011/12 - 7.734 million tons N**



Source: Commercial Fertilizers, 2012, Association of American Plant Food Control Officials and The Fertilizer Institute, January 2014.  
1/ Iowa, Illinois, Nebraska, Minnesota and Indiana, South Dakota, Kansas, Ohio, Wisconsin and Missouri.

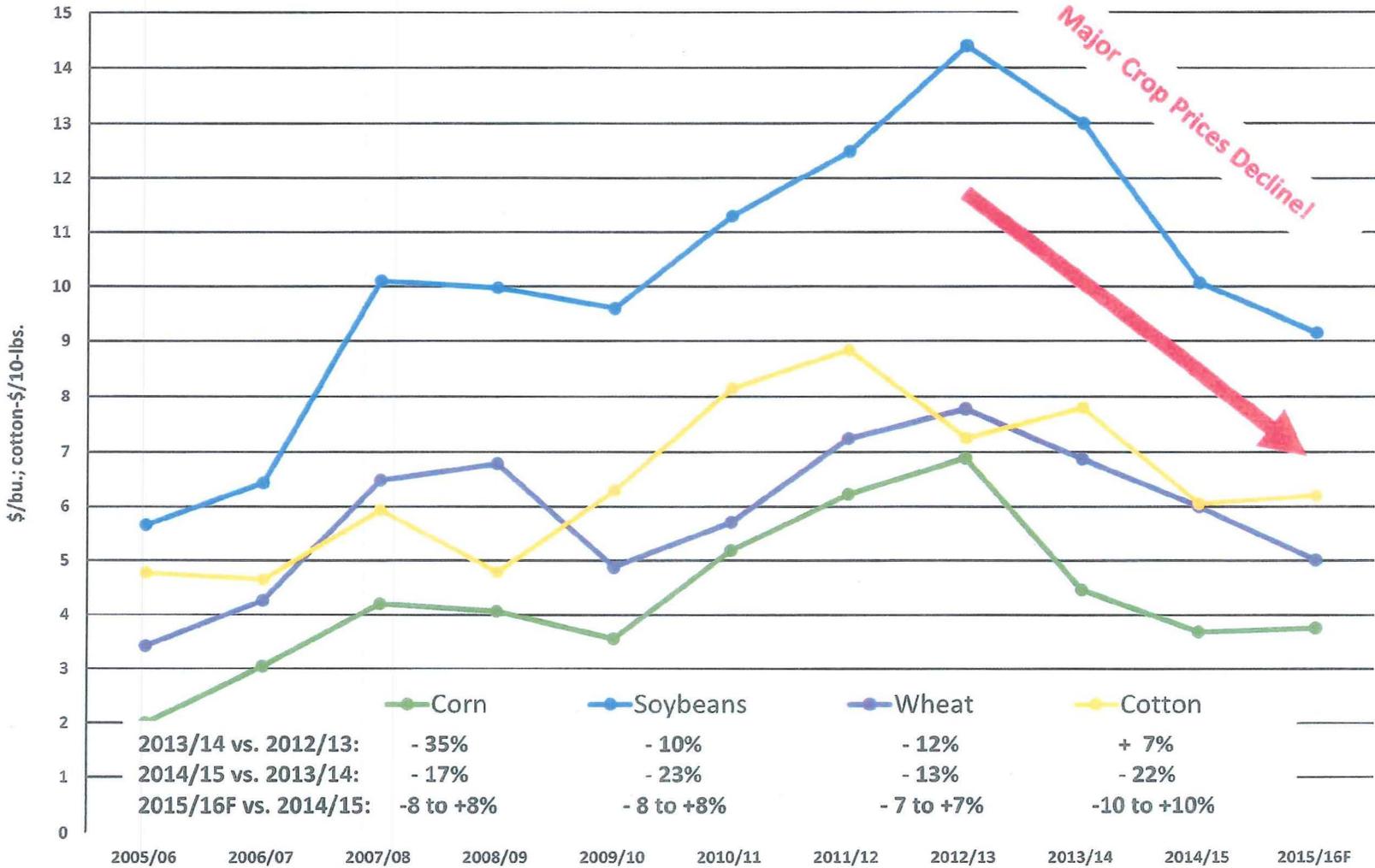
EXHIBIT F

Retail Price of Selected Nitrogen Materials Paid by Farmers



# EXHIBIT G

## U.S. Crop Prices - Marketing Year



Source: 2005/06-2014/15 - USDA website; 2015/16-Forecast - USDA WASDE, Sep. 11, 2015.

# **EXHIBIT 16**



September 2015

# POSITIVE TRAIN CONTROL

Additional Oversight  
Needed As Most  
Railroads Do Not  
Expect to Meet 2015  
Implementation  
Deadline

## Why GAO Did This Study

The Rail Safety Improvement Act of 2008 mandated certain railroads implement PTC by December 31, 2015. In prior work, GAO found that most railroads reported that they will miss this deadline due to numerous interrelated challenges caused by the breadth and complexity of PTC.

GAO was asked to review the progress of PTC implementation since GAO's last PTC report in 2013. The current report examines (1) progress railroads have made in implementation and in addressing challenges, and (2) how FRA has overseen implementation.

GAO reviewed relevant documentation, such as laws and regulations and PTC plans created by railroads. GAO used a structured interview guide to interview 29 railroads identified by FRA or others as implementing PTC—including the four largest freight railroads, 13 commuter railroads, and 12 smaller freight railroads—regarding their progress and challenges. GAO selected these railroads based on various factors, including size and geographic location and whether they are required to implement PTC. GAO also interviewed FRA officials and industry associations.

## What GAO Recommends

GAO recommends that FRA develop a plan that outlines how the agency will hold railroads accountable for making continued progress toward the full implementation of PTC by, among other things, collecting any additional information needed to track progress of individual railroads. DOT agreed with the recommendation.

View [GAO-15-739](#). For more information, contact Susan Fleming at (202) 512-2834 or [flemings@gao.gov](mailto:flemings@gao.gov).

## POSITIVE TRAIN CONTROL

### Additional Oversight Needed As Most Railroads Do Not Expect to Meet 2015 Implementation Deadline

## What GAO Found

Most railroads in GAO's review (20 of 29) estimate that they will implement positive train control (PTC)—a communications-based system designed to prevent certain types of train accidents—1 to 5 years after the statutory deadline of December 31, 2015 (3 did not have an estimated completion date). Of the remaining 6 railroads, one was excepted from installing PTC based on limited speeds on its track, and 4 commuter railroads and 1 small freight railroad estimate they will have PTC operational on their own tracks by the deadline. However, the ability of these 5 railroads to fully operate with PTC may be affected because other railroads that operate equipment on their tracks—known as tenants—or that own tracks that they operate on—known as hosts—may not be equipped with PTC. In addition, the ability of railroads to meet the deadline may be affected by the interoperability of their PTC system with those of other railroads and whether they can obtain final system approval from the Federal Railroad Administration (FRA). Railroads GAO interviewed said they continue to face implementation challenges. For example, these railroads told GAO:

- Development of a major component of the Interoperable Electronic Train Management System, being installed by the largest railroads, continues to be delayed. Smaller railroads have been challenged in obtaining PTC support and components due to the limited number of vendors.
- Some host railroads have many tenant railroads and the host railroad must work with tenants to determine if the tenants should equip with PTC. One large freight railroad said it must make this determination for 260 tenants. Railroads must ensure their systems are interoperable, a task that can be challenging when multiple railroads are involved.

FRA has overseen railroads' PTC implementation through a variety of methods, but these efforts were not sufficient to monitor and report on the progress of individual railroads. For example, while FRA reviewed railroads' annual reports, FRA officials said that the information in these reports was not sufficient to monitor progress and identify implementation challenges because the reports did not consistently include details such as the challenges railroads were encountering as they implemented PTC. Federal government standards for internal controls state that agencies should ensure adequate means to obtain information and communicate with stakeholders, and that the information should be relevant, reliable, and timely. In May 2015, FRA established an internal PTC task force that plans to collect new data on individual railroads' progress. However, the task force is newly formed, and FRA is still in the process of determining the strategies and plans it will use to oversee PTC implementation. GAO has previously reported on the benefits of developing comprehensive plans, including establishing deadlines for achieving objectives. As it is clear most railroads do not expect to meet the December 31, 2015, deadline, developing a plan for oversight that includes how FRA will monitor railroads' progress could help FRA ensure railroads comply with their implementation plans and help address uncertainties such as interoperability, regardless of whether the deadline is extended.

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# Contents

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Letter		1
	Background	3
	Most Railroads Do Not Expect to Meet the 2015 PTC Deadline and Continue to Face Challenges Implementing PTC	10
	FRA Has Conducted High-Level PTC Implementation Oversight, but the PTC Task Force Provides Opportunity for Improved Oversight in the Future	24
	Conclusions	33
	Recommendation for Executive Action	34
	Agency Comments	34
Appendix I	Objectives, Scope, and Methodology	37
Appendix II	PTC Deployment and Challenges Information from Railroads Interviewed	40
Appendix III	Comments from the Department of Transportation	44
Appendix IV	GAO Contact and Staff Acknowledgments	46
Tables		
	Table 1: Positive Train Control (PTC) Deployment Information and Estimated Completion Date for Railroads Interviewed, Divided by Railroad Type	41
	Table 2: Identification of Challenges Currently Affecting or Potentially Affecting Railroads' Positive Train Control (PTC) Implementation	43
Figure		
	Figure 1: Basic Operation of the Interoperable Electronic Train Management System (I-ETMS)	7

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## Abbreviations

AAR	Association of American Railroads
ABS	Automatic Block Signaling
ACSES	Advanced Civil Speed Enforcement System
APTA	American Public Transportation Association
ASLRRA	American Short Line and Regional Railroad Association
DOT	Department of Transportation
E-ATC	Enhanced-Automatic Train Control
FCC	Federal Communications Commission
FRA	Federal Railroad Administration
I-ETMS	Interoperable Electronic Train Management System
I-ITCS	Interoperable-Incremental Train Control System
MBTA	Massachusetts Bay Transit Administration
Metra	North East Illinois Regional Commuter Rail
NTSB	National Transportation Safety Board
PTC	positive train control
RSIA	Rail Safety Improvement Act of 2008
SEPTA	Southeastern Pennsylvania Transportation Authority

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September 4, 2015

Congressional Requesters

In September 2008, a commuter train collided with a freight train in the Chatsworth neighborhood of Los Angeles, California, resulting in 25 deaths and over 100 injuries. In the wake of this and other rail accidents, which was caused by the operator's missing a red signal, the Rail Safety Improvement Act of 2008 (RSIA) was enacted.<sup>1</sup> RSIA mandated the implementation of positive train control (PTC) systems by December 31, 2015, on "mainline" railroads used to transport inter-city rail passengers, commuter passengers, or any amount of poison-by-inhalation hazardous materials.<sup>2</sup> According to the Federal Railroad Administration (FRA), 40 railroads are required to implement PTC on over 68,000 miles of track nationwide. PTC is a communications-based system designed to prevent certain types of rail accidents caused by human factors, including train-to-train collisions, trains entering established work zones—which could cause roadway worker casualties or equipment damage—and derailments caused by exceeding safe speeds. For example, PTC can automatically slow or stop a train that is not being operated safely due to operator errors. More recently, in May 2015 an Amtrak train crashed in Philadelphia killing eight people on board. This crash occurred when the train traveled at too high a speed on a track not yet operational with PTC. According to the National Transportation Safety Board (NTSB), PTC would have prevented this accident. As of June 2015, this incident is under investigation by the NTSB, which has recommended the use of PTC since 1969. PTC remains on NTSB's most wanted list of transportation safety improvements.

We reported in 2013 that most of the railroads we included in our PTC review at that time indicated that they would likely miss the 2015 PTC implementation deadline due to numerous interrelated challenges caused

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<sup>1</sup>Pub. L. No. 110-432, div. A, 122 Stat. 4848 (2008).

<sup>2</sup>RSIA defines main lines as those carrying 5 million or more gross tons of freight annually and authorizes the Federal Railroad Administration (FRA) to define the term "mainline" by regulation for passenger routes or segments over which limited or no freight railroad operations occur. Toxic materials are referred to as either toxic-by-inhalation or poison-by-inhalation materials.

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by the breadth and complexity of implementing PTC.<sup>3</sup> Over the past 3 years, FRA has raised concerns that railroads will not meet the 2015 deadline. FRA's mission is to enable the safe, reliable, and efficient movement of people and goods. As PTC is a major safety improvement for the industry, FRA has a critical role to play in supporting and overseeing PTC implementation by railroads.

You asked us to examine progress in implementing PTC since we reported on this in August 2013 as well as how PTC is being overseen by FRA. This report discusses (1) progress freight and passenger railroads have made in implementing PTC and addressing challenges; and (2) how FRA has overseen the implementation of PTC.

In order to review progress freight and passenger railroads have made in implementing PTC and addressing challenges, we reviewed our prior reports on PTC, relevant documentation including RSIA and other relevant laws and regulations, and reports railroads filed with FRA regarding PTC implementation, including implementation plans and annual reports. We also used a structured interview guide to interview 29 railroads identified by FRA or others as implementing PTC. These included the 4 largest Class I freight railroads,<sup>4</sup> 13 commuter railroads,<sup>5</sup> and 12 smaller (Class II/III) freight railroads. We selected 7 of the commuter railroads as we included them in our 2013 PTC review and 6 to ensure diversity in ridership levels and geographic location. We selected 9 of the smaller freight railroads as they are smaller railroads identified by FRA as required by law to implement PTC because they host passenger

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<sup>3</sup>GAO, *Positive Train Control: Additional Authorities Could Benefit Implementation*, [GAO-13-720](#) (Washington, D.C.: Aug. 16, 2013).

<sup>4</sup>Freight railroads are classified by operating revenues. Class I: Railroad carriers having annual carrier operating revenues of \$467 million or more. Class II: Railroad carriers having annual carrier operating revenues of less than \$467 million but in excess of \$37.4 million. Class III: Railroad carriers having annual carrier operating revenues of \$37.4 million or less; after applying the railroad revenue deflator formula provided by the regulation. 49 C.F.R. § 1201.1-1. The 4 largest Class I railroads are BNSF Railway, CSX Corporation, Norfolk Southern, and Union Pacific.

<sup>5</sup>Capital Metro, Long Island Railroad, Massachusetts Bay Transit Administration (MBTA), Metro North, New Mexico Rail Runner Express, North East Illinois Commuter Rail (Metra), Peninsula Joint Powers (Caltrain), RTD Denver, Southeastern Pennsylvania Transportation Authority (SEPTA), Southern California Regional Rail Authority (Metrolink), Utah Transit Authority, Virginia Railway Express, and TriMet.

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traffic<sup>6</sup> and 3 as they were recommended by an industry association as railroads not required by RSIA to implement PTC, but required to do so by larger Class I freight railroads whose track they operate on.<sup>7</sup> During these interviews, we asked railroads about their status in implementing PTC and challenges they are facing. We also interviewed officials with FRA, Amtrak, and the Federal Communications Commission (FCC) as well as representatives of industry associations. In addition, to review how FRA has overseen the implementation of PTC, we reviewed relevant documentation, as listed above, and interviewed FRA officials. We evaluated FRA's efforts in overseeing implementation of PTC against GAO's *Standards for Internal Control in the Federal Government*.<sup>8</sup>

We conducted this performance audit from April 2015 to September 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Background

In the wake of the Chatsworth rail accident in September 2008 and other high-profile rail accidents, RSIA was enacted in October 2008. RSIA, among other things, required railroads (1) to install PTC—designed to prevent certain accidents caused by human factors, including train-to-train collisions and derailments caused by exceeding safe speeds—by December 31, 2015, on mainline track used to transport inter-city rail passengers, commuters, or any amount of poison-by-inhalation

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<sup>6</sup>According to FRA, 10 smaller—or Class II/III—railroads are required by RSIA to implement PTC because they support passenger traffic. We did not interview one of them because it is jointly owned by two large freight railroads that we interviewed separately. The nine we interviewed were Alaska, Belt Railway of Chicago, Kansas City Terminal, Nashville and Eastern, New Orleans Public Belt, Pan Am Railways, Portland and Western, Saratoga and North Creek, Terminal Rail of Saint Louis.

<sup>7</sup>Indiana Railroad, Twin Cities and Western, and Watco. This issue is explained in more detail in our report.

<sup>8</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

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hazardous materials and (2) to equip locomotives that run on that track.<sup>9</sup> PTC must be designed to protect rail workers by preventing trains from entering work zones as well as to prevent the movement of trains through switches left in the wrong position on the track. In addition, RSIA requires railroads to ensure that their PTC systems are interoperable with trains from other railroads that might run on that track. Interoperability, as defined by RSIA, means systems must be able to communicate with one another so trains can seamlessly move across track owned by different railroads with potentially different PTC systems. Railroads often use one another's track. For example, railroads often operate their cars (as "tenants") on the track of another railroad, known as the "host." Interoperability is important given that according to FRA, there are 40 freight, intercity passenger, and commuter railroads that are required to implement PTC. FRA provides regulatory oversight of U.S. railroad safety and is responsible for overseeing PTC's implementation by railroads. If a railroad fails to meet the PTC implementation deadline, FRA has the authority to take enforcement actions, such as assessing civil penalties against a railroad.<sup>10</sup>

PTC is a communications-based system that links various components, namely locomotive computers, wayside units along the side of the track, and dispatch systems in centralized office locations.<sup>11</sup> In order to implement PTC, railroads must design, produce, and install more than 20 major components such as data radios for locomotive communication,

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<sup>9</sup>In this report, we use the term locomotive generally; commuter railroads may have a variety of vehicles that must be equipped, such as cab cars and electric multiple unit trains.

