

**Federal Railroad Administration
Report to
Senate Committee on Commerce, Science, and
Transportation
House Committee on Transportation and
Infrastructure**



**Industry Response to Safety Advisories
FRA-2013-08 and FRA-2015-03**

May 2016

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1. Introduction

On December 4, 2015, President Obama signed into law the Fixing America's Surface Transportation Act (FAST Act) (Pub. L. 114-94). The FAST Act in section 11406(e), "Speed Limit Action Plans," requires the Secretary of the Department of Transportation (Secretary) to submit a report to Congress on actions intercity passenger and commuter railroads have taken in response to two safety advisories the Federal Railroad Administration (FRA) issued in 2013 and 2015, respectively. Specifically, the FAST Act requires the following:

“(e) REPORT.—Not later than 6 months after the date of enactment of this Act, the Secretary shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report that describes—

- (1) the actions railroad carriers have taken in response to Safety Advisory 2013-08, entitled “Operational Tests and Inspections for Compliance with Maximum Authorized Train Speeds and Other Speed Restrictions”;
- (2) the actions railroad carriers have taken in response to Safety Advisory 2015-03, entitled “Operational and Signal Modifications for Compliance with Maximum Authorized Passenger Train Speeds and Other Speed Restrictions”; and
- (3) the actions the [FRA] has taken to evaluate or incorporate the information and findings arising from the safety advisories referred to in paragraphs (1) and (2) into development of regulatory and oversight activities.”

FRA respectfully submits this Report to satisfy the requirements of Section 11406(e) of the FAST Act.

2. Background

Fatal derailments of two passenger trains led FRA to develop and issue two safety advisories, one in 2013 and one in 2015. The two derailments occurred within 18 months of each other and involved passenger trains over-speeding through curved track alignments. The first derailment occurred on December 1, 2013, at Spuyten Duyvil, Bronx, New York, involving Metro-North Commuter Railroad Company (MNCR) passenger Train No. 8808. The second occurred on May 12, 2015, near Philadelphia, Pennsylvania, involving National Railroad Passenger Corporation (Amtrak) passenger Train No. 188.

A. MNCR Train No. 8808

On the morning of December 1, 2013, MNCR Hudson Line passenger Train No. 8808 (Train 8808) was travelling south from Poughkeepsie, New York, to Grand Central Terminal in New York City when, at approximately 7:20 a.m., the train derailed as it approached the Spuyten Duyvil Station. The train consisted of seven passenger coach cars, including a control cab locomotive¹ in the lead position, and a conventional locomotive at the rear of the train, operating in a push-pull configuration. Each of the seven cars derailed along with the trailing locomotive. The derailment resulted in four fatalities and more than 60 reported injuries.

As Train 8808 approached the Spuyten Duyvil Station from the north, it traveled over a straightaway with a maximum authorized passenger train speed of 70 miles per hour (mph) before reaching a sharp curve in the track where, by the railroad's own rules, the maximum authorized speed was reduced to 30 mph. The National Transportation Safety Board's (NTSB) review of the information on the locomotive event recorders indicated the train was traveling approximately 82 mph as it entered the curve's 30-mph speed restriction. This means Train 8808 was exceeding the maximum authorized speed on the straightaway by 12 mph and traveling nearly three times the railroad's maximum authorized speed as it entered the curve. Information obtained from the train's event recorders also indicated that approximately six seconds before the locomotive came to a stop, the engineer placed the locomotive throttle in idle and applied the train's brake system.

B. FRA Response to MNCR Train No. 8808 Derailment

Immediately following the fatal derailment, FRA initiated several actions designed to improve safety on MNCR as well as other commuter and intercity passenger train operations across the nation. On December 6, 2013, FRA issued Emergency Order² 29 (EO 29), "Establishing Requirements for Controlling Passenger Train Speeds and Staffing Locomotive Cabs at Certain Locations on the Metro-North Commuter Railroad Company."³ MNCR

¹ A control cab locomotive is both a passenger car, because it has seats for passengers, and a locomotive, because it has a control cab from which the engineer can operate the train.

² FRA is authorized to issue emergency orders where an unsafe condition or practice "causes an emergency situation involving a hazard of death, personal injury, or significant harm to the environment." 49 U.S.C. 20104. These orders may immediately impose "restrictions and prohibitions . . . that may be necessary to abate the situation." *Id.*

³ The EO was published in the Federal Register on Dec. 11, 2013. *See* 78 Fed. Reg. 75442.

complied with all of the mandated actions contained in EO 29 in a timely manner to protect against over-speed derailments.

