Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2016-1132

Amtrak ((National Railroad Passenger Corporation) ATK)
Flora, MS
May 18, 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

Synopsis

On May 18, 2016, at about 6:11 p.m., CST, northbound Amtrak Passenger Train 58-18 collided with an eastbound vehicle at the Kearney Park Road public highway-rail grade crossing (DOT Crossing Number 300881S) in Flora, Mississippi, on Canadian National Railway's (CN) Yazoo Subdivision at Milepost 200.6. The vehicle included three occupants; each was fatally injured in the accident.

Train 58-18 was operating on single main track in centralized traffic control territory on a clear signal at 67 mph. The maximum authorized speed for this train on CN's Yazoo Subdivision is 79 mph.

Conditions at the time of the accident were 75 °F and cloudy. Train 58-18 sustained minor damage to its locomotive. No equipment derailed. There was no track damage. There were no injuries to the train crew members. Three Amtrak passengers reported minor injuries. There were no hazardous materials involved. This was not PTC-preventable. The train was delayed approximately 4 hours and 35 minutes.

The driver of the subject vehicle failed to stop at the highway rail grade crossing as required by Mississippi Statute 77-9-249. Probable cause is highway user inattentiveness.

U.S. Department of Transportation
Federal Railroad Administration

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2016-1132

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Amtrak (National Railroad Passenger Corporation)	ATK	142463

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Canadian National - North America	CN	HQ-2016-1132

2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident	4. Time of Accident/Incident
300881S	5/18/2016	6:11 PM

5. Type of Accident/Incident
RR Grade Crossing

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

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Flora, MS	200.6	MS	MADISON

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

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
1/Main	Freight Trains-60, Passenger Trains-80	60	North

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Passenger Train-Pulling	Yes	58-18

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
67 MPH	R			0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
F

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.)*	ATK 194	1	yes		0	0
(2) Causing *(if mechanical, cause reported)*	NA	0	no	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	8	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
22657	0

14. Primary Cause Code
M302 - Highway user inattentiveness

15. Contributing Cause Code
M302 - Highway user inattentiveness

Number of Crew Members				Length of Time on Duty	
16. Engineers/Operators	17. Firemen	18. Conductors	19. Brakemen	20. Engineer/Operator	21. Conductor
1	0	2	0	Hrs: 0 Mins: 52	Hrs: 6 Mins: 26

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	3
Nonfatal	0	3	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
32.449314000	-90.121465000

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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)*: 8	3. Direction *(geographical)*: North	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 3, 6, 7	1, 1	Dry

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

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
35	Male	No	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)*: 15000	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

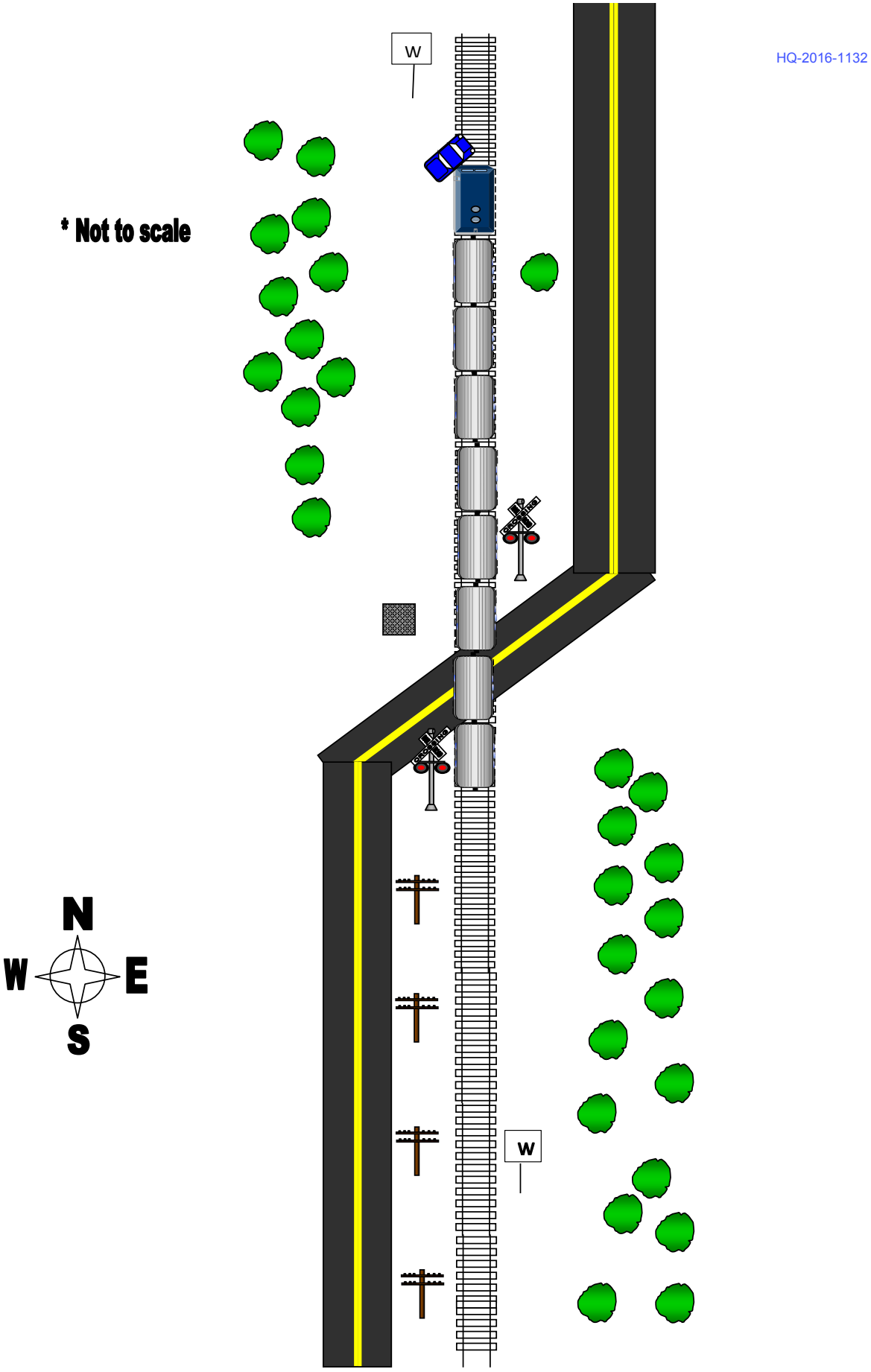
1 - Provided minimum 20-second warning
2 - Alleged warning time greater than 60 seconds
3 - Alleged warning time less than 20 seconds
4 - Alleged no warning
5 - Confirmed warning time greater than 60 seconds
6 - Confirmed warning time less than 20 seconds
7 - Confirmed no warning
N/A - N/A