<sup>10</sup>FRA's Acting Administrator stated in June 2015 testimony to Congress that FRA's enforcement policy under existing authorities is that (1) FRA can assess civil monetary penalties starting January 1, 2016; (2) penalties can vary based on the violation, such as \$2,500 for a non-willful failure to keep records and \$25,000 for willful failure to complete PTC implementation on a track segment; and (3) FRA reserves the right to use any and all enforcement tools, from civil penalties to emergency orders, to require railroads to make progress on PTC implementation to ensure public safety prior to January 1, 2016.

<sup>11</sup>In Europe, the European Rail Traffic Management System is a PTC-like project that has been under way for over a decade. However, this project differs in scope and objectives and serves a different rail network, making it difficult to compare it to implementation of PTC. For example, the primary goal of the European system is to make travel and trade more seamless, rather than to increase safety.

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locomotive management computers, and back office servers.<sup>12</sup> Through these components, PTC uses radio frequency spectrum<sup>13</sup> to communicate a train's location, speed restrictions, and movements, and then potentially slows or stops a train that is not being operated safely. For example, a PTC system could have prevented the 2008 Chatsworth accident by first alerting the operator that the train was approaching a red signal and then stopping the train before passing the red signal. However, it should be noted that there are types of accidents, such as trespasser deaths—the leading cause of all rail-related deaths in America—and highway-railroad crossing accidents, that PTC technology is not designed to prevent.

Railroads are not required to implement the same PTC system; however, PTC systems must meet the system functionality requirements established by RSIA.<sup>14</sup> Regulations set forth PTC's core function requirements for system components such as wireless communications.<sup>15</sup>

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<sup>12</sup>More specifically, PTC systems are comprised of more than 20 components including the back office server; train management computer; interoperable electronic train management system software; authentication systems to verify users; track database of over 200 characteristics of track and trackside assets; interface and enhancements to the dispatch system; security application for message integrity; interoperable train control messaging system; radio for base station communication; data radio for locomotive communication and for switch and signal communication; communication switching network for interoperable back office communication; computer display units for onboard the locomotive; locomotive messaging system to route messages off the locomotive; GPS sensors onboard the locomotive; crash hardened memory module onboard the locomotive; onboard network devices for communications; switch position monitors; and integrated and stand-alone wayside interface units. The back office refers to the processes through which railroads collect information from PTC-enabled equipment, combine it with other data, such as Geographic Information System data on tracks, and tie into existing systems, such as crew, locomotive, and dispatch systems. The back office server, which is one component of the back office system, provides an interface to and from crew, locomotive, and dispatch systems, which are different at each railroad, and provides a centralized source of PTC-enabling information for the locomotive equipment and wayside units.

<sup>13</sup>Radio frequency spectrum is the medium for wireless communications and supports a vast array of commercial and governmental services. Commercial entities use radio frequency spectrum to provide a variety of wireless services, including mobile voice and data, paging, broadcast television and radio, and satellite services.

<sup>14</sup>Under RSIA, PTC must be designed to prevent train-to-train collisions, over-speed derailments, incursions into work zone limits, and the movement of a train through a switch left in the wrong position.

<sup>15</sup>49 C.F.R. § 236.1033.

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According to FRA's 2012 report to Congress, although some PTC components existed in some form prior to the mandate to implement PTC, none were designed or tested for PTC or to work in concert with so many other components. Furthermore, many of the components are first-generation technologies being conceived, designed, and developed for PTC. Suppliers have primarily undertaken the development of PTC components, but it is up to the railroads to integrate the components with the existing technology systems. Throughout the PTC implementation process, railroads are responsible for analyzing any integration issues with existing systems and mitigating any potential or actual defects or risks.

There are two primary PTC systems being implemented by railroads: Interoperable Electronic Train Management System (I-ETMS) and Advanced Civil Speed Enforcement System (ACSES). All Class I railroads in the United States plan to implement I-ETMS, which will account for most of the approximately 68,000 route miles that are required to be equipped with PTC. (See fig. 1).<sup>16</sup> Amtrak is implementing ACSES on the Northeast Corridor that runs between Boston and Washington, D.C.<sup>17</sup> Although ACSES and I-ETMS are functionally similar, the technologies they use differ. For example, to determine train location, ACSES relies on track-embedded transponders<sup>18</sup> while I-ETMS uses Global Positioning System information. Since most commuter and Class II/III railroads run over tracks owned by freight railroads or Amtrak, they are largely implementing the same systems developed by the freight railroads or Amtrak.

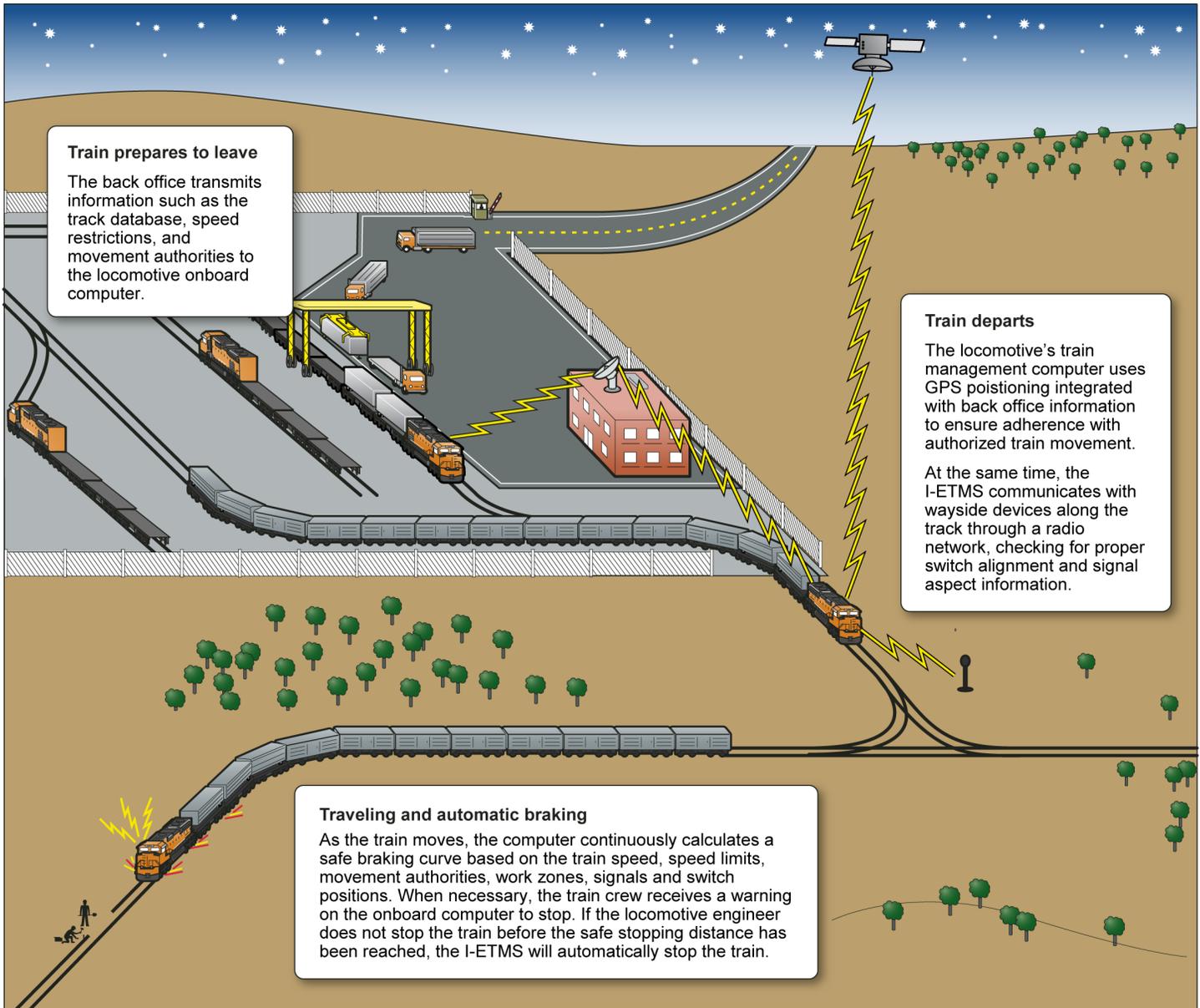
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<sup>16</sup>Four railroads—BNSF Railway, CSX Corporation, Union Pacific, and Norfolk Southern—are together developing the standards for I-ETMS.

<sup>17</sup>Amtrak installed Incremental Train Control System (ITCS), another communication-based overlay PTC System, on its Michigan line.

<sup>18</sup>A transponder is a device for receiving a radio signal and automatically transmitting a different signal.

**Figure 1: Basic Operation of the Interoperable Electronic Train Management System (I-ETMS)**



Source: GAO. | GAO-15-739

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Implementing regulations provide exceptions for railroads from installing PTC on certain segments of track or locomotives.<sup>19</sup> Mainline track exceptions include a passenger terminal exception and a limited operations exception. A limited operations exception may apply, for example, where passenger service is operated on a segment of track on a freight railroad that is not a Class I railroad on which less than 15-million gross tons of freight traffic is transported annually if the segment is signaled and if no more than 12 passenger trains operate during a calendar day. A limited operations exception may also apply on a Class I segment of a track that is unsignaled on which less than 15-million gross tons of freight traffic is transported annually if no more than 4 regularly scheduled passenger trains operate per day.<sup>20</sup> Exception requests have to meet certain requirements; for example, for a passenger terminal exception, there should be limited speed operations of less than 20 miles per hour—which is enforced by any available on-board PTC equipment, interlocking rules in effect prohibiting reverse movements other than on signal indications without dispatcher permission, and no freight operations are permitted or limited freight operations as long as no passengers are on board passenger trains within defined limits.<sup>21</sup> Railroads, if they also meet the other criteria, could also apply to have mainline segments of track excepted from PTC requirements if they no longer carry poison-by-inhalation hazardous material. Multiple railroads have applied for this exception. In addition, FRA provided Class II/III railroads operating in certain conditions with the ability to obtain a short-line exception, which would allow them to delay equipping their locomotives with PTC until December 31, 2020.<sup>22</sup>

As part of overseeing railroads' progress with PTC implementation, FRA is also responsible for reviewing and approving railroads' PTC-related plans. Railroads must submit and FRA must review and approve three plans: a PTC development plan, a PTC implementation plan, and a PTC safety plan:

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<sup>19</sup>49 C.F.R. § 236.1019,

<sup>20</sup>See 49 C.F.R § 236.1019(c).

<sup>21</sup>See 49 C.F.R § 236.1019(b).

<sup>22</sup> See 49 C.F.R § 236.1006.

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- The PTC development plan<sup>23</sup> describes, among other things, the PTC system a railroad intends to implement to satisfy the PTC regulatory requirements. According to an FRA August 2012 report to Congress, FRA's approval of the development plans took nearly 18 months to complete.
  - The PTC implementation plan<sup>24</sup> describes a railroad's plan for installation of its planned PTC system. RSIA required railroads to submit these plans within 18 months (by April 16, 2010), and FRA to review and approve or disapprove them within 90 days.
  - The PTC safety plan<sup>25</sup> provides railroad-specific information demonstrating that the PTC system, as implemented by the railroad, meets the required safety performance objectives, as well as information about a railroad's plans for testing the system and safety hazards and risks the system will address, among other things. By approving a safety plan, FRA certifies a railroad's PTC system, a precondition for operating the PTC system in revenue service—meaning the system would support trains in operation and transporting freight or passengers. Certification of a railroad's PTC system is FRA's formal recognition that the PTC system, as described and implemented, meets the statutory requirements and the provisions of PTC implementation as outlined in RSIA. Although FRA set no specific deadline for railroads to submit the safety plans, according to FRA, FRA requested that railroads submit their safety plans with sufficient time to allow up to 6 months for approval before the December 31, 2015, PTC implementation deadline. PTC regulations require FRA to review and decide or reject individual safety plans within 180 days of receiving them.<sup>26</sup>

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<sup>23</sup>49 C.F.R. §§ 236.1009, 236.1013.

<sup>24</sup>49 C.F.R. §§ 236.1009, 236.1011.

<sup>25</sup>49 C.F.R. §§ 236.1009, 236.1015.

<sup>26</sup>49 C.F.R. § 236.1009

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## Most Railroads Do Not Expect to Meet the 2015 PTC Deadline and Continue to Face Challenges Implementing PTC

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### Most of the Selected Railroads Estimate Full Implementation within 1 to 5 Years after the Deadline and Continue to Face Challenges

In 2013, we found that most railroads did not anticipate meeting the 2015 deadline, and we identified challenges that were delaying railroads' PTC implementation. Based on our interviews with 29 selected railroads for this report, 20 estimated they would have PTC fully operational in revenue service on all required track (based on the current requirements regarding what track must have PTC installed) within 1 to 5 years after the 2015 deadline, and 3 stated that they did not have an estimated completion date.<sup>27</sup> Among the 23 railroads are three Class II/III railroads that are not required by statute to implement PTC on their track, but are equipping locomotives with PTC because they will run on PTC-equipped track.<sup>28</sup>

Of the remaining 6 railroads in our review, 1 received an exception from installing PTC on its track because it is operating at restricted speeds, and representatives for four selected commuter railroads and one Class II/III railroad estimated they would have PTC fully operational in revenue service on track that they own by the end of 2015. However, the ability of these five railroads to achieve full PTC implementation may be affected because other railroads they interact with may not be equipped by the deadline. The five railroads that expect to meet the deadline for implementation are the Southeastern Pennsylvania Transportation Authority (SEPTA); Metrolink in Southern California; Caltrain in the San Francisco Peninsula; TriMet in the Portland, Oregon, metro area; and

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<sup>27</sup>In addition, one commuter railroad, RTD-Denver, is installing a new rail system that will have PTC operational when it opens after the December 2015 deadline has passed.

<sup>28</sup>Some Class II/III railroads are being required to equip their locomotives with PTC because they are a tenant and their host railroad has indicated they must equip.

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Portland and Western Railroad, which owns 10 of the 15 miles of track that TriMet operates on.<sup>29</sup>

For the five railroads that indicated they expect to finish installing PTC on their own tracks and equipment by the deadline, it is important to note that two issues may affect its ability to fully operate with PTC. First, as discussed in more detail later, some of these railroads have host or tenant railroads that do not expect to be equipped by the deadline. FRA officials told us that they might not penalize a tenant railroad if its host railroad has not equipped its tracks with PTC after the deadline passes; but host railroads might be penalized if they allow tenants (that do not have an exception) to operate without PTC on the host's PTC-equipped track. In addition, FRA officials are still determining how to address issues related to interoperability among host and tenant railroads when assessing whether a railroad has met the implementation deadline. Second, as of July 29, 2015, three of the five railroads that told us that they would have PTC fully operational on their own track by the deadline had not yet submitted a safety plan to FRA for review.<sup>30</sup> Thus, their ability to obtain FRA certification will depend, in part, on their submission of a final safety plan to FRA, as well as FRA's reviewing and certifying their plans in less than 180 days. While waiting for final certification from FRA, these railroads will operate PTC in revenue service demonstration, meaning that they have obtained permission from FRA to test PTC while operating so that they can examine and address any remaining defects in the system.

Representatives for each of the 29 railroads provided us with an estimated time frame for full implementation, as well as information on the type of PTC system that they are installing, the number of route miles and locomotives or cab cars that they need to equip, the number of railroads that use their tracks as tenants, the number of host railroads on whose

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<sup>29</sup>Portland and Western only needed to equip a portion of its tracks with PTC because TriMet was operating a commuter service on it; and TriMet is paying for and overseeing the installation of PTC on that portion of Portland and Western's track.

<sup>30</sup>As previously noted, FRA's regulations allow for it to take up to 180 days to review and certify each railroad's PTC safety plan. According to FRA documents and representatives we interviewed, Metrolink and SEPTA have submitted their safety plans; TriMet and Portland and Western submitted a draft safety plan in July 2015 and will submit a final plan after they complete their testing; and Caltrain expected to submit its safety plan by October 2015.

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track they operate, and their estimated total PTC implementation costs (see app. II, table 1). For example, in total, the railroads we interviewed estimated that they would install PTC on approximately 55,932 route miles and 22,966 locomotives, with estimated total PTC installation costs of at least \$11.1 billion.