In addition to EO 29, on December 10, 2013, FRA issued Safety Advisory 2013-08 (SA-2013-08), “Operational Tests and Inspections for Compliance with Maximum Authorized Train Speeds and Other Speed Restrictions.”⁴ The SA-2013-08 contains a number of recommendations to all commuter and intercity passenger railroads and to railroads that host such passenger operations. An overview of this safety advisory is provided below. In early 2014, FRA also launched “Operation Deep Dive,” an in-depth assessment of MNCR’s operations and safety compliance. As part of this effort, more than 60 technical and human factor experts from FRA, comprising 14 teams, conducted a 60-day comprehensive safety assessment. These experts reviewed and assessed MNCR’s safety-related processes and procedures, its compliance with safety regulations and requirements, and its overall safety culture. Specifically, the Deep Dive team evaluated:

- Track, signal, and rolling stock maintenance, inspection, and repair practices;
- Protections for employees working on rail infrastructure, locomotives, and rail cars;
- Communication between the mechanical and transportation departments at maintenance facilities;
- Operations control center procedures and rail traffic controller training;
- Compliance with Federal hours-of-service requirements, including MNCR’s fatigue analysis and mitigation of its train employees’ work schedules;
- Operational data collected to measure the efficiency of employees’ comprehension and execution of all applicable Federal regulations;
- Locomotive engineer oversight;
- Engineer and conductor certifications; and
- Operating crew medical requirements.

C. Overview of FRA Safety Advisory 2013-08

The SA-2013-08 contains a series of recommendations for all railroads, especially commuter and intercity passenger railroads and railroads that host such operations, to ensure compliance with Federal regulations and applicable railroad operating rules concerning maximum authorized train speed limits and any relevant speed restrictions. Specifically, FRA recommended that railroads do each of the following:

- (1) Review the circumstances of the December 1, 2013, MNCR Spuyten Duyvil derailment with each of their operating employees;
- (2) Provide instruction to their employees during training classes and safety briefings on the importance of compliance with maximum authorized train speed limits and other speed restrictions. This training should include a discussion of the railroad’s absolute speed limits, speed restrictions based on physical characteristics, temporary speed restrictions, and any other restrictions commonly encountered;

⁴ The SA-2013-08 was published in the Federal Register on Dec. 16, 2013. See 78 Fed. Reg. 76191.

- (3) Remind their employees that Federal railroad safety regulations, at Title 49 Code of Federal Regulations (CFR) 240.305(a)(2) and 242.403(e)(2), prohibit the operation of a locomotive or train at a speed which exceeds the maximum authorized speed by at least 10 mph;
- (4) Evaluate quarterly and 6-month reviews of operational testing data as required by 49 CFR 217.9. A railroad should consider increasing the frequency of operational testing where its reviews show any non-compliance with maximum authorized train speeds. A significant number of operational tests should be conducted on trains that are required to reduce speed by more than 20 mph from the maximum authorized train speed. Operational tests should use the reliable methods available, such as reviewing locomotive event recorder data and testing by radar to verify compliance with maximum authorized speeds; and
- (5) Reinforce the importance of communication between train crewmembers located in the controlling locomotive, particularly during safety critical periods when multiple tasks are occurring (e.g., copying mandatory directives, closely approaching or passing fixed signals and/or cab signals at a reduced speed, approaching locations where the train's movement authority is being restricted, during radio conversations with other employees or job briefings about track characteristics) and during extended periods of inactivity.

D. Amtrak Passenger Train 188

On Tuesday, May 12, 2015, Amtrak passenger Train No. 188 (Train 188) was traveling timetable east (northbound) from Washington, D.C., to New York City along the Northeast Corridor (NEC). Aboard the train were five Amtrak crew members, three other Amtrak employees, and 250 passengers. Train 188 consisted of a locomotive in the lead and seven passenger cars trailing. Shortly after 9:20 p.m., the train derailed while traveling through a curve at Frankford Junction in Philadelphia, Pennsylvania. As a result of the accident, eight persons were killed and over 200 persons were seriously injured.

The NTSB has taken the lead role conducting the investigation of this accident. As is customary, FRA is participating in the investigation and is also investigating the accident under its own authority. On May 17, 2016, NTSB issued its final report finding the probable cause of the accident was the engineer's acceleration to 106 miles per hour (mph) as he entered a curve with a 50 mph speed restriction, due to his loss of situational awareness likely because his attention was diverted to an emergency situation with another train. Thus, the train was exceeding the maximum authorized speed on the straightaway by 26 mph, and 56 mph over the railroad's maximum authorized speed for the curve.

