Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-70

Canadian Pacific/Iowa Chicago & Eastern Railroad
LaCrescent, MN
November 2, 2007

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2007-70

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: TX1107100
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.: TX1107100
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 11 | Day 02 | Year 2007	7. Time of Accident/Incident: 11:50: ☑ 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: 01

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

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Fowlkes	135.2	N/A	TX	WICHITA

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
64 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. West — Code
Single Main	4	54.29	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	MALTAMA101

29. Speed *(recorded speed, if available)* R - Recorded; E - Estimated: 7 MPH — Code: R

30. Trailing Tons *(gross tonnage, excluding power units)*: 8512

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): e | N/A | 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)*	BNSF782974	29	no
(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/A

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	3	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	58	0	38	0	0
(2) Total Derailed	11	0	16	0	0

37. Equipment Damage — This Consist: $97,432.00

38. Track, Signal, Way, & Structure Damage: $296,455.00

39. Primary Cause Code: H503

40. Contributing Cause Code: T199

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 5 Mi 5

46. Conductor: Hrs 5 Mi 5

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: 0 MPH — Code: 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

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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)*	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: $0.00

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

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 Code: 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)* 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)*	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: $0.00

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

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: 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	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A

113. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	N/A

114a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

114b. Was there a hazardous materials release	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

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

115. Type Crossing Warning	1.Gates	4.Wig Wags	7.Crossbucks	10.Flagged by crew
	2.Cantilever FLS	5.Hwy. traffic signals	8.Stop signs	11.Other *(spec. in narr.)*
	3.Standard FLS	6.Audible	9.Watchman	12.None

Code(s)							
	N/A	N/A	N/A	N/A	N/A	N/A	N/A

116. Signaled Crossing *(See instructions for codes)*	Code
	N/A

117. Whistle Ban	Code
1. Yes 2. No 3. Unknown	N/A

118. Location of Warning	Code
1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	N/A

119. Crossing Warning with Highway Signals	Code
1. Yes 2. No 3. Unknown	N/A

120. Crossing Illuminated by Street Lights or Special Lights	Code
1. Yes 2. No 3. Unknown	N/A

121. Age	122. Driver's Gender	Code
0	1. Male 2. Female	N/A

123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train	Code
1. Yes 2. No 3. Unknown	N/A

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)*	N/A

125. Driver Passed Highway Vehicle	Code
1. Yes 2. No 3. Unknown	N/A

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	N/A

Casualties to:	Killed	Injured
129. Highway-Rail Crossing Users	0	0

127. Driver	Code
1. Killed 2.Injured 3. Uninjured	N/A

128. Was Driver in the Vehicle?	Code
1. Yes 2. No	N/A

130. Highway Vehicle Property Damage *(est. dollar damage)*
0

131. Total Number of Highway-Rail Crossing Users *(include driver)*
0

132. Locomotive Auxiliary Lights?	Code
1. Yes 2. No	N/A

133. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	N/A

134. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	N/A

135. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	N/A

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

First Car Derailed
26th car in train
BNSF 782974

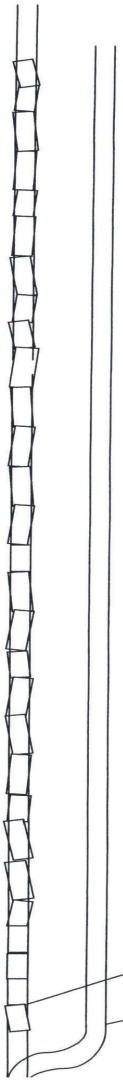
Last car derailed
55th in train

Total cars in train
58 loads
38 empties

96 total

All cars remained upright on Main Track Adjacent to Fowlkes Pass

Not to Scale



Position in Train	Car	Empty/Load	Wheels Derailed
26	BNSF 782974	E	R 3-4
27	ATSF 622922	E	L 1-2 & R 3-4
28	ATSF 621689	E	L 1-2-3-4
29	ATSF 622670	E	R&L 1-2-3-4
30	BNSF 781877	E	R 1-2 & L 1-2-3-4
31	BNSF 546028	L	R&L 1-2-3-4
32	CHVX 287006	L	R&L 1-2-3-4
33	LW 470309	E	R 1-2-3-4 & L 1-2-3
34	BNSF 760957	E	R&L 1-2-3-4
35	ATW 84233	E	L 1-2-3-4
36	BRAX 8621	E	R&L 1-2-3-4
37	KCS 129212	L	L 1-2-3-4 & R 3-4
38	ERCX 20694	L	L 2-3-4 & R 1-2-3-4
39	KCS 751294	L	L 1-2-3-4 & R 3-4
40	QUAX 88919	E	R&L 1-2-3-4
41	NS 412112	L	R&L 1-2-3-4
42	KCS 129566	L	L 1-2-3-4 & R 1-2
43	TTZX 863631	L	L 1-3-4 & R 1-2-3-4
44	BNSF 782498	L	R&L 1-2-3-4
45	BNSF 562886	L	R&L 1-2-3-4
46	UTLX 71222	E	R 1-2-3-4
47	TLDX 92380	E	R 1-2-3-4 & L 3-4
48	GATX 351106	E	R&L 1-2-3-4
49	NATX 250412	E	R&L 1-2-3-4
50	UTLX 663747	E	R&L 1-2-3-4
51	DOWX 20051	E	L 1-2-3
52	CPCX 102004	E	Not Derailed
53	DOWX 49027	L	Not Derailed
54	NATX 77234	L	Not Derailed
55	PLCX 224764	L	R 3-4