The railroads we interviewed are a subset of the railroads that are required to implement PTC. For a sense of the scope of PTC implementation, AAR has estimated that Class I freight railroads will spend over \$9 billion implementing PTC on over 60,000 miles and 23,000 locomotives; and APTA estimates commuter railroads will spend over \$3.5 billion implementing PTC on over 8,300 track miles and 4,700 locomotives and passenger cars. Estimates for Class II/III railroads have not been published. In addition, railroads have made progress installing PTC components since our last report on the implementation of PTC. For example, according to AAR, as of December 31, 2014, freight railroads have fully or partially equipped 13,110 locomotives with PTC, versus 2,623 in 2011 (with 9,936 remaining). AAR also reported that railroads had deployed 19,245 wayside units (versus 3,284 in 2011) and that the industry has finalized 27 of 34 interoperability standards. According to APTA, commuter railroads have made progress in identifying funding, but challenges remain, as described below.

A June 2015 Amtrak Office of Inspector General report found that Amtrak has indicated that it will finish installing ACSES II on track it owns in the Northeast Corridor by the end of 2015, excluding 5 stations and 2 feeder lines.<sup>31</sup> However, the report also noted challenges that Amtrak faces in

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<sup>31</sup>We did not ask Amtrak the same level of questions as other railroads, because Amtrak's Office of Inspector General recently issued a report providing detailed information on Amtrak's PTC progress and challenges. For detailed information related to Amtrak's implementation of PTC, see: Amtrak Office of Inspector General, *Safety and Security: Progress Made Implementing Positive Train Control, but Significant Challenges Remain*, OIG-A-2015-013 (Washington, D.C.: June 19, 2015). As noted in the Amtrak OIG report, due to technical complexities and high costs, Amtrak does not plan to install PTC in terminal areas in or around Washington's Union Station, Philadelphia's 30th Street Station, New York's Penn Station, Springfield's Terminal, and Boston's South Station. Instead, it will restrict speed in these areas through signals and dispatch orders. In addition, Amtrak does not plan to install PTC by the deadline on a line in Connecticut because Amtrak must first finish major track and signal reconfigurations before installing ACSES. Amtrak also does not plan to install PTC by the deadline on a New York line that runs from Poughkeepsie to Albany, due to a lack of state funding and a delay in executing the lease on the property.

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meeting the PTC deadline on the Northeast Corridor, including very tight time frames for Amtrak's testing of the system.<sup>32</sup> In addition, freight railroads operating on the Northeast Corridor are using I-ETMS, which they do not expect to install by the 2015 deadline. Furthermore, there are portions of the Northeast Corridor and other Amtrak routes in which Amtrak does not own the tracks. Thus, Amtrak is dependent on the host railroad to equip the tracks with PTC before it can operate its PTC-equipped locomotives.<sup>33</sup> In addition, the Office of Inspector General noted that outside the Northeast Corridor, some Amtrak-owned track may not meet the 2015 deadline.

Representatives of railroads we interviewed told us that they had made progress in addressing some challenges implementing PTC; however, they continue to face many of the same challenges that we identified in our 2013 report. See app. II, table 2, for more information on the number of railroads that identified particular challenges for their PTC implementation.

- *Developing system components and installing PTC.*
  - I-ETMS complexities: As discussed in our prior report, selected railroads and AAR identified challenges with developing the I-ETMS's back office server as one of the critical factors railroads anticipated would prevent them from meeting the PTC deadline. At that time, they anticipated securing a final version of the back office server in 2014. However, this system is still in final testing and, according to AAR, is expected to be finalized in late 2015. Of the railroads we interviewed, 21 of 29 stated that developing PTC components, including back office systems, is one challenge that is affecting or may affect their PTC implementation. Among the railroads that expect to finish installing PTC on their tracks and locomotives by the end of 2015, 4 of the 5 said they are not installing I-ETMS.<sup>34</sup> Representatives from one of these railroads

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<sup>32</sup>Amtrak Office of Inspector General, *Safety and Security: Progress Made Implementing Positive Train Control, but Significant Challenges Remain*, OIG-A-2015-013 (Washington, D.C.: June 19, 2015).

<sup>33</sup>For example, according to Amtrak, PTC is not expected to be installed by 2015 on parts of the Northeast Corridor that Amtrak does not own, such as the Metro-North line between New York City and New Haven.

<sup>34</sup>One railroad is installing ACSES, and the other three railroads are installing other types of PTC systems.

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specifically mentioned not installing I-ETMS as one reason that they anticipate being able to meet the deadline. The one railroad that is installing I-ETMS noted that it had to change vendors after difficulties with obtaining a back-office server delayed its implementation. In addition, representatives of industry associations and Class II/III railroads told us that while they previously thought they could use their host railroads' back office systems, there have been indications that in some cases, they may need to obtain their own back office systems. This is a decision being made between host and tenant railroads. Representatives of one Class II/III railroad indicated to us that they will use their Class I host railroad's back office system, but others indicated they may have to develop their own; this may be costly and these railroads may lack in-house resources to maintain such systems. Representatives also told us that they are exploring the use of a virtual back office that would be shared among several railroads and managed by a third party.

- Limited industry capacity: Currently, a limited number of vendors design PTC systems and provide PTC software and hardware, as well as conduct system integration and testing (described in the next bullet). According to railroad industry representatives, there are two vendors creating the back office servers, two vendors for the onboard train management computer, and three vendors for wayside equipment. Representatives from FRA, as well as 11 commuter and Class II/III railroads raised concerns regarding limited industry capacity, with some stating that that vendor resources have been focused on meeting Class I railroads' needs. Some smaller railroads mentioned difficulties securing a vendor, with one noting that it faced challenges in getting vendors to return phone calls until a Class I railroad intervened. In addition, 4 commuter and Class II/III railroads we interviewed mentioned that prices have increased as a result of the limited number of vendors and the increased demand. Representatives from one commuter railroad we interviewed stated that in some cases, costs associated with the provision of PTC expertise and equipment have tripled in recent years.
- *System integration and field testing:*
  - As we noted in 2013, successful PTC implementation will require numerous components to work together, many of which are first-generation technologies being designed and developed for PTC. To ensure successful integration, railroads must conduct multiple

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phases of testing—first in a laboratory environment, then in the field—before installation across the network. In addition, when a problem in one aspect of the system is identified, it may require changes to other aspects of the system and retesting. As we found in our last report, railroads have expressed concerns with the reliability of PTC and emphasized the importance of field testing to ensure that the system performs the way it is intended and that potential defects are identified, corrected, and re-tested. Twenty-two of the 29 railroads we interviewed stated that integration and field testing of PTC components was a challenge that was currently affecting or may affect their PTC implementation.

- In some cases, railroads raised concerns regarding the number of defects they are identifying when testing PTC software, which take additional time to address. AAR noted that in the last year, two safety-critical defects were identified in the onboard software during lab testing that resulted in the suspension of revenue service demonstrations. Adding to this challenge is that some railroads have attempted to maintain progress by conducting certain steps in a parallel, rather than sequential fashion, such as installing hardware before software components are finalized. This can introduce operational risks. For example, a Class II/III railroad representative told us it identified thousands of defects when testing its system, and emphasized the difficulties posed by having to move forward with implementation while trying to simultaneously address these issues. Representatives from three Class I railroads echoed these concerns.
- Installing PTC in an operating environment also poses challenges, as opportunities for installation and testing may be limited, and may require that locomotives be taken out of service. For example, a commuter railroad representative told us that since they only have one track, and must provide six-day commuter service, they can only install PTC equipment during 4-hour windows at night, and on Sundays.
- *FRA resources:* Twenty-one of the 29 railroads we spoke to raised concerns regarding FRA's resources in overseeing PTC implementation, particularly if a number of railroads submit safety plans or request field testing at the same time. Safety plans can be over 5,000 pages long, and FRA took about 7 months to review the first safety plan it received. We reported in 2013 that FRA's PTC staff consists of 10 specialists and one supervisor. Most recently, FRA

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officials told us that there are 13 staff to provide technical support to railroads. FRA officials noted that the agency plans to use contractors and temporarily use other FRA staff, if necessary, to assist with PTC-related work, including review of safety plans. FRA officials told us that they anticipate reviewing all safety plans within 180 days of receiving them, as required by its regulations. Railroads stated they are taking steps to help address this challenge, such as developing a template that could standardize certain parts of safety plans and make them easier for FRA to review. Similarly, Class I railroads stated they will take FRA's comments on a draft safety plan—which that railroad shared with others—into account when developing their own safety plans.<sup>35</sup> In addition, two of the four Class I railroads we interviewed raised concerns regarding the contractors that FRA hired to review draft safety plans, stating that they were not subject matter experts and that this situation created the need to engage in additional dialogue to address certain issues. However, FRA officials told us that they review any work conducted by contractors and that FRA requires contractors to have several types of subject matter expertise.<sup>36</sup> While reviewing safety plans, FRA may also be conducting other PTC-related work, such as discussing ongoing testing of PTC by railroads and addressing questions or providing technical assistance to railroads. Two railroads we interviewed stated that FRA was either unable to attend or delayed their PTC testing. We also noted this issue in our prior report, and FRA officials confirmed that currently, to use its limited staff resources and travel budgets most efficiently, FRA does not attend all PTC testing and instead reviews railroads' test plans. In addition, FRA officials stated that FRA only attends and evaluates tests if FRA determines that the railroad's testing plan has weaknesses or the railroad has no testing experience. FRA officials stated that in a small number of cases, railroads' tests were delayed due to the need to coordinate FRA and railroad schedules, or because the railroads' test plans were inconsistent or required corrections. On the other hand, 5 railroads mentioned that FRA had been helpful in their PTC implementation process. In addition, while most of the railroads that requested PTC exceptions did not express concerns with the process for doing so, two railroads that submitted

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<sup>35</sup>Some railroads have submitted draft PTC safety plans to FRA for preliminary review.

<sup>36</sup>In addition, according to FRA, the contractors do not interact directly with the railroads. FRA technical staff assesses all contractor comments and observations before conveying them to the railroads.

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mainline track exclusion requests in 2010 and 2013 noted that they never received a response from FRA as to whether their request was approved, but assumed that they had been. FRA officials told us they had completed their reviews of exclusion requests.

- *Captivity/dependencies:*
  - The interconnected nature of host and tenant railroads and the need to ensure interoperability among PTC systems poses challenges for railroads' implementation of PTC. Tenant railroads cannot operate their locomotives with PTC until the host railroad has equipped the track. For example, Caltrain officials told us they expect to finish equipping their own track and locomotives by the end of 2015, but they are dependent on host railroads to finish installing PTC on portions of their systems' track. Sixteen of the 29 railroads we interviewed stated that their PTC implementation is, or may be, challenged because their schedule is dependent on a Class I railroad or Amtrak. In addition, railroads operating in host/tenant environments must collaborate to ensure their systems are interoperable. For example, one host railroad we interviewed estimated that while its track will be equipped by the deadline, it has multiple tenant railroads that are further behind and that may be implementing a different PTC system. Representatives told us that until the tenants are PTC-equipped and interoperable, they will need to explore how to allow these PTC-unequipped tenants to safely travel across their PTC-equipped tracks. Nineteen of 29 railroads we interviewed cited "ensuring interoperability" of PTC systems and components as a challenge that is affecting, or may affect, their implementation.
  - In addition, tenant railroads are dependent on the host railroad's informing them whether and when they need to equip their locomotives with PTC. According to FRA officials, host railroads must ensure that their tenants are PTC-equipped or PTC-excepted. To make this determination, Class I railroads said they review the statutory requirements regarding the circumstances under which locomotives and track must be PTC-equipped, as well as exceptions established by FRA. In addition, in some cases, host railroads are also requiring tenants to equip their locomotives with PTC not because of statutory requirements, but because allowing the tenant to be unequipped would create operational problems or safety concerns for the host railroad. For example, the tenant could operate without PTC, but it would have to run at a reduced speed, which could cause operational

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problems and reduced speed for other locomotives using the track. Or, the tenant may operate on track that is also used to transport hazardous materials. Some host railroads have numerous tenant railroads, and for each, the host railroad must consider the circumstances under which the tenant operates, including the type of tracks it operates on, and whether it could implement operational restrictions in lieu of requiring tenants to equip with PTC. One Class I railroad told us that as of May 2015, it had determined that 4 out of its 260 tenants will need to equip with PTC, and that its assessments are ongoing. Three of the Class II/III railroads and 1 commuter railroad we interviewed said that they have received limited guidance and instruction from their Class I host railroads regarding the extent to which they need to equip with PTC and when they should be equipped, making it difficult for them to begin PTC implementation. However, three Class II/III railroads and three commuter railroads stated their Class I railroad hosts were communicating with them and, in some cases, had been helpful in addressing vendor issues. FRA officials told us that FRA will not get involved in this issue because it is a commercial arrangement between two private entities.

- *Funding:* Five of the 13 commuter railroads we interviewed identified limited resources as a challenge, and stated that in their view the need to address ongoing capital maintenance, such as bridge repair, took precedence over installing PTC. One commuter railroad we interviewed noted the need to redesign and reissue its request for proposal for a system integrator to design its PTC system after receiving bids that were four times higher than its estimated costs. In contrast, among the 4 commuter railroads that expect to finish installing PTC on their tracks and locomotives by the end of 2015, 3 received state or federal funds that aided their PTC implementation. Representatives from one of these railroads stated that they depleted their capital program in order to fund PTC and were only able to continue operating safely because they received critical funding from the state that allowed them to address existing capital needs while installing PTC. In addition, about half of the Class II/III railroads in our review that are implementing PTC identified funding as a challenge; according to these railroads, Class II/III railroads generally have less funding than other railroads and operate on a thin profit margin. Estimates vary based on the size of the railroad and the scope of their PTC project: according to one Class III railroad we interviewed, its projected PTC cost of \$32 million is equivalent to 10 years of capital projects; another Class III railroad that is implementing PTC because of a Class I railroad's requirement projected that its PTC costs will

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equal 1 year of maintenance costs.<sup>37</sup> Railroad representatives also raised concerns regarding how costs will be shared among host and tenant railroads. Currently, there are ongoing negotiations between Amtrak and two smaller railroads regarding who should pay for PTC installation, with the host railroads stating that they are only required to implement PTC because Amtrak is a tenant. Class I railroads did not identify funding as a challenge to their PTC implementation.

- *Radio frequency spectrum and radio wayside poles:* We previously found that railroads' PTC implementation could be affected by commuter railroads' ability to obtain radio frequency spectrum for the operation of PTC and by the need to complete an FCC review process prior to installing radio wayside poles for PTC equipment. FCC and railroads have taken some steps to address these challenges, although some issues remain.
- Of the railroads we interviewed, 1 of 4 Class I railroads, 2 of 13 commuters, and 4 of 12 Class II/III railroads said radio frequency spectrum still posed a challenge to implementation, with some stating that they planned to lease radio frequency spectrum from Class I railroads.<sup>38</sup> APTA reported in April 2015 that more than half of commuter railroads have not obtained the radio frequency spectrum they need for PTC. In addition, FRA and some railroads raised concerns regarding the potential for railroads operating in close proximity to one another to cause interference to each other's radios.<sup>39</sup> AAR has noted that this is particularly of concern in congested metropolitan areas where multiple trains are operating with PTC and that as new users roll out their PTC systems in locations where other railroads are already testing or using PTC, railroads will likely have to re-engineer their radio networks to address potential interference. Amtrak's OIG report

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<sup>37</sup>In addition, representatives from the Class II/III industry association noted that many of the Class II/III railroads own old locomotives that may be difficult to equip with PTC systems, which would lead to increased costs.

<sup>38</sup>The 7 Class I railroads created a consortium (PTC 220 LLC) to purchase radio frequency spectrum licenses that would address their needs, and in some cases, the consortium can lease radio frequency spectrum to non-Class I railroads for a fee.

<sup>39</sup>Such interference can negatively affect a receiver's ability to properly capture a transmitted signal and decode the information for use. Harmful interference can occur when two communications systems use the same or adjacent radio frequencies in the same geographic area.

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noted that in May 2015, Amtrak and freight railroads identified potential interference when testing their radios on the Northeast Corridor's north end (between Boston, MA and New Haven, CT), and are working with the FCC to address this issue. According to Amtrak, the frequencies Amtrak is using had been approved by FCC and this potential for interference should not delay its plans to implement PTC by December 31, 2015

- According to FCC officials, in 2013, FCC learned that freight railroads had installed about 10,000 radio wayside poles without complying with FCC's review requirements, and FCC requested railroads halt their construction of PTC radio wayside poles to allow FCC to consider how to implement oversight of the radio wayside poles being installed for PTC.<sup>40</sup> According to FRA officials and AAR representatives, FCC requested that railroads halt construction on radio wayside poles that had not gone through the environmental evaluation process, including tribal notice, while FCC considered ways to streamline the process. During our prior review of PTC implementation, FRA officials told us they had not anticipated this issue. In 2014, FCC and railroads worked together to create a streamlined process for the review of PTC radio wayside poles and came to an agreement that allowed railroads to use poles that had already been constructed.<sup>41</sup> However, railroads told us they lost at least a year waiting to install PTC radio wayside poles while the permitting process was resolved. According to FCC officials, as of April 2015, documentation for about 40 percent of the radio wayside poles had been submitted to FCC for a review. In addition, according to FCC, FCC's capacity for reviews exceeds the actual number of submissions by railroads. However, given the size of Class I railroads' networks, which span tribal lands, 3 of the 4 Class I railroads we interviewed

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<sup>40</sup>According to FCC officials, 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 radio frequency spectrum. Under the National Historic Preservation Act (NHPA), as well as the National Environmental Policy Act (NEPA), installation of radio wayside poles must be reviewed to ensure compliance with legal requirements.

