Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2016-1129

Amtrak ((National Railroad Passenger Corporation) ATK)
Madera, CA
May 16, 2016

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

SYNOPSIS

On May 13, 2016, at approximately 12:32 p.m., PDT, westbound Amtrak Passenger Train No. 713, traveling at a recorded speed of 79 mph on BNSF Railway's (BNSF) main line track, struck a motor vehicle at a private highway-rail grade crossing near the city of Madera, California. As a result of the collision, three occupants of the motor vehicle were fatally injured and four of the 211 passengers on the train were injured. There were no reported injuries to Amtrak's train crew.

The accident occurred on single main track at CP Gregg, Milepost 1012.1 on BNSF's California Division, Stockton Subdivision. Movements on this part of the railroad are under a traffic control system by a dispatcher located in San Bernardino, California. The maximum authorized speed for freight and passenger trains in the area of the accident is 80 mph and 90 mph, respectively. The train consisted of one head-end locomotive and five passenger cars. The crossing, which runs over a private dirt road, is guarded only with stop signs and rectangular signs depicting crossbucks. BNSF Freight Train No. ZNBYWSB7-131 was stopped approximately 1,500 to 2,000 feet clear of the private crossing located on the west siding which partially blocked the view on approach to the crossing.

Weather at the time of the accident was sunny and clear with a temperature of approximately 85 °F.

Equipment damage was estimated at $83,708 to the locomotive; damage to track, signal or structures was estimated at $300.

There were no hazardous materials involved and was not PTC-preventable.

The probable cause of the accident was inattentiveness on the part of the highway user.

U.S. Department of Transportation
Federal Railroad Administration

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2016-1129

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Amtrak (National Railroad Passenger Corporation)	ATK	142375

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
BNSF Railway Company	BNSF	CA0516201

2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident	4. Time of Accident/Incident
028596W	5/13/2016	12:32 PM

5. Type of Accident/Incident
Hwy-Rail Crossing

6. Cars Carrying HAZMAT	7. HAZMAT Cars Damaged/Derailed	8. Cars Releasing HAZMAT	9. People Evacuated	10. Subdivision
0	0	0	0	Stockton

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Madera	01012.1	CA	MADERA

15. Temperature (F)	16. Visibility	17. Weather	18. Type of Track
85 ˚F	Day	Clear	Main

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
Single Main	Freight Trains-80, Passenger Trains-90	52.68	West

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Passenger Train-Pulling	Yes	713

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	5. Trailing Tons (gross exluding power units)	6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter	Code
79 MPH	R			0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Direct Train Control

Supplemental/Adjunct Codes:
Q

7. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box	Alcohol	Drugs
(1) First Involved *(derailed, struck, etc.)*	CDTX2004	1	yes		0	0
(2) Causing *(if mechanical, cause reported)*	CDTX2004	1	yes	9. Was this consist transporting passengers?		Yes

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	1	0	0	0	0	(1) Total in Equipment Consist	0	5	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
83708	300

14. Primary Cause Code
M302 - Highway user inattentiveness

15. Contributing Cause Code
M302 - Highway user inattentiveness

Number of Crew Members

16. Engineers/Operators	17. Firemen	18. Conductors	19. Brakemen
1	0	2	0

Length of Time on Duty

20. Engineer/Operator	21. Conductor
Hrs: 3 Mins: 32	Hrs: 3 Mins: 32

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	3
Nonfatal	0	4	0

25. EOT Device?	26. Was EOT Device Properly Armed?
N/A	N/A

27. Caboose Occupied by Crew?
N/A

28. Latitude	29. Longitude
36.887627000	-119.942260000

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CROSSING INFORMATION

Highway User Involved		Rail Equipment Involved
1. Type: Pick-Up Truck		5. Equipment: Train (Units Pulling)
2. Vehicle Speed *(est. mph at impact)*: 20	3. Direction *(geographical)*: East	6. Position of Car Unit in Train: 1
4. Position of Involved Highway User: Moved over Crossing		7. Circumstance: Rail Equipment Struck Highway User
8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?: Neither		8b. Was there a hazardous materials release by: Neither

