WRITTEN STATEMENT OF
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BEFORE THE
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
U.S. HOUSE OF REPRESENTATIVES

"OVERSIGHT OF THE AMTRAK ACCIDENT IN PHILADELPHIA"

June 2, 2015

Chairman Shuster, Ranking Member DeFazio, and Members of the Committee, thank you for the opportunity to appear before you today to discuss issues related to the tragic derailment of Amtrak Train 188 on May 12, 2015, in Philadelphia, Pennsylvania. We extend our deepest sympathies to the victims of this accident, and to their loved ones. And I can assure them that we will take every step we can to ensure an accident like this cannot happen again.

The Federal Railroad Administration (FRA) understands the need to take action quickly to address the cause or causes of this incident. While it will take time to complete the investigation, we did not and will not wait to take immediate actions that will improve the safety of Amtrak operations on the Northeast Corridor (NEC), as well as other passenger rail operations. On May 16, FRA outlined steps necessary for Amtrak to take before allowing its operations to resume north of Philadelphia, and we followed that with an Emergency Order on May 21. These were our initial actions and we are doing more.

The FRA team has been working closely with our partners at the National Transportation Safety Board (NTSB) to investigate the cause of the May 12th derailment. Today, I will provide the Committee information that we have confirmed. Then, I will focus on FRA's process to complete its investigation, and describe the actions we have taken in direct response to this tragedy. Next, I will address several broader safety issues highlighted by the derailment, including implementation of Positive Train Control (PTC) technology and key human factor issues.

As you know, the railroad industry has made remarkable safety improvements over the last decade. However, the devastating effects from an accident like the May 12th derailment make clear that we still have hard work ahead to make rail transportation as safe as possible, particularly when technology exists that can prevent some of the most tragic accidents. With that in mind, I want to assure you that FRA is firmly committed to taking additional actions that will mitigate and or eliminate the risks and hazards identified in the ongoing investigation.

Amtrak Train 188 Derailment in Philadelphia

On Tuesday, May 12, 2015, Amtrak Northeast Regional Train 188 (Train 188) departed Washington, D.C.'s Union Station at 7:15 p.m., traveling northbound on the Northeast Corridor (NEC) on the way to Penn Station in New York City. Train 188 made five stops before the accident, the last being at Philadelphia's 30th Street Station, where it arrived at 9:06 p.m. and departed at 9:10 p.m., from track No. 4. At approximately 9:21 p.m. and 9 miles from the 30th Street Station, the train derailed near milepost 81.63 while traveling through a curve at Frankford Junction.

According to Amtrak, at the time of the derailment there were five Amtrak crewmembers, three Amtrak commuting employees and 250 passengers aboard, occupying approximately 50 percent of the train's capacity. Train 188's consist was conventional for Amtrak Northeast Regional Service - consisting of an ACS-64 locomotive, six Amfleet1 passenger coaches and one café car. As a result of the accident, eight passengers were killed, many were seriously injured, and many more had lesser injuries. Some passengers remain in the hospital today.

I learned of the derailment within approximately 30 minutes of its occurrence and immediately dispatched investigative personnel to the scene. The initial FRA team included a Regional Administrator, a Deputy Regional Administrator and five rail safety inspectors from the following disciplines: signal and train control; track, motive power and equipment; and operating practices. A safety specialist from our Passenger Rail Division was also on-scene that night and my Chief Safety Officer joined them the next morning.

After dispatching the investigative team, I travelled to the scene that same evening and witnessed the heroic actions of the first responders as they rescued passengers and provided medical treatment. The Philadelphia Police and Fire Departments, other first responders, and the citizens who provided water and assistance were all instrumental in alleviating the immediate needs after this tragic accident. I commend them for their immediate and impressive response.