E. FRA Response to Amtrak Passenger Train 188 Derailment

In response to the derailment, on May 21, 2015, FRA issued Emergency Order No. 31 (EO 31), "Establishing Requirements for the National Railroad Passenger Corporation to Control Passenger Train Speeds at Certain Locations Along the Northeast Corridor."⁵ EO 31 required

⁵ EO31 was published in the Federal Register on May 28, 2015. See 80 Fed. Reg. 30534.

Amtrak to take various actions to ensure the safe operation of passenger trains on the Northeast Corridor where a Positive Train Control (PTC) system is not in place, including ordering that Amtrak:

- (1) Immediately implement code changes to Amtrak's Automatic Train Control (ATC) System to enforce the passenger train speed limit ahead of the curve at Frankford Junction in Philadelphia, Pennsylvania, where the fatal derailment occurred;
- (2) Survey its Northeast Corridor 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 within 5 days after EO 31 was issued;
- (3) Submit an action plan for FRA approval within 20 days 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 contain milestones and target dates for completion of action plan items; and
- (4) Within 30 days of issuance of EO 31, begin to install additional wayside signage alerting engineers and conductors of the maximum authorized passenger train speed throughout its Northeast Corridor system, 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.

Amtrak timely implemented the requirements of EO 31. However, given that the Amtrak and MNCR derailments occurred within 18 months of each other, FRA determined that additional recommendations to the industry were necessary to reduce the potential for overspeed accidents. Thus, on June 9, 2015, FRA issued Safety Advisory 2015-03 (SA-2015-03).⁶

F. Overview of FRA Safety Advisory 2015-03

FRA issued SA-2015-03 before Congress extended the PTC implementation deadline and contains an extensive discussion of the capability of intercity passenger and commuter railroads to meet the then-existing PTC deadline of December 31, 2015. The SA-2015-03 also references the modification of existing signal and train control systems to reduce over-speed incidents.⁷

⁶ The Safety Advisory was published in the Federal Register on June 12, 2015. See 80 Fed. Reg. 33585.

⁷ As stated in the SA:

Some railroads have ATC or cab signal systems that may be modified to prevent overspeed events at critical locations such as curves, bridges, and stations, similar to what FRA required of Amtrak at the May 12, 2015 derailment location in EO 31. Where such signal system modifications are appropriate and would not interfere with the timely implementation of PTC, FRA recommends that railroads make such modifications after identifying critical main track locations. Where such

SA-2015-03 contains a number of recommendations to commuter and intercity passenger railroads, and railroads that host such service, including that they:

- (1) Review and implement the recommendations made in FRA SA-2013-08, which is discussed above;
- (2) Review the circumstances of the fatal May 12, 2015, Philadelphia derailment with their operating employees;
- (3) Survey their entire systems, or the portions on which passenger service is operated, and identify main track locations where there is a reduction of more than 20 mph from the approach speed to a curve or bridge and the maximum authorized operating speed for passenger trains at that curve or bridge (identified locations);
- (4) If the railroad utilizes an ATC, cab signal, or other signal system capable of providing warning and enforcement of applicable passenger train speed limits, make modifications to those systems where appropriate to ensure compliance with applicable speed limits at the identified locations. If the railroad is required to implement PTC at the identified locations, implement these recommended signal system changes in the interim;
- (5) If the railroad does not utilize an ATC, cab signal, or other signal system capable of providing warning and enforcement of applicable passenger train speed limits (or if a signal system modification would interfere with the implementation of PTC or is otherwise not viable), make all passenger train movements at the identified locations with a second qualified crew member in the cab of the controlling locomotive, or with constant communication between the locomotive engineer and an additional qualified and designated crewmember in the body of the train. If the railroad is required to implement PTC at the identified locations, implement these recommended changes in the interim; and
- (6) Install additional wayside signage alerting engineers and conductors of the maximum authorized passenger train speed throughout the passenger railroad's system or the portions of its system in which passenger service is operated, with particular emphasis on additional signage at the identified locations.

modifications to the signal system to slow trains at critical locations are not viable or would interfere with PTC implementation (or on railroads where no cab signal or ATC system is installed or operative), FRA encourages railroads to take other operational actions to prevent overspeed events, such as requiring additional qualified employees to occupy the controlling locomotive of a train to identify and communicate the applicable passenger train speed limits and restrictions, or by requiring additional crew communications regarding applicable passenger train speed limits and restrictions.

See 80 Fed. Reg. 33585, 33587.