<sup>41</sup>As part of this agreement, the freight railroads agreed to create a Cultural Resource Fund totaling \$10 million to provide funding directly to Tribal Nations and State Historic Preservation Offices to support cultural and historic preservation projects.

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cited approval of radio wayside poles as a remaining challenge.<sup>42</sup> Class I railroad representatives we interviewed varied as to when they expect to finish submitting radio wayside pole locations for review, with one stating this step would be done in 2015 and another stating it would be done in 2017.

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### Nearly All of the Selected Railroads Support an Extension of the PTC Deadline, but Vary as to the Type of Extension That Should Be Provided

Representatives from 27 of 29 railroads we interviewed indicated that they support an extension of the PTC deadline.<sup>43</sup> Of these 27, 14 support a blanket extension of the PTC deadline that would apply to all railroads equally; 9 support the use of case-by-case extensions provided to individual railroads; 3 support a hybrid approach that provides a blanket extension followed with case-by-case extensions; and 1 did not indicate its preference.<sup>44</sup> Several of the railroads that expressed an opinion stated that their plans and time frames for implementation would not change regardless of whether the deadline was extended, with some noting that significant technical work remains to be done. Some railroads also noted concerns regarding the implications of missing the deadline, including civil penalties from FRA and increased liability if they have accidents.<sup>45</sup>

The railroads that support a blanket approach cited concerns with the use of a case-by-case approach, particularly with respect to the potential challenge of addressing host/tenant and interoperability issues if railroads were working toward different deadlines. In addition, some noted concerns regarding FRA's resources to review and respond to individual extension requests, given the likelihood that most railroads would request an extension and that FRA would need to review the unique circumstances affecting each railroad to determine whether it warranted

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<sup>42</sup>Among all railroads we interviewed, 8 responded that this remains a challenge, 16 responded that it is not a challenge, and 5 did not provide an answer, were unsure, or said that this issue was not applicable to them.

<sup>43</sup>One railroad did not answer the question, and one railroad did not support an extension of the PTC deadline.

<sup>44</sup>All of the Class I railroads indicated that they supported a blanket extension of the deadline, while commuter railroads were more mixed, with 5 supporting a blanket extension, and 6 supporting a case-by-case approach. Class II/III railroads tended to favor a blanket extension over a case-by-case approach (5 versus 3) and 3 supported a hybrid approach (one did not specify its preference).

<sup>45</sup>Four railroads raised this issue when responding to various questions; we did not ask a question on this specific issue as part of our structured interviews.

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an extension, and if so, for how long. One Class I railroad and the AAR also raised concerns that if the deadline was extended on a case-by-case basis, then a freight railroad that finishes its PTC implementation prior to other freight railroads could be at a competitive operational disadvantage. This would be tied to the fact that any problems that may occur when the PTC system is deployed could reduce the railroad's operational capacity.

The railroad representatives that support a case-by-case approach to PTC extensions noted that railroads have varied in terms of the issues that have affected their implementation, and stated that this approach would allow extensions to be granted when warranted and tailored to specific circumstances. Some also raised concerns that a blanket extension may enable some railroads to delay their PTC implementation. Some railroads that supported a blanket extension stated that some mechanisms should be added, such as reports to FRA on progress on deployment schedules, as well as quantifiable goals.

In its 2012 report to Congress, FRA recommended that if Congress allowed FRA to approve extensions to a railroad's PTC implementation deadline, the legislation should provide for consideration of such factors as the extent to which each railroad demonstrated due diligence to implement PTC. More recently, according to FRA, DOT's Grow America Act proposal, submitted to Congress in April 2014 and March 2015,<sup>46</sup> proposed that Congress provide FRA additional authorities to enhance public safety while bringing railroads quickly, completely, and safely into compliance with PTC requirements. Specifically, FRA requested that Congress authorize FRA to allow incremental use of PTC systems as they are progressively deployed by railroads and PTC system operation under controlled conditions before final system certification and to allow FRA to require railroads to use alternative safety technologies on specified line segments in lieu of PTC until PTC is fully implemented. In addition, through the Grow America Act proposal, FRA requested that Congress provide FRA with the authority to approve extensions to a railroad's PTC implementation deadline on a case-by-case basis based on a consideration of factors such as a determination of progress being made by the railroad and challenges encountered.

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<sup>46</sup>The "Grow America Act" is DOT's proposal for the surface transportation reauthorization bill. In the Grow America Act proposal, DOT also requested authority to provide commuter railroads with grants to assist in their funding implementation of PTC.

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In our 2013 report on PTC implementation, we suggested that Congress consider providing FRA with additional authority to extend the deadline on individual rail lines—when the need to do so can be demonstrated by the railroad and verified by FRA—on a case-by-case basis. We noted that given the uncertainties in implementing PTC and the unexpected delays already encountered by railroads, additional challenges could prevent railroads from meeting a new deadline. Thus, we concluded that providing FRA with the authority to grant extensions on a case-by-case basis would provide some needed flexibility and could also assist FRA in managing its limited staff resources and help railroads mitigate risks and ensure PTC is implemented in a safe and reliable manner. Congress has not yet provided such authority, and we continue to believe that such authority is needed.

In addition, we also noted in our 2013 report that railroads were at various stages in their implementation, and this status continues to be true. As noted earlier in this report, most of the railroads included in our review estimated to have PTC fully operational in revenue service 1 to 5 years after the 2015 deadline; however, railroads' estimated deadlines are subject to change, and the less formalized completion dates may be more likely to change or change more significantly. As we noted in our prior report, flexibility in extending the deadline for certain railroads acknowledges these differences, may help railroads address any ongoing and emerging challenges, and also may help FRA better manage limited resources by, for example, preventing a potential review backlog resulting from final safety plans being submitted at the same time to meet a new blanket deadline—a concern raised by freight railroads and FRA. According to FRA officials, no such backlog currently exists.

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## FRA Has Conducted High-Level PTC Implementation Oversight, but the PTC Task Force Provides Opportunity for Improved Oversight in the Future

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### FRA Used a Variety of Methods to Oversee PTC Implementation

In addition to establishing PTC standards and issuing regulations to govern the implementation of PTC, FRA has employed a number of other efforts to oversee railroads' implementation of PTC. As we found in December 2010,<sup>47</sup> in order to oversee railroads' progress in implementing PTC, FRA provided guidance to the railroad industry by speaking at industry conferences, meeting with railroads to discuss PTC implementation plans and providing railroads with a template for drafting their PTC implementation plans. More recently, FRA's oversight efforts have included the following:

Review of Plans—As discussed earlier, FRA has responsibility for the review and certification of railroad PTC plans, including implementation plans, development plans, and safety plans. FRA officials stated that they have encouraged railroads to submit these plans in a timely manner. RSIA authorizes FRA to assess civil penalties for failure to comply with PTC requirements, including submitting or complying with a plan for implementing PTC.<sup>48</sup> The PTC implementation plan, an important document for tracking a railroad's progress implementing PTC, contains information on a railroad's plan for complying with the installation of mandatory PTC systems. The implementation plan consists of

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<sup>47</sup>GAO, *Rail Safety: Federal Railroad Administration Should Report on Risks to the Successful Implementation of Mandated Safety Technology*, [GAO-11-133](#) (Washington, D.C.: Dec. 15, 2010).

<sup>48</sup>Pub. L. No. 110-432, § 104(a).

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implementation schedules, narratives, technical documentation, and relevant excerpts of agreements that an individual railroad will use to complete mandatory PTC implementation.<sup>49</sup> According to FRA officials, all railroads that were required to submit implementation plans did so by 2010.<sup>50</sup>

Review of Annual Reports—FRA regulations require railroads to report annually to FRA on the progress being made in meeting the goals identified in their implementation plans and any impediments to meeting those goals.<sup>51</sup> According to FRA officials, the requirement for railroads' annual reporting was to help the agency fulfill its congressional-reporting obligations and otherwise fully and accurately monitor the progress of PTC system implementation. Specifically, these annual reports were to include information on implementation data relating to PTC system components such as wayside interface units and back-end computer systems.<sup>52</sup> According to FRA officials, these annual reports were one of the primary tools FRA used to track progress in implementing PTC, as well as to annually conduct reviews to ensure railroads were complying with their implementation plans, as required by RSIA.

Technical Assistance—RSIA provides for FRA to provide technical assistance and guidance to railroad carriers in developing their implementation plans,<sup>53</sup> and FRA has done so to help railroads address challenges and identify risks as they implement PTC. FRA has participated in railroads' PTC-system design reviews, lab testing, and field testing. For example, FRA officials reviewed some railroads' PTC testing and results to make sure railroads' test processes were conducted in a way the railroads said they would be.

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<sup>49</sup>49 C.F.R. § 236.1011.

<sup>50</sup>Most railroads submitted their development plans by 2011. As of July 23, 2015, FRA had only received two final PTC safety plans.

<sup>51</sup> 49 C.F.R. § 236.1009.

<sup>52</sup>See 49 U.S.C. § 236.1009.

<sup>53</sup>Pub. L. No. 110-432, § 104(a).

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Review of Industry Association Reports—According to FRA officials, the agency has reviewed reports from industry associations, including AAR<sup>54</sup> and APTA,<sup>55</sup> to obtain industry-wide data and information on railroads' progress in implementing PTC. These reports provide annual updates on the industry's progress in complying with the PTC mandate, including AAR summary data on the number of components installed, significant implementation challenges, and the costs to the industry.

Reporting on Railroads' Progress to Congress—Since the enactment of RSIA in 2008, FRA's reporting on railroads' progress implementing PTC has largely been through the agency's 2012 status report and testimonies requested by Congress. In August 2012, as required by RSIA,<sup>56</sup> FRA submitted a report to Congress discussing the status of PTC implementation, 9 technical and programmatic challenges to implementation, and potential impacts of these challenges.<sup>57</sup> FRA's report highlighted that the significant challenges that railroads had encountered made it unlikely that railroads would be able to fully implement PTC by the December 31, 2015, deadline. In addition to its 2012 report to Congress, FRA has informed Congress of challenges facing railroads in PTC implementation through multiple testimonies requested by Congress as well as in DOT's 2015 Grow America Act proposal. In response to congressional requests for more information on PTC's implementation,<sup>58</sup> FRA issued another PTC progress report in August 2015.<sup>59</sup>

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<sup>54</sup>Association of American Railroads, *PTC Implementation: The Railroad Industry Cannot Install PTC on the Entire Nationwide Network by the 2015 Deadline: April 2015 Update* (Apr. 15, 2015).

<sup>55</sup>American Public Transportation Association, *Positive Train Control: An Assessment of PTC Implementation by Commuter Railroads* (April 2015).

<sup>56</sup>RSIA requires FRA to report on the progress of railroads in implementing PTC. Pub. L. No. 110-432, § 104(a). RSIA did not specify specific contents for FRA's report.

<sup>57</sup>FRA, *Report to Congress: Positive Train Control: Implementation Status, Issues, and Impacts* (Aug. 1, 2012).

<sup>58</sup>The House report accompanying the Department of Transportation, and Housing and Urban Development, and Related Agencies Appropriations Bill, 2015, directed FRA to provide a progress report to the House and Senate Appropriations Committee on the status of railroad compliance with PTC implementation. H.R. Rep. No. 113-464, at 43 (2014).

<sup>59</sup>FRA, *Federal Railroad Administration Status Report to House and Senate Committees on Appropriations: Status of Positive Train Control Implementation* (August 2015).

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## FRA's Oversight Efforts Were Not Sufficient to Monitor and Report on Individual Railroads' Progress

Much of the information FRA annually collected and reviewed to monitor and report on the railroad industry's overall progress in implementing PTC was high-level information and thus limited in its usefulness to oversee progress made by individual railroads and to hold them accountable for making progress in meeting the mandated PTC deadline. Standards for internal controls in the federal government<sup>60</sup> state that agencies should ensure adequate means to obtain information from stakeholders—such as railroads—and adequate means of communicating with stakeholders—such as railroads and Congress. Furthermore, the standards also state that communications should include quality information that is relevant, reliable, and timely.

Based on our review, the annual reports submitted by railroads and reviewed by FRA did not provide a consistently useful level of detail for FRA to monitor individual railroads' progress. The annual reports were a key method intended to provide ongoing tracking of individual railroad's progress implementing PTC. The contents of PTC annual reports were initially focused on railroads' tracking their progress in equipping locomotives with PTC equipment and installing other components, such as radio wayside poles. However, railroads did not always include information on impediments to completion of certain PTC goals, even though such information is required under FRA's regulation,<sup>61</sup> and as discussed above, railroads have told us they continue to face widespread challenges. For example, one railroad's 2014 plan we reviewed included information on implementation challenges, including obtaining needed funding. However, three other railroads' plans that we reviewed did not include similar information on implementation challenges the railroads faced. In addition, FRA's identification of such challenges may not always have been timely. For example, according to agency officials, FRA worked closely with FCC to help address railroads' radio frequency spectrum needs and help FCC streamline its approval process for PTC radio wayside poles. However, FRA's efforts to address FCC radio wayside pole approval issues began in 2013, as soon as FCC and the railroads raised them, but not long before the 2015 PTC implementation

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<sup>60</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

<sup>61</sup>49 C.F.R. §236.1009 (a)(5). FRA requires that railroads submit an annual report until implementation is complete and that these reports should include information on the railroad's progress towards filling the goals in its implementation plan, including progress in installing PTC components and impediments to completion of such goals.

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deadline.<sup>62</sup> According to FCC officials, the steps needed to mitigate this widespread challenge—which impacted nearly all of the railroads implementing PTC—involved streamlining FCC’s review process and resulted in over a year of delay for installing radio wayside poles. According to FRA officials, railroads’ annual reports are one of the key tools that FRA uses to conduct its annual reviews of railroads’ compliance with their PTC plans and to track progress in implementing PTC. However, FRA officials acknowledged that the annual reports have been insufficient for monitoring railroads’ progress and that the information captured by these reports was not adequate to identify implementation challenges or track railroads’ progress.

Similarly, FRA’s review of industry association reports for updates on railroads’ progress has been focused on high-level, industry-wide progress towards PTC implementation, not on the progress of individual railroads. According to FRA officials, industry association reports provide high-level implementation information and were not detailed enough to help monitor and report on an individual railroad’s progress or to hold railroads accountable for making progress in meeting the deadline. Furthermore, these reports provided FRA with limited information regarding PTC implementation by Class II/III railroads, which as previously discussed, continue to experience challenges implementing PTC.

In addition, railroads were required to provide certain implementation schedule information in their PTC implementation plans that were submitted in 2010; however, railroads have not updated those plans once they fell behind their anticipated schedule. Consequently, many railroads’ implementation plans have become out of date, and as time has progressed, FRA has not always had realistic time frames by which to monitor railroads’ progress. As discussed above, RSIA requires certain railroads to submit plans to implement PTC. According to FRA officials, although railroads are required to submit an updated PTC implementation plan if time frames detailed in the plan change, at this time, none have done so to reflect that they expect to implement PTC after the 2015

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<sup>62</sup>According to FRA, FCC officials told FRA they had received an Indian tribe’s complaint about one unauthorized communication tower on one freight railroad’s track. FRA then arranged a meeting between FCC and AAR, which led to the realization that some unauthorized PTC communication antennas had already been installed.

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deadline, even though many railroads told us that will be the case.<sup>63</sup> According to FRA officials, in October 2012, railroads asked if FRA could approve a revised implementation plan that did not support the congressionally-mandated implementation date. FRA responded that it could conditionally approve such a plan subject to Congress's amending the implementation deadline, and FRA encouraged class I railroads to submit revised implementation plans with revised dates. FRA officials told us that updated implementation schedules would allow FRA to better monitor railroads' progress in implementation moving forward. In addition, out-of-date plans may hinder FRA's ability to ensure interoperability. FRA regulations require that implementation plans discuss how PTC systems will be interoperable with tenant railroads, and as discussed earlier, many host railroads have not yet fully determined how to address interoperability with tenants or even with which tenants the railroad will need to achieve interoperability. Moving forward, obtaining the required information on interoperability will be essential for FRA to ensure that railroads' PTC systems meet all the functional requirements of RSIA, including interoperability

Some of the limitations in the information FRA has collected on the progress of individual railroads' implementation of PTC have affected its ability to provide detailed and timely information to Congress. For example, most of the data provided in FRA's 2012 report to Congress were industry-wide, and the report generally did not detail progress of individual railroads.<sup>64</sup> In addition, FRA was supposed to issue its August 2015 progress report to Congress earlier in 2015. However, the FRA acting administrator stated in a June 2015 congressional hearing that the reason the report was delayed was because FRA had to respond to requests from congressional committees to provide additional information on the progress of individual railroads in implementing PTC that it was initially not planning to include in the report and did not have readily available. Congressional committees have expressed interest in receiving more frequent information regarding PTC, as seen in the House

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<sup>63</sup>As noted earlier only five railroads that we interviewed expect to meet the 2015 deadline. Representatives of one commuter railroad said their railroad filed a PTC implementation plan with FRA, but it is currently in a "suspended state" because FRA cannot approve a plan that indicates that the PTC system will not be finished until after the 2015 deadline

<sup>64</sup>Some detailed information was provided for eight large freight railroads, including data on capital investments made in PTC.

