



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-77***

***Burlington Northern Santa Fe
Crawford, TX
September 19, 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.

1. Name of Railroad Operating Train #1 BNSF Rwy Co. [BNSF]		1a. Alphabetic Code BNSF		1b. Railroad Accident/Incident No. TX0906110	
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. TX0906110	
4. U.S. DOT_AAR Grade Crossing Identification Number		5. Date of Accident/Incident Month: 09 Day: 19 Year: 2006		6. Time of Accident/Incident 06:13: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	

7. Type of Accident/Incident (single entry in code box)						13. Other (describe in narrative)	01
1. Derailment		4. Side collision		7. Hwy-rail crossing		10. Explosion-detonation	
2. Head on collision		5. Raking collision		8. RR grade crossing		11. Fire/violent rupture	
3. Rear end collision		6. Broken Train collision		9. Obstruction		12. Other impacts	

8. Cars Carrying HAZMAT 12	9. HAZMAT Cars Damaged/Derailed 7	10. Cars Releasing HAZMAT 1	11. People Evacuated 350	12. Division Texas
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13. Nearest City/Town Crawford		14. Milepost (to nearest tenth) 249.6	15. State Abbr Code N/A TX	16. County MCLENNAN	
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17. Temperature (F) (specify if minus) 88 F	18. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2	19. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 1	20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1
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21. Track Name/Number Single Main Track	22. FRA Track Code Class (1-9, X) 4	23. Annual Track Density (gross tons in millions) 53.68	24. Time Table Direction Code 1. North 3. East 4
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OPERATING TRAIN #1

25. Type of Equipment Consist (single entry)	1. Freight train	4. Work train	7. Yard/switching	A. Spec. MoW Equip. Code	26. Was Equipment Attended?	27. Train Number/Symbol
	2. Passenger train	5. Single car	8. Light loco(s).	1	1. Yes 2. No 1	HTPLT UL 119
	3. Commuter train	6. Cut of cars	9. Maint./inspect.car			

28. Speed (recorded speed, if available) Code R - Recorded E - Estimated 52 MPH R	30. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits	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
29. Trailing Tons (gross tonnage, excluding power units) 4946	e N/A N/A N/A N/A	0

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.
(1) First involved (derailed, struck, etc)	N/A	6	no	Alcohol: N/A Drugs: N/A
(2) Causing (if mechanical cause reported)	GATX53754	6	no	33. Was this consist transporting passengers? (Y/N) N

34. Locomotive Units	a. Head End	b. Mid Train Manual	c. Remote	d. Manual	e. Remote	35. Cars	a. Freight	b. Pass.	c. Freight	d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	27	0	48	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	11	0	13	0	0

36. Equipment Damage This Consist	1116246	37. Track, Signal, Way, & Structure Damage	97000	38. Primary Cause Code	E46C	39. Contributing Cause Code	N/A
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Number of Crew Members				Length of Time on Duty							
40. Engineer/Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator Hrs	2	Mi	45	45. Conductor Hrs	2	Mi	45
N/A	N/A	1	N/A								

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other	49. EOT Device? 1. Yes 2. No	50. Was EOT Device Properly Armed? 1. Yes 2. No
Fatal	0	0	0	1	1
Nonfatal	N/A	0	3	51. Caboose Occupied by Crew? 1. Yes 2. No	N/A

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry)	1. Freight train	4. Work train	7. Yard/switching	A. Spec. MoW Equip. Code	53. Was Equipment Attended?	54. Train Number/Symbol
	2. Passenger train	5. Single car	8. Light loco(s).	N/A	1. Yes 2. No N/A	N/A
	3. Commuter train	6. Cut of cars	9. Maint./inspect.car			

55. Speed (recorded speed, if available) Code R - Recorded E - Estimated 0 MPH N/A	57. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track	57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable
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109. SYNOPSIS OF THE ACCIDENT

A Northbound BNSF freight train, H-TPLTUL1-19, traveling at a recorded speed of 52 mph, derailed twenty four (24) cars piling up and casting cars to the right and left sides of the main track, on September 19, 2006, at 6:15 pm. The accident occurred at milepost 249.6 of the BNSF, Texas Division, Fort Worth Subdivision in the downtown area of Crawford, Texas.

Seven (7) of the derailed cars were carrying hazardous materials. Tank car DOWX 40077 was punctured in the derailment and released 20,840 gallons of Ethanolamine, STCC NUMBER 4935665, UN 2491.