3. Railroads Affected by FRA Safety Advisories 2013-08 and 2015-03

List of Railroads with respective Reporting Codes considered by FRA include:

<i>Common Name or Acronym</i>	<i>Official Name</i>	<i>FRA Railroad Reporting Code</i>	<i>Owner name</i>	<i>Operator Name</i>	<i>ATC or ATS</i>
ACE	Altamont Commuter Express Authority	ACEX	San Joaquin Regional Rail Commission	Herzog Transit Services, Inc.	No
DCTA	Denton County Transportation Authority	DCTA	Denton County Transportation Authority	Herzog Transit Services, Inc.	No
CALTRAIN	Caltrain Commuter Railroad Company	PCMZ	Peninsula Corridor Joint Powers Board	Transit America Services, Inc.	No
CMTA	Capital Metropolitan Transportation Authority	CMTY	Capital Metropolitan Transportation Authority	Herzog Transit Services, Inc.	No
COASTER	North County Transit District	NCDX	North County Transit District	Transit America Services Inc.	Yes
SHORE LINE EAST	Connecticut Department Of Transportation	CDOT	Connecticut Department Of Transportation	Amtrak	Yes
LIRR	Long Island Rail Road	LI	Metropolitan Transportation Authority	Long Island Rail Road	Yes
MARC	MARC Train Service	MACZ	Maryland Transit Administration	Bombardier Transportation Services	Yes
MBTA	Massachusetts Bay Transit Authority	MBTA	Massachusetts Bay Transit Authority	Keolis Commuter Services	Yes
MNRR	Metro-North Commuter Railroad Company	MNCW	Metropolitan Transportation Authority	Metro-North Commuter Railroad Company	Yes
NASHVILLE MUSIC CITY STAR	Regional Transportation Authority-Nashville	MCSX	Tennessee DOT/ Regional Transportation Authority-Nashville	Transit Solutions Group	No
NJ TRANSIT	New Jersey Transit Rail Operations	NJTR	New Jersey Transit	New Jersey Transit Rail Operations	Yes
RAILRUNNER	NEW MEXICO RAIL RUNNER EXPRESS	NMRX	New Mexico DOT/Rio Metro Regional Transit District	Herzog Transit Services, Inc.	Yes
METRA	Northeast IL Regional Commuter Rail Corp.	NIRC	Northeast IL Regional Commuter Rail Corp.	Metra, BNSF Railway Co., Union Pacific RR	Yes
NICTD	Northern Indiana Commuter Transportation District	NICD	Northern Indiana Commuter Transportation District	Northern Indiana Commuter Transportation District	No
NORTHSTAR	Northstar Corridor Rail	NSCR	Northstar Corridor Development Authority	BNSF	No

<i>Common Name or Acronym</i>	<i>Official Name</i>	<i>FRA Railroad Reporting Code</i>	<i>Owner name</i>	<i>Operator Name</i>	<i>ATC or ATS</i>
PATH	Port Authority Trans-Hudson	PATH	Port Authority Trans-Hudson	Port Authority Trans-Hudson	Yes
SOUNDER	Souther Commuter Rail	SCR	Sound Transit	BNSF	No
SEPTA	Southeastern Pennsylvania Transportation Authority	SEPA	Southeastern Pennsylvania Transportation Authority	Southeastern Pennsylvania Transportation Authority	Yes
Sunrail/Central Florida Rail Corridor	Central Florida Rail Corridor	CFRC	Florida Department Transportation	Bombardier Transportation Services	No
WESTSIDE EXPRESS	Tri-Met Westside Express Service	TMEV	Tri-Met Westside Express Service	Portland & Western	Yes
TRE	Trinity Railway Express	TRE	Fort Worth Transportation Authority	Herzog Transit Services, Inc.	No
SOUTH FLORIDA TRI-RAIL	South Florida Regional Transit Authority	SFRV	South Florida Regional Transit Authority	Transdev	No
UTA FRONT RUNNER	UTA Frontrunner Commuter Rail	UFRC	Utah Transportation Authority	Utah Transportation Authority	Yes
VRE	Virginia Railway Express	VREX	Northern Virginia Transportation Commission, Potomac and Rappahannock Transportation Commission	Keolis Commuter Services	Yes
Alaska Railroad	Alaska Railroad Corp.	ARR	State of Alaska	Alaska Railroad	No
SARATOGA CREEK	Saratoga & North Creek Railway	SNC	Iowa Pacific Holdings	Iowa Pacific Holdings	No
METROLINK	Southern California Regional Rail Authority	SCAX	Southern California Regional Rail Authority	Amtrak	Yes
Amtrak (NEC)	National Railroad Passenger Corp.	AMTK	National Railroad Passenger Corp.	Amtrak	Yes
Amtrak (national)	National Railroad Passenger Corp.	AMTK	National Railroad Passenger Corp.	Amtrak	Yes Some Areas

4. Railroad Actions in Response to FRA Safety Advisory 2013-08

The information below is based on observations FRA's regional inspection personnel made and information railroads provided.

