Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-56

Burlington Northern Santa Fe
Houston, TX
June 27, 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-2006-56

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: GC0606111
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: BNSF Rwy Co. [BNSF]	3a. Alphabetic Code: BNSF	3b. Railroad Accident/Incident No.: N/A
4. U.S. DOT_AAR Grade Crossing Identification Number:	5. Date of Accident/Incident: Month 06 / Day 27 / Year 2006	6. Time of Accident/Incident: 12:27: ☐ 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): 01

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
19	7	1	0	Houston

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Houston	353	N/A	TX	HARRIS

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
95 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
Number 1 Main		4	20		3

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	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
		1	1	1	YHOU2 76126

28. Speed (recorded speed, if available) R - Recorded E - Estimated			Code
E - Estimated	23	MPH	R

29. Trailing Tons (gross tonnage, excluding power units): 14935

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)				
e	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	82	yes
(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

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	2	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	113	0	15	0	0
(2) Total Derailed	9	0	4	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
379939	431690	T199	N/A

Number of Crew Members				Length of Time on Duty	
40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	N/A	1	N/A	Hrs 5 Mi 27	Hrs 5 Mi 27

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

49. EOT Device? 1. Yes 2. No: 1

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

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

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	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
		N/A	N/A	N/A	N/A

55. Speed (recorded speed, if available) R - Recorded E - Estimated			Code
E - Estimated	0	MPH	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-2006-56

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: 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

80. Vehicle Speed (est. MPH at impact): 0

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

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

86a. 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

Rail Equipment Involved

83. 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

84. Position of Car Unit in Train: 0

85. Circumstance: 1. Rail Equipment Struck Highway User; 2. Rail Equipment Struck by Highway User. Code: N/A

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

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

87. Type of 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

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

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

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

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

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

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

93. Driver's Age: 0

94. Driver's Gender: 1. Male 2. Female. Code: N/A

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

96. 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

97. Driver Passed Standing Highway Vehicle: 1. Yes 2. No 3. Unknown. Code: N/A

98. 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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was: 1. Killed 2.Injured 3. Uninjured. Code: N/A

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

102. Highway Vehicle Property Damage (est. dollar damage): 0

103. Total Number of Highway-Rail Crossing Users (include driver): 0

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

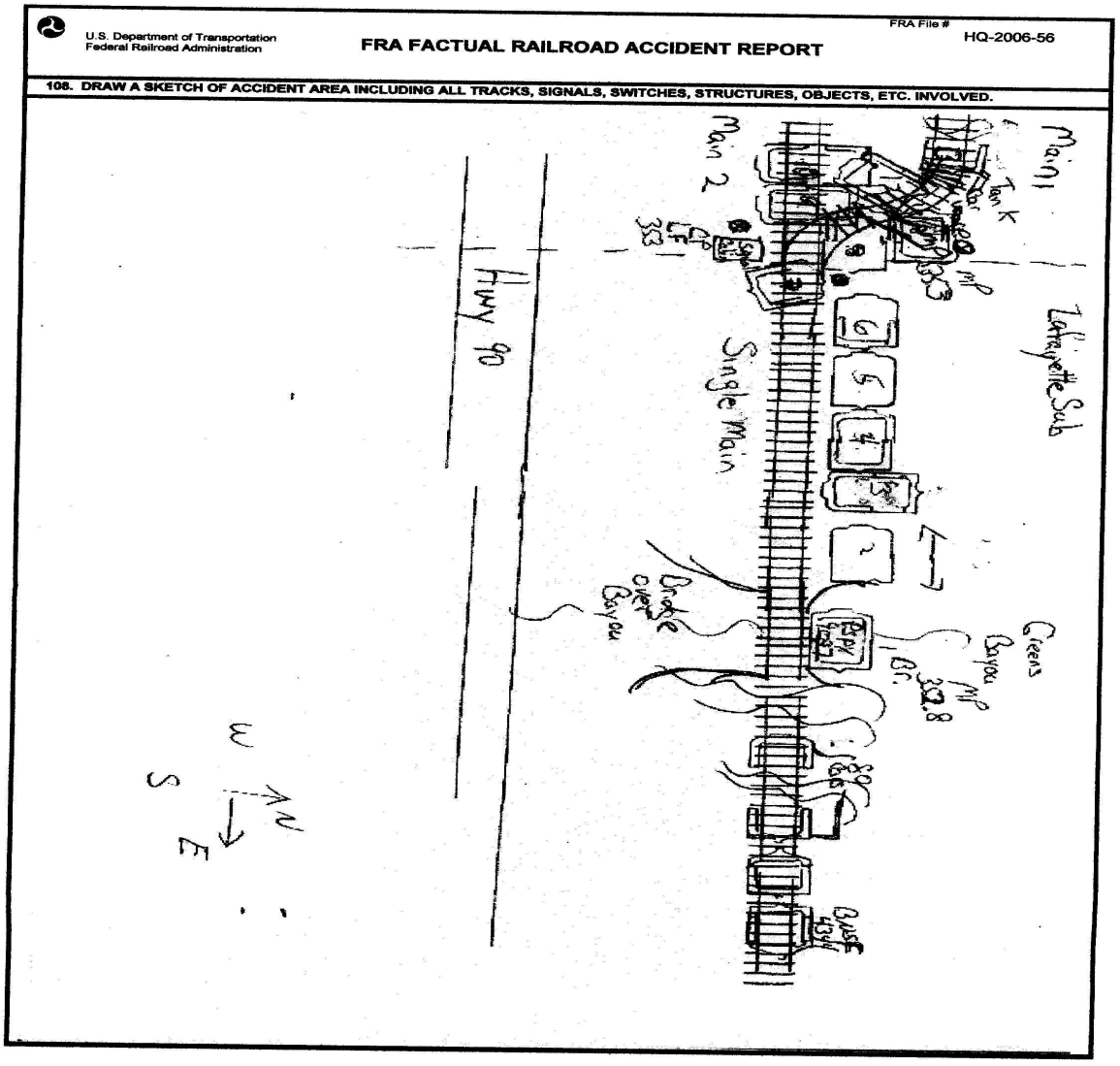
105. Locomotive Auxiliary Lights Operational? 1. Yes 2. No. Code: N/A

