Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-60

Burlington Northern Santa Fe (BNSF)
Kansas City, KS
October 18, 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-2007-60

1.Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
BNSF Rwy Co. [BNSF]	BNSF	KS1007116
2.Name of Railroad Operating Train #2	2a. Alphabetic Code	2b. Railroad Accident/Incident No.
BNSF Rwy Co. [BNSF]	BNSF	KS1007116
3.Name of Railroad Operating Train #3	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
N/A	N/A	N/A
4.Name of Railroad Responsible for Track Maintenance:	4a. Alphabetic Code	4b. Railroad Accident/Incident No.
BNSF Rwy Co. [BNSF]	BNSF	KS1007116

5. U.S. DOT_AAR Grade Crossing Identification Number	6. Date of Accident/Incident	7. Time of Accident/Incident
	Month 10 Day 18 Year 2007	03:55: ☑ 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: 04

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
19	0	0	0	Kansas

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Kansas City	NA	N/A	KS	WYANDOTTE

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
55 F	4	2	2

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
Track No 3012	1	N/A	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
8	1	YKCK571117

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?
8 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)*: N/A	Code(s): n N/A 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)*	BNSF5101	4	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
0	0

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	36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	4	0	0	0	0	(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	1	0	0	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
$500,000.00	$0.00	H607	H199

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 4 Mi 55	Hrs 4 Mi 55

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 — Code	51. Was EOT Device Properly Armed? 1. Yes 2. No — Code
2	N/A

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
7	1	YKCK306217

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?
7 MPH R	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 | N/A | N/A | N/A | N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: 3

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	CSXT349261	5	yes
(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
0	0

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

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	1	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	18	0	67	0	0
(2) Total Derailed	2	0	0	0	0

64. Equipment Damage This Consist: $86,627.00

65. Track, Signal, Way, & Structure Damage: $500.00

66. Primary Cause Code: H607

67. Contributing Cause Code: H199

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
2	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 3 Mi 56

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: 2

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: N/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)*

108. Vehicle Speed *(est. MPH at impact)*: N/A

109. *geographical)* Code: N/A
1.North 2.South 3.East 4.West

Rail Equipment Involved

111. Equipment Code: N/A
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: N/A

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110. Position 1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	Code N/A	113. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	Code N/A
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 N/A	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	Code N/A
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 N/A	117. Whistle 1. Yes 2. No 3. Unknown	Code N/A
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A				

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

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

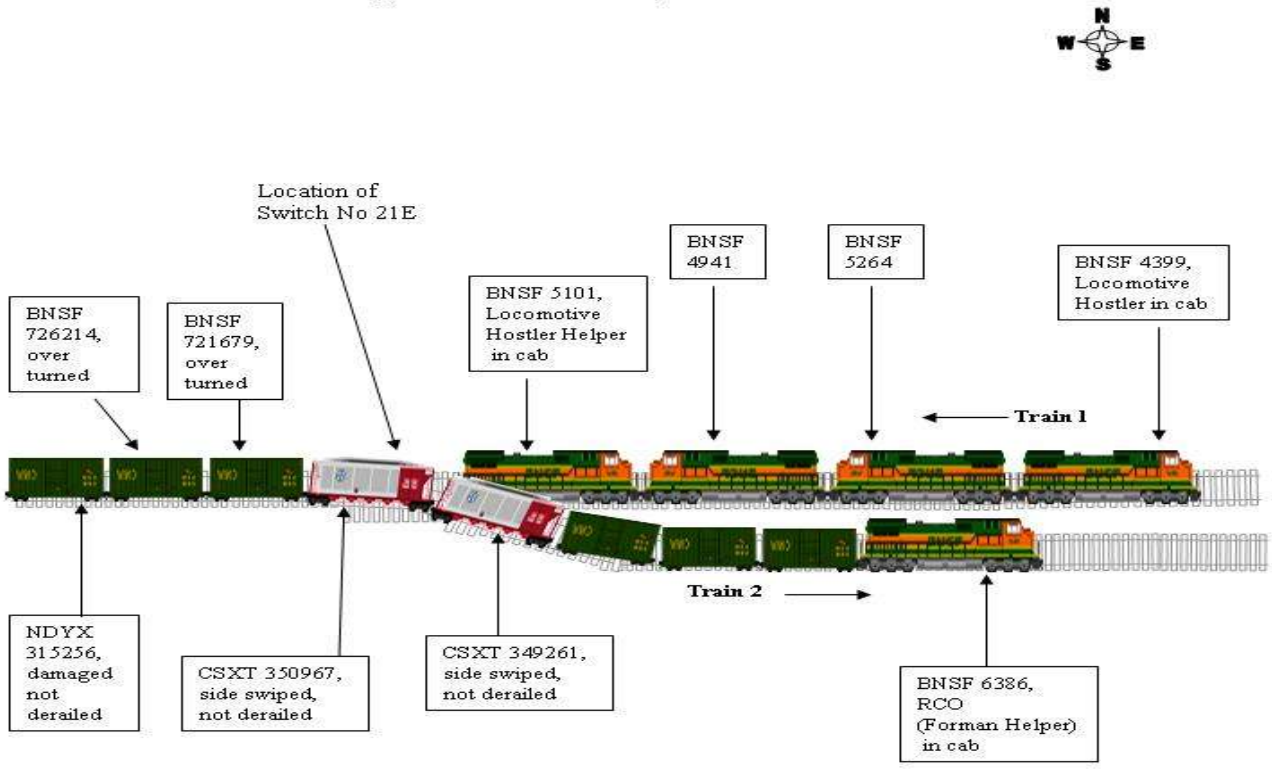
125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code N/A	126. View of Track Obscured by *(primary obstruction)* 1. Permanent Structure 3. Passing Train 5. Vegetation 7. Other *(specify in narrative)* 2. Standing Railroad Equipment 4. Topography 6. Highway Vehicle 8. Not obstructed	Code N/A