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appropriations committee's request for a 2015 status report. As most railroads do not expect to meet the December 31, 2015 deadline, more frequent and detailed reporting to Congress and others may be useful as railroads continue to implement PTC.

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**FRA's Recently  
Established PTC Task  
Force Provides  
Opportunities for Improved  
Oversight of PTC  
Implementation**

In May 2015, FRA established an internal task force comprised of seven full-time staff to identify agency needs regarding the oversight of PTC and to help create strategies to ensure the safe and timely implementation of PTC. As the December 2015 implementation deadline nears, FRA officials said they are now focusing on the information the agency will need to enforce the PTC mandate beyond the deadline, and they believe the internal task force will help accomplish this approach. FRA intends for the task force to, among other things, more systematically collect data on railroads' implementation of PTC, facilitate the development of the agency's enforcement strategy and FRA's awareness of implementation challenges, as well as ensure resources are available to support implementation efforts and lead reporting efforts to Congress, the media, and others regarding PTC implementation. According to FRA officials, establishment of the task force will allow other FRA staff dedicated to PTC to focus on other tasks such as reviewing and certifying PTC safety plans. Specifically the task force intends to address issues such as:

- collecting, managing, and disseminating railroad data;
- facilitating the development of the agency's enforcement strategy;
- ensuring resources (e.g., manpower) are available at the right time to support FRA's implementation efforts and capacity needs;
- ensuring correspondence with railroads, Congress, media, and other outlets are planned and coordinated; and
- facilitating the agency's awareness and resolution of implementation issues that arise within the industry.

According to officials, one of the primary objectives of the task force will be to collect new data on individual railroads' progress that can be queried for management purposes or to identify trends. FRA plans to deploy a survey to collect information on the status of individual railroads' PTC implementation as of August 30, 2015. After railroads submit their initial survey responses, due September 15, 2015, railroads must update

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their responses on a monthly basis until FRA determines otherwise.<sup>65</sup> The survey is primarily focused on status updates. For example, railroads are being asked to submit information on the status of, among other things, acquiring needed radio-frequency spectrum, installing needed radio towers, and whether any tenant railroads' PTC systems are interoperable. It also asks respondents to rank challenges they may be experiencing.

While this survey information will provide FRA with status updates at a point in time and some transparency over individual railroads' efforts, it does not provide a way to measure progress and hold railroads accountable for meeting scheduled milestones to implement PTC. For example, through the survey, FRA asks about the status of PTC interoperability. Specifically, the survey asks, "If you are a host railroad, are all your tenant railroads fully interoperable with your PTC systems under the regulations?" As we have previously mentioned, some host railroads could have hundreds of tenants for which they have to determine whether they should be PTC-equipped and the process can be time consuming as they collaborate on achieving interoperability. Thus, while the survey provides information on the status of interoperability for the host railroad at a certain point in time, it will not provide FRA with information on the level of incremental and ongoing progress railroads should be making to achieve interoperability. According to FRA, this survey data are intended to provide top-level information that can lead to specific follow-ups with railroads by the PTC task force to determine an appropriate course of action or support.

As we reported earlier, most railroads do not expect to meet the December 2015 deadline and continue to experience challenges. FRA officials previously told us in 2013 that if the deadline were extended the agency would want an increased oversight role.<sup>66</sup> According to FRA officials, while the task force has developed some ideas about the issues it would like to address, the agency has not yet determined any specific strategies or a plan that outlines how the agency, through the task force, will monitor and report on railroads' progress implementing PTC. Developing a plan that outlines how the agency, through the task force,

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<sup>65</sup>According to the survey, railroads must submit updates on the 15th of every month to reflect the status as of the 30th of the previous month.

<sup>66</sup>A bill has been introduced that would extend the deadline to implement PTC to December 31, 2020. S. 650, 114<sup>th</sup> Cong. (2015).

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will monitor railroads' progress, could provide meaningful guidance, for among other things, the collection of information and data from railroads. Standards for internal controls in the federal government state management should design control activities to carry out management directives—such as oversight of PTC—to help achieve effective results. Internal controls are a major part of managing an organization. They comprise the plans and methods used to meet goals and objectives and, in doing so, support performance-based management. We have previously reported on the benefits of developing comprehensive plans. Such plans can be used to establish deadlines for achieving objectives and assigning responsibility for program implementation. Planning can also aid in assessing, managing, and mitigating risks, a process that can help an agency identify potential problems before they occur and target limited resources.<sup>67</sup> Developing a plan for PTC oversight could help FRA with the following:

- holding railroads accountable for their PTC implementation by collecting more railroad-specific data on progress;
- determining how to assess civil penalties or otherwise address railroads that do not implement PTC by the mandated deadline;
- determining whether and how to grant railroads extensions to the implementation deadline if FRA is authorized by statute to do so;
- ensuring detailed information is readily available to support reporting to Congress and others in a timely manner;
- providing timelier and better understanding of the challenges railroads face in PTC implementation and how those challenges may affect the time frame for an individual railroad's implementation and allow FRA to be more proactive in helping the industry address challenges to move toward full implementation; and
- addressing some areas of uncertainty such as railroads' progress in ensuring interoperability with other railroads and determining when a railroad's PTC system is considered fully implemented.

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<sup>67</sup> GAO, *Digital Television Transition: Increased Federal Planning and Risk Management Could Further Facilitate the DTV Transition*, [GAO-08-43](#) (Washington, D.C.: Nov. 19, 2007).

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## Conclusions

Most railroads report that they continue to face challenges and do not expect to meet the December 31, 2015, PTC implementation deadline. As a result, FRA's role overseeing railroads' PTC implementation is critical. We found that some railroads continue to face challenges similar to what we had reported in 2013. However to some extent the nature of the challenges railroads are facing have changed. For example, some railroads have installed, or are working toward the completion of installing, PTC components on their own track, but are now working to navigate complex host and tenant relationships and achieving interoperability.

Since the enactment of RSIA, FRA has used a variety of methods to oversee PTC implementation, including conducting reviews of railroads' PTC implementation plans and annual reports, and relying on industry associations' reports on progress. While these efforts provided some insights into progress being made implementing PTC, their usefulness in monitoring and reporting on an individual railroad's progress and holding an individual railroad accountable for implementing PTC was limited. For example, we found some of the annual reports submitted by railroads did not contain detailed information on challenges the railroads were experiencing in PTC's implementation. Standards for internal controls in the federal government state that agencies should ensure adequate means to obtain and communicate information and that communications should include information that is relevant, reliable, and timely. The recently created PTC task force provides FRA with some opportunities to provide improved monitoring and reporting. The task force plans to more systematically collect data on railroads' progress. For example, through a survey, FRA plans to collect information on railroads' progress in implementation—such as their status in acquiring needed radio frequency spectrum—that will be helpful to identify trends for management purposes. However, the survey doesn't allow for tracking incremental progress—such as steps being taken toward achieving interoperability—limiting FRA's ability to monitor and report on a railroad's ongoing progress implementing PTC. Furthermore, the task force has not yet determined any specific strategies or developed a plan for how the agency will use the information it plans to collect to oversee PTC's implementation. We have previously reported on the benefits of developing comprehensive plans. Developing a plan that outlines how the agency intends to monitor railroads' progress based on an individual railroad's schedule for implementing PTC and how FRA plans to report this information to Congress could provide meaningful guidance for FRA's monitoring and reporting of PTC implementation. As the PTC implementation deadline nears and pending bills authorize extension of

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the deadline, better monitoring and reporting could improve FRA's effective oversight of railroads' progress toward achieving full PTC implementation and better ensure the agency holds railroads accountable for their progress.

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## Recommendation for Executive Action

The Secretary of Transportation should direct FRA to improve its oversight of railroads' PTC implementation by developing a plan that outlines how the agency will hold railroads accountable for making continued progress towards the full implementation of PTC that includes:

- identifying and collecting any additional information needed to effectively track an individual railroad's progress;
- developing the agency's enforcement strategy;
- identifying needed resources to support implementation efforts;
- reporting to Congress and others on the status of railroads' progress implementing PTC and the agency's oversight efforts; and
- identifying and planning for mitigating challenges and risks to implementation.

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## Agency Comments

We provided a draft of this report to the Department Transportation, the Federal Communications Commission, and Amtrak for review and comment. Amtrak and FCC provided technical comments that we incorporated as appropriate. In written comments, reproduced in appendix III, DOT agreed with our recommendation. DOT also provided technical comments that we incorporated, as appropriate.

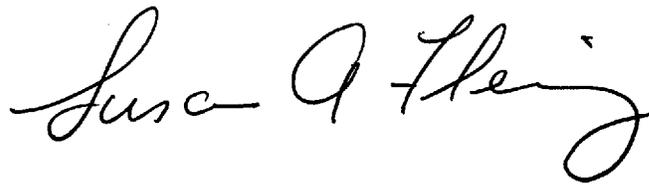
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As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 5 days from the report date. At that time, we will send copies to the Secretary of Transportation and other interested parties. In addition, the report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or [flemings@gao.gov](mailto:flemings@gao.gov). Contact points for our

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Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix IV.

A handwritten signature in black ink that reads "Susan Fleming". The signature is written in a cursive style with a large, looping 'S' and 'F'.

Susan Fleming  
Director, Physical Infrastructure Issues

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*List of Requesters*

The Honorable John Thune  
Chairman  
The Honorable Bill Nelson  
Ranking Member  
Committee on Commerce, Science and Transportation  
United States Senate

The Honorable Bill Shuster  
Chairman  
The Honorable Peter A. DeFazio  
Ranking Member  
Committee on Transportation and Infrastructure  
House of Representatives

The Honorable Jeff Denham  
Chairman  
The Honorable Michael E. Capuano  
Ranking Member  
Subcommittee on Railroads, Pipelines, and Hazardous Materials  
Committee on Transportation and Infrastructure  
House of Representatives

The Honorable Roy Blunt  
United States Senate

The Honorable Claire McCaskill  
United States Senate

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# Appendix I: Objectives, Scope, and Methodology

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To examine railroads' progress in implementing positive train control (PTC) and addressing challenges, we reviewed relevant laws and regulations, including the Rail Safety Improvement Act of 2008 (RSIA)<sup>1</sup> and PTC regulations. We reviewed documentation provided by railroads that are implementing PTC to the Federal Railroad Administration (FRA) regarding their implementation of PTC, including PTC implementation plans and annual reports. We also reviewed prior GAO reports on PTC. We also interviewed industry associations such as the American Public Transportation Association (APTA), Association of American Railroads (AAR), and the American Short Line and Regional Railroad Association (ASLRRA), and reviewed available reports from these associations, including AAR's April 2015 update on PTC implementation by freight railroads,<sup>2</sup> and APTA's April 2015 update on PTC implementation by commuter railroads.<sup>3</sup> In order to review PTC implementation by Amtrak we also reviewed a report by the Amtrak Office of the Inspector General regarding Amtrak's status in implementing PTC<sup>4</sup> and interviewed officials with that office and Amtrak regarding Amtrak's implementation of PTC.

In addition, we developed a structured interview guide and used it to interview representatives from railroads that are implementing PTC. In total we interviewed 26 railroads identified by FRA to be required by law to implement PTC. Specifically, we interviewed the four largest Class I

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<sup>1</sup>Pub. L. No. 110-432, div. A, 122 Stat. 4848.

<sup>2</sup>Association of American Railroads, *PTC Implementation: The Railroad Industry Cannot Install PTC on the Entire Nationwide Network by the 2015 Deadline: April 2015 Update* (Apr. 15, 2015).

<sup>3</sup>American Public Transportation Association, *Positive Train Control: An Assessment of PTC Implementation by Commuter Railroads* (April 2015).

<sup>4</sup>Amtrak Office of the Inspector General, *Safety and Security: Progress Made Implementing Positive Train Control but Significant Challenges Remain*, OIG-A-2015-013 (Washington, D.C.: June 19, 2015).

freight railroads as determined by revenues,<sup>5</sup> 13 commuter railroads,<sup>6</sup> and 9 smaller Class II/III freight railroads.<sup>7</sup> We selected the four largest freight railroads because we included them as part of our 2013 report on PTC.<sup>8</sup> We selected the Class II/III and commuter railroads by first obtaining, in April 2015, a list from FRA of all such railroads required by RSIA to implement PTC for supporting passenger operations. This list included 10 Class II/III railroads; we decided to interview all but one of them for our current study. (We did not include one that is jointly owned by two Class I railroads that we interviewed separately.) The list also included 27 commuter railroads; we selected 13 to interview by selecting all 7 commuter railroads that we interviewed for our 2013 PTC report as well as 6 others to ensure diversity in size (based on ridership levels reported by APTA) and geographic location. In addition, we used the semi-structured interview guide to interview three Class II/III railroads identified by an industry association as not required by RSIA to implement PTC, but required to do so by larger Class I freight railroads whose track they run on.<sup>9</sup> We selected these three railroads based on recommendations from ASLRRA. During these interviews, among other things, we asked the railroads about their progress in implementing PTC, what challenges they are facing or expect to face in their implementation,

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<sup>5</sup>Railroads are classified by operating revenues. Class I: Railroad carriers having annual carrier operating revenues of \$250 million or more. Class II: Railroad carriers having annual carrier operating revenues of less than \$250 million but in excess of \$20 million. Class III: Railroad carriers having annual carrier operating revenues of \$20 million or less; after applying the railroad revenue deflator formula provided by the regulation. 49 C.F.R. § 1201.1-1. The 4 largest Class I railroads are BNSF Railway, CSX Corporation, Norfolk Southern, and Union Pacific.

<sup>6</sup>Capital Metro, Long Island Railroad, Massachusetts Bay Transit Administration (MBTA), Metro North, New Mexico Rail Runner Express, North East Illinois Commuter Rail (Metra), Peninsula Joint Powers (Caltrain), RTD Denver, South Eastern Pennsylvania Transportation Authority (SEPTA), Southern California Regional Rail Authority (Metrolink), Utah Transit Authority, Virginia Railway Express, TriMet.

<sup>7</sup>Alaska, Belt Railway of Chicago, Kansas City Terminal, Nashville and Eastern, New Orleans Public Belt, Pan Am Railways, Portland and Western, Saratoga and North Creek, and Terminal Rail of Saint Louis. We did not interview Conrail Shared assets as it is jointly owned by two Class I railroads that we interviewed individually. Class II/III railroads are freight railroads with lower revenues than Class I railroads, with Class II railroads having greater revenues than Class III railroads.

<sup>8</sup>GAO, *Positive Train Control: Additional Authorities Could Benefit Implementation*, [GAO-13-720](#) (Washington, D.C.: Aug. 16, 2013).

<sup>9</sup>Indiana Railroad, Twin Cities and Western, and Watco.

and steps they are taking to address those challenges. Specifically, we provided a list of challenges to PTC implementation that we discussed in our 2013 report and asked railroads to discuss whether these remained challenges and to identify any additional challenges they are facing or expect to face in PTC implementation.

We also reviewed documentation from FCC regarding the approval process for radio wayside poles railroads need to construct for PTC and interviewed FCC officials about that issue and challenges that railroads have faced in acquiring needed radio frequency spectrum. We interviewed FRA officials regarding railroads' progress in implementing PTC and challenges they are facing.

In addition, to examine how the Department of Transportation (DOT) has overseen the implementation of PTC, we reviewed relevant documentation described above, such as PTC annual reports and implementation plans, RSIA, PTC regulations, FRA's 2012 report to Congress on PTC implementation, and recent testimony statements by FRA to Congress. In addition, during the interviews with railroads described above, we asked railroads for their views on FRA's role in PTC implementation, including FRA's review of PTC safety plans. We also interviewed FRA officials regarding FRA's oversight and monitoring of PTC implementation by railroads. We evaluated FRA's oversight efforts based on GAO's *Standards for Internal Control in the Federal Government*.<sup>10</sup>

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<sup>10</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

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# Appendix II: PTC Deployment and Challenges Information from Railroads Interviewed

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Based on our interviews with 29 selected railroads for this report, 20 estimated they would have PTC fully operational in revenue service on all required track (based on the current requirements regarding what track must have PTC installed) within 1 to 5 years after the 2015 deadline, and 3 stated that they do not have an estimated completion date.<sup>1</sup> Among the 23 railroads are 3 Class II/III railroads that were identified by an industry association as not required by statute to implement PTC on their track, but are equipping locomotives with PTC because they will run on PTC-equipped track.<sup>2</sup> Of the remaining 6 railroads, 1 received an exception from installing PTC on its track because it is operating at restricted speeds (thus, it is not included in table 1). In addition, representatives for 4 selected commuter railroads and one Class II/III railroad estimated they would have PTC fully operational in revenue service on all tracks that they own by the end of 2015. Representatives for each railroad provided us with an estimated time frame for full implementation, as well as information on the type of PTC system that they are installing, the number of route miles and locomotives or cab cars that they need to equip, the number of railroads that use their tracks as tenants, the number of host railroads on whose track they operate, and their estimated total PTC implementation costs (see table 1).

