



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2010-07***

***Norfolk Southern (NS)
Tifton, GA
February 7, 2010***

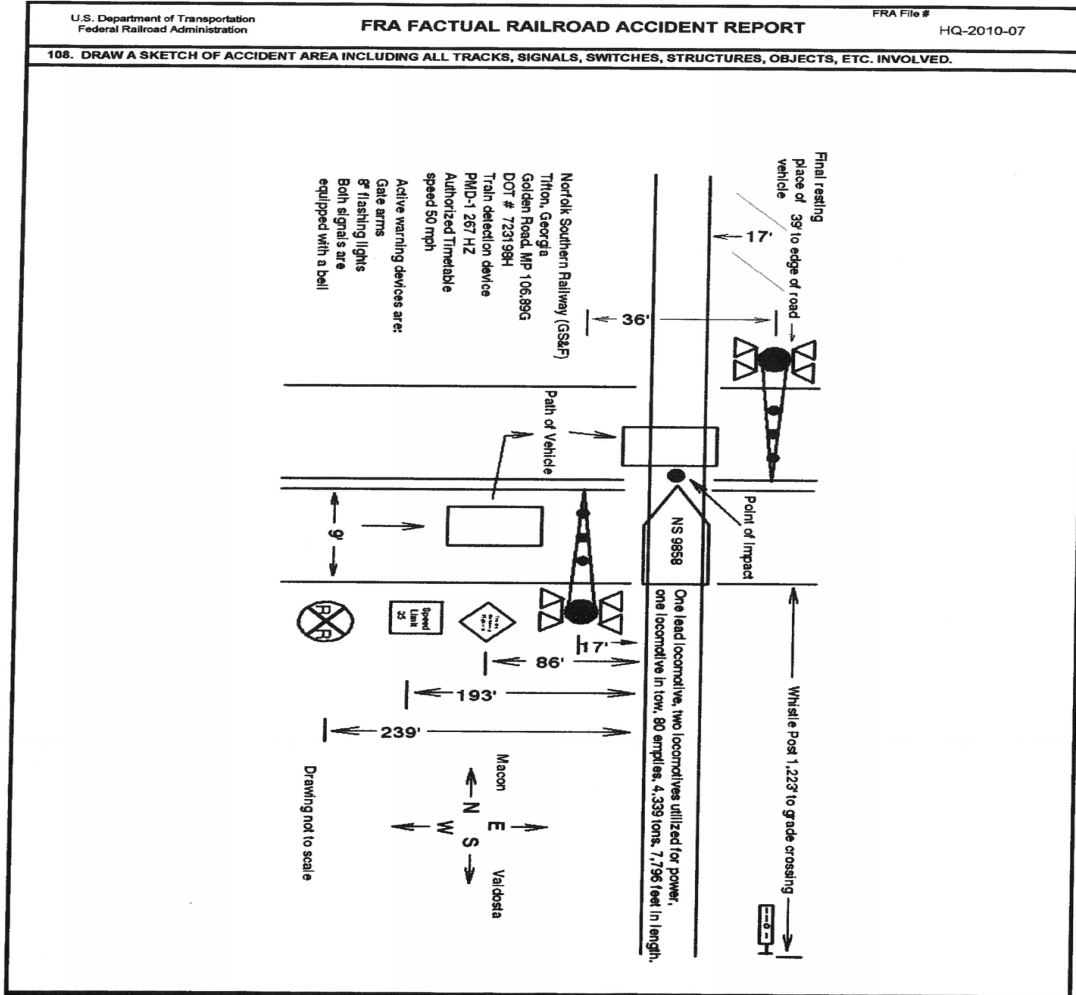
Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