Passenger Railroad	Recommendation #1 <i>Review the circumstances of the December 1, 2013, Spuyten Duyvil derailment with each of their operating employees.</i>	Recommendation #2 <i>Provide instruction to their employees during training classes and safety briefings on the importance of compliance with maximum authorized train speed limits and other speed restrictions.</i>	Recommendation #3 <i>Remind their employees that Federal railroad safety regulation prohibits the operation of a locomotive or train at a speed which exceeds the maximum authorized speed by at least 10 mph.</i>	Recommendation #4 <i>Evaluate quarterly and 6-month reviews of operational testing data and consider increasing the frequency of operational testing where its reviews show any non-compliance with maximum authorized train speeds.</i>	Recommendation #5 <i>Reinforce the importance of communication between train crewmembers located in the controlling locomotive, particularly during safety critical periods when multiple tasks are occurring and during extended periods of inactivity.</i>
ACE	✓	✓	✓	✓	✓
DCTA	✓	✓	✓	✓	✓
Caltrain	✓	✓	✓	✓	✓
CMTA	✓	✓	✓	✓	✓
Coaster	✓	✓	✓	✓	✓
Shore Line East	✓	✓	✓	✓	✓
LIRR	✓	✓	✓	✓	✓
MARC	✓	✓	✓	✓	✓
MBTA	✓	✓	✓	✓	✓
MNCR	✓	✓	✓	✓	✓
Music City Star	✓	✓	✓	✓	✓
NJ Transit	✓	✓	✓	✓	✓
NM Rail Runner	✓	✓	✓	✓	✓
Metra	✓	✓	✓	✓	✓
NICTD	✓	✓	✓	✓	✓
North star	✓	✓	✓	✓	✓
PATH	✓	✓	✓	✓	✓
Sounder	✓	✓	✓	✓	✓
SEPTA	✓	✓	✓	✓	✓
Sunrail	✓	✓	✓	✓	✓
TriMet	✓	✓	✓	✓	✓
TRE	✓	✓	✓	✓	✓
Tri-rail	✓	✓	✓	✓	✓
UTA Frontrunner	✓	✓	✓	✓	✓
VRE	✓	✓	✓	✓	✓
Alaska RR	✓	✓	✓	✓	✓
SNCR	-	-	-	-	-
METROLINK	✓	✓	✓	✓	✓
Amtrak (NEC)	✓	✓	✓	✓	✓
Amtrak (National)	✓	✓	✓	✓	✓

SNCR - no passengers operations underway as of May 1, 2016

X = limited or no action taken under recommendation

✓ = actions taken consistent with recommendation

5. Railroad Actions Taken in Response to Safety Advisory 2015-03

The information below is based on observations FRA's regional inspection personnel made and information railroads provided.

<i>Passenger Railroad</i>	Rec. #1 <i>Review and implement the recommendations made in FRA Safety Advisory 2013-08.</i>	Rec. #2 <i>Review the circumstances of the fatal May 12, 2015, Philadelphia derailment with their operating employees.</i>	Rec. #3 <i>Survey their entire systems, or the portions on which passenger service is operated, and identify main track locations where there is a reduction of more than 20 mph from the approach speed to a curve or bridge and the maximum authorized operating speed for passenger trains at that curve or bridge</i>	Recommendation #4 <i>If the railroad utilizes an ATC, cab signal, or other signal system capable of providing warning and enforcement of applicable passenger train speed limits, make modifications to those systems where appropriate to ensure compliance with applicable speed limits at the identified locations. If the railroad is required to implement PTC at the identified locations, implement these recommended signal system changes in the interim.</i>	Recommendation #5 <i>If the railroad does not utilize an ATC, cab signal, or other signal system capable of providing warning and enforcement of applicable passenger train speed limits (or if a signal system modification would interfere with the implementation of PTC or is otherwise not viable) all passenger train movements at the identified locations must be made with a second qualified crew member in the cab of the controlling locomotive, or with constant communication between the locomotive engineer and an additional qualified and designated crewmember in the body of the train. If the railroad is required to implement PTC at the identified locations, implement these recommended changes in the interim.</i>	Rec. #6 <i>Install additional wayside signage alerting engineers and conductors of the maximum authorized passenger train speed throughout the passenger railroad's system or the portions of its system in which passenger service is operated, with particular emphasis on additional signage at the identified locations.</i>
ACE	✓	✓	✓	NA	✓	X
DCTA	✓	✓	✓	NA	✓	X
Caltrain	✓	✓	✓	NA	✓	X
CMTA	✓	✓	✓	NA	Call out to dispatch*	✓
Coaster	✓	✓	✓	NA	✓	✓
Shore Line East	✓	✓	✓	✓	NA	✓
LIRR	✓	✓	✓	✓	NA	✓
MARC	✓	✓	✓	✓	✓	✓
MBTA	✓	✓	✓	X	✓	✓
MNCR	✓	✓	✓	✓	✓	✓
Music City Star	✓	✓	✓	NA	✓	X
NJ Transit	✓	✓	✓	✓	NA	✓
NM Railrunner	✓	✓	✓	NA	✓	✓
Metra	✓	✓	✓	NA	✓	✓
NICTD	✓	✓	✓	NA	✓	✓
North star	✓	✓	✓	NA	✓	✓
PATH	✓	✓	✓	✓	NA	✓
Sounder	✓	✓	✓	NA	✓	✓
SEPTA	✓	✓	✓	✓	NA	✓
SunRail	✓	✓	✓	NA	✓	X
TriMet	✓	✓	✓	✓	NA	✓
TRE	✓	✓	✓	NA	✓	X
Tri-Rail	✓	✓	✓	NA	✓	X
UTA FrontRunner	✓	✓	✓	✓	✓	✓
VRE	✓	✓	✓	✓	✓	✓
Alaska RR	✓	✓	✓	NA	✓	X
SNCR	-	-	-	-	-	-
MetroLink	✓	✓	✓	PTC demo	NA	X
Amtrak (NEC)	✓	✓	✓	✓	NA	✓
Amtrak	✓	✓	✓	✓	✓	X

