Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-84

Burlington Northern Santa Fe (BNSF)
Rockyford, CO
November 7, 2008

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-2008-84

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: CO1108200
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: BNSF Rwy Co. [BNSF]	4a. Alphabetic Code: BNSF	4b. Railroad Accident/Incident No.: CO1108200
5. U.S. DOT_AAR Grade Crossing Identification Number: 003377L	6. Date of Accident/Incident: Month 11 Day 07 Year 2008	7. Time of Accident/Incident: 04:45:00 ☐ 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
1	0	0	0	Colorado

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Rocky Ford	564.4	N/A	CO	OTERO

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
50 F	3	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. West — Code
Single Main	4	75	2

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	LCOL010107

29. Speed *(recorded speed, if available)* — Code: R - Recorded; E - Estimated 55 MPH | R

30. Trailing Tons *(gross tonnage, excluding power units)*: 1119

31. 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): g | j | N/A | N/A | N/A

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

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	BNSF3144	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	3	0	23	0	0
(2) Total Derailed	0	0	0	0	0

37. Equipment Damage — This Consist: $500.00

38. Track, Signal, Way, & Structure Damage: $0.00

39. Primary Cause Code: M302

40. Contributing Cause Code: N/A

Number of Crew Members

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

Length of Time on Duty

45. Engineer/Operator: Hrs 9 Mi 45

46. Conductor: Hrs 9 Mi 45

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

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 | 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)* — Code: R - Recorded; E - Estimated N/A MPH | N/A

58. 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

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) 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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

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

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

72. Engineer/Operator Hrs N/A Mi N/A

73. Conductor Hrs N/A Mi N/A

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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 Code N/A

82. Train Number/Symbol N/A

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

84. Trailing Tons *(gross tonnage, excluding power units)* N/A

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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

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

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator Hrs N/A Mi N/A

100. Conductor Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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. Code J
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)*

108. Vehicle Speed *(est. MPH at impact)* 20

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

Rail Equipment Involved

111. 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)*

112. Position of Car Unit in 1

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2008-84

110. Position	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	3	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 Code *(See instructions for codes)*	117. Whistle Ban Code 1. Yes 2. No 3. Unknown
Code(s)	07	N/A	N/A	N/A	N/A	2

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

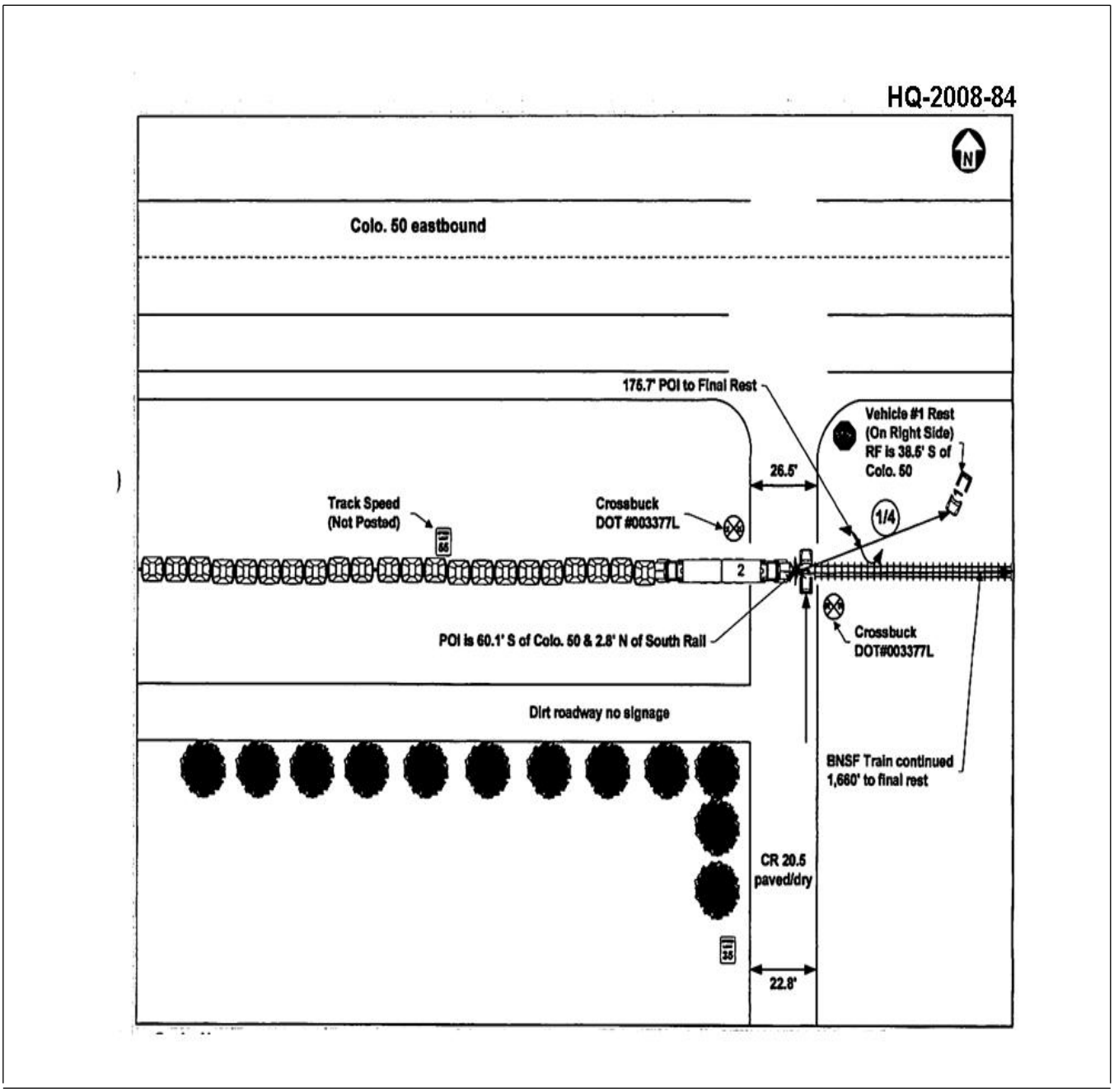
121. Age	122. Driver's Gender Code 1. Male 2. Female	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train Code 1. Yes 2. No 3. Unknown	124. Driver Code 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*
17	2	2	3