After the initial emergency response efforts, FRA began its investigation – working in close coordination with the NTSB and Amtrak - to collect, secure, and preserve critical forensic information, including the event recorder data, forward-facing locomotive camera video footage, phone and radio transmission recordings, records of mechanical and track inspection and maintenance, and records related to the train crew's work history, qualification, and rules compliance. Also, FRA subpoenaed the engineer's cell phone records, which we shared with the NTSB.

FRA personnel also assisted in conducting interviews with passengers to ascertain their location inside the cars and their use of emergency egress points, as well as with emergency responders to identify any problems with the initial rescue efforts.

Over the subsequent six days, FRA personnel continued their close work with the NTSB to conduct additional inspection, testing, and research. The investigation team collected, verified and analyzed data related to:
(1) the track condition;

(2) on-board mechanical equipment including, the locomotive throttle, alerter, braking system, event recorder; and
(3) locomotive cab and wayside signal operation.

FRA also interviewed Amtrak, Conrail and Southeastern Pennsylvania Transportation Authority employees. Three personnel from U.S. DOT's Volpe National Transportation Systems Center traveled to the accident site to support FRA and NTSB in collecting information about the crashworthiness performance of the passenger cars.

As has been widely covered by the media, FRA's and NTSB's investigation revealed that as Train 188 approached the curve from the south, it was traveling over a straightaway with a maximum authorized passenger train speed of 80 mph. The maximum authorized passenger train speed for the curve was 50 mph. The event recorder data indicate that the train was traveling approximately 106 mph when it was in the curve's 50-mph speed restriction, exceeding the maximum authorized speed on the straightaway by 26 mph, and the maximum authorized speed of the curve by 56 mph.[1]

The event recorder data also indicate the locomotive engineer made an emergency application of Train 188's air brake system, slowing the train to approximately 102 mph before derailing in the curve.

FRA's Investigation

FRA's primary goal in its investigation is to prevent this type of accident from ever occurring again by determining whether the railroad or its employees violated any statutes, regulations or orders, and whether any immediate enforcement or corrective action is necessary to remedy the circumstances related to the accident. The FRA Investigator in Charge (IIC) is working closely with our mechanical, operating practice, signal, and track disciplines to determine if any federal regulations were violated and to ensure that all of Amtrak's safety and operating rules were followed. This includes compliance with hours of service laws and regulations, electronic devices prohibitions, track and signal inspections, and numerous other requirements.

Immediate Response and Initial Steps

In response to the derailment, FRA instructed Amtrak to take immediate actions to ensure the safe operation of passenger trains on the Northeast Corridor (NEC). FRA has formalized these requirements in its May 21st Emergency Order No. 31 (EO 31). The Order contains the following requirements[2]:

[1] FRA regulations provide, in part, that it is unlawful to "[o]perate a train or locomotive at a speed which exceeds the maximum authorized limit by at least 10 miles per hour." 49 CFR 240.305(a)(2).
[2] EO 31's requirements will not apply where Amtrak's Positive Train Control System (Advanced Civil Speed Enforcement System II (ACSES II)) is already in use on the NEC. Among other features, ACSES II enforces civil speed restrictions that are in place at locations such as curves and bridges.

- Amtrak must immediately implement code changes to its Automatic Train Control (ATC) System to enforce the passenger train speed limit ahead of the curve at Frankford Junction. This was completed on May 17th.

- By May 26th, Amtrak must survey the NEC ATC system and identify each main track curve where there is a reduction of more than 20 mph from the maximum authorized approach speed to that curve for passenger trains, and provide a list of each curve location to FRA. This list was submitted to FRA on May 26th.

- By June 10th, Amtrak must submit an action plan for FRA-approval identifying modifications to its ATC System (or other signal systems) that Amtrak will make to enable warning and enforcement of applicable passenger train speeds at the identified curves. If such modifications would interfere with the timely implementation of a PTC system or are not otherwise feasible, Amtrak's plan must describe alternative procedures that it will adopt at the identified curves to ensure compliance with applicable passenger train speed limits. Amtrak's plan must also contain milestones and target dates for completion of action plan items. FRA must approve or disapprove Amtrak's plan within 15 days of the plan's submission to FRA.