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

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

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

Report No. HQ-2007-60, Side Collision
BNSF Railway Company (BNSF)
Kansas City, Kansas - October 18, 2007



Train 1: westbound on Track No. A Main

Train 2: eastbound on Track No. A Main, transversing Switch No 21E to Track No. Independent

137. SYNOPSIS OF THE ACCIDENT

On October 18, 2007, at approximately 3:55 a.m. CDT, Burlington Northern Santa Fe (BNSF) Railway Company, Train Symbol YKCK5711-17 (Train No.1) struck the side of BNSF Train Symbol YKCK3062-17 (Train No. 2) at Argentine Yard in Kansas City, Kansas. BNSF Train No. 1, a 4-unit lite locomotive consist, was traveling westward at a recorded speed of 8 mph on Track No. 3013 (A Main Track) toward trailing point Switch No. 21e. BNSF Train No. 2, a remote control yard switcher, with 1 locomotive and 76 cars, was traveling eastward at a recorded speed of 7.4 mph on Track No. A-Main toward facing point Switch No. 21e, which was lined for eastbound traffic to Track No. 3012 (Independent Track). Just prior to the accident, BNSF Train No. 2 entered Track name Independent.

Leading Locomotive No. BNSF 5101 on BNSF Train No.1 then struck the north side of the fifth head car on BNSF Train No. 2. The locomotive on BNSF Train No.1 and two cars on BNSF Train No. 2 were derailed. The two cars were overturned and the locomotive sustained extensive damage. There were no hazardous materials involved, no evacuation, and no injuries. The weather was cloudy with a temperature of 55 Degrees F.

Equipment damages were estimated at $586,627. Track damages were estimated at $500, making the total accident damage $587,127.

Fatigue may have been a contributing factor in this accident.

The probable cause of the accident was the crew of Train No.1 failing to control their movement in order to stop within one-half their range of vision short of bnsf Train No. 2.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

BNSF TRAIN No. 1:

The crew of BNSF Train No.1 included a locomotive hostler (engineer) and a locomotive hostler helper. They went on duty at 11:00 p.m., October 17, 2007, at the BNSF Argentine Yard Crew Facility Building in Kansas City, Kansas. Their job assignment included moving a 4-unit lite locomotive consist from Track No. 528 in the Diesel Service Facility (DSF) to attach to BNSF Train Symbol HKCKBAR1-18 in Track No. 4003. These locomotives were intended to be the hauling locomotives for this train. This was the home terminal for both crew members, and both received more than the required statutory, off-duty period, prior to reporting for duty.

The crew of BNSF Train No.1 took charge of this locomotive consist about 2:00 a.m., October 18, 2007. The consist departed from the DSF going to the North Fast Track, to Track No. 1-Main, and to Track No. A-Main. The hostler was located in the cab of Locomotive No. BNSF 4399 (controlling locomotive), the east locomotive of the west bound consist. The holster helper was located in the cab of Locomotive No. BNSF 5101, the west locomotive of the consist with the cab long hood facing west. Just prior to the accident, the hostler helper had given a 15-car and then a 10-car shove count to the hostler by radio transmission. Almost immediately, after giving the 10-car shove count, the hostler helper instructed the hostler to stop. The hostler fully applied the locomotive independent brakes.