Point of Derailment Mile Post 135.2

West End Fowlkes Pass

137. SYNOPSIS OF THE ACCIDENT

A westbound BNSF freight train derailed 27 cars on the main line on November 2, 2007 at 11:50 a.m. The accident occurred near Electra, Texas between switches at Fowlkes Siding, BNSF Milepost 135.2 on the Red River Subdivision.

There were no injuries to the train crew. There was a total of $97,432 in equipment damage and $296,455 in track damage.

At the time of the derailment it was daylight and clear, with variable winds. The temperature was 64° F.

The derailment was caused by rapid reduction of throttle followed by rapid increase of dynamic brake while attempting to reduce speed in preparation for stopping. This created a run-in of slack resulting in excessive wheel to rail lateral force (due to car skewing) sufficient to rotate rail head to the field side on tangent track with single gage hold-down spiking and minimal negative rail cant and associated minimal wide gage. This allowed the wheel rim on the opposite end of axle to drop in the gage corner side of opposite rail spreading the gage and derailing it and the trailing cars.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT:

The crew of BNSF Train M-ALTAMA1-01 West included a locomotive engineer, a conductor, and a brakemen. They first went on duty at 6:45 a.m., November 2, 2007, at the BNSF Yard in Wichita Falls, Texas. This is the home terminal for the engineer and brakeman, Amarillo is the home terminal for the conductor. All crew members received more than the required statutory off duty rest period prior to reporting for duty.

The BNSF freight train consisted of three locomotives, 58 loaded rail cars and 38 empty freight rail cars. The train was 5,827 feet long and weighed 8,512 tons. The train was scheduled to travel from Wichita Falls, Texas to Amarillo, Texas with cars added and removed en route. The train received the required Class I Brake Test and pre-departure inspection at Alliance Yard, Ft. Worth, Texas where it originated on November 1, 2007. The train departed Wichita Falls at 9:35 a.m. on November 2, 2007.

As the westbound train approached the accident area, the locomotive engineer was seated at the controls on the north side of the lead locomotive. The conductor and the brakeman was seated on the south side of the lead locomotive.

The derailment occurred on tangent track as the train was operated down a short, steep grade (-1.73%) and transitioning onto a moderate ascending grade (approximately +0.6%%). The territory surrounding the vicinity of the derailment is somewhat undulating.

The railroad timetable and geographic direction is west.

THE ACCIDENT:

The train stopped in between switches on the BNSF Mainline at Fowlkes. The crew was instructed to meet two trains and occupy the mainline, the two eastbound trains had instructions to travel through the siding.

The first of the two trains had already arrived at Fowlkes when BNSF Train M-ALTAMA1-01 came to a stop. The train in the siding departed after this train cleared the east switch at Fowlkes. Directly behind the first train the second eastbound was pulling into the west end of Fowlkes siding. This train began to pull as the second eastbound train arrived and the train went into an emergency air brake application. The brakeman and conductor were both walking back to find the problem when the eastbound train called them on the radio to inform them that their train was derailed.

The crew walked back and discovered 27 cars were derailed. The first car derailed was the 26th car in the train. All cars were in line with the track and all in the upright position.

ANALYSIS:

On November 5, 2007, FRA Inspectors retrieved the event recorder information from the BNSF Officials. On November 06, 2007 FRA inspected the equipment that had been derailed as well as the track structure at the derailment site. All equipment was re-railed and the track had been repaired. FRA took no exceptions with the condition of the equipment or track.

Each of the three crew members that were on the BNSF train were interviewed. All stated it was a normal trip and none of them were aware the train had derailed until they tried to depart Fowlkes. The engineer stated he did notice the train came to a stop faster than usual but he thought nothing of it. The conductor recalled a "surge in the train" as they were stopping but he thought it might have been from a movement in liquid loaded tank cars located near the head end of the train. The engineer and conductor both voiced concerns about the train make-up stating there were loaded cars on the head and rear end of the train with empties in the middle. They stated that the profile was not ideal but it was still in compliance so they departed Wichita Falls without changing the make-up of the train.

