

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 your letter requesting information on positive train control (PTC) installation, and the impacts if Congress does not extend the December 31, 2015, implementation deadline. This is an incredibly important issue for the nation's rail shippers and passengers, and I appreciate the opportunity to respond.

Union Pacific is implementing PTC, and since the mandate in 2008, we have worked tirelessly to design, install, and test the system. However, despite our best efforts, we will not make the installation deadline. This is because PTC isn't a simple and established off-the-shelf technology. Rather, PTC is a complex new system comprised of several independent technologies. Installing PTC requires integrating thousands of components across the telecommunications spectrum along tens of thousands of miles of track. The software must continuously relay critical information such as speed limits, train movement authorization, switch positions, work zone locations, and other operational data. It must also factor in locomotive and rail car mix, train length, weight, speed, track conditions and terrain to determine safe stopping distances. Based on this data, the system must calculate, multiple times a second, all of these measurements to allow the train to move safely. Finally, PTC must also be interoperable, meaning that the Union Pacific system must work with the systems of other railroads. Beyond these formidable technical elements, we also face regulatory obstacles to obtain the necessary spectrum and permits to install wayside communication towers.

While we will not make the deadline, I want you to know we take our responsibilities seriously, and we have made monumental efforts to implement PTC. These include:

- Investing \$1.8 billion through June with another \$200 million for the rest of this year.
- Hiring nearly a thousand workers to implement the technology.
- Acquiring spectrum and developing custom radio equipment.
- Developing the software necessary to create an interoperable PTC system.
- Working with more than 50 vendors to develop or acquire components.

We have made enormous strides toward implementation, and I am very proud of the Union Pacific people who have gotten us to this point.

- We have installed PTC hardware and software on 13,480 miles out of approximately 20,000 miles. The 20,000 miles we need to equip represents roughly two thirds of our network.
- We have installed 6,275 out of 10,000 wayside antennas.

- We have partially installed (phases one and two) PTC hardware on 4,500 locomotives, out of 6,500. (Locomotive hardware installations must be done in three phases due to the need to design and build the necessary components. The first phase takes the locomotive out of service for one week. The second phase takes the locomotive out of service for a couple of days, and the third phase will take the locomotive out of service for several hours.)

We expect to have PTC fully installed throughout our network by the end of 2018. Then we will need time to test the system before the FRA can certify it as implemented. PTC is the largest and most complex technological undertaking ever attempted by the freight rail industry. Without a period to test the system to ensure that it works properly across the estimated 63,000 miles of freight rail lines where it will be installed, gridlock could occur as trains will simply stop when they shouldn't. This could cause the entire national rail network to meltdown, and the thousands of customers and communities we serve would be significantly impacted.

What will happen if Congress does not extend the deadline? As you know, we have been contemplating that question for several months now. Because we would be operating in violation of federal law, and because we would be potentially subject to hundreds of millions of dollars in fines and expose ourselves to untold liability should a toxic by inhalation gas (TIH) or passenger accident occur on a line that was supposed to be equipped with PTC, it is our plan to embargo all TIH traffic as well as passenger traffic on our railroad. TIH traffic would be embargoed several weeks prior to January 1, 2016, to ensure an orderly shutdown and clear our system of TIH carloads prior to the end of the year. We expect to issue the TIH embargo notice prior to Thanksgiving. Commuter operations would cease before midnight on December 31, 2015, and long distance passenger trains will stop originating several days earlier to ensure that all passengers reach their destinations before the deadline.

I want you to know these decisions are not made lightly or in haste. We carefully reviewed our options, which are limited. Embargoing this traffic, which is the traffic that necessitates PTC installation, is in the best interest of our employees and shareholders. We simply don't see another option.

This will cause significant economic disruption for our country. Chlorine and anhydrous ammonia (fertilizer) are the two largest TIH commodities we carry. Chlorine is not only a feedstock for many products, it is also critical for many cities to purify their drinking water. The suspension of anhydrous ammonia shipments will mean farmers will be unable to get the fertilizer they need to ensure healthy crops. Finally, millions of commuters will be forced onto already congested highways and roads. Again, we did not make this decision lightly. We are in the process of notifying our customers of this decision, and within the next month, we will be letting them (and you) know of the exact date we will have to start embargoing TIH to clear the network by the end of the year.

Our decision to stop only the traffic that led to the requirement to install PTC will be revisited if the Federal Railroad Administration (FRA) imposes fines on freight trains without TIH, as they are authorized to do. Should the FRA take such a broad action, we will have to consider an embargo on virtually all rail freight that we handle on lines that are to be equipped with PTC despite its untold consequences for the U.S. economy.

Finally, you asked how this decision could impact safety. Extending the deadline would not diminish safety in the rail industry. We are a safe industry. In fact, last year was the safest year on record as was the year before that. PTC, when ready and fully implemented, will be another mechanism to continue that

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improvement, but it is not the only one we employ and are pursuing. Rail inspections, wheel testing, innovative technologies that predict when something will fail so that it can be repaired or replaced before failure, and employee engagement are just some of the other tools we use to ensure a safe and efficient rail system.

However, failure to extend the deadline will increase safety risks, not for the rail industry, but for the public at large. Rail is the safest way to transport hazardous chemicals. Overall 99.997% of all hazardous material shipments by rail reach their destination without release caused by train accident. However, if services cease, TIH traffic will be forced to move by trucks on our nation's highways. Union Pacific carries 27,000 carloads of TIH traffic a year. If this commodity were to still move in commerce, it would need to be carried by about 100,000 trucks. Moreover, people who currently use commuter trains would be forced onto the highways, creating an even more congested mixture in some of our country's most dense urban environments.

Chairman Thune, I thank you for your letter and your leadership on this issue. We are committed to install PTC as rapidly and safely as we can. I think our actions have shown that. However, we will not make the end of the year deadline. If Congress does not extend the deadline, we will embargo TIH and passenger traffic on our network. Please do not hesitate to contact me if you need additional information.

Sincerely,

A handwritten signature in dark ink, appearing to read "John M. Thune". The signature is stylized with a large, looping initial "J" and a prominent "M".

cc: The Honorable Deb Fischer