- By June 20th, Amtrak must begin to install additional wayside signage throughout its NEC system alerting engineers and conductors of the maximum authorized passenger train speed, with particular emphasis on additional signage at the curve locations where significant speed reductions occur. (Amtrak must identify the locations where it intends to install the additional wayside speed limit signs in its action plan, and must notify FRA when installation of the signs is completed.)

FRA instructed Amtrak that prior to restarting service, the railroad would have to complete the code change at Frankford Junction. Following my direction, Amtrak modified its signal system near the curve before resuming passenger train service through Philadelphia on May 18, 2015.

Amtrak has also provided FRA a list of all curves on the NEC and the applicable speed differentials for those curves, and stated to FRA that they have already begun work to make ATC System modifications at certain higher risk curves that they have identified.

POSITIVE TRAIN CONTROL (PTC)

Positive Train Control technology is the single most important railroad safety technological development in more than a century. The Rail Safety Improvement Act of 2008 (RSIA) mandated that the technology be implemented on certain railroads and routes by December 31, 2015. FRA feels strongly that the deadline of December 31, 2015, is an important mandate for the implementation of PTC and our agency intends to enforce it.

Prior to the May 12th derailment, and since the incident, the FRA has worked diligently to assist railroads with PTC implementation planning and execution. We will continue to do so until every Class 1, intercity passenger, and commuter railroad has implemented PTC successfully. I have established a PTC Implementation Team that is aggressively managing

this critical, Congressionally-mandated safety technology that will reduce the risk of human factor caused accidents and save lives.

For more than three years, FRA has been sounding the alarm that most railroads have not made sufficient progress to meet the December 2015 deadline. We have noted that the certification and installation of PTC systems are significant undertakings. FRA even highlighted its concerns about PTC implementation in its August 2012 PTC report to Congress, as well as in the GROW AMERICA Act[3].

FRA has long stated that a lack of public sector funding may cause unwanted delays in fully implementing PTC. FRA has requested funding for PTC development and implementation grants in every budget request dating back to Fiscal Year (FY) 2011. For the past two years, as part of the GROW AMERICA Act, FRA has requested $825 million to assist commuter railroads with the implementation of PTC, as well as additional funding to aid with the implementation of PTC on Amtrak's national network.

FRA will send a follow up report to the Congress in June, as called for by the House Committee on Appropriations.

Despite a lack of funding directed to commuter railroads, FRA is using the resources it has available now to assist railroads in implementing PTC. For example, FRA issued a $967.1 million loan through the Railroad Rehabilitation and Improvement Financing (RRIF) program to the New York Metropolitan Transportation Authority, the nation's largest commuter railroad provider, to facilitate the deployment of the technology.

In recent months, stakeholders and the Congress have asked FRA for guidance on how to approach concerns about railroads not meeting the mandated deadline. To address those concerns, the GROW AMERICA Act the Department submitted to Congress in April 2014 and March 2015 proposed that FRA be granted authority to review, approve, and certify PTC Safety Plans on an individual basis. FRA asked for this authority in order to ensure railroads were raising the bar on safety and have appropriate back stops in place even as they continue to work towards full implementation.

Positive Train Control Technology Description

Positive Train Control refers to an integrated set of advanced technologies, that when fully and properly configured, can prevent certain accidents caused by human factors including (1) train-to-train collisions; (2) over-speed derailments; (3) incursions into established work zones; and (4) the movement of a train through a switch left in the wrong position.

PTC systems use digital radio communications, Global Positioning System (GPS), and fixed wayside signal systems to send and receive a continuous stream of data about the location,

[3]The Secretary of Transportation submitted the GROW AMERICA Act to Congress on March 30, 2015. "GROW AMERICA" stands for "Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America."

