



***Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch***

***Accident Investigation Report
HQ-2015-1100***

***Amtrak (ATK)
New Iberia, LA
December 22, 2015***

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.

TRAIN SUMMARY

1. Name of Railroad Operating Train #1 Amtrak (National Railroad Passenger Corporation)	1a. Alphabetic Code ATK	1b. Railroad Accident/Incident No. 140555
--	----------------------------	--

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance BNSF Railway Company		1a. Alphabetic Code BNSF	1b. Railroad Accident/Incident No. 140555	
2. U.S. DOT Grade Crossing Identification Number 767687R		3. Date of Accident/Incident 12/22/2015	4. Time of Accident/Incident 5:45 PM	
5. Type of Accident/Incident Hwy-Rail Crossing				
6. Cars Carrying HAZMAT 0	7. HAZMAT Cars Damaged/Derailed 0	8. Cars Releasing HAZMAT 0	9. People Evacuated 0	10. Subdivision Lafayette
11. Nearest City/Town New Iberia		12. Milepost (to nearest tenth) 130.6	13. State Abbr. LA	14. County IBERIA
15. Temperature (F) 70 °F	16. Visibility Dark	17. Weather Rain		18. Type of Track Main
19. Track Name/Number 1		20. FRA Track Class Freight Trains-60, Passenger Trains-80		21. Annual Track Density (gross tons in millions) 16
				22. Time Table Direction East

CROSSING INFORMATION

Highway User Involved				Rail Equipment Involved			
1. Type Auto				5. Equipment Train (Units Pulling)			
2. Vehicle Speed (<i>est. mph at impact</i>) 0		3. Direction (<i>geographical</i>) North		6. Position of Car Unit in Train 1			
4. Position of Involved Highway User Stopped on 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 Warning 1. Gates 4. Wig wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other (<i>spec. in narr.</i>) 3. Standard FLS 6. Audible 9. Watchman 12. None 1, 7, 3, 6				10. Signaled Crossing Warning 1		11. Roadway Conditions Wet	
12. Location of Warning Both Sides			13. Crossing Warning Interconnected with Highway Signals Unknown			14. Crossing Illuminated by Street Lights or Special Lights No	
15. Highway User's Age 70		16. Highway User's Gender Female		17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train No		18. Highway User Stopped on crossing	
19. Driver Passed Standing Highway Vehicle No			20. View of Track Obscured by (<i>primary obstruction</i>) Not Obstructed				
Casualties to:		Killed	Injured	21. Driver was Killed		22. Was Driver in the Vehicle? Yes	
23. Highway-Rail Crossing Users 5		1	24. Highway Vehicle Property Damage (<i>est. dollar damage</i>) 15000		25. Total Number of Vehicle Occupants (<i>including driver</i>) 6		
26. Locomotive Auxiliary Lights? Yes				27. Locomotive Auxiliary Lights Operational? Yes			
28. Locomotive Headlight Illuminated? Yes				29. Locomotive Audible Warning Sounded? 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

