Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-47

Norfolk Southern
Moscow, TN
June 9, 2006

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-2006-47

1.Name of Railroad Operating Train #1: Norfolk Southern Corp. [NS]	1a. Alphabetic Code: NS	1b. Railroad Accident/Incident No.: 025482
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident: N/A
3.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	3a. Alphabetic Code: UP	3b. Railroad Accident/Incident No.: 025482
4. U.S. DOT_AAR Grade Crossing Identification Number: 732094A	5. Date of Accident/Incident: Month 06 / Day 09 / Year 2006	6. Time of Accident/Incident: 02:00: ☐ AM ☑ PM

7. 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): 07

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
0	0	0	0	Alabama

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Moscow	A510.1	N/A	TN	FAYETTE

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

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Mainline		4	55		4

OPERATING TRAIN #1

25. 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: 1

26. Was Equipment Attended? 1. Yes 2. No — Code: 1

27. Train Number/Symbol: ZCHCS SE115

28. Speed (recorded speed, if available) R - Recorded E - Estimated: 35 MPH — Code: R

29. Trailing Tons (gross tonnage, excluding power units): 3960

30. 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): j N/A N/A N/A N/A

30a. 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

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

32. 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

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

34. 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	3	0	0	0	0
(2) Total Derailed	0	0	0	0	0

35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	24	0	12	0	0
(2) Total Derailed	0	0	0	0	0

36. Equipment Damage This Consist: 0

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

38. Primary Cause Code: M308

39. Contributing Cause Code: N/A

Number of Crew Members

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen
N/A	N/A	1	N/A

Length of Time on Duty

44. Engineer/Operator: Hrs 7 Mi 0

45. Conductor: Hrs 7 Mi 0

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	3
Nonfatal	N/A	0	1

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

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

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

OPERATING TRAIN #2

52. 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

53. Was Equipment Attended? 1. Yes 2. No — Code: N/A

54. Train Number/Symbol: N/A

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

57. Method(s) of Operation (enter code(s) that apply):
a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track

57a. Remotely Controlled Locomotive?
0 = Not a remotely controlled; 1 = Remote control portable

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2006-47

56. 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): 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

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

59. 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

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

61. 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

62. Cars	Loade a. Freight	Loade 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

63. Equipment Damage This Consist: 0

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

65. Primary Cause Code: N/A

66. Contributing Cause Code: N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

71. Engineer/Operator: Hrs 0 Mi 0

72. Conductor: Hrs 0 Mi 0

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	0	0	0

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

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

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

Highway User Involved

79. Type — Code: A
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)

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

81. Direction geographical) — Code: 2
1.North 2.South 3.East 4.West

82. Position — Code: 3
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: 4
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

83. Equipment — Code: 1
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)

84. Position of Car Unit in Train: 1

85. Circumstance — Code: 1
1. Rail Equipment Struck Highway User
2. Rail Equipment Struck by Highway User

86b. Was there a hazardous materials release by — Code: 4
1. Highway User 2. Rail Equipment 3. Both 4. Neither

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of Crossing Warning — Code(s): 07 | 08 | N/A | N/A | N/A | N/A | N/A
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

88. Signaled Crossing Warning (See instructions for codes) — Code: N/A

89. Whistle Ban — Code: 2
1. Yes
2. No
3. Unknown

90. Location of Warning — Code: 1
1. Both Sides
2. Side of Vehicle Approach
3. Opposite Side of Vehicle Approach

91. Crossing Warning Interconnected with Highway Signals — Code: 2
1. Yes
2. No
3. Unknown

92. Crossing Illuminated by Street Lights or Special Lights — Code: 2
1. Yes
2. No
3. Unknown

93. Driver's Age: 18

94. Driver's Gender — Code: 2
1. Male
2. Female

95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train — Code: 2
1. Yes 2. No 3. Unknown

96. Driver — Code: 3
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)

97. Driver Passed Standing Highway Vehicle — Code: 2
1. Yes 2. No 3. Unknown

98. View of Track Obscured by (primary obstruction) — Code: 8
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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	3	1