8c. State here the name and quantity of the hazardous material released, if any.
N/A

9. Type of Crossing	10. Signaled Crossing Warning	11. Roadway Conditions
1. Gates 4. Wig wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other *(spec. in narr.)* 3. Standard FLS 6. Audible 9. Watchman 12. None 7, 8		Dry

12. Location of Warning	13. Crossing Warning Interconnected with Highway Signals	14. Crossing Illuminated by Street Lights or Special Lights
Both Sides	No	No

15. Highway User's Age	16. Highway User's Gender	17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train	18. Highway User
40	Male	Yes	Did not stop

19. Driver Passed Standing Highway Vehicle	20. View of Track Obscured by *(primary obstruction)*
No	Not Obstructed

Casualties to:	Killed	Injured	21. Driver was	22. Was Driver in the Vehicle?
			Killed	Yes
23. Highway-Rail Crossing Users	3	0	24. Highway Vehicle Property Damage *(est. dollar damage)*: 10000	25. Total Number of Vehicle Occupants *(including driver)*: 3

26. Locomotive Auxiliary Lights?	27. Locomotive Auxiliary Lights Operational?
Yes	Yes
28. Locomotive Headlight Illuminated?	29. Locomotive Audible Warning Sounded?
Yes	Yes

10. Signaled Crossing Warning

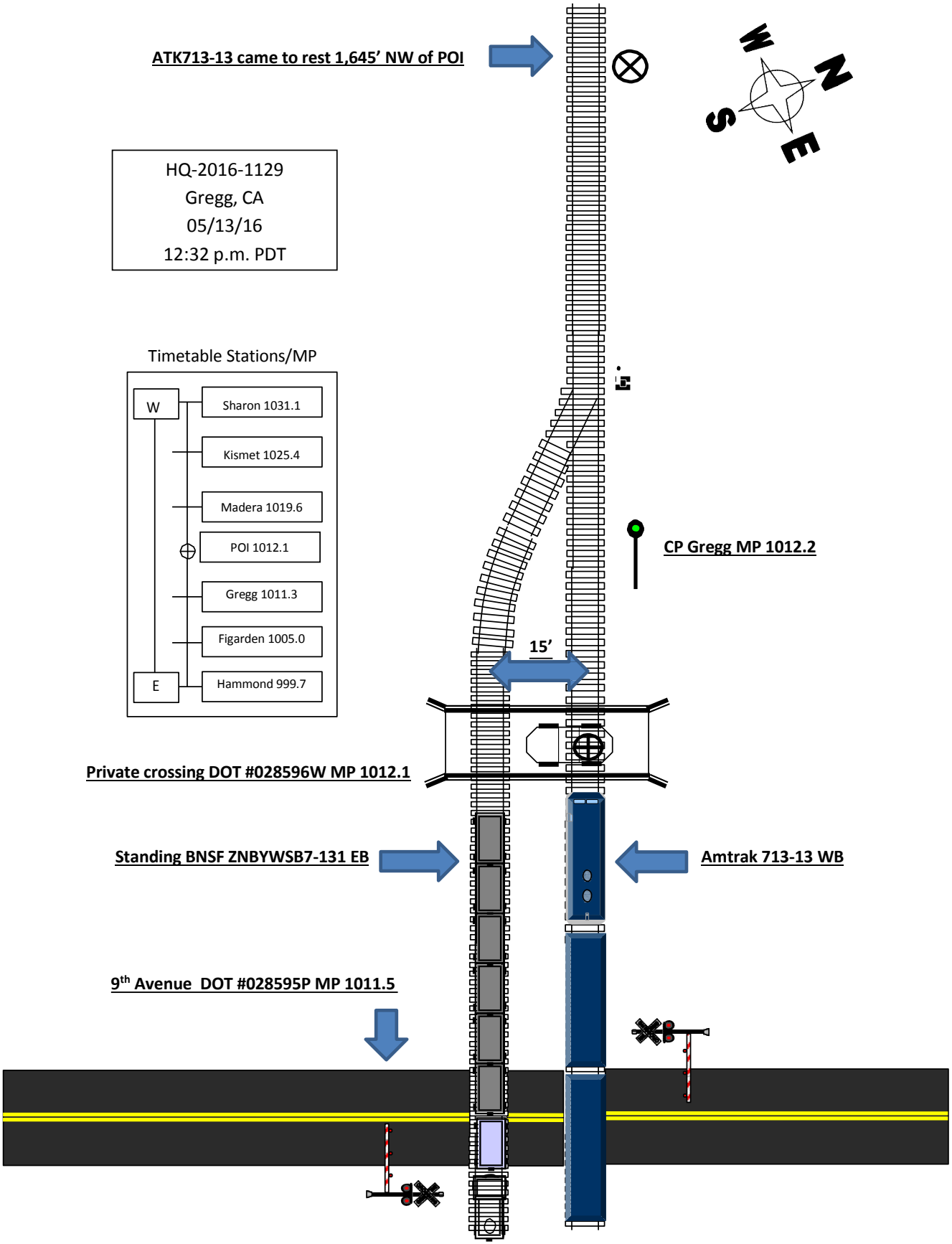
1 - Provided minimum 20-second warning
2 - Alleged warning time greater than 60 seconds
3 - Alleged warning time less than 20 seconds
4 - Alleged no warning
5 - Confirmed warning time greater than 60 seconds
6 - Confirmed warning time less than 20 seconds
7 - Confirmed no warning
N/A - N/A