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

HQ-2016-1132



NARRATIVE

Circumstances Prior to Accident

Amtrak northbound Train 58-18 consisted of one locomotive, ATK 194; two baggage cars; two sleeper cars; two lounge cars; and two coach cars. The train was operating between New Orleans, Louisiana, and Chicago, Illinois. The train received an initial terminal brake test at New Orleans and a subsequent running brake test at Jackson, Mississippi.

The crew of Train 58-18 included a locomotive engineer, a conductor, and an assistant conductor. On May 18, 2016, the Engineer went on duty at 6:25 a.m., at Memphis, Tennessee, after statutory rest and operated southbound Amtrak Passenger Train 59-17 to Jackson where he had a period of rest before returning to duty at 5:19 p.m. to operate Train 58-18. On May 18, 2016, at 11:45 a.m., the Conductor and the Assistant Conductor went on duty at New Orleans.

Train 58-18 departed Jackson on time at about 5:45 p.m., CDT with 126 passengers. Its next scheduled stop was at Yazoo City, Mississippi, at 6:42 p.m.

As Train 58-18 approached the accident site, the Engineer was at the locomotive controls on the east side of the locomotive. The Conductor was walking through the train from the rear to the front. The train had just operated through a slow order and the Engineer was operating in the eighth notch increasing up to the maximum authorized speed of 79 mph.

Moving northward, the single main track has a 0.3-ascending grade and is tangent for about 1-mile leading up to the Kearney Park Road crossing and is tangent for about 3,000 feet beyond.

Moving northward, Kearney Park Road parallels the west side of the main track for about ¾-mile, crosses the main track at grade at approximately a 45-degree angle (northeast direction) at Milepost 200.6, and then parallels the east side of the main track for about 1-mile beyond. There is a slight grade at the crossing. The speed limit is 30 mph.

The Accident

As Train 58-18 approached the Kearney Park Road highway-rail grade crossing, the subject vehicle (a red pickup truck) was traveling northbound on Kearney Park Road. The Engineer explained that the subject vehicle initially pulled up to and stopped at the crossing, then started to cross, then stopped again, and then “seemed to gun it.” The Engineer explained that he initiated an emergency brake application prior to the collision.

At about 6:11 p.m., Train 58-18 collided with the subject vehicle. The train was travelling at 67 mph upon impact. The train impacted the right side of the subject vehicle at the passenger door and pushed it northward along the main track for about 2,000 feet before coming to a stop. After the train stopped, the Engineer and Conductor each made emergency calls over the radio. The Engineer remained in the locomotive and contacted the dispatcher.