99. Driver Was — Code: 2
1. Killed 2.Injured 3. Uninjured

100. Was Driver in the Vehicle? — Code: 1
1. Yes 2. No

102. Highway Vehicle Property Damage (est. dollar damage): 4800

103. Total Number of Highway-Rail Crossing Users (include driver): 4

104. Locomotive Auxiliary Lights? — Code: 1
1. Yes 2. No

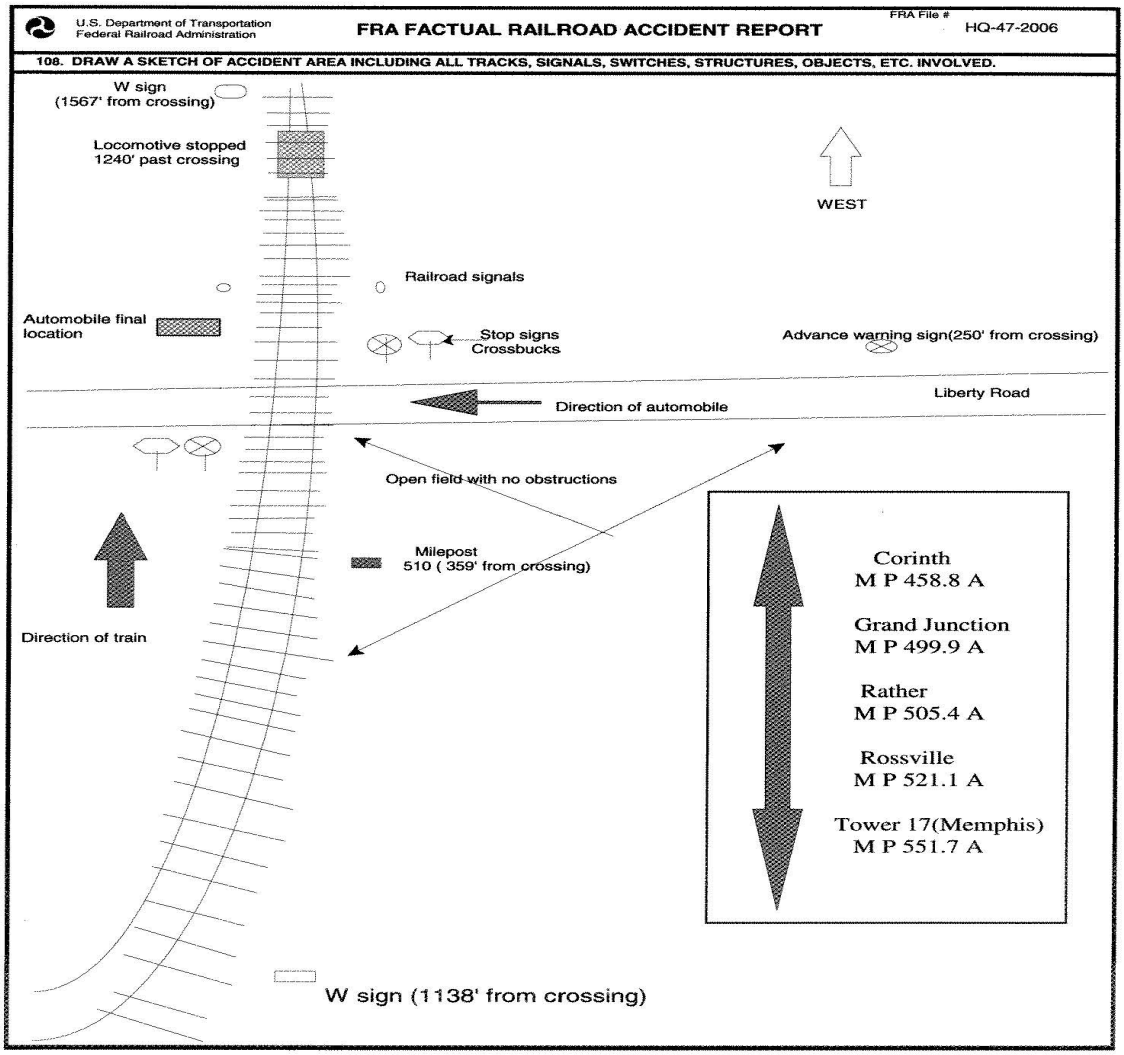
105. Locomotive Auxiliary Lights Operational? — Code: 1
1. Yes 2. No

106. Locomotive Headlight Illuminated? — Code: 1
1. Yes 2. No

107. Locomotive Audible Warning Sounded? — Code: 1
1. Yes 2. No

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

HQ-47-
2006
sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

On June 9, 2006, at 2 p.m. Central Standard Time (CST), a westbound Norfolk Southern Corporation (NS) Train NS 7127 collided with an automobile at a high-way rail grade crossing. The accident occurred near Moscow, Tennessee (TN) at milepost (MP) A510.06 on the NS Alabama Division, NA/West End Subdivision. The automobile was traveling southbound on Liberty Road when the accident occurred. The crossing protection at this location consists of a stop sign and crossbucks. There are also advanced warning signs 250 feet in advance to the crossing. The Department of Transportation (DOT) number is 732094A.

There were four occupants in the vehicle. Two were fatally injured at the scene of the accident, and one died en route to Lebonheur Medical Center in Memphis, TN. The fourth occupant, the driver, was taken to the Regional Medical Center in Memphis and is in critical condition. The passenger car, a 1996 Plymouth Breeze, was completely destroyed. There were no injuries to the train crew. There was no damage to railroad equipment and no derailment.

At the time of the accident it was daylight and clear. The temperature was 93°F.

The cause of the accident was the driver failed to obey traffic controls and failed to observe warnings or instructions.