Some of those time frames were based on vendor project schedules, while others were not yet formalized in a schedule because the PTC projects are in their infancy. Thus, while all estimated deadlines are subject to change, those completion dates that are less formalized may be more likely to change or change more significantly. As previously noted, we selected a subset of railroads that are implementing PTC, so this table does not represent the full scope or scale of PTC deployment.

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<sup>1</sup>In addition, one commuter railroad, RTD-Denver, is installing a new rail system that will have PTC operational when it opens after the December 2015 deadline has passed.

<sup>2</sup>Some Class II/III railroads are being required to equip their locomotives with PTC because they are a tenant and their host railroad has indicated they must equip.

**Appendix II: PTC Deployment and Challenges  
Information from Railroads Interviewed**

**Table 1: Positive Train Control (PTC) Deployment Information and Estimated Completion Date for Railroads Interviewed, Divided by Railroad Type**

The railroads we interviewed varied with respect to the scope, estimated completion date, cost, and type of PTC system being installed (PTC systems included I-ETMS (Interoperable Electronic Train Management System); Advanced Civil Speed Enforcement System (ACSES); Interoperable–Incremental Train Control System (I-ITCS); Enhanced-Automatic Train Control (E-ATC); and existing Automatic Block Signaling (ABS) systems. As noted earlier, we did not ask Amtrak the same level of questions as other railroads, because Amtrak Office of the Inspector General recently issued a report providing detailed information on Amtrak’s PTC progress and challenges. As a result, we do not include Amtrak in this table.

<b>Railroad</b>	<b>PTC System</b>	<b>PTC Route Miles</b>	<b>No. of locomotives/ cab cars to equip</b>	<b>No. of tenant RRs<sup>a</sup></b>	<b>No. of host RRs<sup>b</sup></b>	<b>Total PTC Costs (est.)<sup>c</sup></b>	<b>PTC Completion (est.)</b>
<b>Class I railroads</b>							
BNSF	I-ETMS	11,350	6,000	260	10	\$2 billion	Dec. 2017
Union Pacific	I-ETMS	21,009	6,532	204	12	\$2.5 billion	Dec. 2018
CSX	I-ETMS ACSES	11,067	3,900	79	13	At least \$1.9 billion	Dec. 2020
Norfolk Southern	I-ETMS	9,560	3,400	56	16	\$1.8 billion	Dec. 2020
<b>Commuter railroads</b>							
Caltrain	I-ITCS	52	67	4	1	\$231 Million	Dec. 2015
Metrolink	I-ETMS	225	109	3	4	\$216.5 million	Dec. 2015
Southeastern Pennsylvania Transportation Authority (SEPTA)	ACSES	240	290	4	1	\$328 million	Dec. 2015
TriMet <sup>d</sup>	E-ATC	5	33	0	1	\$10 million	Dec. 2015
RTD Denver	I-ETMS	35	56	2	0	\$22 million <sup>e</sup>	2016 <sup>f</sup>
Virginia Railway Express	I-ETMS	0	41	0	3	\$10.5 million	Dec. 2016
Utah Transit Authority	E-ATC I-ETMS	88	40	2	1	\$35 million	Mid 2017
Long Island Railroad	ACSES	314	776	2	1	\$444 million	Dec. 2018
Metro-North	ACSES	340	681	9	0	\$524 million	Dec. 2018
New Mexico Rail Runner Express	I-ETMS	96	18	3	0	\$30-60 million	Dec. 2018
Capital Metro	E-ATC	32	10	2	0	\$32-40 million	2018 - 2019
North East Illinois Regional Commuter Rail (Metra)	I-ETMS	438	526	11	6	\$300-400 Million	2019
MBTA	I-ETMS ACSES	394	215	5	1	\$489.5 million	Dec. 2020
<b>Class II/III railroads</b>							
Portland and Western Railroad	E-ATC	10	6–8	2	2	\$0 (see TriMet)	Dec. 2015
Nashville & Eastern	SAFENET PTC	32	14	1	0	\$10-14 million	2017
Kansas city Terminal	I-ETMS	30	0			\$30 million	2016-2017

**Appendix II: PTC Deployment and Challenges  
Information from Railroads Interviewed**

<b>Railroad</b>	<b>PTC System</b>	<b>PTC Route Miles</b>	<b>No. of locomotives/ cab cars to equip</b>	<b>No. of tenant RRs<sup>a</sup></b>	<b>No. of host RRs<sup>b</sup></b>	<b>Total PTC Costs (est.)<sup>c</sup></b>	<b>PTC Completion (est.)</b>
Alaska	I-ETMS	535	54			At least \$158 million	Dec. 2018
Belt Railway of Chicago	I-ETMS	28	5—7	13	1	\$15-18 million	Dec. 2018
Terminal Rail of Saint Louis	I-ETMS	14	17	7—9	8	\$32 Million	Dec. 2018
Pan Am Railways	ACSES ABS I-ETMS	28	92			0	Dec. 2020
Saratoga & North Creek	I-ETMS	N/A	2			\$120,000- \$200,000	Unknown
<b>Class II/III railroads required by host railroad to equip<sup>g</sup></b>							
Twin Cities	I-ETMS	N/A	8	0	2	\$1 million	2017
Indiana	Unknown	N/A	32	1	1	\$3.2 million	Unknown
Watco <sup>h</sup>	I-ETMS	N/A	47	0	6	\$19 million	Unknown

Source: GAO, based on interviews with railroads. | GAO-15-739

<sup>a</sup>Refers to the number of other railroads that operate on the named railroad's tracks, as tenants. In some cases, this information was unavailable.

<sup>b</sup>Refers to the number of railroads that the named railroad operates on as tenant (it does not own the track it operates on). In some cases, this information was unavailable.

<sup>c</sup>Refers to implementation costs, not ongoing maintenance or operations costs.

<sup>d</sup>TriMet operates a commuter service on another railroad's track (Portland and Western). TriMet owns 5 of the 15 miles of track, and Portland and Western owns the remaining 10 miles of track. TriMet is paying for and overseeing the installation of PTC on that portion of Portland and Western's track.

<sup>e</sup>RTD-Denver officials noted this is an imprecise estimate, as its contract was for an entirely new rail system that included PTC.

<sup>f</sup>RTD-Denver is installing a new rail system that will have PTC operational when it opens after the December 31, 2015 implementation deadline.

<sup>g</sup>This table lists two types of Class II/III railroads. "Class II/III" are required to implement PTC by the 2015 deadline because they host passenger traffic. In contrast, FRA provided Class II/III railroads operating in certain conditions with the ability to obtain a short-line exception, which would allow them to delay equipping their locomotives with PTC until December 31, 2020. 49 C.F.R §236.1006. And in some cases, Class II/III railroads may be completely excepted from installing PTC. However, some Class II/III railroads are being required to equip their locomotives with PTC because they are a tenant and their host railroad has indicated they must equip. These railroads are listed as "Class II/III required by host railroad to equip" in the table.

<sup>h</sup>Watco is a holding company that owns 33 individual railroads. The information for Watco includes all its railroads.

**Appendix II: PTC Deployment and Challenges  
Information from Railroads Interviewed**

**Table 2: Identification of Challenges Currently Affecting or Potentially Affecting Railroads' Positive Train Control (PTC) Implementation**

<b>Challenge</b>	<b>No. of interviewed railroads stating this was a challenge</b>	<b>No. of interviewed railroads stating this was not a challenge</b>	<b>No answer, N/A, or Unsure</b>
Integration and field testing of PTC components	22	6	1
FRA field testing, certification, and approval of systems and safety plans, including FRA's available resources and timeliness	21	6	2
Development and testing of PTC components, including back office system development	21	7	1
Installing PTC components	19	9	1
Ensuring interoperability of PTC systems and components	19	8	2
Schedule is dependent on Class I (or Amtrak) implementation	16	8	5
Available funding for investments	11	17	1
Obtaining FCC approval for PTC radio tower installation	8	16	5
Obtaining radio frequency spectrum	7	21	1

Source: GAO, based on interviews with railroads. | GAO-15-739

# Appendix III: Comments from the Department of Transportation



U.S. Department  
of Transportation  
  
Office of the Secretary  
of Transportation

Assistant Secretary  
for Administration

1200 New Jersey Avenue, SE  
Washington, DC 20590

AUG 27 2015

Susan Fleming  
Director, Physical Infrastructure Issues  
U.S. Government Accountability Office  
441 G Street NW  
Washington, DC 201548

Dear Ms. Fleming:

The Federal Railroad Administration (FRA) has provided strong oversight of the rail industry's implementation of the safety technology since passage of the Railroad Safety Improvement Act (RSIA). FRA has ramped up that oversight in recent years and months as we close in on the December 2015 deadline. When fully implemented, positive train control (PTC) will have a life-saving impact on rail transportation safety. It will also help railroads reliably and efficiently transport rising numbers of people and goods as the U.S. economy and population grow.

FRA is committed to enforcing the congressionally mandated deadline.

While railroads—and railroads alone—are responsible for implementing PTC consistent with existing law, FRA has executed multiple efforts concurrently to bring them into compliance as quickly and efficiently as possible. The agency has dedicated significant resources to enable PTC development and implementation and assisted railroads with compliance of the PTC statute. As discussed with your auditors, FRA has:

- Provided approximately \$650 million in grants and almost \$1 billion in loans to support PTC implementation. Additional Railroad Rehabilitation and Improvement Financing (RRIF) loan funds are available to applicants interested in assistance in paying for PTC implementation.
- Actively supported deployment of PTC through the issuance of RSIA-mandated performance-based regulations in January 2010, as well as additional regulations that lightened the regulatory burden, and technical assistance documents to aid railroads, manufacturers, and suppliers to achieve full PTC functionality and interoperability.
- Starting in March 2010, dedicated staff to work on PTC implementation. FRA continually reevaluates personnel requirements and needs to ensure adequate resources are available to support timely implementation of PTC.
- Built a PTC system test bed at FRA's Transportation Technology Center, which is available to railroads for testing PTC technologies.
- Participated in system design and test readiness reviews, lab and field testing, and conducted preliminary reviews of the required submissions to identify regulatory noncompliance as soon as possible to minimize cost and schedule impact.
- Approved all 41 railroads' PTC implementation plans on time;

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**Appendix III: Comments from the Department  
of Transportation**

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- Worked directly with the Federal Communications Commission and the Advisory Council on Historic Preservation to resolve issues related to spectrum use and improve the review and approval process related to PTC communication towers and ancillary equipment.
- Provided information on specific items and the level of data quality FRA requires in order to approve safety plans and identify omissions that would result in the plan being rejected and considered incomplete.

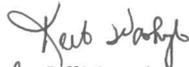
FRA's top priority is safety, and we will continue to do all we can to bring railroads into PTC compliance safely and efficiently. We will continue to gather implementation data from the railroads, including annual reports, surveys, plans, and requiring frequent updates on progress. These sources of information help FRA deploy staff and use taxpayer funds wisely to accurately monitor the industry's and individual railroad's progress toward compliance, and support FRA's necessary enforcement actions. Moreover, this layered approach helped FRA identify the implementation challenges described in its 2012 and 2015 reports to Congress.

In recent months, FRA has increased the amount of implementation data it is gathering from railroads and stepped up our oversight of the industry. Recognizing that most railroads will miss Congress' deadline, FRA expects that it will have to use its varied enforcement tools—from civil penalties to compliance agreements—to hold railroads accountable. With its task force and technical staff, FRA continues to ensure that it will have the information necessary to take such enforcement actions.

Upon preliminary review, DOT agrees with GAO's recommendation to continue to develop a plan to hold railroads accountable for progress toward full implementation. The Department will provide a detailed response to the recommendation within 60 days of GAO's final report issuance.

We appreciate this opportunity to offer additional perspective on the GAO draft report. Please contact Patrick Nemons, Deputy Director of Audit Relations, at (202) 366-4986 with any questions or if GAO would like to obtain additional detail about these comments.

Sincerely,



f Jeff Marootian  
Assistant Secretary for Administration

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# Appendix IV: GAO Contact and Staff Acknowledgments

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## GAO Contact

Susan A. Fleming, (202) 512-2834 or [Flemings@gao.gov](mailto:Flemings@gao.gov)

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## Staff Acknowledgments

In addition to the contact named above, Sharon Silas, Assistant Director; Amy Abramowitz; Crystal Huggins; Delwen Jones; SaraAnn Moessbauer; Madhav Panwar; Matthew Rosenberg; Geo Venegas; Maria Wallace; and Crystal Wesco made key contributions to this report.

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U.S. Government Accountability Office, 441 G Street NW, Room 7149  
Washington, DC 20548



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# **EXHIBIT 17**

No. 12-1298

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**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

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CHLORINE INSTITUTE, INC.,

*Petitioner,*

v.

FEDERAL RAILROAD ADMINISTRATION;  
UNITED STATES DEPARTMENT OF TRANSPORTATION;  
UNITED STATES OF AMERICA,

*Respondents.*

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On Petition for Review of a Final Rule  
of the Federal Railroad Administration

---

**BRIEF FOR ASSOCIATION OF AMERICAN RAILROADS  
AS *AMICUS CURIAE* IN SUPPORT OF RESPONDENTS AND  
URGING DENIAL OF THE PETITION FOR REVIEW**

Louis P. Warchot  
Michael J. Rush  
ASSOCIATION OF AMERICAN  
RAILROADS  
425 3rd Street, SW, Suite 1000  
Washington, DC 20024  
(202) 639-2100

Thomas H. Dupree, Jr.  
Michael R. Huston  
GIBSON, DUNN & CRUTCHER LLP  
1050 Connecticut Avenue, NW  
Washington, DC 20036  
(202) 955-8500

*Counsel for Amicus Curiae  
Association of American Railroads*

**CERTIFICATE AS TO PARTIES,  
RULINGS, AND RELATED CASES**

**A. Parties and Amici:**

All parties, intervenors, and amici appearing before the district court and in this Court are listed in the Briefs for the Chlorine Institute and the United States. The Association of American Railroads (AAR) participated in the administrative proceedings below.

AAR's corporate disclosure statement appears below.

**B. Rulings Under Review**

References to the rulings at issue appear in the Briefs for the Chlorine Institute and the United States.

**C. Related Cases**

As indicated in the Briefs for the Chlorine Institute and the United States, this case has not previously been before this Court. A related case is presently pending before this Court and is captioned as *Association of American Railroads v. Department of Transportation*, Nos. 10-1198 and 10-1308. That case is being held in abeyance after this Court remanded the record to the agency.

## CORPORATE DISCLOSURE STATEMENT

Pursuant to Federal Rule of Appellate Procedure 26.1, Amicus Curiae states as follows:

1. The Association of American Railroads is a trade association. Its members include railroads that will be affected by the final rule.
2. The Association of American Railroads has no parent company and is a nonstock corporation.

/s/ Thomas H. Dupree, Jr.

### TABLE OF CONTENTS

	<u>Page</u>
CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES .....	i
CORPORATE DISCLOSURE STATEMENT .....	ii
TABLE OF CONTENTS.....	iii
TABLE OF AUTHORITIES .....	iv
GLOSSARY.....	vi
INTEREST OF AMICUS CURIAE.....	vii
PERTINENT STATUTES AND REGULATIONS.....	vii
SUMMARY OF ARGUMENT.....	1
ARGUMENT.....	2
I.    RULEMAKING IN THE WAKE OF SETTLEMENT IS UNREMARKABLE.....	3
II.   THE FRA HAD SOUND REASONS FOR MODIFYING ITS ORIGINAL RULE.....	7
A.   The FRA’s Original Approach Imposed Enormous Costs On The Freight Railroads With Few Resulting Safety Benefits.....	8
B.   The FRA Reasonably Reconsidered Its Original Approach In Light Of The New Executive Order And New Evidence Concerning The Costs And Benefits Of PTC.....	10
III.  THE CHLORINE INSTITUTE’S SPECULATIVE PREDICTIONS ARE WITHOUT FOUNDATION.....	15
CONCLUSION.....	18

## TABLE OF AUTHORITIES\*

	<u>Page(s)</u>
<b>Cases</b>	
<i>Am. Sec. Vanlines, Inc. v. Gallagher</i> , 782 F.2d 1056 (D.C. Cir. 1986) .....	3
<i>Autera v. Robinson</i> , 419 F.2d 1197 (D.C. Cir. 1969) .....	4
<i>Citizens for a Better Env't v. Gorsuch</i> , 718 F.2d 1117 (D.C. Cir. 1983) .....	4
<i>Envtl. Def. Fund, Inc. v. EPA</i> , 716 F.2d 915 (D.C. Cir. 1983) .....	5
<i>FCC v. Fox Television Stations, Inc.</i> , 129 S. Ct. 1800 (2009) .....	7
<i>McDermott, Inc. v. AmClyde</i> , 511 U.S. 202 (1994) .....	4
<i>Moore v. Nat'l Ass'n of Sec. Dealers, Inc.</i> , 762 F.2d 1093 (D.C. Cir. 1985) .....	4
<i>Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.</i> , 463 U.S. 29 (1983) .....	7
<i>Myers v. United States</i> , 272 U.S. 52 (1926) .....	11
<i>Nat'l Fed'n of Fed. Emps., Local 1622 v. Brown</i> , 645 F.2d 1017 (D.C. Cir. 1981) .....	11
* <i>Natural Resources Defense Council, Inc. v. EPA</i> , 822 F.2d 104 (D.C. Cir. 1987) .....	4, 5
<i>Pueblo of Sandia v. Babbitt</i> , 231 F.3d 878 (D.C. Cir. 2000) .....	5

---

\* Authorities on which Amicus Curiae principally relies are marked with asterisks.