*CMTA trains consist of a single, European-designed, light-rail-style diesel-multiple unit (DMU) vehicle which has a single operator (one-person crew)

SNCR - no passengers operations underway as of May 1, 2016

X = limited or no action taken under recommendation

✓ = actions taken consistent with recommendation

6. Notes on Railroad Actions

- A. All commuter and intercity passenger railroads, and hosts of passenger railroads that operate on the NEC, complied with the terms of EO 29 and EO 31.
- B. For this report, FRA regional and headquarter staff reviewed the operations and held specific discussions (either verbally or through electronic media) with all of the intercity passenger and commuter railroads, and host railroads of passenger rail service, about the actions taken in response to SA-2013-08 and SA-2015-03. Some FRA staff visited the commuter or passenger railroad; others, because of distance and time constraints, contacted passenger railroads verbally or in writing regarding the actions the railroad took in response to these Safety Advisories.
- C. Recommendation #1 of SA-2015-03 states that intercity passenger and commuter railroads, and hosts of passenger rail service, should review and take action consistent with SA-2013-08. With this reference to a prior Safety Advisory, SA-2015-03 reinforced the importance of the operational recommendations in SA-2013-08.
- D. In the table for SA-2015-03, above, some railroads have a check mark under recommendation #5 even though they have modified their ATC, cab control, or signal system codes under recommendation #4 (see, e.g., UTA FrontRunner). This is because on some railroads, like FrontRunner, such systems are not installed for the entirety of the main track. Thus, these railroads implemented recommendation #5 on that part of their system where there is no ATC, cab control, or other signal system.
- E. EO 29 and SA-2013-08 emphasize employee and train crew training and operational requirements. Notably, operational testing, as recommended in SA-2013-08, is required under 49 CFR 217.9, *Program of operational tests and inspections*. Railroads accomplish these tasks in various ways, including: radar testing; in-cab instruction; and event-recorder monitoring. Some passenger railroads stated they heavily emphasize train speed, speed restrictions, physical characteristics, fatigue management, and maintaining focus as part of their engineer recertification classes conducted since FRA issued EO 29 and SA-2013-08.
- F. SA-2015-03 emphasizes changes to the railroad's physical plan that can assist the train crews with reinforcing speed change requirements at civil speed restrictions located at tunnels, curves, and bridges. Changes include modifications to the ATC system or signal and train control system, and installation of wayside signage. Some intercity passenger and commuter railroads submitted "Supplemental Bulletin Orders" which reminded train operators that their signal and train control departments would be making changes to the ATC system to use cab signals and ATC to enforce speed restrictions in certain curves.
- G. With the exception of CMTA, which utilizes a single operator for its single-vehicle train service, virtually all railroads have embraced recommendation #5 of SA-2015-03

concerning having a second qualified crew member in the cab of the controlling locomotive or having constant communication between the locomotive engineer and an additional qualified and designated crewmember in the body of the train.

