Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-08

Norfolk Southern (NS)
Centralia, Illinois
February 17, 2007

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.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2007-8

1.Name of Railroad Operating Train #1: Norfolk Southern Corp. [NS]	1a. Alphabetic Code: NS	1b. Railroad Accident/Incident No.: 28412
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.: 28412
5. U.S. DOT_AAR Grade Crossing Identification Number: 724786U	6. Date of Accident/Incident: Month 02 Day 18 Year 2007	7. Time of Accident/Incident: 09:50: ☑ AM ☐ PM

8. Type of Accident/Indicent (single entry in code box): 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other (describe in narrative) — Code: 07

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
4	0	0	0	Illinois

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
Walnut Hill	73.4W	N/A	IL	JEFFERSON

18. Temperature (F) (specify if minus)	19. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark — Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow — Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry — Code
28 F	2	1	1

22. Track Name/Number	23. FRA Track Class (1-9, X) — Code	24. Annual Track Density (gross tons in millions)	25. Time Table Direction 1. North 2. South 3. East 4. — Code
Main	4	21.1	4

OPERATING TRAIN #1

26. Type of Equipment Consist (single entry) 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car — A. Spec. MoW Equip. Code	27. Was Equipment Attended? 1. Yes 2. No — Code	28. Train Number/Symbol
1	1	168D817

29. Speed (recorded speed, if available) R - Recorded E - Estimated — Code	31. Method(s) of Operation (enter code(s) that apply)	31a. Remotely Controlled Locomotive?
49 MPH R	a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative)	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter
30. Trailing Tons (gross tonnage, excluding power units): 2922	Code(s): g, j, N/A, N/A, N/A	0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	NS9077	1	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	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	2	0	0	0	0
(2) Total Derailed	0	0	0	0	0

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	21	0	21	0	0
(2) Total Derailed	0	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
0	0	M302	N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 5 Mi 20	Hrs 5 Mi 20

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	3
Nonfatal	0	0	0

50. EOT Device? 1. Yes 2. No	51. Was EOT Device Properly Armed? 1. Yes 2. No
1	1

52. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #2

53. Type of Equipment Consist (single entry) 1. Freight train 2. Passenger train 3. Commuter train 4. Work train 5. Single car 6. Cut of cars 7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car — A. Spec. MoW Equip. Code	54. Was Equipment Attended? 1. Yes 2. No — Code	55. Train Number/Symbol
N/A	N/A	N/A

56. Speed (recorded speed, if available) R - Recorded E - Estimated — Code	58. Method(s) of Operation (enter code(s) that apply)	58a. Remotely Controlled Locomotive?
0 MPH N/A	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	0 = Not a remotely controlled; 1 = Remote control portable

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57. Trailing Tons (gross tonnage, excluding power units): 0

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): N/A | N/A | N/A | N/A | N/A

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)
(1) First involved (derailed, struck, etc)	0	0	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

60. 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

61. Was this consist transporting passengers? (Y/N): N/A

62. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

64. Equipment Damage This Consist: 0

65. Track, Signal, Way, & Structure Damage: 0

66. Primary Cause Code: N/A

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
0	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 0 Mi 0

73. Conductor: Hrs 0 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No: N/A

78. Was EOT Device Properly Armed? 1. Yes 2. No: N/A

79. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #3

80. Type of Equipment Consist (single entry): 1. Freight train; 2. Passenger train; 3. Commuter train; 4. Work train; 5. Single car; 6. Cut of cars; 7. Yard/switching; 8. Light loco(s); 9. Maint./inspect.car; A. Spec. MoW Equip. Code: N/A

