Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-75

Burlington Northern Santa Fe (BNSF)
New Cambria, MO
September 25, 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-2008-75

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: CH0908120
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.: CH0908120
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 09 | Day 25 | Year 2008	7. Time of Accident/Incident: 07:05:00 ☑ 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: 01

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
0	N/A	N/A	0	Chicago

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
New Cambria	81.8	N/A	MO	MACON

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
58 F	2	4	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	20.65	3

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	CNAMTHH155

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	30. Trailing Tons *(gross tonnage, excluding power units)*	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
44 MPH — R	21181	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): e | N/A | N/A | N/A | N/A	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)*	FURX961162	3	yes
(2) Causing *(if mechanical cause reported)*	FURX961162	3	yes

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
(1) Total in Train	2	0	0	0	2
(2) Total Derailed	1	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	149	0	0	0	0
(2) Total Derailed	31	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$1,665,737.00	$176,000.00	E33C	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 1 Mi 50	Hrs 1 Mi 50

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)* R - Recorded E - Estimated — Code	58. Method(s) of Operation *(enter code(s) that apply)*	58a. Remotely Controlled Locomotive?
N/A 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)* 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. 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 N/A

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

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

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 N/A

112. Position of Car Unit in 0

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	117. Whistle Ban 1. Yes 2. No 3. Unknown	Code
Code(s) N/A N/A 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 0	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 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*	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 2. Standing Railroad Equipment 3. Passing Train 4. Topography 5. Vegetation 6. Highway Vehicle 7. Other *(specify in narrative)* 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	0	0	130. Highway Vehicle Property Damage *(est. dollar damage)*	0	131. Total Number of Highway-Rail Crossing Users *(include driver)*	0

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

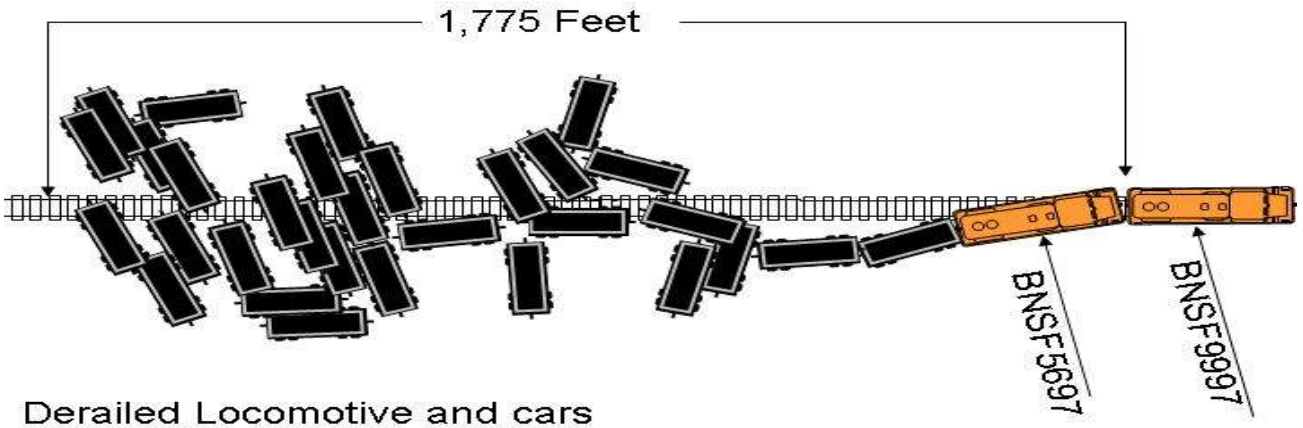
136. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED.

HQ 2008-75

BNSF Coal Train Derailment
September 25, 2008
New Cambria, Missouri,
BNSF Chicago Division,
Brookfield Subdivision
Milepost 81.8

N

The No. 2 Lead Locomotive and First 31 Loaded Cars Derailed



Derailed Locomotive and cars

1- BNSF 5697	11-FURX961008	22-FURX960576
2- FURX 961162	12-CEFX43008	23-BNSF669394
3- FURX961211	13-FURX961006	24-CEFX41378
4- BNSF670553	14-BNSF535472	25-BNSF66168
5- FURX961850	15-BNSF535612	26-BNSF670694
6- FURX961140	16-BNSF536148	27-BNSF535894
7- CEFX40016	17-CEFX40433	28-BNSF668274
8- FURX961032	18-NCUX11725	29-BNSF668582
9- NCUX11567	19-NCUX11756	30-CEFX41656
10-FURX96140	20-NCUX11706	31-BNSF535964
	21-BNSF669724	32-BNSF42321

137. SYNOPSIS OF THE ACCIDENT

On September 25, 2008 at 7:05 a.m. eastbound BNSF Railway Company (BNSF) loaded coal Train C-NAMTHH1-55 derailed the second lead locomotive and the head 31 cars. The train consisted of 2 lead locomotives, 149 loaded coal hopper cars, and 2 rear distributive power units (DPU). It was operating at a recorded speed of 44 mph at the time of the derailment. The location is 25 miles east of Brookfield, Missouri at milepost (MP) 81.8 on the BNSF Brookfield Sub-Division of the Chicago Division. There were no hazardous materials involved and no injuries reported. The weather was foggy with a temperature of 58 °F. This is an Amtrak route and several trains were re-routed. The cost of equipment damages was $1,665,737and the cost of track damage was $176,000.