125. Driver Passed Highway Vehicle Code 1. Yes 2. No 3. Unknown	126. View of Track Obscured by *(primary obstruction)* Code 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
2	5

Casualties to:	Killed	Injured	127. Driver Code 1. Killed 2.Injured 3. Uninjured	128. Was Driver in the Vehicle? Code 1. Yes 2. No
			1	1
129. Highway-Rail Crossing Users	3	0	130. Highway Vehicle Property Damage *(est. dollar damage)* 5000	131. Total Number of Highway-Rail Crossing Users *(include driver)* 3

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

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



137. SYNOPSIS OF THE ACCIDENT

Southbound Burlington Northern Santa Fe Railway Company (BNSF) freight Train LCOL0101-07 collided with a sports utility vehicle (SUV) at highway-rail grade crossing (HGC) on November 7, 2008 at approximately 4:45 p.m. MST. The accident occurred near Rocky Ford, Otero County, Colorado at milepost (MP) 564.4 on the BNSF Pueblo Subdivision. The SUV driver and both passengers were killed. The automobile was completed destroyed. There were no injuries to the train crew. The leading locomotive sustained minor damage of about $ 500.00 and there was no derailment or hazardous material release

At the time of the accident it was dusk and clear. The temperature was 50 °F.

The FRA investigation determined that the probable cause of the accident was that the motor vehicle driver of the SUV failed to yield the right of way to an on-coming train at the highway/rail grade crossing - highway user inattentiveness (FRA Cause Code M302).

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of southward BNSF Train LCOL0101-07 included a locomotive engineer, a conductor, and a brakeman. They went on duty at 7:00 a.m. MST, November 7, 2008 at the BNSF Pueblo Yard in Pueblo, Colorado. All three had received more than the required statutory off-duty rest period prior to reporting for duty.

The assigned freight train at the time of the accident consisted of two locomotives, 3 loaded and 23 empty rail cars of several varieties. It was 5,118 feet long and weighed 1,119 tons. The train was a local switcher; it performed switching operations in Pueblo and at different locations with the final destination at La Junta, Colorado. The train received an initial terminal train (Class 1) air brake test before departing Pueblo at 11:50 a.m.

The crew last performed switching operations at Manzanola, Colorado and performed an intermediate air brake test prior to departing en route to La Junta.

As the southbound train approached the accident area the locomotive engineer was seated at the controls on the geographically south side of the leading locomotive. The conductor was seated in the rear seat on the north side, and the brakeman was seated in the front seat on the north side of the locomotive.

The northbound SUV contained three occupants (driver and two passengers) and was traveling at an estimated speed of 20 mph.

In this area of the railroad the track is tangent with a descending grade at the crossing of 0.52 percent. County Road 20.5 is a tangent 2-lane asphalt road. Traveling north to south on the county road the grade is practically level.

The railroad timetable direction of the train is south. The geographic direction is east. Geographical direction

will be used for the duration of this report.