1. Name of Railroad Operating Train #1 Norfolk Southern Corp. [NS]		1a. Alphabetic Code NS		1b. Railroad Accident/Incident No. 038349	
2. Name of Railroad Operating Train #2 N/A		2a. Alphabetic Code N/A		2b. Railroad Accident/Incident No. N/A	
3. Name of Railroad Operating Train #3 N/A		3a. Alphabetic Code N/A		3b. Railroad Accident/Incident No. N/A	
4. Name of Railroad Responsible for Track Maintenance: Norfolk Southern Corp. [NS]		4a. Alphabetic Code NS		4b. Railroad Accident/Incident No. 038349	
5. U.S. DOT_AAR Grade Crossing Identification Number 723198H		6. Date of Accident/Incident Month 02 Day 07 Year 2010		7. Time of Accident/Incident 10:50: <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM	
8. Type of Accident/Incident (single entry in code box)					
1. Derailment		4. Side collision		7. Hwy-rail crossing	
2. Head on collision		5. Raking collision		10. Explosion-detonation	
3. Rear end collision		6. Broken Train collision		11. Fire/violent rupture	
		9. Obstruction		12. Other impacts	
				13. Other (describe in narrative) Code 07	
9. Cars Carrying HAZMAT 0		10. HAZMAT Cars Damaged/Derailed N/A		11. Cars Releasing HAZMAT N/A	
				12. People Evacuated 0	
				13. Division GEORGIA	
14. Nearest City/Town TIFTON		15. Milepost (to nearest tenth) 106.89G		16. State Abbr Code N/A GA	
				17. County TIFT	
18. Temperature (F) (specify if minus) 55 F		19. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		20. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 1	
				21. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1	
22. Track Name/Number SINGLE MAIN TRACK		23. FRA Track Code Class (1-9, X) 4		24. Annual Track Density (gross tons in millions) 27.5	
				25. Time Table Direction Code 1. North 3. East 2. South 4. West 1	
OPERATING TRAIN #1					
26. Type of Equipment Consist (single entry)		1. Freight train		4. Work train	
2. Passenger train		5. Single car		7. Yard/switching	
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code	
		9. Maint./inspect.car		27. Was Equipment Attended? Code 1. Yes 2. No 1	
29. Speed (recorded speed, if available) Code R - Recorded E - Estimated 49 MPH R		31. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits		31a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable 2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter 0	
30. Trailing Tons (gross tonnage, excluding power units) 4339					
32. Principal Car/Unit		a. Initial and Number NS9858		b. Position in Train 1	
(1) First involved (derailed, struck, etc)				c. Loaded (yes/no) N/A	
(2) Causing (if mechanical cause reported)		0		0 N/A	
				33. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol Drugs N/A N/A	
				34. Was this consist transporting passengers? (Y/N) N	
35. Locomotive Units		a. Head End		Mid Train	
		b. Manual		c. Remote	
		d. Manual		c. Remote	
(1) Total in Train		4		0 0	
(2) Total Derailed		0		0 0	
				36. Cars	
				a. Freight b. Pass. c. Freight d. Pass. e. Caboose	
				0 0 80 0 0	
				0 0 0 0 0	
37. Equipment Damage		38. Track, Signal, Way, & Structure Damage		39. Primary Cause Code M308	
This Consist \$100.00		\$100.00		40. Contributing Cause Code N/A	
				45. Engineer/Operator Hrs 3 Mi 20	
41. Engineer/Operators 1		42. Firemen 0		43. Conductors 1	
				44. Brakemen 0	
				46. Conductor Hrs 3 Mi 20	
Casualties to:		47. Railroad Employees		48. Train Passengers	
Fatal		0		0 2	
Nonfatal		0		0 1	
				50. EOT Device? 1. Yes 2. No 1	
				51. Was EOT Device Properly Armed? 1. Yes 2. No 1	
				52. Caboose Occupied by Crew? 1. Yes 2. No 2	
OPERATING TRAIN #2					
53. Type of Equipment Consist (single entry)		1. Freight train		4. Work train	
2. Passenger train		5. Single car		7. Yard/switching	
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code	
		9. Maint./inspect.car		54. Was Equipment Attended? Code 1. Yes 2. No N/A	
56. Speed (recorded speed, if available) Code R - Recorded E - Estimated N/A MPH N/A		58. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track		58a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable	