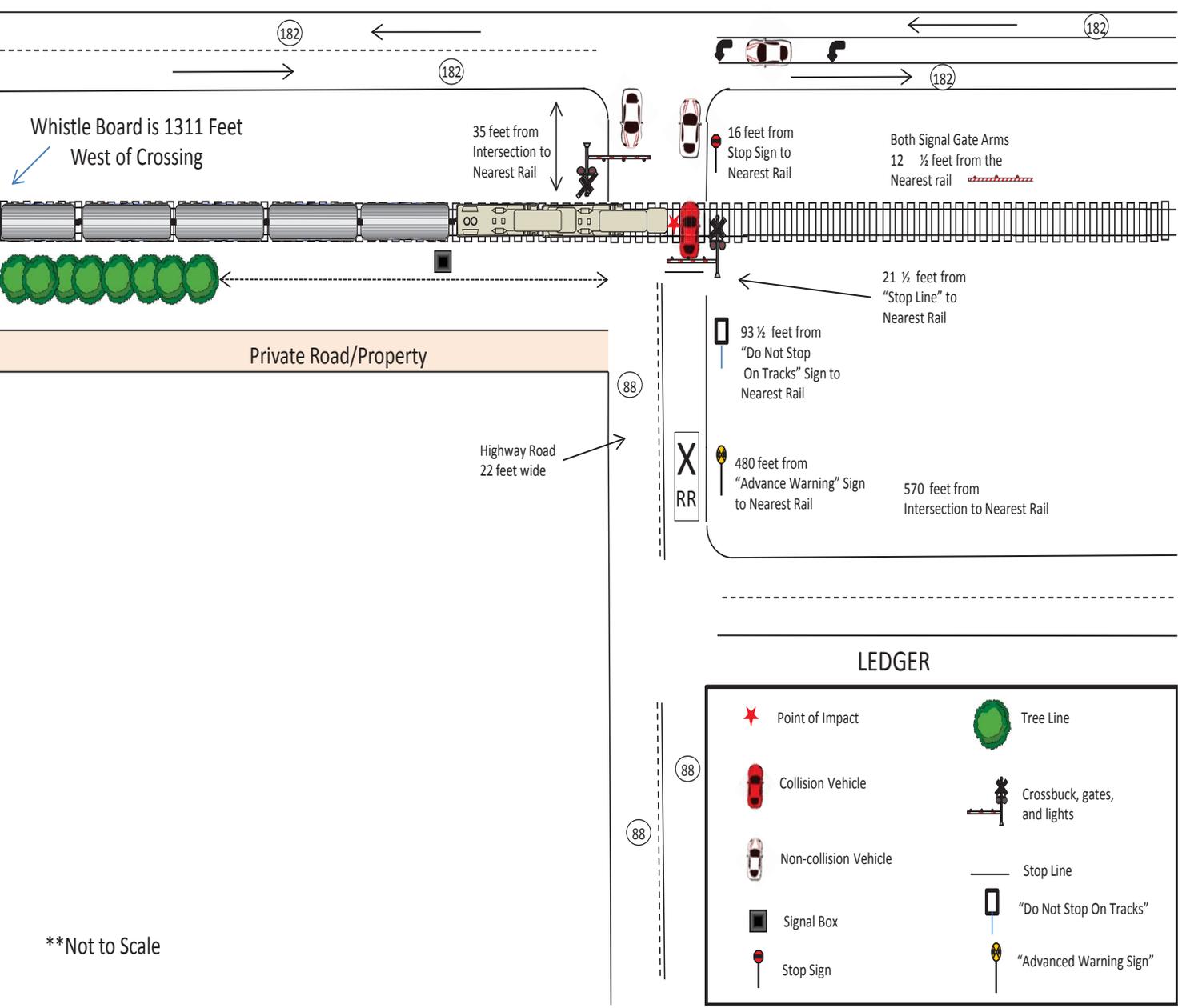
Explanation Code

- 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

Sketch, HQ-2015-1100, AMTRAK, Iberia Parish, Louisiana

Sketch, Iberia Parish, Louisiana (AMTRAK) Quintuple Fatality (DOT 767687R)



LEDGER

	Point of Impact		Tree Line
	Collision Vehicle		Crossbuck, gates, and lights
	Non-collision Vehicle		Stop Line
	Signal Box		"Do Not Stop On Tracks"
	Stop Sign		"Advanced Warning Sign"

**Not to Scale

SYNOPSIS

Synopsis

On December 22, 2015, at 5:45 p.m., CST, an Amtrak (ATK) passenger train (two engines and seven cars) traveling timetable east (geographic east) collided with a northbound automobile that stopped on a public crossing, resulting in the death of five occupants of the automobile. The train crew did not suffer any injuries. Train equipment damages were estimated to be \$6,093. The highway-rail grade crossing collision occurred near Cade, Louisiana, at Milepost 130.6 on BNSF Railway's Lafayette Subdivision. There was no derailment. There was no release of hazardous material. There was no evacuation.

The incident occurred during the evening; the weather was rainy, the temperature was 70 degrees Fahrenheit, and the pavement was wet.

The collision occurred at a public crossing outside the town of Cade. The Engineer sounded the horn for a minimum of 15 seconds prior to impact with the automobile. The whistle board was 1,311 feet west of the crossing.

The four-door automobile was driven by a Caucasian female, age 70 years, along with one other adult occupant, age 49, and four 12 year old children. Both adults and three of the 12 year old children were fatally injured. There were no injuries to the crew or the passengers. No other trains and no other vehicles were involved in this collision.

The collision was caused by the automobile driver's disregard of traffic control devices.