The cause of the accident is FRA Cause Code E33C (Coupler retainer pin/cross key missing). The coupler pin fell from the B-end of the 2nd head Car # FURX 961211. As the train separated an undesired emergency brake application was initiated. The rear 147 cars ran into the head-end of the train with enough force to derail the cars and cause extensive damage to the roadbed which resulted in the pile-up of the railcars.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of eastbound BNSF Train C-NAMTHH1-55 consisted of an engineer and conductor. They went on duty at their home terminal of Brookfield, Missouri at 5:15 a.m. CDT on September 25, 2008 after receiving more than the required statutory off rest period.

Their train consisted of 2 lead locomotives, 149 loaded coal hopper cars, and 2 Distributive Power Units (DPU) on the rear of the train. It had a length of 7,909 feet, and a weight of 21,181 tons. The train originated in Lincoln, Nebraska where it received a Class 1 air test on September 23 at 4:15 p.m. performed by BNSF car department employees. The train had previously passed a track side warning detector at MP 109.1 and received a radio message that no defects were discovered.

BNSF Train C-NAMTHH1-55 departed Brookfield at 6:20 a.m. destined for Thomas Hill Power Plant at MP 76.2 in Bevier, Missouri. The crew made no pick-ups or set-outs en route and had operated approximately 23 miles to the point of derailment without incident. Nearing the accident site the engineer was seated at the controls of lead Locomotive # BNSF 9997 with the short hood forward. The conductor was also in the lead locomotive sitting on the north side. The last signal they passed prior to the derailment was displaying a clear signal indication. They had operated through a Form B speed restriction of 40 mph approximately 3.5 miles prior to the area of the derailment. The area of MP 86 to MP 84 is a slight descending grade approaching the point of derailment (POD). It then is tangent and level from MP 84 to MP 82 where it begins to ascend to MP 80.
This train was being operated geographically and timetable direction eastward.

THE ACCIDENT

As the train approached MP 81.8 it was proceeding at a recorded speed of 44 mph, as indicated by the event recorder download data from lead Locomotive # BNSF 9997

The crew stated that as they approached the slight ascending grade at MP 81.8 the train and track conditions were normal. At MP 81.8 they experienced an undesired emergency air brake application and could see the train derailing behind them. When the train stopped the engineer immediately radioed the BNSF train dispatcher and reported the derailment as the conductor was inspecting for damages.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL TESTING:

The crew was drug and alcohol tested under FRA authority. The drug and alcohol test results were negative

CONCLUSION

Intoxication was not a causal or contributing factor in the derailment.

ANALYSIS - RULES COMPLIANCE:

The crewmembers were interviewed by railroad officials and a Federal Railroad Administration (FRA) Motive Power and Equipment (MP&E) inspector. They were in possession of all required documents related to train operation and correctly performed required railroad emergency procedures. The train was operated correctly through speed restrictions and within maximum timetable speed.

CONCLUSION:

The crew was in compliance with Federal requirements and applicable railroad operating and train-handling rules. Train handling was not a causal factor of the incident.

ANALYSIS - EQUIPMENT TESTING:

On the day of the incident FRA Region 6 investigators responded including an FRA MP&E Inspector, an FRA Track Inspector, a Missouri State Operating Practices Inspector, and a Missouri State Track Inspector. They walked the track, inspected the derailed cars, interviewed the train crew and responding railroad officers, and examined inspection records.

CONCLUSION:

The cause of the derailment was discovered by the responding FRA Region 6 MP&E Inspector. The on-site railroad officials were appreciative and agreed with his analysis. His analysis was later confirmed. The cause of the derailment was the coupler pin falling from the B-end of the 2nd head car # FURX 961211. The 2nd and 3rd head cars were equipped with F type couplers therefore the coupler remained suspended from the leading end of the 3rd head car # BNSF 670553. As the train separated an undesired emergency brake application was initiated. The brake application caused the two lead locomotives and two head rail cars to stop at a faster rate than the remaining 147 loaded coal hopper cars. The rear 147 cars ran into the head end of the train with enough force to derail the cars and cause extensive damage to the track roadbed resulting in the pile up of railcars.

ANALYSIS - FATIGUE:

FRA obtained fatigue related information including a 10-day work history for the two crewmembers involved in this derailment.

CONCLUSION:

Based upon the fatigue data analysis FRA concluded that the crew members were not under the affect of fatigue which would contribute to the accident

OVERALL CONCLUSIONS:

The responding FRA inspectors conducted exhaustive and in-depth inspection activities resulting in an

accurate, timely, and thorough accident investigation. The FRA is in agreement with the stated cause of the derailment.

PROBABLE CAUSE AND CONTRIBUTING FACTORS: -

The probable cause of this accident is FRA Cause Code E33C (Coupler retainer pin/cross key missing).