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

All PTC systems consist of four basic subsystems: Office; Wayside; Onboard; and Communications. Two basic PTC systems are being adopted by the majority of railroads in North America reflecting two different technical approaches to achieving the required functional capabilities. PTC systems can be "Vital" or "Non-Vital," and may be "Overlay" or "Standalone" but whichever technology or configuration is used, the system must provide an equivalent or higher level of operating safety than that which it replaces.

PTC systems must also provide for interoperability in a manner that allows for equipped locomotives traversing another railroad's PTC-equipped territories to communicate with and respond to that other railroad's PTC system, including uninterrupted movements over property boundaries. With limited exceptions and exclusions, PTC is required to be installed and 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. By statute, the technology is also mandated on any railroad's main line over which regularly scheduled passenger intercity or commuter operations are conducted. It is currently estimated this will equate to approximately 70,000 route miles of track and will involve approximately 20,000 locomotives.

HUMAN FACTOR ISSUES

Simply put, human factors include all the individual and group behaviors and activities that affect railroad system performance. While railroad safety overall has improved, human factors continue to be the leading cause of train accidents, accounting for 38 percent of all train accidents in FY 2014.

Our human factors efforts have focused on: (1) promoting the adoption and enforcement of clear and unambiguous operating rules by railroads; (2) the development and use of effective and consistent training and efficiency testing; (3) fostering strong safety cultures based upon individual and organizational accountability; (4) strengthening fitness for duty requirements; and (5) advancing technological innovations that enhance on the job performance.

During the last several years, FRA has completed several rulemakings, reports, guidance documents, and other actions to address a wide range of human factor issues. All of these are important milestones that guide our ongoing efforts to improve safety in this area:

Rulemakings:

> **Conductor Certification:** Final rule requires a railroad to have a formal program for certifying train conductors and ensure that only those persons who meet minimum Federal safety standards serve as conductors. *See 76 Fed. Reg. 69802 (Nov. 9, 2011); 77 Fed. Reg. 6482 (Feb. 8, 2012). Effective Feb. 8, 2012. 49 C.F.R Part 242.*

Training, Qualification, and Oversight for Safety-Related Railroad Employees: Final rule establishes minimum training standards for each class or craft of safety-related railroad employees. The rule requires the qualification and documentation of the proficiency of such employees on their knowledge of and ability to comply with Federal railroad safety laws and regulations and the employing railroad company's rules and procedures implementing those laws and regulations. *See 79 Fed. Reg. 66459 (Nov. 7, 2014). Effective Jan. 6, 2015. 49 C.F.R Part 243.*

Critical Incident Stress Plans: Final rule mandates that certain railroads (each Class I railroad, intercity passenger railroad, and commuter railroad) have a plan that may help mitigate the long-term negative effects of critical incidents upon railroad employees and the impact of performing safety-sensitive duties in the days following such incidents, when the associated stress may hinder their ability to perform such duties safely. *See 79 Fed. Reg. 16218 (Mar. 25, 2014). Effective June 23, 2014. 49 C.F.R Part 272.*

Hours of Service of Railroad Employees; Substantive Regulations for Train Employees Providing Commuter and Intercity Rail Passenger Transportation; Conforming Amendments to Recordkeeping Requirements: Final Rule draws on detailed research into the causes of train operator fatigue and analysis of thousands of operator work patterns. FRA also published in the *Federal Register* three detailed statements of agency policy and interpretation to clarify the hours of service laws as amended by the Rail Safety Improvement Act of 2008. *See Final Rule 76 FR 50360 (Aug. 12, 2011). Effective Oct. 15, 2011. 49 C.F.R Part 228. Interpretations issued: 74 Fed. Reg. 30665 (June 26, 2009); 77 Fed. Reg. 12408 (Feb. 29, 2012); 78 Fed. Reg. 58830 (Sept. 24, 2013).*

Restrictions on Railroad Operating Employees' Use of Cellular Telephones and Other Electronic Devices: Final rule prohibits distracted operation of trains supplemented by an FRA-led industry-wide initiative to combat the dangers of electronic device distraction in the railroad workplace. *See 75 Fed. Reg. 59580 (Sept. 27, 2010). Effective Mar. 28, 2011. 49 C.F.R Part 220.*