- H. There are numerous regulations in Title 49 CFR that are applicable and reinforced by both safety advisories, including: **Part 217- Railroad Operating Rules**; **Part 220- Railroad Communications**; **Part 228, Subpart F- Hours of Service Requirements for Train Employees Engaged in Commuter or Intercity Rail Passenger Transportation**; **Part 236- Rules, Standards, and Instructions Governing the Installation, Inspection, and Repair of Signal and Train Control Systems, Devices, and Appliances**; **Part 240- Qualifications and Certification of Locomotive Engineers**; and **Part 242- Qualification and Certification of Conductors**.
- I. Some railroads considered signage too costly because either too few signs were needed or because PTC installation was imminent. A few railroads indicated that signs were only needed in limited locations and decided the cost exceeded the benefit. Other railroads deemed extra signage totally unnecessary; indicating that signage already existed at these designated locations. At the time of this review, some railroads indicated that they had not finished their review process to determine if or where additional signs are necessary. FRA will consider these determinations during its review of the Speed Limit Action Plans required under section 11406(a) and (c) of the FAST Act.

7. Ongoing FRA Actions Related to Safety Advisories

Since 2008, including Congress' enactment of the Rail Safety Improvement Act of 2008 (RSIA), FRA has been particularly active developing or promulgating various rulemakings with the potential to reduce or eliminate occurrences of over-speed derailments on intercity passenger and commuter rail operations. These rulemakings and associated activities are briefly described below. FRA has sought to utilize its Railroad Safety Advisory Committee (RSAC) to assist FRA with these initiatives.⁸

- A. **PTC Regulation**: PTC is a system of functional requirements for monitoring and controlling train movements as an attempt to provide increased safety. PTC will prevent overspeed derailments from occurring by enforcing line speed enforcement and temporary speed restrictions. Section 104 of the RSIA requires each Class I railroad carrier and each entity providing regularly scheduled intercity or commuter rail passenger transportation to implement a PTC system. A PTC system must be installed to govern

⁸ In March 1996, FRA established RSAC, under section 10(a)(2) of the Federal Advisory Committee Act (Pub. L. 92-463), to provide advice and recommendations to the FRA on railroad safety matters. The RSAC is a formally chartered and structured Federal Advisory Committee and provides a forum for collaborative rulemaking and program development and includes representatives from all of the agency's major stakeholder groups, including railroads, labor organizations, suppliers and manufacturers, and other interested parties. When appropriate, FRA assigns a task to RSAC, and after consideration and debate, RSAC may accept or reject the task. If accepted, RSAC establishes a working group that possesses the appropriate expertise and representation of interests to develop consensus recommendations to the FRA Administrator for action on the task. The diversity of the Committee ensures the requisite range of views and expertise necessary to discharge its responsibilities.

operations (a) on main lines over which intercity rail passenger or commuter rail passenger service is regularly provided, and (b) on main lines over which hazardous materials that are poisonous or toxic by inhalation are transported. FRA continues to review and approve plans and other requests necessary to facilitate implementation of PTC technology.

- B. Hours of Service Regulations: In 2009, FRA updated existing hours of service recordkeeping regulations and, in 2011, prescribed substantive hours of service regulations for train employees in intercity passenger and commuter service, consistent with RSIA section 108(d) and (f). These include requirements for assessing and addressing train employee schedules at risk for fatigue. FRA continues to monitor and audit railroads for the process they use to assess and address schedules that present a risk of creating fatigue.
- C. System Safety Program (SSP) Rulemaking: FRA is finalizing a rulemaking to require commuter and intercity passenger railroads to develop and implement SSPs to improve the safety of their operations. An SSP is a structured program with proactive processes and procedures to identify and mitigate or eliminate hazards and the resulting risks on each railroad's system. The SSP rulemaking was mandated by RSIA section 103 and FRA utilized RSAC to help develop the regulation.
- D. Fatigue Risk Management Plans: Based on input from RSAC, FRA is currently developing a notice of proposed rulemaking (NPRM) consistent with the mandate in RSIA section 103 requiring commuter and intercity passenger railroads, Class I railroads, and certain other railroads to develop fatigue risk management programs. FRA believes fatigue risk management plans that include hazard management processes focused on identifying and mitigating fatigue-related risks relevant to a railroad's operations, and determining what actions to take to mitigate or eliminate the risks, will reduce fatigue risks that relate to over-speed derailments.
- E. Crew Staffing Rulemaking: On March 15, 2016, FRA published an NPRM proposing to establish various requirements for crew size limits depending on the nature of the operation. See 81 Fed. Reg. 13917. The rule proposes a minimum requirement of two crewmembers for all railroad operations, with exceptions for those operations FRA believes do not pose significant safety risks to railroad employees, the general public, and the environment by using a crew of fewer than two persons. This rule will help eliminate a single point of failure with regard to situational awareness and adherence to existing speed restrictions.
- F. Locomotive-Mounted Recording Devices Rulemaking: In 2015, FRA began investigating the development of a new rulemaking through RSAC to address the use of inward and outward facing cameras in the cab of controlling locomotives in both passenger and freight operations. In addition, section 11411 of the FAST Act mandates the Secretary to issue regulations to require such cameras in all controlling locomotive cabs and in all cab cars used in commuter and intercity passenger train service. Although RSAC did not reach consensus on a rulemaking, FRA is preparing an NPRM consistent with the FAST Act mandate. FRA believes

the presence and monitoring of the cameras will reduce the potential for over-speed derailments.