NARRATIVE

Narrative

Circumstances Prior to the Accident:

The ATK Train 2-20 consisted of two locomotives and seven passenger cars. On December 22, 2015, the crew went on duty at 12:55 P.M. in Beaumont, Texas. The crew received more than the statutory off-duty period prior to reporting for duty. On the trains approach (traveling timetable /geographic east) to the level at-grade crossing at State Highway 88 near Cade, Louisiana (MP 130.6), the track is straight. The track has a level grade. In this area of track, approaching the crossing, the train crew's visibility is not obstructed. As the train approached the public crossing at milepost 130.6, Engineer #1 was seated at the controls, Engineer #2 was seated in the middle observer seat, and the Qualifying Conductor (Conductor) was seated in the fireman's seat. All the crew saw the automobile on the tracks prior to impact. Engineer #1 placed the train into emergency braking.

The Public Crossing is equipped with gates, lights, and bells. There is a "Do Not Stop on Tracks" sign south of the crossing. There is a "Stop" sign north of the crossing. Louisiana State Highway 182 runs parallel to the tracks. There is an "Advanced Warning" sign and "Pavement Markings" on State Highway 88 south of the crossing. The Annual Average Daily Traffic (AADT) count for the Public Crossing is 6,100 with ten percent of the AADT count being trucks.

The automobile driver was facing north on the tracks at the time of the collision. The automobile driver (V1) stopped on the crossing, backed up slightly, and then pulled forward on the crossing and remained stationary prior to the impact.

According to a witness (W1) on Louisiana State Highway 182 waiting to turn left onto Louisiana Highway 88 and the train crew, there was a vehicle (V2) north of the crossing on Louisiana State Highway 88 in front of the incident vehicle waiting at the "Stop" sign. W1 also stated that the incident vehicle driver was sounding her horn attempting to make V2 move so V1 could clear the tracks. V2 did not move.

ATK Train 2-20

ATK Train 2-20 was a passenger train. ATK Train 2-20 was recorded traveling at 68 mph at the time of the collision at 5:45 P.M. (CST). ATK Locomotive 132 and ATK Locomotive 113 were mechanically inspected prior to the train departing the terminal. ATK Locomotive 132 was air tested prior to the train departing the terminal. The train crew did not suffer any injuries. The damage amount to the rail equipment was \$6,093 and with no damage to the signal equipment or track structure. According to the video observed from the lead locomotive (ATK 132) and Event Recorder Data, the locomotive horn was sounded for a minimum of 15 seconds prior to the collision with the automobile. Engineer #1, Engineer #2, and the Conductor saw the automobile stopped on the crossing, then pull up on the tracks, back up a few feet, then pull forward on the tracks and stop again prior to the train impacting the automobile. Engineer #1 placed the train in emergency. The train was unable to stop prior to colliding with the four-door automobile with six occupants in the vehicle (including the driver). The momentum of the train carried the train through the crossing.

The Accident: The locomotive was traveling at 68 mph at the time of the collision with the automobile. The approach speed of the train was 68 mph. The maximum authorized speed for this train on this track is 70 mph. The download from the event recorder was used to determine the speed of the train. The automobile was facing north and standing still on the tracks. There was one driver and five passengers in the automobile. There was no derailment. There was no hazardous material release. There was no evacuation.

The train impacted the front portion of the four-door automobile while the automobile was between the gates at the crossing. The automobile traveled in a southwest direction, rotating and overturning an unknown amount of times before coming to rest 176 feet from the area of impact. The front of the automobile came to rest against a tree and was resting on its tires. After impact, the train continued southeast on the tracks and the engine came to rest 1601 feet from the area of impact. Personnel from the Louisiana State Police Troop I, Iberia Parish Sheriff's Office, Coteau Fire District, Acadian Ambulance, and the Iberia Parish Coroner responded to the scene. Acadian Ambulance transported three occupants to the hospital. The Iberia Parish Coroner's Office pronounced three occupants dead on the scene. All six occupants were ejected from the automobile. Three occupants sustained fatal injuries on the scene. Two occupants succumbed to their injuries within days in the hospital. Only one occupant survived the collision. The damage amount to the rail equipment was \$6,093. The damage amount to the automobile was \$15,000.

Analysis and Conclusions:

Analysis - Toxicological Testing

This accident did not meet the criteria for 49 CFR Part 219 Subpart C Post Accident Toxicological Testing. The train crew was not tested under FRA guidelines or company authority for reasonable cause for the use of alcohol and drugs.

Conclusion: Drug or alcohol use was not considered a factor in this event.