Railroad Workplace Safety; Adjacent-Track On-Track Safety for Roadway Workers: Final rule requires adjacent-track protection for certain roadway work groups. *See 79 Fed. Reg. 1743 (Jan. 10, 2014). Effective July 1, 2014. 49 C.F.R Part 214.*

The following are additional regulatory actions that are under development:

Control of Alcohol and Drug Use: Coverage of Maintenance of Way Employees, Retrospective Regulatory Review-Based Amendments: Proposed Rule to extend FRA's alcohol and drug regulations to maintenance of way employees, contractors, and subcontractors. Also, makes other substantive amendments that either respond to National Transportation Safety Board (NTSB) recommendations or update and clarify the alcohol and drug regulations based on a retrospective analysis. *See 79 Fed. Reg. 43830 (July 28, 2014). 49 C.F.R Part 219.*

Railroad System Safety Programs: FRA published a notice of proposed rulemaking (NPRM) in 2012 that proposed to require commuter and intercity passenger railroads to develop and implement a system safety program (SSP) to improve the safety of their operations. As proposed in the NPRM, an SSP would be a structured program with proactive processes and procedures developed and implemented by commuter and intercity passenger railroads to identify and mitigate or eliminate hazards and the resulting risks on each railroad's system. A draft final rule is in review in the Department.

Train Crew Staffing: Potential Actions that will seek to address any safety risks posed to railroad employees, the general public, and the environment by one-person train crews.

Inward- and Outward-Facing Recording Devices Mounted in Controlling Locomotive Cabs: FRA is preparing a proposed rulemaking addressing the installation and use of recording devices in locomotive cabs.

Fatigue Management Programs: FRA is considering taking actions to mitigate the risks associated with fatigue-related safety hazards.

In addition to the completed and ongoing regulatory activities cited above, FRA is aggressively advancing proactive safety-based programs that analyze risks, identify hazards, and put in place customized plans to eliminate those risks. These include the Confidential Close Call Reporting System (C^3RS) and Clear Signal for Action.

Confidential Close Call Reporting System (C^3RS)

C^3RS is an FRA-funded voluntary program that improves safety by using proven practices like hazard identification, risk mitigation, and continuous safety improvements. It embodies positive safety culture elements. It is based on learning about potentially unsafe conditions, or close call events, that pose the risk of more serious consequences. There are eight railroads participating in C^3RS (1 – intercity passenger, 5 – commuter, 1 – short line, and 1-Class I). The program relies upon third party collection and analysis of anonymized reports of near misses or close calls that could have resulted in an accident or incident but did not. Several railroads are expanding their participation in C^3RS to other crafts. In addition to FRA, stakeholders include labor organizations, railroads, and the National Aeronautical and Space Administration. C^3RS provides a foundation upon which participants can learn what happened in close call incidents industrywide and use the information to prevent similar or more serious incidents from recurring.

Clear Signal for Action (CSA)

CSA is a behavior-based safety process built on the behavioral research of Dr. Thomas Krause. CSA is an information gathering methodology that uses applied behavioral analysis to achieve continuous improvement in safety performance. CSA uses confidential data gathered by peer observers to measure safety performance. Peer observers gather data to identify and define critical safety-related behaviors and the frequency of these behaviors, and provide peer-to-peer feedback, as well as input into the overall safety improvement process.

Overall, CSA is a process that targets at-risk behaviors by first identifying and defining those behaviors, and then provides a structure to support the desired change in behavior.

CONCLUSION

Thank you for the opportunity to testify and answer your questions today. Safety is FRA's first priority, and we appreciate your attention and focus on issues related to the tragic Amtrak passenger train accident in Philadelphia.

We look forward to working with this Committee to improve our programs and make the American rail network as safe, reliable, and efficient as feasible. I will be happy to respond to your questions.

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