57. Trailing Tons (gross tonnage, excluding power units)		N/A		c. Auto train stop d. Cab e. Traffic f. Interlocking		i. Time table/train orders j. Track warrant control k. Direct traffic control l. Yard limits		o. Positive train control p. Other (Specify in narrative) Code(s)		2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter		N/A									
59. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded(yes/no)		60. 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)		N/A		N/A		N/A							N/A		N/A						
(2) Causing (if mechanical cause reported)		N/A		N/A		N/A		61. Was this consist transporting passengers? (Y/N)					N/A								
62. Locomotive Units		a. Head End		Mid Train		Rear End		63. Cars		Loaded		Empty		e. Caboose							
				b. Manual		c. Remote		d. Manual		c. Remote		a. Freight		b. Pass.		c. Freight		d. Pass.			
(1) Total in Train		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			
(2) Total Derailed		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			
64. Equipment Damage This Consist		N/A		65. Track, Signal, Way, & Structure Damage		N/A		66. Primary Cause Code		N/A		67. Contributing Cause Code		N/A							
68. Engineer/Operators		69. Firemen		70. Conductors		71. Brakemen		72. Engineer/Operator		73. Conductor											
N/A		N/A		N/A		N/A		Hrs N/A Mi N/A		Hrs N/A Mi N/A											
Casualties to:		74. Railroad Employees		75. Train Passengers		76. Other		77. EOT Device?		78. Was EOT Device Properly Armed?											
Fatal		N/A		N/A		N/A		1. Yes 2. No N/A		1. Yes 2. No N/A											
Nonfatal		N/A		N/A		N/A		79. Caboose Occupied by Crew?		1. Yes 2. No											
OPERATING TRAIN #3																					
80. Type of Equipment Consist (single entry)		1. Freight train		4. Work train		7. Yard/switching		A. Spec. MoW Equip.		Code		81. Was Equipment Attended?		Code		82. Train Number/Symbol					
		2. Passenger train		5. Single car		8. Light loco(s).				N/A		1. Yes 2. No		N/A		N/A					
		3. Commuter train		6. Cut of cars		9. Maint./inspect.car															
83. Speed (recorded speed, if available)		Code		85. Method(s) of Operation (enter code(s) that apply)				85a. Remotely Controlled Locomotive?													
R - Recorded		N/A		a. ATCS		g. Automatic block		m. Special instructions													
E - Estimated		MPH		N/A		b. Auto train control		h. Current of traffic		n. Other than main track											
						c. Auto train stop		i. Time table/train orders		o. Positive train control											
84. Trailing Tons (gross tonnage, excluding power units)		N/A		d. Cab		j. Track warrant control		p. Other (Specify in narrative)		Code(s)											
				e. Traffic		k. Direct traffic control															
				f. Interlocking		l. Yard limits															
86. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded(yes/no)		87. 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)		N/A		N/A		N/A							N/A		N/A						
(2) Causing (if mechanical cause reported)		N/A		N/A		N/A		88. Was this consist transporting passengers? (Y/N)					N/A								
89. Locomotive Units		a. Head End		Mid Train		Rear End		90. Cars		Loaded		Empty		e. Caboose							
				b. Manual		c. Remote		d. Manual		c. Remote		a. Freight		b. Pass.		c. Freight		d. Pass.			
(1) Total in Train		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			
(2) Total Derailed		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A			
91. Equipment Damage This Consist		N/A		92. Track, Signal, Way, & Structure Damage		N/A		93. Primary Cause Code		N/A		94. Contributing Cause Code		N/A							
95. Engineer/Operators		96. Firemen		97. Conductors		98. Brakemen		99. Engineer/Operator		100. Conductor											
N/A		N/A		N/A		N/A		Hrs N/A Mi N/A		Hrs N/A Mi N/A											
Casualties to:		101. Railroad Employees		102. Train		103. Other		104. EOT		105. Was EOT Device Properly											
Fatal		N/A		N/A		N/A		1. Yes 2. No N/A		1. Yes 2. No N/A											
Nonfatal		N/A		N/A		N/A		106. Caboose Occupied by Crew?		1. Yes 2. No											
Highway User Involved										Rail Equipment Involved											
107. C. Truck-Trailer. F. Bus J. Other Motor Vehicle Code		A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian		B. Truck E. Van H. Motorcycle M. Other (spec. in narrative) A				111. Equipment		3. Train (standing)		6. Light Loco(s) (moving)		Code							
								1. Train(units pulling)		4. Car(s)(moving)		7. Light(s) (standing)									
								2. Train(units pushing)		5. Car(s)(standing)		8. Other (specify in narrative)		1							
108. Vehicle Speed (est. MPH at impact)		5		109. geographical Code		1. North 2. South 3. East 4. West 3		112. Position of Car Unit in		1											