- G. Sleep Apnea Rulemaking: On March 10, 2016, FRA and the Federal Motor Carrier Safety Administration (FMCSA) published an advanced notice of proposed rulemaking (ANPRM) on detecting and treating operators found to have sleep apnea. See 81 Fed. Reg. 12642. This endeavor is in the early stages and FRA and FMCSA are conducting several listening sessions on the ANPRM. FRA believes that detecting and treating those train operators that have sleep apnea will reduce the potential for over-speed derailments.
- H. Speed Enforcement Wayside Warning Signs RSAC Activity: On April 8, 2016, the full RSAC formally accepted for further discussion, consideration, and study by an RSAC working group, issues on the standardization, design, and placement of railroad speed signs for both temporary and/or permanent speed restrictions. (RSAC Task 2016-01). Although many railroads do post speed restriction signage, some railroads have elected not to utilize such signage, or use a variety of signs in limited circumstances and varying locations. This practice may present an issue for train crews operating in unfamiliar territory or in extreme weather conditions because it may be difficult for the crews to determine the exact location of a speed restriction. Where mileposts are used to identify speed restrictions in conjunction with train orders, missing or obscured mileposts could cause train crews to overlook the restriction entirely. Accordingly, this working group will review and consider the following:
- FRA and railroad accident data to identify incidents involving excessive speed or improper braking where speed restriction signage may have prevented or mitigated the incident;
 - Current policies and practices of Class I railroads regarding speed restriction warning signage, identifying best practices;
 - Safety and economic implications for the standard placement of speed restriction warning signs either ahead or behind a speed restriction to allow for proper train handling;
 - Whether signage design and placement should be standardized for both temporary and/or permanent speed restrictions
 - Whether standard timelines for replacement or repair are necessary if speed restriction warning signs are missing, damaged, or unrecognizable; and
 - Impact of technologies, such as PTC implementation, on the necessity of speed restriction warning signs.
- I. Speed Limit Action Plans: Section 11406(a) of the FAST Act required, within 90 days after the date of enactment, each railroad carrier providing commuter or intercity rail passenger transportation to survey its entire system and identify each main track location where there is a reduction of more than 20 mph from the approach speed to a curve, bridge, or tunnel and the maximum authorized operating speed for passenger trains at that curve, bridge, or tunnel. Section 11406(b) then requires, within 120 days after the date

the survey is complete, each railroad to submit an action plan that addresses those main track locations and describes the appropriate actions to enable warning and enforcement of the maximum authorized speed for passenger trains at each location identified. Under section 11406(c), FRA will review and approve these action plans to help ensure appropriate speed reduction measures are in place at these safety-critical locations.

8. Conclusion

Commuter and intercity passenger railroads have reviewed both Safety Advisories and adopted most all of the applicable recommendations in the documents. Recognizing that each railroad is different with regard to its size, funding, and physical and operating characteristics, FRA believes virtually all railroads responded positively to the Safety Advisories and implemented appropriate measures to enhance safety on their railroads with minimum cost or burden.

FRA believes that until PTC is implemented and in widespread use across the commuter and intercity passenger railroad systems in this country, these railroads and railroads that host passenger service need to continually evaluate their systems to ensure that processes and procedures are in place that enable warning and enforcement of the maximum authorized speed for passenger trains at high-risk locations. In addition to PTC, FRA will continue the effective RSAC process with passenger railroads to explore ways of preventing or reducing passenger train over-speed derailments at curves, bridges, and tunnels.

Due to the significant safety concerns presented by the two accidents that led to the Safety Advisories referenced above, FRA believes its continued oversight of the actions industry is taking to address these and similar concerns is necessary to ensure railroads are continually assessing the safety needs of their operations. Thus, FRA will continue to focus on ensuring passenger railroad compliance with maximum authorized train speed limits and relevant temporary and permanent speed restrictions in the coming months, using its full enforcement authority as needed. FRA will continue to exercise its responsibilities through its cadre of dedicated rail safety inspectors and partner State rail safety inspectors. Each day these inspectors collectively conduct on-board inspections, monitor speed by radar at locations of significant permanent or temporary speed restrictions, monitor railroad officers who conduct operational tests, review railroads' implementation of their operational test and inspection programs, and perform other oversight duties to promote the safe operation of our nation's railroads.