**TABLE OF AUTHORITIES\*** (continued)

	<u>Page(s)</u>
<i>Sierra Club v. EPA</i> , 322 F.3d 718 (D.C. Cir. 2003) .....	1, 5, 6
<i>Sierra Club v. EPA</i> , 551 F.3d 1019 (D.C. Cir. 2008) .....	5
<i>Summers v. Department of Justice</i> , 569 F.3d 500 (D.C. Cir. 2009) .....	6
<i>Williams v. First Nat'l Bank</i> , 216 U.S. 582 (1910) .....	4

**Statutes**

49 U.S.C. § 20157 .....	2
-------------------------	---

**Regulations**

49 C.F.R. § 172.820 .....	18
49 C.F.R. § 236.1005(b) .....	8, 9, 10
49 C.F.R. § 236.1020(b) .....	9
75 Fed. Reg. 2598 (Jan. 15, 2010) .....	2
75 Fed. Reg. 59108 (Sept. 27, 2010) .....	2
*76 Fed. Reg. 3821 (Jan. 18, 2011) .....	2, 11
*76 Fed. Reg. 52918 (Aug. 24, 2011) .....	6, 13, 14
*77 Fed. Reg. 28285 (May 14, 2012) .....	3, 7, 15, 16, 18

**Other Authorities**

<i>Comment Submitted by the Association of American Railroads before the Federal Railroad Administration, Docket No. FRA-2011-0028: Positive Train Control Systems (Nov. 25, 2011) .....</i>	<i>14</i>
<i>*Federal Regulatory Overreach in the Railroad Industry: Implementing the Rail Safety Improvement Act, Hearing Before the Subcommittee on Railroads, Pipelines, and Hazardous Materials of the Committee on Transportation and Infrastructure, U.S. House of Representatives, 112th Cong. 85-111 (2011) .....</i>	<i>12, 13, 17</i>

## GLOSSARY

AAR	Association of American Railroads
FRA	Federal Railroad Administration
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIH	Poisonous by Inhalation
PTC	Positive Train Control
RSIA08	Rail Safety Improvement Act of 2008
STB	Surface Transportation Board

### **INTEREST OF AMICUS CURIAE**

The Association of American Railroads (AAR) is a nonprofit trade association whose members include all of the Class I freight railroads (the largest freight railroads), as well as some smaller freight railroads and Amtrak. AAR represents its member railroads in proceedings before Congress, the courts, and administrative agencies in matters of common interest, such as the issues that are the subject matter of this litigation. AAR participated in the rulemaking at issue, as well as in the rulemaking concerning a prior version of the rule.

AAR files this brief with the consent of all parties. Pursuant to Federal Rule of Appellate Procedure 29(c)(5), AAR certifies that no party, counsel for a party, or person, other than AAR and its attorneys, authored this brief in whole or in part, or made a monetary contribution intended to fund preparation or submission of this brief.

### **PERTINENT STATUTES AND REGULATIONS**

All pertinent statutes and regulations are contained in the Brief for the United States.

## SUMMARY OF ARGUMENT

The Government's brief demonstrates that the Chlorine Institute's petition for review should be denied because the Chlorine Institute has failed to establish standing and because its arguments are either waived or meritless. The Association of American Railroads (AAR) agrees that the petition should be denied, and respectfully submits this amicus brief to address three additional points:

*First*, there was nothing remotely "disingenuous," Pet. Br. 26, about AAR and the Government settling AAR's lawsuit through an agreement under which the Government agreed to issue a new Notice of Proposed Rulemaking. These types of settlements are unremarkable, conserve the resources of the Government and this Court, and enable the Government to correct or modify rules that it has determined are not in the public interest. *See, e.g., Sierra Club v. EPA*, 322 F.3d 718, 720 (D.C. Cir. 2003).

*Second*, the Government had sound reasons for modifying its original rule. Subsequent to the issuance of the original rule, AAR provided new evidence to the Government demonstrating the extreme and unjustifiable disparity between the costs and benefits of the Government's initial approach, including the "two-part test" that is the subject of the instant appeal. This new evidence—particularly when viewed in light of the President's January 2011 executive order directing

federal agencies to “propose or adopt a regulation *only* upon a reasoned determination that its benefits justify its costs,” 76 Fed. Reg. 3821, 3821 (Jan. 18, 2011) (emphasis added)—provided ample reason to take another look at the original rule.

*Third*, the Chlorine Institute’s predictions of the harmful consequences that will supposedly flow from the amended rule miss the mark. Its accusations that the freight railroads will “game the system” by refusing to transport hazardous materials—or will use the amended rule to make unsafe routing decisions—are unfounded in light of the freight railroads’ common carrier obligations, their proven record of safety, and the fact that many Government agencies protect against the very sort of behavior the Chlorine Institute falsely accuses the freight railroads of secretly planning to engage in.

### **ARGUMENT**

The Rail Safety Improvement Act of 2008 (RSIA08) requires each Class I railroad to install, by December 31, 2015, a Positive Train Control (PTC) system on the railroad’s main line transporting either passengers or poisonous-by-inhalation (PIH) material. 49 U.S.C. § 20157. In 2010, the Federal Railroad Administration (FRA) enacted regulations to implement the statute, 75 Fed. Reg. 2598 (Jan. 15, 2010), and subsequently amended those regulations after receiving additional public comments. 75 Fed. Reg. 59108 (Sept. 27, 2010).

AAR challenged the FRA's original PTC rule in this Court, and the parties reached a settlement on March 2, 2011. The settlement agreement provided that the parties would jointly move the Court to hold the appeal in abeyance pending new rulemaking proceedings addressing the PTC rule, including the two-part test that is the subject of the present suit. On May 14, 2012, the FRA revised its approach to the two-part test by issuing an amended final rule. 77 Fed. Reg. 28285.

**I. RULEMAKING IN THE WAKE OF SETTLEMENT IS UNREMARKABLE.**

The Chlorine Institute's insinuation that there was something "disingenuous," Pet. Br. 26, in the process that led to the amended rule is simply wrong. There is nothing remotely sinister about an agency settling a dispute by agreeing to issue a Notice of Proposed Rulemaking and then conducting a public, on-the-record rulemaking that results in an amended version of the challenged rule. Quite the contrary, this case shows how an agency and the private parties it regulates can work together by resolving their disputes without judicial intervention, enabling the agency to consider new evidence and to reach a result that best serves the public interest.

"Few public policies are as well established as the principle that courts should favor voluntary settlements of litigation by the parties to a dispute." *Am. Sec. Vanlines, Inc. v. Gallagher*, 782 F.2d 1056, 1060 (D.C. Cir. 1986). For

decades, this Court has emphasized that “[v]oluntary settlement of civil controversies is in high judicial favor.” *Autera v. Robinson*, 419 F.2d 1197, 1199 (D.C. Cir. 1969); *see also Moore v. Nat’l Ass’n of Sec. Dealers, Inc.*, 762 F.2d 1093, 1098 (D.C. Cir. 1985) (“Voluntary compliance is preferable to court action. Parties are accordingly encouraged to resolve their disputes through conciliation.”). The Court has explained that “[n]ot only the parties, but the general public as well, benefit from the saving of time and money that results from the voluntary settlement of litigation.” *Citizens for a Better Env’t v. Gorsuch*, 718 F.2d 1117, 1126 (D.C. Cir. 1983). Likewise, the Supreme Court has held that “public policy wisely encourages settlements.” *McDermott, Inc. v. AmClyde*, 511 U.S. 202, 215 (1994); *see also Williams v. First Nat’l Bank*, 216 U.S. 582, 595 (1910) (“Compromises of disputed claims are favored by the courts[.]”). The Supreme Court noted in *McDermott* that the overwhelming majority of cases filed in federal court end in settlement. 511 U.S. at 215 n.22.

There is nothing remarkable or untoward about an agency settling litigation by agreeing to take another look at a challenged regulation. In *Natural Resources Defense Council, Inc. v. EPA*, for example, the EPA and industry settled their prolonged dispute over a permitting regulation for the Clean Water Act. 822 F.2d 104, 109 (D.C. Cir. 1987). Then, “[a]fter notice and comment, EPA promulgated final revisions to the [] regulations.” *Id.* This Court was quite clear that the

agency's change in position was not a sign of anything suspect: "We are, as to some aspects of this case, confronted with EPA's modifications of positions previously advanced by the agency and incorporated in the Settlement Agreement. An agency's change of course with respect to a particular policy does not in itself suggest a lack of reasoned decisionmaking. To the contrary, an agency *volte face* may evidence careful and thorough evaluation of the policy at issue." *Id.* at 112.

The parties took a similar approach in *Sierra Club v. EPA*, 322 F.3d 718, 720 (D.C. Cir. 2003). As part of an agreement resolving a rulemaking challenge, EPA agreed to "remove the [disputed] language" from the rule and to "initiate a ninety-day formal notice-and-comment process for interested parties to identify deficiencies" in the program. *Id.* And in a different case involving the same parties—*Sierra Club v. EPA*, 551 F.3d 1019, 1023 (D.C. Cir. 2008)—"EPA proposed 'modest' changes to the [disputed] regulations" as "part of a settlement agreement."

There are many analogous cases where the Government and a private party agree to resolve a dispute and to hold an appeal in abeyance, pending a new rulemaking proceeding. *See, e.g., Env'tl. Def. Fund, Inc. v. EPA*, 716 F.2d 915, 917 (D.C. Cir. 1983) (holding in abeyance an agency order after the parties represented that a settlement agreement "was near"); *Pueblo of Sandia v. Babbitt*, 231 F.3d 878, 880 (D.C. Cir. 2000) (appeal of agency order held in abeyance pending

settlement negotiations); *Sierra Club*, 322 F.3d at 720 (“[T]he parties reached a settlement and filed a joint motion requesting a stay of proceedings. . . . The settlement agreement also obligated the parties to seek joint dismissal if, by December 1, 2001, the EPA had fulfilled its promises.”).

Contrary to the Chlorine Institute’s suggestion, Pet. Br. 25-26, it is unremarkable that neither the FRA nor AAR conceded error in agreeing to resolve their dispute. In *Summers v. Department of Justice*, 569 F.3d 500, 502 (D.C. Cir. 2009), the plaintiff sued the FBI to gain access to certain documents under the Freedom of Information Act. The parties settled, and the FBI agreed to release some of the requested documents but not others. The settlement agreement provided that it “shall not constitute an admission of success on the merits for purposes of any claim for attorneys’ fees.” *Id.* (internal quotation marks omitted). Here, the FRA’s revised Notice of Proposed Rulemaking stated that while the FRA continues to believe that the two-part test is “legally sustainable”—a position with which AAR continues to disagree—evidence of the extreme disparity between the rule’s costs and benefits led the agency to reasonably conclude that there were other, better ways to implement the statute. 76 Fed. Reg. 52918, 52922 (Aug. 24, 2011).

The Chlorine Institute’s suggestion, Pet. Br. 33, that the FRA simply caved to the demands of AAR is baseless. The FRA and AAR continue to disagree on

key issues concerning PTC implementation. For example, the FRA's amended rule maintains 2008 as the base year to determine the tracks for which the railroads must either install PTC or seek an exemption. *See* 77 Fed. Reg. at 28287 ("FRA determined, and continues to believe," that the 2008 baseline is appropriate).

AAR, of course, continues to believe that PTC should be based on the projected traffic of PIH material as of December 31, 2015—a date reflected in the statute's plain language—as opposed to the traffic levels that existed almost a decade earlier. *See id.* at 28297 (rejecting AAR's comment making this argument).

## **II. THE FRA HAD SOUND REASONS FOR MODIFYING ITS ORIGINAL RULE.**

An agency is not "subjected to more searching review" when it changes its position and amends a regulation. *FCC v. Fox Television Stations, Inc.*, 129 S. Ct. 1800, 1810 (2009). Rather, the agency need only "display awareness that it is changing position" and "show that there are good reasons for the new policy." *Id.* at 1811. Moreover, the agency "need not demonstrate to a court's satisfaction that the reasons for the new policy are better than the reasons for the old one; it suffices that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better, which the conscious change of course adequately indicates." *Id.* (emphasis omitted); *accord Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) ("[T]he agency must examine the relevant data and articulate a satisfactory

explanation for its action including a ‘rational connection between the facts found and the choice made.’”).

The FRA’s revision of the “two-part test” established in its original rule satisfies these standards. The FRA changed its approach after the President directed all federal agencies to weigh costs and benefits in rulemaking and to adopt the least burdensome approach consistent with regulatory objectives—and after receiving new evidence from AAR illustrating the massive disparity between the costs and benefits of the two-part test. In its revised rule, the FRA expressly acknowledged that it was changing its position, explained the reasons why, and demonstrated that its new approach would achieve tremendous cost savings without compromising safety. The agency’s determination is reasonable and should be upheld.

**A. The FRA’s Original Approach Imposed Enormous Costs On The Freight Railroads With Few Resulting Safety Benefits.**

The FRA’s original rule went far beyond the requirements of the RSIA08. As relevant here, the rule provided that the FRA would use 2008—rather than 2015—as the base year to assess the freight railroads’ traffic levels for purposes of determining the tracks on which PTC needed to be installed. *See* 49 C.F.R. § 236.1005(b)(2). In other words, notwithstanding the plain language of the

statute, the FRA looked to outdated 2008 traffic levels to determine the scope of PTC installation in 2015.

The agency acknowledged that traffic patterns would undoubtedly change between 2008 and the end of 2015. Accordingly, it included in the original rule a provision allowing the railroads to apply for exemptions as to tracks that carried passengers or PIH material in 2008, but that would not do so by 2015. *Id.*

§ 236.1005(b)(4). The FRA's regulations stated that it would grant an exemption only when the freight railroad could satisfy both prongs of a two-part test. *See id.*

§ 236.1020(b). First, under the "alternative route" analysis, the FRA would consider whether the alternative track to which PIH shipments would be diverted (if the exemption was granted) had "substantially the same overall safety and security risks as the subject routes under the stipulated conditions for analysis." *Id.*

§ 236.1020(b)(2)(ii). Second, under the "residual risk" analysis, the freight railroad would be required to show that "the remaining risk arising from rail operations on the track segment—pertaining to events that can be prevented or mitigated in severity by a PTC system—is less than the average equivalent risk per

route mile on track segments required to be equipped with PTC[.]” *Id.*

§ 236.1020(b)(3).<sup>1</sup>

The exemption provision was flawed. Many of the rail lines that will no longer carry PIH material by the end of 2015 would not have satisfied the two-part test. Thus, the FRA’s original rule would have required the railroads to install PTC on thousands of miles of track that Congress did not require be equipped with PTC.

AAR filed a petition for review in this Court challenging the original rule. Among other things, AAR argued that the agency had erred by going well beyond the congressionally-mandated scope of PTC implementation. *See* Nos. 10-1198 & 10-1308, ECF Doc. Nos. 1289112 (Jan. 20, 2011) (AAR final opening brief), 1289113 (Jan. 20, 2011) (AAR final reply brief).

**B. The FRA Reasonably Reconsidered Its Original Approach  
In Light Of The New Executive Order And New Evidence  
Concerning The Costs And Benefits Of PTC.**

The FRA’s decision to modify its two-part test occurred in the wake of two significant events.

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<sup>1</sup> The FRA never finalized the “residual risk” prong by specifying how the risk analysis should be conducted. Accordingly, it remained a work-in-progress up until the rule was amended.

First, on January 18, 2011, President Obama issued Executive Order 13563.

76 Fed. Reg. 3821. The Order directed all federal agencies to:

- “[P]ropose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify)”;
- “[T]ailor [] regulations to impose the least burden on society, consistent with obtaining regulatory objectives”; and
- “[S]elect, in choosing among alternative regulatory approaches, those approaches that maximize net benefits[.]”

*Id.* It is well established that the President may use executive orders to broadly set regulatory policy. See *Nat’l Fed’n of Fed. Emps., Local 1622 v. Brown*, 645 F.2d 1017, 1022 (D.C. Cir. 1981) (“Within the range of choice allowed by the statute, the President may direct his subordinates’ choices.”); accord *Myers v. United States*, 272 U.S. 52, 135 (1926) (“The ordinary duties of officers prescribed by statute come under the general administrative control of the President by virtue of the general grant to him of the executive power, and he may properly supervise and guide their construction of the statutes under which they act in order to secure that unitary and uniform execution of the laws which article 2 of the Constitution evidently contemplated in vesting general executive power in the President alone.”).