110. Position 1. Stalled on Crossing 2. Stopped on Crossing 3. Moving Over Crossing 4. Trapped				Code 3	113. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User				Code 1				
114a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? 1. Highway User 2. Rail Equipment 3. Both 4. Neither				Code 4	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither				Code 4				
114c. State here the name and quantity of the hazardous materials released, if any. N/A													
115. Type Crossing 1. Gates 2. Cantilever FLS 3. Standard FLS 4. Wig Wags 5. Hwy. traffic signals 6. Audible Warning 7. Crossbucks 8. Stop signs 9. Watchman 10. Flagged by crew 11. Other (spec. in narr.) 12. None				Code 01	116. Signaled Crossing (See instructions for codes)				Code 01	117. Whistle Ban 1. Yes 2. No 3. Unknown		Code 2	
118. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach				Code 1	119. Crossing Warning with Highway Signals 1. Yes 2. No 3. Unknown				Code 2	120. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown			Code 2
121. Age 17		122. Driver's Gender 1. Male 2. Female		Code 1	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown				Code 2	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative)			Code 1
125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown				Code 2	126. View of Track Obscured by (primary obstruction) 1. Permanent Structure 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other (specify in narrative) 8. Not obstructed				Code 8				
Casualties to:			Killed	Injured	127. Driver 1. Killed 2. Injured 3. Uninjured				Code 2	128. Was Driver in the Vehicle? 1. Yes 2. No			Code 1
129. Highway-Rail Crossing Users			2	1	130. Highway Vehicle Property Damage (est. dollar damage) 2700				131. Total Number of Highway-Rail Crossing Users (include driver) 3				
132. Locomotive Auxiliary Lights? 1. Yes 2. No				Code 1	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No				Code 1				
134. Locomotive Headlight Illuminated? 1. Yes 2. No				Code 1	135. Locomotive Audible Warning Sounded? 1. Yes 2. No				Code 1				

136. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.



137. SYNOPSIS OF THE ACCIDENT

On February 7, 2010 at 10:50 a.m. EST northbound Norfolk Southern Railway (NS) freight train 29NG3-04 struck an eastbound highway vehicle at Golden Road highway-rail grade crossing. The accident occurred in Tifton, Georgia (GA) at milepost (MP) 106.89G on the Georgia Division, Macon District. The method of operation in the accident area is by Track Warrant Control (TWC).

The two passengers in the highway vehicle were killed and the driver was slightly injured. The highway vehicle was completely destroyed. There were no personal injuries to the train crew. NS reported an estimated damage to the lead locomotive of \$100.00 and NS reported damage to signal equipment and track structure as \$100.00. There was no derailment as a result of the highway-rail grade crossing accident.

At the time of the accident it was daylight and clear. The temperature was 55° F.