Explanation Code

A - Insulated rail vehicle
B - Storm/lightning damage
C - Vandalism
D - No power/batteries dead
E - Devices down for repair
F - Devices out of service
G - Warning time greater than 60 seconds attributed to accident-involved train stopping short of the crossing, but within track circuit limits, while warning devices remain continuously active with no other in-motion train present
H - Warning time greater than 60 seconds attributed to track circuit failure (e.g., insulated rail joint or rail bonding failure, track or ballast fouled)
J - Warning time greater than 60 seconds attributed to other train/equipment within track circuit limits
K - Warning time less than 20 seconds attributed to signals timing out before train's arrival at the crossing/island circuit
L - Warning time less than 20 seconds attributed to train operating counter to track circuit design direction
M - Warning time less than 20 seconds attributed to train speed in excess of track circuit's design speed
N - Warning time less than 20 seconds attributed to signal system's failure to detect train approach
O - Warning time less than 20 seconds attributed to violation of special train operating instructions
P - No warning attributed to signal systems failure to detect the train
R - Other cause(s). Explain in Narrative Description

SKETCHES

Madera Sketch



NARRATIVE

For the purpose of this report, the railroad timetable is west and geographical directions are north/northwest. Directions will be expressed per railroad timetable.

Circumstances Prior to the Accident

The crew of Amtrak Train No. 713, an engineer, a conductor, and an assistant conductor, went on duty at 8:50 a.m., May 13, 2016, at Bakersfield, California, their home terminal, and departed at 10:05 a.m. All crew members received more than their statutorily required off-duty time. Their train consisted of one locomotive and 5 passenger cars with 211 passengers on-board. They described the trip as uneventful. As the crew approached the accident site, the Engineer was seated on the east side of the lead locomotive and the Conductor and Assistant Conductor were in the coach cars. Amtrak Train No. 713 had been traveling in the east track alongside a stopped eastbound BNSF Freight Train No. ZNBYWSB7-131 that was in an adjacent siding on the west track and had stopped over the Avenue 9 crossing at CP Gregg approximately 10 miles south of the city of Madera (Madera County), California.