81. Was Equipment Attended? 1. Yes 2. No: N/A

82. Train Number/Symbol: N/A

83. Speed (recorded speed, if available) Code: R - Recorded; E - Estimated: N/A MPH 0

84. Trailing Tons (gross tonnage, excluding power units): 0

85. Method(s) of Operation (enter code(s) that apply): a. ATCS; b. Auto train control; c. Auto train stop; d. Cab; e. Traffic; f. Interlocking; g. Automatic block; h. Current of traffic; i. Time table/train orders; j.Track warrant control; k. Direct traffic control; l.Yard limits; m.Special instructions; n. Other than main track; o. Positive train control; p. Other (Specify in narrative) Code(s): N/A | N/A | N/A | N/A | N/A

85a. 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: N/A

86. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	0	0	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

87. 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

88. Was this consist transporting passengers? (Y/N): N/A

89. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

91. Equipment Damage This Consist: 0

92. Track, Signal, Way, & Structure Damage: 0

93. Primary Cause Code: N/A

94. Contributing Cause Code: N/A

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
0	0	0	0

Length of Time on Duty

99. Engineer/Operator: Hrs 0 Mi 0

100. Conductor: Hrs 0 Mi 0

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	0	0	0
Nonfatal	0	0	0

104. EOT 1. Yes 2. No: N/A

105. Was EOT Device Properly 1. Yes 2. No: N/A

106. Caboose Occupied by Crew? 1. Yes 2. No: N/A

Highway User Involved

107. A. Auto; B. Truck; C. Truck-Trailer.; D. Pick-Up Truck; E. Van; F. Bus; G. School Bus; H. Motorcycle; J. Other Motor Vehicle; K. Pedestrian; M. Other (spec. in narrative) Code: A

108. Vehicle Speed (est. MPH at impact): 15

109. geographical) 1.North 2.South 3.East 4.West Code: 2

Rail Equipment Involved

111. Equipment 1.Train(units pulling); 2.Train(units pushing); 3.Train (standing); 4.Car(s) (moving); 5.Car(s) (standing); 6.Light Loco(s) (moving); 7.Light(s) (standing); 8.Other (specify in narrative) Code: 1

112. Position of Car Unit in: 1

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110. Position	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	2	1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	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	2	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	4

114c. State here the name and quantity of the hazardous materials released, if any.
N/A

115. Type Crossing Warning	1.Gates 2.Cantilever FLS 3.Standard FLS	4.Wig Wags 5.Hwy. traffic signals 6.Audible	7.Crossbucks 8.Stop signs 9.Watchman	10.Flagged by crew 11.Other (spec. in narr.) 12.None	116. Signaled Crossing (See instructions for codes)	Code	117. Whistle 1. Yes 2. No 3. Unknown	Code
Code(s)	03	06	N/A	N/A	01			2

118. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	Code	119. Crossing Warning with Highway Signals 1. Yes 2. No 3. Unknown	Code	120. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown	Code
	1		2		2