THE ACCIDENT

BNSF TRAIN LCOL0101-07

BNSF Train LCOLO101-07 was being operated at 55 mph approaching the accident area. The view of the crossing from the locomotive was obstructed by mature trees adjacent to the southwest side. The engineer said he could see a vehicle approaching the crossing but thought it was decreasing speed. Just in advance of the crossing when it became apparent the vehicle would not stop, the engineer said he initiated an emergency train air brake application. The event recorder of BNSF Locomotive # 3144 indicated the train speed was 53 mph. The maximum authorized speed for the train is 55 mph as designated in the current BNSF Timetable # 5, Colorado Division.

HIGHWAY VEHICLE

The vehicle involved was a 2000 Dodge Durango SUV. It was traveling south to north on County Road 20.5. A report filed by an officer of the Accident Re-enactment Team of the Colorado State Patrol (CSP) estimated the speed of the SUV was at about 20 mph when the collision occurred. The posted speed limit is 35 mph.

The train struck the left side of the SUV about midpoint of the vehicle. The SUV was carried south and east approximately 175 feet before coming to rest. The train came to a stop approximately 1,600 feet east of the crossing.

After the train stopped the locomotive engineer stayed on the locomotive to establish radio communications with the train dispatcher. The conductor and the brakeman walked back to offer assistance to the SUV occupants and await the arrival of emergency response personnel. Colorado State Patrol (CSP) personnel arrived on the scene followed by the Rocky Ford Fire Department. A BNSF trainmaster from La Junta arrived at the site and later a BNSF trainmaster from Trinidad, Colorado and a BNSF Road Foreman of Engines from Pueblo responded to the site. The Otero County coroner arrived from La Junta and pronounced the SUV occupants deceased at 6:00 p.m. The train crewmembers were not injured; they were interviewed by BNSF and CSP staff.

A BNSF mechanical foreman was dispatched to ascertain the condition of the train and track structure. There was one hazardous material car in the train; however it was not compromised. Minor damage to the lead locomotive totaled $ 500.00. The train crew was released and brought back on November 9, 2000 to be interviewed by an FRA Investigator.

A re-enactment of the collision took place on November 9, 2000 to simulate the conditions leading up to the collision. The Colorado State Patrol used a video camera to record sight and obstructions onboard lead Locomotive # BNSF 3144 as it proceeded east.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL TESTING:
Post-accident toxicological tests were not performed on the 3-man train crew. FRA does not require such testing for this type of accident. Toxicological tests regarding the driver of the SUV were conducted by the Otero County Coroner's Office. The results were negative.

CONCLUSION:
Intoxication was not a factor for the train crew members or the operator of the vehicle.

ANALYSIS - HIGHWAY-RAIL GRADE CROSSING:
The highway-rail grade crossing is at grade and equipped with cross bucks. There are no advance warning signs and no pavement markings. The railroad has an advance whistle post in place 1,321 feet west of the crossing. All three crewmembers said the locomotive engineer began sounding the train whistle at the whistle board. Locomotive event recorder data confirmed the locomotive horn was sounding 15-20 seconds prior to arrival at the crossing.

CONCLUSION:
The crossing is in relatively good condition. The house and vegetation (mature trees) in the southwest quadrant from the crossing obstruct visibility.

ANALYSIS: - LOCOMOTIVE SAFETY DEVICES:
The leading locomotive was equipped with a headlight, the auxiliary lights, and the audible warning device required by Federal Regulations. A BNSF mechanical foreman inspected Locomotive # BNSF 3144 and found that the bell, whistle, and headlights were in good working order.

CONCLUSION:
The locomotive devices were in full compliance with Federal requirements.

ANALYSIS - LOCOMOTIVE ENGINEER OPERATING PERFORMANCE:
The locomotive was equipped with a speed indicator and an event recorder. The relevant recorder was downloaded by the BNSF trainmaster at the accident site and analyzed by the BNSF senior manager of train handling in Fort Worth, Texas.

CONCLUSION:
The locomotive engineer was in compliance with all applicable railroad operating and train handling requirements.

ANALYSIS - FATIGUE ANALYSIS SCHEDULING TOOL (FAST):
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 the locomotive engineer, conductor and brakeman assigned to BNSF Train # LCOL0101-07 involved in the accident.

CONCLUSION:

FRA concluded that fatigue was not evident for any of the crewmembers.

OVERALL CONCLUSIONS:
Based on the event recorder download data the actions of the railroad crew and the fact that the SUV driver did not yield the right-of-way to the on-coming train at the railroad crossing, even with the limited visibility due to the obstructing house and trees, the highway-rail grade crossing accident was a result of vehicle driver error. The railroad was in full compliance with carrier rules and all applicable Federal Standards. The train crewmembers were the only witnesses to the accident and they had no information that could be used to determine why the automobile operator failed to stop at the crossing.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

The FRA investigation determined that the probable cause of the accident was that the motor vehicle driver of the SUV failed to yield the right of way to an on-coming train at the highway/rail grade crossing; highway user inattentiveness (FRA Cause Code M302).