BNSF Train No. 2:

The crew of BNSF Train No. 2 included a remote control locomotive operator (foreman) and a remote control locomotive operator assistant (foreman helper). They went on duty at 11:59 p.m., October 17, 2007, at the BNSF Tall Tower in Kansas City, Kansas. Their job assignment included assembling a train in the bowl yard. This was the home terminal for both crew members, and both received more than the required statutory, off-duty period, prior to reporting for duty.

The crew of Train No. 2 was pulling cars out of Track No. 2007 (bowl 7) to go to Track No. 2009 (bowl 9). To be able to pull out of Track 2007 (bowl 7) the train moved eastward on Track A-Main (also known as South Departure Lead) and diverted to Track Independent at Switch No 21e. The rear end of Train No. 2 was still in the bowl and the head end was on Track No. Independent. The remote control operator (foreman) was located on the ground near Track No. 2007 (bowl 7). The remote control operator assistant (foreman helper) was seated on the right side (south side) of the cab controlling the movement using the remote control equipment of Locomotive No. BNSF 6386. The cab short hood was facing the direction of movement.

Approaching the accident area from the east, the track is tangent for approximately 0.2 miles. Just prior to the point of derailment (the clearance point of Switch No. 21e) there is a 3-degree, left-hand curve for westbound traffic. The grade in the accident area is practically level. Switch No. 21e is the point that Track No. Independent diverges from Track No. A-Main.

THE ACCIDENT:

BNSF TRAIN No. 1:

The train was being operated westward at 10 mph on Track No. A-Main approaching the accident area slowing to 8 mph when the accident occurred. The hostler helper was located in the cab of Locomotive No. BNSF 5101 with the cab long hood facing west. Locomotive No. BNSF 5101 struck the north side of the fifth head car on BNSF Train No. 2 raking the side of the fifth and sixth head cars, derailing and overturning the seventh and eighth head cars and damaging the ninth head car. The speed was recorded by the locomotive event recorder of the controlling locomotive. The maximum authorized speed was 10 mph, as designated in the current BNSF Timetable No. 7, dated April 28, 2004.

BNSF TRAIN No. 2:

This train was being operated eastward at 7.4 mph on Track No. A-Main, having just entered Track No. Independent. The speed was recorded by the locomotive event recorder. The maximum authorized speed was 10 mph, as designated in the current BNSF Timetable No. 7, dated April 28, 2004. The foreman helper observed BNSF Train No. 1 on Track No. A-Main as he passed it. After his train entered Track No. Independent, the foreman helper lost sight of BNSF Train No. 1. He said he felt slack action or pulling action about three times (tugging harder each time) after which an emergency brake application occurred. He said he saw cars on the ground and called the terminal trainmaster on the radio to report the accident. He walked around the north side of BNSF Train No. 2 to see if anyone was injured. He observed that BNSF Train No. 1 had struck the side of BNSF Train No. 2. He saw the hostler helper standing beside the lead locomotive on BNSF Train No. 1.

The foreman on BNSF Train No. 2 was standing on the ground in the bowl yard. Following the accident, he caught a ride with a BNSF utility employee to the accident area. However, he was unable to get close enough to the accident to observe the wreckage.

Immediately following the accident the hostler helper contacted the hostler by radio to determine if he had been injured.

ANALYSIS AND CONCLUSIONS:

ANALYSIS:

FRA inspectors conducted comprehensive track, signal, and mechanical inspections, and a review of the event recorder downloads for both BNSF trains.

The crew of BNSF Train No. 1 was tested under FRA post accident testing authority. The post-accident forensic toxicology results indicate the two employees tested had negative test results.

Between May 28, 2007, and October 12, 2007, the hostler helper on BNSF Train No. 1 had received 229

operational tests. The railroad considered him high risk for an accident because his personal performance index was 72 (any index over 50 is considered high risk). He failed 10 tests during this test period for a 4 percent failure rate. He received verbal warnings concerning all test failures. Since none of the failures concerned the same rule violations, there was no additional disciplinary action taken. However, he received verbal admonitions.

Analysis:

FRA obtained fatigue related information, for the 10-day period preceding this accident/incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

Conclusion:

Upon analysis of that information FRA concluded that fatigue was probable for one or more of the employees; and that the employee or employees may have been working at a diminished level of safety (effectiveness) due to mental and/or physical attributes associated with fatigue, which may have contributed to the cause of the accident.

Following track, signal and mechanical inspections, all were ruled out as a possible cause of this accident. The analysis of the event record of BNSF Train No. 2 ruled out any operational factors that would have contributed to the accident.

PROBABLE CAUSE AND CONTRIBUTING FACTORS:

Fatigue may have been a contributing factor in this accident.

The probable cause of the accident was that the crew of BNSF Train No. 1 failed to control their movement in order to stop within one-half their range of vision short of BNSF Train No. 2.