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

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

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

HQ-56-2006.jpg



109. SYNOPSIS OF THE ACCIDENT

Synopses of the Accident

An eastbound BNSF freight train derailed on June 27, 2006. The accident occurred near Dawes, Texas at UP Milepost 353.2, on the UP Lafayette Subdivision.

There were no injuries to the crew. A total of thirteen cars was derailed with one car landing in a bayou. There was a total of seven hazardous cars in the thirteen derailed cars. One of the derailed hazardous cars had a release of its contents. There was no mandatory public evacuation. The equipment cost was $390,015 track was $243,700 the signal was $97,990 and bridge structure was $90,000 making this derailment a FRA reportable accident.

At the time of the accident it was daylight and clear, with no measurable wind. The temperature was 95 °F.

The accident was caused by irregular cross level from a tank car warp.

110. NARRATIVE

Circumstances Prior to the Accident

The crew of train BNSF 4344 East included a locomotive engineer and a conductor. They first went on duty at 7:00 a.m., CST, June 27, 2006 at BNSF's New South Yard located in Houston, Texas. This was the home terminal for both crew members, and all received more than the statutory off duty period, prior to reporting for duty.

Their assigned freight train consisted of two locomotives, 113 loaded and 15 empty cars of several varieties. It was 8,274 feet long and weighed 14,935 tons. The train was scheduled to travel to Dayton, Texas, with cars to be added and removed at several locations en route. The crew was taken to the train from BNSF's New South Yard by local cab service to UP's Englewood Yard in Houston, Texas. The train was on main number one of the UP Terminal Subdivision.

As the eastbound train approached the accident area, the locomotive engineer was seated at the controls on the south side of leading locomotive. The conductor was seated on the north side of the leading locomotive.

In this area of the railroad there is a subdivision change from UP's Terminal Subdivision double main to UP's Lafayette Subdivision single main with a number 16 turnout to complete the transition from the two. The speed through this turnout from Terminal Subdivision main 1 to Lafayette Subdivision main track is twenty-five (25) mph. There was a .5 mile long temporary speed restriction of twenty-five mph on the Terminal Subdivision's main 1 for a surface and line condition on the track. There are no curves around this area. The grade is practically level.

The railroad timetable direction of the train is east. The geographic direction was east.
Timetable directions are used throughout this report.

The Accident
Train BNSF 4344 East

The train was being operated at a recorded speed of 23 mph approaching the accident area. The train crew's view of the eastbound control signal was not obstructed by any vegetation. The engineer approached the east switch at Dawes with a clear signal and proceeded to enter the Lafayette Subdivision's main track. After traveling about .2 miles on the Lafayette Subdivision, the train had an undesirable emergency brake application. After the train came to a stop, the engineer stayed on the locomotive to establish radio communications with UP's train dispatchers. The conductor walked back toward the end of train to investigate why the train went into an emergency. While walking back to the end of the train the conductor noticed an UP signal maintainer and got in his truck to be transported to the end of the train. On the way to the end of the train, a Houston Fire truck and other emergence equipment came into the scene and the conductor decided to go back to the head of the train to get the train documents with the maintainer. After collecting the train documents, the conductor traveled back to the scene of the incident. After being sure the scene was safe, the conductor made an evaluation of the derailment. It was noticed that a loaded hopper car a PSPX 9097 fell off the Greens Bayou bridge and landed in the middle of the bayou.

Analysis and Conclusions
Train BNSF 4344 East

The primary cause of the derailment is the tank car warp located at UP's Milepost 353.048 Main one on the Terminal Subdivision as identified in UP's Defects for the Track TDMS report dated June 28, 2006. The lead trucks on the PSPX 6508 line 80 on the trains consist had a wheel lift at the tank car warp causing the car to

derail and being dragged to the power switch at control point LF353 where the Terminal double track ends and the Lafayette single main begins in an eastward direction. After the PSPX 6508 came to the frog, it pulled the car ahead of it off the track which was dragged over the switch and onto the Greens Bayou bridge's walkway where it then was too heavy for the walkway and fell into the bayou and on impact released some of its product into the bayou.

The eleven (11) cars following the PSPX 6508 crashed into the derailed car and came to rest as indicated in the drawing in this report. The rest of the train, 35 cars, came to a rest without derailing on Main 1 on the Terminal Subdivision.

In conclusion the derailment was not cause by a broken rail as of first thought. UP initiated a rail analysis of a rail that was first thought to be the primary cause of the derailment by FRA. The conclusion of the analysis was the rail was not the primary cause.

Probable Cause & Contributing Factors
Train BNSF 4344 East

The accident occurred because of a tank car warp measuring 3.53 inches in the switch area in the transition from main 1 of the Terminal Subdivision to single main of the Lafayette Subdivision at UP's Milepost 353.04.