The cause of the accident is due to the highway user driving around the downed grade crossing gate arm.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT:

The NS freight train 29NG3-04 originated February 7, 2010 in Valdosta, GA at the NS Langdale Rail Yard. A Class 1 Train Air Brake Test was performed at 7:50 a.m. The train consisted of four (4) locomotives (one lead locomotive, two locomotives utilized for power and one locomotive in tow), and 80 empty rail cars. The crew consisting of a locomotive engineer and a conductor went on duty at the NS Langdale Yard. Their home terminal is Macon, GA. They went on duty at 7:30 a.m. The train crew received the required statutory off duty rest period. The engineer received 14 hours and 18 minutes rest and the conductor received 14 hours and 17 minutes rest. They departed Langdale Yard at about 9:00 a.m.

NS Train 29NG3-04 was operating northbound at 49 miles per hour as it approached Golden Road highway-rail grade crossing on the single main track. The engineer was operating and seated at the controls of the lead locomotive. The conductor was seated in the conductor's seat.

Approaching the point of the accident from the south there is a 2-degree right-hand curve about 4,680 feet south of the grade crossing that extends about 500 feet. From milepost 108G there is an ascending .86 grade and then the track begins a descending 1.09 grade, then an ascending 1.06 grade, and then a descending 1.14 grade for about 2,000 feet to the point of impact.

The highway vehicle was a 1994 Nissan Sentra traveling east on Golden Road. The highway vehicle was occupied by a 17 year-old male driver, a 17 year-old male passenger located in the front seat, and a 15 year-old male passenger located in the rear seat.

The NS timetable direction of the train was north. The geographic direction is north. Timetable directions are used throughout this report.

THE ACCIDENT

The locomotive engineer and conductor are the only witnesses to the accident. The train was operating at 49 mph as recorded by the event recorder on the lead locomotive (NS 9858). The maximum authorized speed for this line segment is 50 mph as designated in the current NS Georgia Division Western Region Timetable # 1. The locomotive engineer stated that as the train approached the grade crossing, he began sounding the train horn at the whistle post; two longs, a short and a long. Also, as they approached Golden Road grade crossing, he observed a highway vehicle drive around the downed west grade crossing gate arm. He also observed the gate arm marker lights operating. The conductor said the train horn was sounded at the whistle post and he observed a highway vehicle drive around the downed west gate arm.

The highway vehicle was traveling west to east on Golden Road. Both the engineer and conductor said that it looked as if the vehicle came to a stop about the time the train struck the highway vehicle.

The train struck the highway vehicle on the passenger side at about mid-point. The impact forced the vehicle north 39 feet and 17 feet east of the nearest rail. The accident knocked off the east gate arm and damaged the counter weight arms. The highway vehicle came to a rest in the north east quadrant of the grade crossing. According to the State of Georgia Traffic Crash Report, the front left occupant ejection is unknown, the front right occupant was not ejected, and the second row-left occupant was ejected totally.

The locomotive engineer stated that when the train struck the highway vehicle he placed the train into full locomotive dynamic brake application and then into an emergency application of the train air brake system. Also, he engaged the emergency radio tone and reported the accident and location to the chief dispatcher. According to the lead locomotive event recorder, the lead locomotive came to a stop 1,689.6 feet north of the point of impact. After the train came to a stop the locomotive engineer then departed the locomotive and the headlights and ditch lights were working properly. A car inspector from Valdosta Yard arrived and inspected the locomotive. The conductor departed the train and walked back to the accident site where he observed police personnel and emergency medical services (EMS) at the scene. He talked to a law enforcement officer and obtained information of the vehicle, tag number, and make of car. He then returned to his train and his duties as a conductor. After the train was released from the accident scene, the crew operated the train to the nearest siding (Sycamore MP 87.8G) where they were relieved of duty and then taxied to Macon, GA.

ANALYSIS AND CONCLUSIONS

ANALYSIS-TOXICOLOGICAL TESTING:

No toxicological tests were performed on the driver of the vehicle or on the train crew members. The FRA does not require such testing for this type of accident.