110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Circumstances Prior to the Accident

The crew of Train NS 7127 included a locomotive engineer and a conductor. They first went on duty on June 9, at 7 a.m., at the NS Yard in Sheffield, Alabama (AL). This was the home terminal for this crew and both employees received more than the statutory off duty period prior to reporting for duty. Train NS 7127 was an Intermodal train consisting of three locomotives, 24 loaded and 12 empty cars, and weighed 3,960 tons. It was traveling from Sheffield to Memphis, TN. The train received an initial terminal brake test at Sheffield.

As the westbound train approached the accident area, the locomotive engineer was seated at the controls on the right (north) side of the leading locomotive and the conductor was seated on the left (south) side. This locomotive was running with the short hood forward.

Approaching the accident site from the east there is a 1,600 ft left hand 3.5 degree curve, which ends just west of the crossing where the accident occurred. The grade is descending at .83-percent. In this area of Liberty Road, the street is tangent and the grade is practically level. The grade crossing is 23 feet wide and the surface is asphalt. Liberty Road is a two-lane county road and the road crossing intersects the track at a 90 degree angle.

The railroad timetable direction and geographic direction are both west.

The Accident

Train NS 7127 was operating at 35 miles per hour (mph) approaching the accident area. The train crew's view of the crossing was unobstructed because there was an open field approaching the northeast quadrant of the Liberty Road Crossing. The locomotive engineer said the trip was uneventful approaching the accident site. He also said there were no problems with the operation of the train. The engineer said that he became aware of the impending collision with the vehicle about 50 ft in advance of the road crossing when he initiated an emergency train air brake application. The engineer said he observed the automobile in advance of the crossing and it appeared to be slowing down approaching the cross bucks. Instead of stopping, the vehicle continued and entered the crossing. He estimated the automobile was traveling about 25 or 30 mph. The conductor said he also thought the automobile was going to stop at the crossing. According to the Tennessee Highway Patrolman Accident Report the speed limit on Liberty Road is 55 mph.

The train struck the left side of the automobile in the rear door and was traveling at a recorded speed of 35 mph. The maximum authorized speed for this train movement is 40 mph, as designated in the current NS Timetable No. 15. The automobile was carried west about 85 ft. before coming to rest on the south side of the track. The train stopped about 1,240 ft. west of the Liberty Road. After the incident, the conductor called an NS track foreman that was working in Moscow asking him to verify the name of the road crossing where the accident occurred. He then called the train dispatcher informing him about the road crossing collision and to contact emergency response personnel. The engineer stayed on the locomotive and the conductor walked back to the crossing waiting for the emergency responders. According to the train crew, the accident occurred about 2 p.m.

Engine No. 9 crew from the Moscow Fire Department arrived at the scene about 2:16 p.m. Shortly thereafter, EMT No. 9 from Moscow, ART 1 and 11 with Fayette County Ambulance Service, and the Fayette County Emergency Management Agency arrived on the scene. The fire chief with the Moscow Fire Department accessed the scene and provided direction to incoming personnel. Moscow Police Department and Fayette County Sheriff Department were also on the scene. The Tennessee Highway Patrol arrived about 2:30 p.m. and took charge of the investigation. The first helicopter from the Memphis Regional Medical Center arrived about 2:35 p.m. and a second helicopter arrived about 2:45 p.m. The Tennessee Highway Patrol Critical Emergency Response Team (CERT) arrived shortly

thereafter.

An NS track supervisor inspected the track structure and an NS superintendent was dispatched from Memphis to assess the damages. They determined there was no damage to the train or the track structure. Train NS 7126 (21R) was delayed two hours and forty minutes because of this crossing accident.

The vehicle's driver was transported by helicopter to the Memphis Regional Medical Center and was in critical condition. One of the passengers was transported by helicopter to Lebonheur Hospital in Memphis and died en route. The other two passengers were pronounced dead on the scene.

The Tennessee Highway Patrol requested a toxicology test on the vehicle's driver and the results were negative.

Analysis and Conclusion

Analysis

The driver was a 19 year old female. The other three passengers of the automobile were females, ages 56, 54, and 11.

The highway-rail grade crossing is equipped with crossbucks and stop signs. There is an advanced warning sign 250 feet from the crossing. The NS right-of-way extends 50 feet from the center of the track in both directions. NS has a whistle post in place about 1,140 feet west of the crossing. The engineer and conductor said the horn was sounded as the train approached the whistle post sign and is supported by a local resident who heard the train horn. This resident was also the first person at the accident site.

The leading locomotive was equipped with a headlight, the auxiliary lights, and the audible warning device as required by federal regulations. The locomotive was also equipped with a speed indicator and an event recorder as required. The relevant event recorder data was downloaded by the superintendent at the accident site. 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 event recorder data and found the engineer in compliance with all the federal requirements.

Conclusion

The railroad was in full compliance with their own operating rules and all applicable federal standards. The train crew and the only eyewitness to the accident said the automobile failed to stop before entering the crossing. The FRA has reviewed and concurs with the Tennessee Highway Investigator's report and findings.

Probable Cause

The Federal Railroad Administration found that the driver failed to obey traffic controls and failed to observe warnings or instructions.