Analysis – Fatigue Analysis

FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to blood alcohol content (BAC) of 0.05. At or above this baseline, we do not consider fatigue as probable for any employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings.

FRA obtained fatigue related information, including a 10-day work history, for three employees involved in this highway-rail grade crossing quintuple fatality. The three employees are identified in the report as Conductor 1, Engineer 1, and Engineer 2. Information for the employees follow:

Fatigue Conclusions:

Conductor 1:

Percent Effectiveness = 98.94
Sleep setting – Good to Excellent,
Chronic Sleep Debt = 3.66
Hours of Continuous Wakefulness = 10.75
Time of Day= 17:45
BAC Equivalent = <0.05

Finding: Fatigue was not probable for this employee.

Engineer 1:

Percent Effectiveness= 98.88
Sleep setting – Good to Excellent,
Chronic Sleep Debt = 3.67
Hours of Continuous Wakefulness = 10.75
Time of Day= 17:45
BAC Equivalent = <0.05

Finding: Fatigue was not probable for this employee.

Engineer 2:

Percent Effectiveness= 98.29
Sleep setting – Good to Excellent,
Chronic Sleep Debt = 3.91
Hours of Continuous Wakefulness = 10.75
Time of Day= 17:45
BAC Equivalent = <0.05

Finding: Fatigue was not probable for this employee.

Analysis - Fatigue Analysis

FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to blood alcohol content (BAC) of 0.05. At or above this baseline, we do not consider fatigue as probable for any employee. Investigation of the circumstances involving this event did not substantiate the necessity for performing fatigue analysis of the engineer and conductor.

Conclusion: Having obtained fatigue related information, including a 10-day work history, for all three employees (Conductor 1, Engineer 1, and Engineer 2) involved in this highway-rail grade crossing quintuple fatality, it is determined that all three crew members had adequate rest prior to reporting to duty and that railroad employee fatigue was not a factor in this event. Train crew fatigue was not a factor in this event.

Analysis - Train Crew Performance

Investigative interviews with members of the train crew, view of lead locomotive video, and analysis of event recorder data for the lead and controlling locomotive, found the engineer's actions to be consistent with safe practices and proper train handling procedures.

Conclusion: The actions of the train crew were not a factor in this event.

Analysis - Motive, Power and Equipment

Analysis – Region 5 Motive, Power, and Equipment inspector obtained/reviewed locomotive inspection reports for both locomotive engines (ATK 132 and ATK 113) involved in the collision. According to the event recorder, the horn and brakes were working and use appropriately.

Conclusion: Motive, Power, and Equipment was not a factor in this event.

Analysis - Active Warning Devices

Analysis- Region 5 Signal and Train Control reviewed the active warning device downloads and inspected the active warning devices at the crossing (MP130.6) and found the active warning devices to be in working condition at the time of the collision. The Region 5 Signal and Train Control inspector also confirmed 29 seconds of warning time was provided at the crossing. The video from the lead locomotive and the one witness's account of the event confirmed the activation of the railroad gate arms prior to the train entering the island and impacting the automobile.

Conclusion- Active Warning Devices were not a factor in this event.

Analysis – Advanced Warning

Analysis - At the time of the collision, there was an "Advance Warning" sign and "Advance Warning" pavement markings 480 feet south of the nearest rail on Louisiana State Highway 88. There was also a "Do Not Stop on Tracks" sign erected 93 ½ feet south of the nearest rail on Louisiana State Highway 88.

Conclusion: There were sufficient advance warning and pavement markings at this crossing.

Analysis - "Sight Distance"

As this was a public crossing with active warning devices, there was no requirement for a sight distance study.

Conclusion: Driver's sight distance was not a factor in this event.

Analysis – Driver Toxicology

According to the Louisiana Police Department's Toxicological report on the vehicle driver, no ethyl alcohol was detected in the driver's sample. The driver's sample did contain an unspecified amount of Diphenhydramine and Venlafaxine.

Conclusion: Driver's toxicology was not considered a factor in this event.

Overall Conclusion:

The actions of the train crew were not a factor in this event. There were sufficient advance warning and pavement markings at this crossing. Driver's sight distance was not considered a factor in this event. The driver stopped on the tracks, thereby disregarding the traffic control.

Probable Cause and Contributing Factors:

The probable cause of the accident is that the driver disregarded traffic control. The driver was issued a citation for disregarding traffic control. The driver stopped on the tracks when there was a regulatory sign at the crossing stating, "Do not stop on tracks".