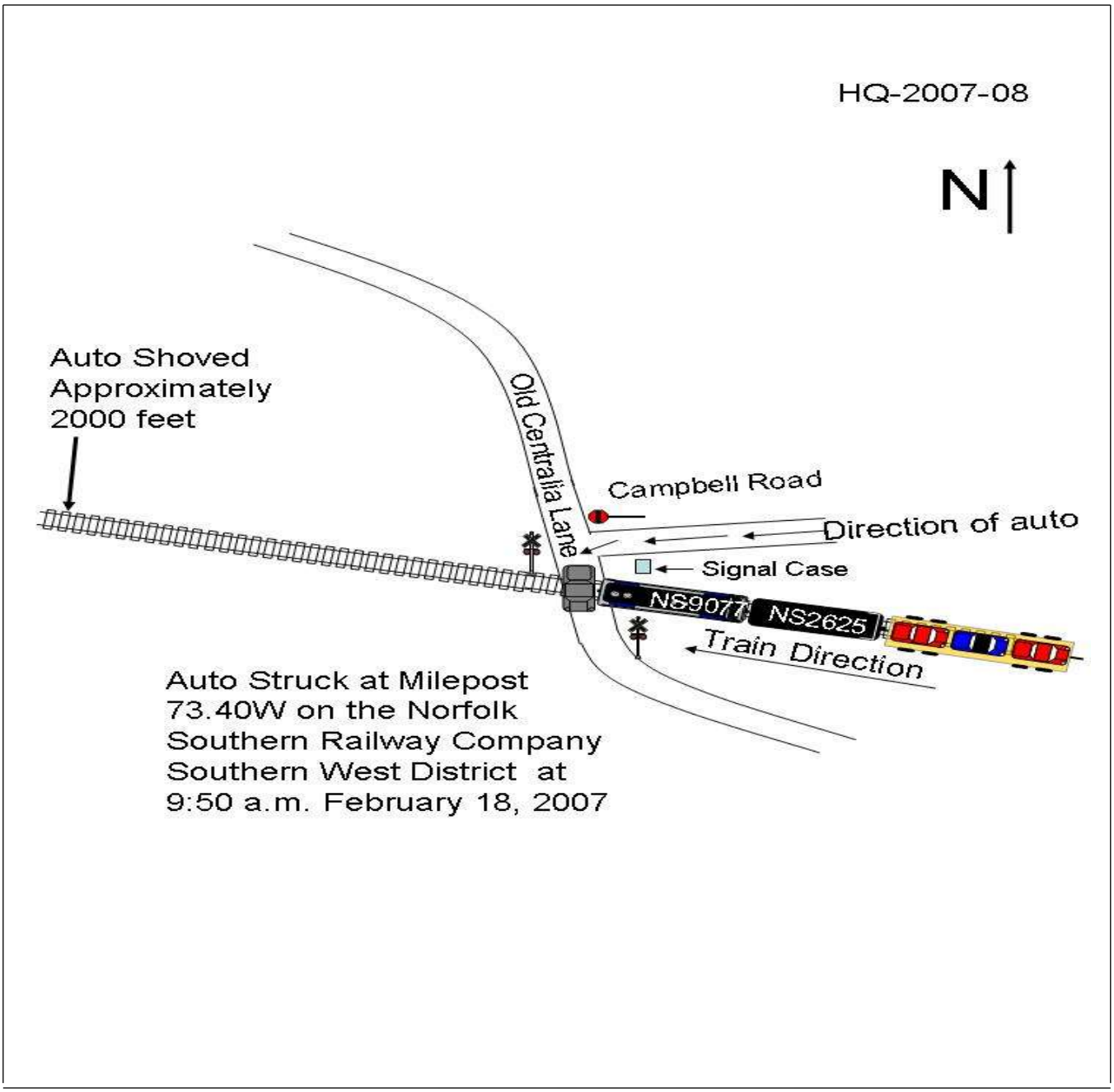
121. Age	122. Driver's Gender 1. Male 2. Female	Code	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative)	Code
62		1		2		3

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code	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
	2		8

Casualties to:	Killed	Injured	127. Driver 1. Killed 2.Injured 3. Uninjured	Code	128. Was Driver in the Vehicle? 1. Yes 2. No	Code
				1		1
129. Highway-Rail Crossing Users	3	0	130. Highway Vehicle Property Damage (est. dollar damage)	3000	131. Total Number of Highway-Rail Crossing Users (include driver)	3

132. Locomotive Auxiliary Lights? 1. Yes 2. No	Code	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No	Code
	1		1
134. Locomotive Headlight Illuminated? 1. Yes 2. No	Code	135. Locomotive Audible Warning Sounded? 1. Yes 2. No	Code
	1		1

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



137. SYNOPSIS OF THE ACCIDENT

On February 18, 2007, at approximately 9:50 a.m. CST, westbound Norfolk Southern Railway Company (NS) Train Symbol 168D817 struck a southbound highway motor vehicle at the Old Centralia Lane highway-rail grade crossing located on the NS Illinois Division, West District at milepost (MP) 73.4W near Walnut Hill, in Jefferson County, Illinois.