At about 6:16 p.m., Flora Police Department personnel arrived. Flora Fire Department personnel and Pafford Emergency Medical Services (EMS) personnel arrived within the next 8 minutes and established command and extrication of the subject vehicle occupants. The occupants were found dead by Pafford EMS. AirCare1 was en route, but was cancelled since there were no survivors. At about 7:15 p.m., a Canadian National Railway (CN) Special Agent arrived. At about 7:20 p.m., the Madison County Coroner

arrived and proclaimed all occupants in the truck died on-scene.
Train 58-18 was released at about 9:00 p.m., and made a reverse move into the Flora Siding. An Amtrak relief Engineer arrived at 10:00 p.m. At about 10:45 p.m., the train proceeded northbound to Memphis.
On May 19, 2016, at about 3:13 a.m., the train arrived at Memphis, where it was met by the Amtrak Road Foreman who completed the download of the locomotive event recorder and locomotive digital video recorder.
Conditions at the time of the accident were 75° Fahrenheit and cloudy. Train 58-18 sustained minor damage to its locomotive. No equipment derailed. There was no track damage. There were no injuries to the train crew members. Three Amtrak passengers reported minor injuries. There were no hazardous materials involved. This was not PTC-preventable. The train was delayed approximately 4 hours and 35 minutes.

Post-Accident Investigation

Analysis-Toxicology Testing: The subject vehicle driver was a 35-year old male. The two passengers in the subject vehicle were children; a 7-year old female and a 1-year old male. The Flora Police Department reported that toxicological testing was done on the remains of the driver with negative results. Toxicological tests were not required and were not performed on the train crew.
Conclusion: Intoxication/impairment was not a causal factor.
Analysis-Highway-Rail Grade Crossing Warning System: The highway-rail grade crossing warning system at Kearney Park Road consists of 10, 12-inch diameter LED (light – emitting diode) flashing lights, one electronic bell, two cross buck signs, and two emergency notification system (ENS) signs, all of which are mounted on two separate 4-inch diameter signal masts that are attached to metal foundations in the ground.
The northeast quadrant signal has a set of back-to-back, 12-inch LED's totaling four lights, the electronic bell, a cross buck sign, and an ENS sign. The southwest quadrant signal has a set of back-to-back, 12-inch LED's totaling four lights, a set of one-way 12-inch LED's totaling two lights, a cross buck sign, and ENS sign.
The warning devices are controlled by a Safetran Grade Crossing Predictor Model 3000 bi-directional unit which is mounted inside a double door steel case. Additional equipment mounted inside the case consists of a SSCC III Plus 40 Amp Crossing Controller, a Safetran Data Recorder Interface 80025, and a Cragg Battery Charger Model 15MV-12V. The case is mounted on two concrete foundations in the ground.
Both the northbound and southbound approach lengths are measured at 4,000 feet with the program of the GCP 3000 unit designed to allow for 30 seconds of constant warning time with a minimum warning time of 25 seconds at 79 mph.
Kearney Park Road is a two-lane, paved city street with a posted speed limit of 30 mph. Travelling north on Kearney Park on the west side of the tracks, the road runs parallel to the tracks and intersects the crossing at approximately a 45-degree angle and then continues to run parallel to the tracks travelling north on the east side.
The site distance at the crossing when stopped at the painted stop bar on the west side looking north is approximately 1,500 feet (vegetation and trees are the reason the site distance is limited due to the degree of angle you are in when stopped at the stop bar) and looking south on the tracks is

approximately 4,000 feet or greater. The site distance at the crossing when stopped at the painted stop bar on the east side looking north is approximately 3,500 feet and looking south is approximately 4,000 feet or greater.

The width of the highway grade crossing is 40 feet. It consists of 20, 8-inch creosote crossing timbers that are held in place by crossing screw lags. The width of the road on the west side of the crossing near the painted stop bar is 24 feet and the width of the road on the east side of the crossing near the painted stop bar is 21 feet. There is no center line on the road visible on either side of the crossing. The distance from the west rail to the painted stop bar is 18 feet and the distance from the east rail to the painted stop bar is 20 feet both measured in their respective travelling lanes at a 45-degree angle as if a vehicle were travelling across the crossing. There were no advance pavement markings or advance warning signs placed on either approach to the crossing.

All tests, downloads, photographs, and documentation revealed that the highway-rail grade crossing warning system functioned as intended at the time of the accident. A download of the GCP3000 revealed the unit detected Amtrak Number 58 North and provided 34 seconds of warning time (Federal regulation requires a minimum of 20 seconds).

Conclusion: The highway-rail grade crossing warning system functioned as intended and was not a causal factor.

Analysis-Locomotive Safety Devices: The locomotive of Train 58-18 was equipped with a headlight, auxiliary lights, and the audible warning device (horn) required by Federal regulations. The relief locomotive Engineer tested these devices at the accident site in the presence of the Flora Police Department and they functioned as intended. The locomotive event recorder and locomotive digital video recorder downloads were reviewed by Amtrak managers and the Federal Railroad Administration with no exceptions noted.

Conclusion: The locomotive safety devices functioned as intended and were not a causal factor.

Overall Conclusions

CN and Amtrak were in compliance with their own rules and all applicable Federal regulations. The highway rail grade crossing warning systems and locomotive safety devices functioned as intended. There were no exceptions to the train's operation. There was no information that could be used to determine why the subject vehicle failed to stop at the crossing.

Probable Cause

The driver of the subject vehicle failed to stop at the highway rail grade crossing as required by Mississippi Statute 77-9-249. Probable cause is highway user inattentiveness.