FRA reviewed the Event Recorder printout and found no locomotive or train brakes were set at the time of the derailment. The train came to a stop in dynamic braking.
The train profile or make-up was reviewed and it was found to be in compliance. There were concerns of throttle movement shown on the Event Recorder printout but nothing appeared out of the ordinary.

The train speed was approximately 30 mph when it initially derailed. The train was dragged in a derailed state and rolled rail for approximately 4000 feet before coming to rest with the locomotives in Throttle Notch 4 position. There were no locomotive brakes or train brakes applied when the train came to a stop with the lead locomotive near MP 136.4. At this point, the crew did not realize their train was derailed. BNSF employeed Rail Science Inc. (RSI) to perform analyzes of the derailment data.

According to RSI, the derailment was caused by rapid reduction of the throttle position followed by rapid increase of dynamic brake when attempting to reduce train speed in preparation for stopping. This created a run-in of slack resulting in wheel to rail lateral force (due to car skewing) sufficient to rotate the head of the rail to the field side on tangent track with single gage hold-down spiking and minimal negative rail cant and associated minimal wide gage. This allowed the wheel rim on the opposite end of the axle to drop inside the gage corner side of the opposite rail which resulted in spreading the gage and derailing the car and the trailing cars. RSI reported that the train handling actually used by the engineer employed a rapid transition from moderately-high throttle (R6-R7) to full (D8) dynamic braking as he approached and progressed through the POD. The run-in slack event predicted by simulating the actual train handling was induced by this rapid throttle transition. Based upon the calculations of RSI, for the derailment data supplied with a –200 kip (–200,000 pound) run-in, on the order of 17,500 pounds lateral force could be generated toward the rail. An empty car would have been the initial car to derail and with this level of lateral force the wheels of one side of the truck struck against one of the rails. Without any significant vertical force, this would have rotated the head of the rail sufficiently to the field side to allow the rim of the opposite wheel to just start to drop inside the gage corner of the rail spreading the gage and derailing it and the trailing cars.

RSI also found track geometry data showed some evidence of rail cant and widening gage near the POD. This was reaffirmed by BNSF track notes taken at the scene of the derailment which showed up to 1/4" gage widening at the POD. There was also some crosslevel deviation (3/4") recorded by the track geometry car. Measurements taken at the scene of the derailment indicate crosslevel was less than this however this was likely an unloaded measurement. While there is some evidence of small track anomalies near the POD, the

track deviations noted were within Class 4 tolerances for the 60 mph authorized freight speeds. RSI additionally found that track geometry was within FRA limits and not a primary factor of this derailment. T here is, however, evidence of crosslevel, rail cant and gage widening deviations present at and near the POD which may have contributed to rail roll.

RSI found that alternative train handling could have prevented this run-in and that a more gradual transition from throttle to dynamic braking would have significantly reduced in-train forces. Simulation further showed that the full dynamic braking was not necessary to control the train speed and stop it as intended at the signal near MP 136.5.

Train makeup was not contributory to this derailment despite the fact that the train consist had less than optimum car placement. RSI recommended that more prudent train make-up be utilized if at all possible to minimize the potential for train make-up contributory derailments.

Although track stability was not the primary cause of this derailment, RSI advised to consider double-spiking the gage side of tangent track in undulating territory where slack action is anticipated.

ANALYSIS:

FRA obtained fatigue related information, for the 10-day period preceding this 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 fatigue was not probable for any of the employees.

CONCLUSION:

The railroad was in compliance with their own, and all Federal standards. No areas of noncompliance were found with the track, train profile, or equipment. A combination of events contributed to the derailment. There was multiple track deviations that were not out of compliance but due to the train handling and track profile at the point of the deviations caused the train to derail. If the train handling would have been preformed in a different manner or if these track issues would not have existed, this train would not have derailed.

PROBABLE CAUSE & CONTRIBUTING FACTORS:

The derailment was caused by rapid reduction of the throttle followed by a rapid increase of dynamic braking while attempting to reduce train speed in preparation for stopping. This action created a run-in of slack resulting in excessive wheel to rail lateral force (due to car skewing) sufficient enough to rotate the rail head to the field side on tangent track with single gage hold-down spiking and minimal negative rail cant, and associated minimal wide gage. This allowed the wheel rim on the opposite end of the axle to drop in the gage corner side of the opposite rail, spreading the gage and derailing it and the trailing cars.