The driver of the automobile and two other occupants were fatally injured due to the collision. The automobile, a 1995 Lincoln Continental, was struck near the center of the driver's side and destroyed, with an estimated damage of $3,000. There were no injuries to the crew. The leading locomotive sustained no damage, and there was no derailment.

At the time of the accident, it was daylight, clear, and the temperature was approximately 28°F.

The accident was caused by the failure of the motor vehicle driver to yield to the train.

138. NARRATIVE

The crew on Train Symbol 168D817 consisted of a locomotive engineer and conductor. They went on duty at 5:30 a.m., CST, February 18, 2007, at the NS Yard in Princeton, Indiana. This was the home terminal for both crew members, and both received more than the statutory off-duty period prior to reporting for duty.

This was a mixed freight train and consisted of 2 head end locomotives, Nos. NS 9077 and NS 2625, and 42 cars. It was 2,851 feet long and weighed 2,922 tons. The train had been air tested prior to the outbound crew taking charge of it and they had the necessary air slips in their possession. The train departed Princeton at 8:20 a.m., en route to Granite City, Illinois.

After departing Princeton and prior to the accident, the crew reported no delays and no problems with the westbound train. As they approached the accident area, the locomotive engineer was seated at the controls on the right side of the leading locomotive with the short end forward. The conductor was seated on the left side of the leading locomotive involved in contacting the Illinois Central Dispatcher, via radio.

A Lincoln Continental automobile with a male driver and two passengers was being operated west on Campbell Road. This road is located north of the railroad. The driver failed to stop at a stop sign where Campbell Road intersects with Old Centralia Lane. He then turned left toward the tracks and proceeded south in front of the approaching train.

There is 1-degree 0-minute, right-hand curve at MP 74.3, and then it is tangent track to the point of accident. It is basically flat from MP 75 to the point of the accident, with a very slight descending grade. Old Centralia Lane is a black-topped, two-lane county road, and the grade is practically level for southbound traffic with a slight incline to meet grade of the railroad.

The railroad timetable direction of the train is west. The geographical direction is northwest. Timetable directions are used throughout this report.

The Accident

Train Symbol 168D817

The train was being operated at a recorded speed of 49 mph approaching the accident area. The maximum authorized speed for this train was 50 mph, as designated in the current NS Illinois Division Timetable No. 5. The train crew's view of the highway-rail grade crossing was unobstructed. As they approached the Old Centralia Lane crossing, the engineer observed, to his right, the vehicle being driven westbound on Campbell Road, which parallels the north side of the railroad tracks for a short distance, and then comes to a "T" intersection with Old Centralia Lane. The engineer said that, as he was watching the automobile, the brake lights never came on. He saw the automobile fail to stop at the stop sign for Old Centralia Lane, make a left turn, and proceed directly across the highway-rail grade crossing in front of his train. At that time, he initiated

an emergency train air brake application.

The conductor was on the radio contacting the Illinois Central dispatcher about getting his train over CN Crossing at MP 66 as he heard the engineer say they were going to hit a car. He looked to see the automobile pull in front of the train, but never saw the occupants inside.

There were no other witnesses to the train striking the automobile. The train had insufficient time to slow prior to the collision. The impact is estimated to have occurred at approximately 49 mph, as recorded by the event recorder in the controlling locomotive.

Highway Vehicle

As the automobile moved onto the highway-rail grade crossing, the engineer observed the driver look in the direction of his train and throw his arms up, as if shielding himself from the impact. The train struck the driver's side of the automobile about midpoint of the vehicle. After striking the automobile, the train shoved it approximately 2,000 feet down the track before coming to a stop with it hung up on the front of Locomotive No. NS 9077.

After the train stopped, the engineer punched in 911 on the NS radio to report the accident. The conductor went down to inspect the damage. A man who lived close to the railroad tracks looked out his window and observed the train slowing down with the automobile on the front of the locomotive. He and his wife got to the accident site as the train crew was coming down the ladder of the locomotive.