According to the Engineer's statement, Amtrak Train No. 713 was traveling timetable west on a clear signal at a recorded speed of 79 mph. The maximum authorized speed for freight and passenger trains in the area of the accident is 80 mph and 90 mph, respectively. As the train approached the Avenue 9 grade crossing, the Engineer could see a stopped BNSF freight train to his left. He observed motor vehicle traffic stopped at the Avenue 9 crossing, which is an active grade crossing with warning lights and gates. Amtrak Train No. 713 continued to travel west and reached the end of the freight train which was stopped at approximately 2,000 feet from a private road crossing. To his left, he observed dust from a motor vehicle on the farm road that runs parallel to the track. The motor vehicle did not come into the Engineer's view until after Amtrak Train No. 713 cleared the freight train. The Engineer then observed the motor vehicle quickly approaching the private crossing traveling in the same direction as his train. The motor vehicle then made a right turn onto the private crossing directly in front of Amtrak Train No. 713.

The Engineer started blowing his horn at the location known as the W, or Whistle Board, prior to noticing the approaching vehicle. The train's head light and ditch lights were on bright and the bell was actuated.

The Accident

As the motor vehicle turned in front of Amtrak Train No. 713, the Locomotive Engineer had enough time to initiate a full emergency application of the train air brakes. The train impacted the motor vehicle on the passenger's side at a recorded speed of 79 mph and fatally injured the three occupants. There was no derailment and only minor damage to the locomotive as well as to the track, signals and structures. The motor vehicle came to rest in three sections, north of the main line, just off the right-of-way. Police and

emergency services arrived immediately after the accident. According to the Madera County Coroner, the three victims suffered fatal injuries immediately on impact.

The train crew was uninjured but four passengers complained of injuries at the scene and were transported to a local hospital for treatment. The Federal Railroad Administration's (FRA) post-accident toxicology testing was not conducted on the train crew.

Post-Accident Investigation

Inspector's from FRA and California Public Utilities Commission (CPUC), along with BNSF railroad managers arrived at the scene to begin the investigation and obtain statements, take photographs, and inspect the locomotive and passenger cars, signal and train control devices and track. The area of the crossing is open and visibility is unencumbered by trees or vegetation. The crossing is guarded by stop signs and white, rectangular signs depicting crossbucks in both directions.

Analysis and Conclusions

Analysis – Mechanical: An inspection of the locomotive revealed no mechanical defects and only minor damage to the front from the collision. A review of all records of tests and inspections of the equipment showed no defects that would have contributed to the accident.

Conclusions – Mechanical: Mechanical issues are excluded as having contributed to the accident.

Analysis – Operating Practices: An analysis of the event recorder download substantiates the crew's statements, confirms their timeline of the events, and reveals no issues with train handling and their reaction to the events on approach to the accident site.

Conclusions – Operating Practices: Train operations and the actions of the crew are excluded as having contributed to the accident.

Analysis – Signal & Train Control: An analysis of condition of the signal and train control systems directing the train functioned as intended, as was the operation of the signaled and guarded highway-rail grade crossing at Avenue 9. The private/farm grade crossing was not signaled and only guarded by white, rectangular signs depicting crossbucks.

Conclusions – Signal & Train Control: Signal and train control systems are excluded as having contributed to the accident.

Analysis – Track: An analysis of the track and right-of-way in the area of the accident showed no defects or conditions that had any bearing on the accident.

Conclusions – Track: Track is excluded as having contributed to the accident.

Overall Conclusions

An analysis of the crew's actions and condition of the equipment used in Amtrak Train No. 713, signal and train control systems and crossing warning devices, and track and right-of-way excludes each as having contributed to the accident.

Probable Cause and Contributing Factors

FRA has concluded the probable cause of the accident was highway user inattentiveness. There were no contributing factors.