ACTIVE WARNING DEVICES TEST ANALYSIS:

The highway-rail grade crossing warning devices at Golden Road consist of gates, flashing lights, and bells. The gate arms extend to the center line of the highway. The warning devices are controlled by a Harmon Industries Phase Motion Detector (PMD-1). Golden road is a two-lane highway and the posted highway speed is 35 mph. The traffic lanes are nine feet wide and there are no advance pavement markings or stop bars at the grade crossing. Eastbound, there is a passive railroad sign placed 239 feet from the nearest rail. Golden Road is an asphalt surface with a railroad asphalt surface at the grade crossing. The roadway alignment is straight and level. Golden Road is not a designated quiet zone. There are no recording devices in the grade crossing control house. The railroad intersects Golden Road with a single Main Track and there is a whistle post placed 1,223 feet south of the grade crossing.

Prior to the accident the last NS grade crossing warning system tests were performed on February 5, 2010. After the accident the active warning devices were tested by NS signal personnel. Testing was completed about 6:30 p.m. on February 7, 2010, and found the warning devices to function as intended. The tests were performed again on February 8, 2010 in the presence of an FRA Signal and Train Control Inspector and found the warning devices complied with all applicable Federal Railroad Administration (FRA) Regulations, Part 234 Grade Crossing Signal System Safety.

The locomotive engineer's view of the grade crossing is unobstructed and the highway users' view of the grade crossing is unobstructed.

According to the State of Georgia Traffic Crash Report, the driver of the vehicle failed to yield the right of way to the on-coming train. Also, according to the State of Georgia Traffic Crash Report the crossing arms were down, the red lights were flashing, and the bells were sounding when the Georgia State Police Officer arrived at the scene.

CONCLUSION:

The highway-rail grade crossing devices functioned as intended.

ANALYSIS-LOCOMOTIVE SAFETY DEVICES:

The locomotive was equipped with a headlight, auxiliary lights and audible warning device required by Federal Regulations. According to the locomotive engineer, these devices were tested at the accident site by a car inspector from Langdale Yard and they functioned as intended. The locomotive was equipped with a speed indicator and an event recorder as required. The relevant event recorder was downloaded by a mechanical employee at the accident site. The event recorder on this locomotive does not record the audible warning device.

CONCLUSION:

The analysis disclosed that the locomotive engineer was in compliance with all train handling requirements.

FATIGUE ANALYSIS:

FRA obtained fatigue information from Norfolk Southern Railway Company (NS), including a 10-day work history, for two (2) NS employees involved in a highway grade crossing collision, in Tifton, GA. They were the engineer and conductor of NS Train 29NG3-04. A program default setting of excellent was used. FRA uses an overall effectiveness rate of 77.5 percent as a baseline for fatigue analysis, which is equivalent to blood alcohol content (BAC) of 0.05. At or above this baseline, FRA does not consider fatigue as probability.

FATIGUE CONCLUSIONS:

1. Locomotive Engineer of Train 29NG304
Sleep setting Excellent
Overall effectiveness = 96.96%
Lapse Index = 0.5
Reaction Time = 103%
Chronic Sleep Debt = 4.56
Hours of Continuous Wakefulness = 12.35
Time of Day (military) 17:20
BAC Equivalent = < 0.05
Conclusion: Fatigue was not evident for this employee.

2. Conductor of Train 29NG304
Sleep setting Excellent
Overall effectiveness = 98.10%
Lapse Index =
Reaction Time =
Chronic Sleep Debt = 4.47
Hours of Continual Wakefulness = 12.35
Time of Day (military) 17:20
BAC Equivalent =
Conclusion: Fatigue was not evident for this employee.

PROBABLE CAUSE:

The probable cause of the accident is the driver's disregard for the activated grade crossing warning devices and driving around the downed grade crossing gate arm.