Second, after the FRA agreed to initiate a new rulemaking to consider whether to modify the original rule, AAR provided new evidence of the dramatic disparity between the rule's costs and benefits. Specifically, representatives from AAR testified before Congress and provided compelling new evidence that the two-part test would force the freight railroads to incur extreme and unjustifiable costs by installing PTC systems on tracks where the nature and volume of traffic simply did not warrant it. *See Federal Regulatory Overreach in the Railroad Industry: Implementing the Rail Safety Improvement Act, Hearing Before the Subcommittee on Railroads, Pipelines, and Hazardous Materials of the Committee on Transportation and Infrastructure, U.S. House of Representatives, 112th Cong. 85-111 (2011) (Joint statement of Edward R. Hamberger, President and Chief Executive Officer of AAR, and Mark D. Manion, Executive Vice President and Chief Operating Officer of the Norfolk Southern Railway, on behalf of AAR's member railroads) [hereinafter AAR Congressional Testimony].*<sup>2</sup>

AAR's representatives explained to Congress that PTC implementation would cost the railroads billions of dollars, with hundreds of millions of dollars in additional annual maintenance costs. AAR Congressional Testimony at 91. Yet

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<sup>2</sup> This testimony is available at <http://www.gpo.gov/fdsys/pkg/CHRG-112hrg65481/pdf/CHRG-112hrg65481.pdf>

for all of this expense, PTC offered only marginal safety benefits. That is because railroad operations are already very safe, with accident rates lower than many other major industries, *id.* at 86-89, 92, and PTC would prevent less than four percent of all rail accidents on Class I main lines in any event. *Id.* at 92. Indeed, the FRA's own calculations showed that the PTC rule would impose \$20 in costs for every \$1 in safety benefits. *Id.*

AAR's testimony demonstrated that the cost/benefit disparity was especially striking with regard to the FRA's decision to use 2008 as the base year, subject only to the exemptions allowed by the two-part test. The freight railroads estimated that there are 10,000 miles of track that carried passengers or PIH material in 2008—and which would thus be subject to PTC—that will not carry any passengers or PIH material by 2015. *Id.* at 94. Assuming that the FRA correctly estimated the projected cost of PTC installation at \$50,000 per mile (the railroads believe the costs will be even higher), the 2008 base year and two-part test would require the railroads to spend an additional \$500 million to implement PTC on tracks with no passengers and no PIH shipments. *Id.*<sup>3</sup>

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<sup>3</sup> AAR later submitted additional data to FRA estimating that even more track miles (11,128) will cease carrying PIH or passenger traffic by the end of 2015. *See* 76 Fed. Reg. at 52921-22.

The FRA filed a new Notice of Proposed Rulemaking that suggested withdrawing the two-part test. 76 Fed. Reg. 52918. The Notice cited both the President's executive order and AAR's testimony before Congress as the main reasons for the proposed amendment. *See id.* at 52921. The FRA's Notice estimated that 50 percent of the railroads' 11,000-plus excludable miles would have qualified for an exemption under the two-part test; but even under this assumption the agency recognized that the costs of the two-part test still exceeded its benefits by a ratio of between 20 and 25 to 1. *Id.* at 52924.

AAR submitted a comment in response to the new Notice that questioned the FRA's assumption that 50 percent of all excludable miles would have satisfied the two-part test. *See Comment Submitted by the Association of American Railroads before the Federal Railroad Administration, Docket No. FRA-2011-0028: Positive Train Control Systems (Nov. 25, 2011), at 2.*<sup>4</sup> AAR explained that because the FRA never finalized the test's "residual risk" prong, it was impossible to evaluate the FRA's assumption. *Id.* at 3. But even if the agency's assumption were correct, the two-part test would still have generated massive costs with only minimal safety benefits. *Id.*

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<sup>4</sup> This Comment is available at <http://www.regulations.gov/#!documentDetail;D=FRA-2011-0028-0010>.

The FRA finalized its rule and withdrew the two-part test. *See* 77 Fed. Reg. 28285 (May 14, 2012). The final rule expressly acknowledged that the agency was changing its position, and it cited AAR's evidence of the rule's costs as a primary reason for that change. *Id.* at 28287-88. Based in part on this new evidence, the FRA reasonably determined that eliminating the two-part test would save hundreds of millions of dollars in costs, without any significant additional safety risks. *Id.* at 28286.

### **III. THE CHLORINE INSTITUTE'S SPECULATIVE PREDICTIONS ARE WITHOUT FOUNDATION.**

The Chlorine Institute asserts that the freight railroads will engage in a variety of harmful conduct under the revised rule. This speculation has no basis in fact and the Government responded to each and every one of the Chlorine Institute's misplaced concerns.

*First*, the Chlorine Institute contends that the railroads will refuse to ship PIH material—or will “game the system” by moving PIH traffic to the smallest possible number of lines and raising shipping prices to unsustainable levels—eventually driving toxic-material shippers out of business. *See* Pet. Br. 6 (revised rule will result in the “ability of the railroads to restrict or eliminate chlorine transportation by rail”); *see also, e.g., id.* at 9, 37.

As the Government explained, the Chlorine Institute does not understand how the PTC rule works. The rule “requires that PTC systems be installed on

many line segments over which PIH materials are transported; it does not in any way govern the movements of PIH materials.” 77 Fed. Reg. at 28292. The freight railroads’ common carrier obligation, enforced by the Surface Transportation Board (STB), prevents the railroads from refusing to transport PIH materials entirely or from charging unreasonably high prices. *See id.* The FRA correctly “recognize[d] that conflicts between railroad carriers and railroad shippers relating to common carrier obligations are best resolved by the STB,” and properly “decline[d] to substitute its economic judgments for those of STB.” *Id.* Indeed, the STB has previously enforced the common carrier obligation in this context by ordering freight railroads “to quote common carrier rates and provide service for the transportation of PIH materials such as chlorine.” *Id.* For its part, the FRA “does not view the requirement to install PTC systems on certain rail lines as affecting the common carrier obligation in any way.” *Id.*; *see also id.* at 28291-92 (the PTC rule “does not preempt the oversight and regulatory functions” of other federal agencies).

In addition, other federal regulations, enforced by the STB, the FRA, and the Pipeline and Hazardous Materials Safety Administration (PHMSA), govern the freight railroads’ routing of hazardous materials. *See id.* at 28291. The Chlorine Institute offers no reason to believe that so many federal agencies would all choose to abdicate their statutory duties.

*Second*, the Chlorine Institute claims that the railroads will endanger public safety by moving PIH shipments onto higher-risk tracks that involve more switches or that travel through urban areas. *See, e.g.*, Pet. Br. 24-25. This argument is rank speculation that ignores the freight railroads' strong safety record. *See* AAR Congressional Testimony at 86. The period from 1980 to 2010 saw dramatic improvements in railroad safety: a 77 percent reduction in the train-accident rate; an 82 percent reduction in the rail-employee injury rate; and an 81 percent reduction in the grade-crossing collision rate. *Id.* at 86-87. Each year AAR's member railroads devote millions of dollars to improving the safety of their rail networks for the benefit of their employees, their customers, and the public. *Id.* at 87-88. Nothing in the Chlorine Institute's brief supports its bare assertion that the freight railroads would suddenly abandon their commitment to safety and begin acting in an unsafe manner.

The Chlorine Institute also ignores the federal regulations that help ensure the safe transportation of hazardous materials. "Under the PHMSA regulations, a railroad carrier is required to: compile annual data on shipments of PIH materials and other security sensitive materials; use the data to analyze safety and security risks along rail routes used by the carrier to transport those materials and practicable alternative routes over which the carrier has authority to operate; seek information from state, local and tribal officials regarding security risks to high-

consequence targets along or in proximity to the routes; consider mitigation measures to reduce safety and security risk; and select and use the practicable routes that pose the least overall safety and security risk.” 77 Fed. Reg. at 28289 (citing 49 C.F.R. § 172.820). For this reason, the FRA correctly “reject[ed] the premise that railroads will have an uninhibited means of rerouting PIH material traffic without meaningful oversight.” *Id.* at 28291-92.

### CONCLUSION

The petition for review should be denied.

Respectfully submitted,

/s/ Thomas H. Dupree, Jr.

Louis P. Warchot  
Michael J. Rush  
ASSOCIATION OF AMERICAN  
RAILROADS  
425 3rd Street, SW, Suite 1000  
Washington, DC 20024  
(202) 639-2100

Thomas H. Dupree, Jr.  
Michael R. Huston  
GIBSON, DUNN & CRUTCHER LLP  
1050 Connecticut Avenue, NW  
Washington, DC 20036  
(202) 955-8500

*Counsel for Amicus Curiae  
Association of American Railroads*

Dated: December 13, 2012.

**CERTIFICATE OF COMPLIANCE  
WITH TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS,  
AND TYPE STYLE REQUIREMENTS**

1. This brief complies with the type-volume requirement of Federal Rule of Appellate Procedure 32(a)(7) because this brief contains 3,880 words, as determined by the word-count function of Microsoft Word 2010, excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii); and

2. This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word 2010 in 14-point Times New Roman font.

Dated: December 13, 2012.

/s/ Thomas H. Dupree, Jr.  
Thomas H. Dupree, Jr.  
GIBSON, DUNN & CRUTCHER LLP  
1050 Connecticut Avenue, NW  
Washington, DC 20036  
(202) 955-8500

**CERTIFICATE OF SERVICE**

I hereby certify that on December 13, 2012, I electronically filed the foregoing Amicus Curiae Brief with the Clerk of the Court for the United States Court of Appeals for the D.C. Circuit by using the appellate CM/ECF system.

/s/ Thomas H. Dupree, Jr.

Thomas H. Dupree, Jr.  
GIBSON, DUNN & CRUTCHER LLP  
1050 Connecticut Avenue, NW  
Washington, DC 20036  
(202) 955-8500

# **EXHIBIT 18**



U.S. Department  
of Transportation

**Federal Railroad  
Administration**

ADMINISTRATOR

1200 New Jersey Avenue, SE  
Washington, DC 20590

AUG 07 2014

Mr. Frank Reiner  
President  
The Chlorine Institute  
1300 Wilson Boulevard, Suite 525  
Arlington, VA 22209

Dear Mr. Reiner:

Thank you for your July 22, 2014, letter to the Federal Railroad Administration (FRA) in which you express your concern about the deployment of Positive Train Control (PTC) technology by the statutorily required completion date of December 31, 2015.<sup>1</sup> I share your concerns regarding full deployment of this critical safety technology by the statutory deadline. However, there are several legitimate practical and legal reasons that may preclude full deployment by the deadline. FRA first identified these issues in our August 2012 report<sup>2</sup> to Congress and over the past 2 years, the agency has been working to rectify these issues as much as possible. Additional impediments, such as compliance with the statutory requirements of the National Environmental Policy Act<sup>3</sup> and the National Historical Preservation Act,<sup>4</sup> have also adversely influenced progress to resolving these issues.

Only Congress can change a statutory deadline. In the event that Congress does not elect to make changes to the required completion date, FRA may exercise prosecutorial discretion where noncompliant railroads are making good faith efforts to comply with the law. This would allow movement of toxic inhalation hazard (TIH) materials over routes scheduled for PTC deployment that is not yet accomplished, or over routes with partial PTC deployment. FRA would not support any effort by railroad carriers to circumvent their common carrier obligations through failure to implement PTC systems where those systems are required by statute.

In the meantime, in accordance with FRA's procedures (see Title 49 Code of Federal Regulations Section 209.11 regarding the treatment of claimed confidential information), FRA has made, and will continue to make, railroads' PTC implementation plans available for review and comment by all interested parties.

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<sup>1</sup> Rail Safety Improvement Act of 2008 (Public Law 110-432), 49 U.S.C. 20157

<sup>2</sup> FRA Report to Congress, "Positive Train Control: Implementation Status, Issues, and Impacts," August 2012

<sup>3</sup> 42 U.S.C. 4321

<sup>4</sup> 16 U.S.C. 470

Although I appreciate your concern about railroads potentially failing to meet their common carrier obligations regarding shipments of TIH materials, issues and questions related to the provision and adequacy of rail service fall under the jurisdiction of the Surface Transportation Board (STB). I recommend that you address any common carrier compliance issues with the STB as soon as possible.

I expect FRA staff to respond promptly and professionally and am concerned that you didn't receive timely response to your requests, as stated in your letter. I've asked my senior staff to look into this matter. My PTC staff is available to discuss any technical questions or issues you may have. Please contact Mr. Blackmore, Railroad Safety Program Manager Applied Technologies (312-835-3903, [David.Blackmore@dot.gov](mailto:David.Blackmore@dot.gov)), or Dr. Hartong, Senior Scientific Technical Advisor (202-493-1332, [Mark.Hartong@dot.gov](mailto:Mark.Hartong@dot.gov)) to discuss questions or concerns related to PTC. Similarly, any questions related to FRA's regulation of PTC technology may be directed to Mr. Jason Schlosberg (202-493-6032, [Jason.Schlosberg@dot.gov](mailto:Jason.Schlosberg@dot.gov)) or Ms. Emily Prince ((202) 493-6146 or [Emily.Prince@dot.gov](mailto:Emily.Prince@dot.gov)) in FRA's Office of Chief Counsel.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph C. Szabo". The signature is fluid and cursive, with a large initial "J" and "S".

Joseph C. Szabo  
Administrator

# **EXHIBIT 19**



American Water Works  
Association



National Association  
of Water Companies



ASSOCIATION OF  
METROPOLITAN  
WATER AGENCIES



NACWA

September 23, 2015

The Honorable John Thune  
Chair, Committee on Commerce,  
Science, and Transportation  
United States Senate  
Washington, DC 20510

The Honorable Bill Nelson  
Ranking Member, Committee on Commerce,  
Science, and Transportation  
United States Senate  
Washington, DC 20510

Dear Chairman Thune and Ranking Member Nelson,

We, the undersigned water associations, urge you to support efforts in Congress to extend the deadline for full implementation of the Positive Train Control (PTC) rule that is scheduled to take effect December 31. Because virtually all U.S. railroads will not be ready to fully implement PTC on that date, water utilities across the country could face severe interruptions of the supplies of substances they use to treat municipal drinking water and wastewater.

Even water utilities that do not receive disinfectants directly by rail will be negatively affected by a failure to extend the PTC implementation deadline. Chlorine and anhydrous ammonia – critical substances in water disinfection – are typically transported by rail from manufacturing facilities to distribution or repackaging centers. From there they may continue on to a water utility by rail

or be transferred to trucks; but either way, the supply chain will break down if rail shipments of these chemicals are halted.

Even a temporary interruption of water disinfection chemical deliveries could risk a public health disaster for communities across the country. Effective disinfection of drinking water and wastewater prevent the type of cholera and typhoid outbreaks seen in less-developed countries from happening in the U.S. Chlorine in various forms has been the standard-bearer for water disinfection for more than 100 years. Water utilities cannot treat water supplies to the stringent standards of the Safe Drinking Water Act without it. Similarly, anhydrous ammonia is necessary to produce a popular disinfectant known as chloramine, which aids in controlling the formation of regulated disinfection byproducts.

To be clear, the water sector supports implementation of safe transportation of potentially hazardous materials. All but a handful of U.S. railroads have acknowledged, however, that due primarily to technological challenges in a PTC system, they will not be ready for the December 31 deadline. That means they will not be able to transport these critical materials without facing steep federal fines, and are therefore unlikely to handle such shipments without an extension in place. Indeed, a just-released study by the U.S. Government Accountability Office has found that most railroads will require one to five years to comply with PTC due to the complexity of the system, interoperability challenges and the ability of the Federal Railroad Administration to monitor and approve PTC systems. A number of railroads have already stated that they will embargo shipments of certain chemicals. Some may begin their embargos before Thanksgiving to ensure that all such shipments are at their destinations to avoid stranding any on railroad lines December 31.

While Congress has indicated a willingness to address this issue, we urge you to pass a PTC extension as soon as possible, so water utilities and other industries reliant on rail shipments of chemicals are not left facing uncertainty as the calendar advances toward the New Year. Fortunately, this is not a partisan issue. As you know, the U.S. Senate has already overwhelmingly approved a three-year PTC extension as part of the "DRIVE Act" (H.R. 22) and members of both parties – including you and Sens. Roy Blunt and Claire McCaskill of Missouri – have noted the importance of this issue. **We urge all members of Congress to join and amplify their calls to quickly extend the PTC deadline.**

Again, we ask that you support legislative efforts to extend the deadline for compliance with PTC regulations. If you have any questions, please do not hesitate to contact Tommy Holmes at AWWA at 202-326-6128 ([tholmes@awwa.org](mailto:tholmes@awwa.org)), Abby Schneider at ACWA at 202-434-4760 ([aschneider@sso.org](mailto:aschneider@sso.org)), Dan Hartnett at AMWA at 202-331-2820 ([hartnett@amwa.net](mailto:hartnett@amwa.net)), Cynthia Finley at NAWCA at 202-533-1836 ([cfinley@nacwa.org](mailto:cfinley@nacwa.org)), or Petra Smeltzer at NAWC at 202-833-8089 ([Petra@nawc.com](mailto:Petra@nawc.com)).

Sincerely,

Tracy Mehan, Executive Director, Government Affairs  
American Water Works Association

Timothy Quinn, Executive Director  
Association of California Water Agencies

Diane VanDe Hei, Executive Director  
Association of Metropolitan Water Agencies

Adam Krantz, Chief Executive Officer  
National Association of Clean Water Agencies

Michael Deane, Executive Director  
National Association of Water Companies

cc: Full membership of Senate Committee on Commerce, Science and Transportation