Three occupants were found in the automobile. The driver and a passenger in the front seat were deceased. A passenger in the back seat was unconscious and barely breathing. The individual in the back seat succumbed to injuries sustained before ambulance personnel arrived.

Medical personnel with Litton Ambulance Service and deputies from the Jefferson County, Illinois Sheriff's Department were on the scene within approximately 15 minutes of the accident. After an examination of the scene by authorities, the Jefferson County Coroner was summoned to the sight, where the driver and two passengers of the automobile were pronounced dead at the scene of the accident.

The NS dispatched a trainmaster, claim agent, and signal maintainer to the scene. They ascertained the condition of the crew, train, track, and signal equipment. There was no damage to hazardous materials shipments.

The conductor and engineer operating the train at the time of the incident discussed the accident with a Jefferson County Deputy Sheriff before being released from duty due to emotional trauma. They were then transported back to their home terminal of Princeton. The train was released to proceed at approximately 2:30 p.m. and continued on to Granite City with a relief crew.

Analysis and Conclusion

Analysis
The driver of the automobile was a 62-year-old male. The two female passengers were 11 and 8 years of age. The Jefferson County Coroner performed toxicological testing on the remains of the driver. The results are unknown at this time; however, the investigating police officer's report did not indicate that alcohol was believed to be a factor.

The Highway-Grade-Crossing-System (HGCS) is equipped with warning lights and a bell. An on-site inspection of the area of the accident determined there was no roadside advanced warning sign posted or pavement markings to warn the driver of the highway-rail grade crossing ahead as he traveled west on Campbell Road approaching the stop sign at the "T" intersection with Old Centralia Lane. The Illinois Commerce Commission contacted the township supervisor regarding the absence of the advanced warning sign on Campbell Road after the inspection.

Review of the NS 9077 onboard locomotive camera was conducted by FRA; it indicated that the locomotive engineer began sounding the locomotive horn at the whistle post located in advance of the crossing. In an interview, the engineer indicated that he blew two longs, a short, and a long for the crossing, and, when the automobile started to pull in front of his train, he immediately started sounding short blasts. The event recorder did not provide verification detail of horn activity. The State of Illinois Signal and Train Control inspector advised FRA that when tests of the crossing active warning device were conducted that the whistle post was properly displayed.

Lead Locomotive No. NS 9077 was equipped with a headlight, auxiliary lights, and audible warning devices required by Federal regulations. The trainmaster tested these devices at the accident site, and they functioned as intended. It was also equipped with a speed indicator and an event recorder, as required. The event recorder data was downloaded by NS personnel after the train arrived at the Granite City facilities and analyzed there. The analysis disclosed that the locomotive engineer was in compliance with all applicable railroad operating and train handling requirements. The Federal Railroad Administration (FRA) reviewed the results of this analysis and concurred with the conclusions.

Both members of the train crew reported that the HGCS warning devices were working at the time of the accident. The NS Signal Department performed an inspection of the devices immediately following the accident and verified they were working as intended. An on-site inspection was conducted on the HGCS warning devices again on Thursday, February 22, 2007, in the presence of an FRA Operating Practices Inspector and an Illinois Commerce Commission Signal and Train Control Inspector, and the devices functioned properly. Inspectors observed that an additional set of warning flashers was mounted on the mast located on the north side of the HGCS and positioned to be plainly visible to an automobile traveling westbound on Campbell Road as it approaches the "T" intersection with Old Centralia Lane.

Conclusions
The railroad was in full compliance with their own and all applicable Federal standards. The train crew had no information that could be used to determine why the automobile failed to stop at the crossing.

Probable Cause & Contributing Factors

An investigation by the Federal Railroad Administration found that the accident occurred because the driver of the automobile failed to stop at the highway-rail grade crossing, as required by Illinois State Law.