The Crawford Fire Chief ordered a ½ mile radius general precautionary evacuation at 6:20 pm. The evacuation effected 350 people. The evacuation order was lifted at 10:00pm 09/19/2006 by the Crawford Fire Chief. There have been three (3) claims of non life threatening injuries submitted to the BNSF claims department by civilians resulting from the accident and hazardous material release.

The Fort Worth Subdivision is an Amtrak route, Passengers on Amtrak train A-21-1-18 were removed from the train at Valley Mills, Texas and bused to San Antonio, Texas. Amtrak train A-21-1-18 was reversed at Manhattan, Texas and moved back to Fort Worth, Texas.

Total estimated damage was \$1,213,246 (\$1,116,246 to equipment, 97,000 to track and structures)

The weather at the time of the accident was daylight, clear with 0 mph wind. It was 88°F.

The cause of the accident was determined to be, Truck Bolster Stiff, Improper swiveling, E46C on Tank car GATX 53754.

110. NARRATIVE

Circumstances Prior to the Accident:

The crew of train H-TPLTUL1-19 included a locomotive engineer and a conductor. They first went on duty at 3:30 pm CST, September 19, 2006 at Temple Yard in Temple, Texas.

Temple is an away from home terminal for both crew members. Both crew members had received more than the statutory off duty rest period, prior to reporting for duty.

The train crew's assigned freight train consisted of two locomotives, twenty seven (27) loaded and forty eight (48) empty cars of mixed types. The train was four thousand four hundred seventy five (4,475) feet long and weighted four thousand nine hundred sixty four (4964) tons. The train was scheduled to travel from Temple, Texas to Tulsa, Oklahoma with no set outs and no pick ups en route. The train received a Class 1 Train Air Brake test at Temple at 2:50 pm September 19, 2006 by Qualified Mechanical Inspectors.

As the Northward train approached the accident area, the locomotive engineer was seated at the controls on the North side of the leading locomotive. The conductor was seated on the South side of the leading locomotive.

Topography:

In this area of the railroad there is zero (0) degree ,fifty nine (59) minute right hand curve becoming tangent track with a point fifty six degree (.56%) ascending grade at the point of derailment.

The railroad time table direction of the train was West. The geographic direction of the train was North. The Timetable directions will be used throughout this report

Method of Operation:

As indicated by BNSF Railway Timetable the method of operation at mile post 248 of the Texas Division, Fort Worth Subdivision was CTC, Centralized Traffic Control.

Weather:

The weather was reported as daylight, clear, no wind. The temperature was 88°F.

The Accident:

The train was being operated at 52 mph approaching the accident area. This speed was recorded by the event recorder of the lead locomotive. The maximum authorized speed for this segment of track is 50 mph per General Track Bulletin # 23045 page 7 of 25 item 32 restriction # 5429. The train was in full dynamic brake at the time of the accident.

The engineer stated that he was operating the locomotive in full dynamic braking and as the train was descending the train started dragging down. The train went into emergency application due to air hose separation. When the train stopped the conductor dismounted the locomotive and walked back about 200 feet and found the derailed cars. The engineer notified the dispatcher that train had derailed and it appeared that ten(10) or more cars were derailed. It was discovered that twenty four (24) cars had derailed and one (1) car containing Hazardous Material was leaking. The Crawford fire and police departments were notified by local residents that a train had derailed. The local Fire Chief was notified by the train crew that the train had hazardous materials and one (1) car was leaking. The Crawford fire chief ordered a precautionary evacuation of a one half (½) mile radius of the main street crossing at mile post 250. at 6:20 pm CST. The evacuation effected three hundred fifty (350) residents of Crawford. The McLennan/Waco Haz-Mat emergency team was called as was the BNSF Haz-Mat specialist in Fort Worth. The accident site was secured by the Haz-Mat Teams and the leaking car was identified as the DODX 40077, a tank car loaded with ETHANOLAMINE, a corrosive, Placard UN2491, STCC 4935665. Total product loss was twenty thousand eight hundred forty gallons (20,840) gallons. When it was determined by the HAZ-MAT Teams from Waco and the BNSF that there was no impending danger to the general public from the leaking car or the other six (6) derailed cars carrying hazardous materials, the accident site was released to allow re railing and clearing of the main track to start. The Crawford fire chief lifted the evacuation order at 10:00 pm CST.

During the inspection of the accident and the derailed cars it was found that one (1) car had been ejected toward the South side of the main track and had struck a unoccupied parked tractor trailer cab and a grain storage bin. The damage to the truck was estimated to be twenty thousand dollars (\$20,000) and the grain storage bin was estimate to be sixty thousand dollars (\$60,000).

Analysis:

Investigation into the cause of the accident determined that the center plate and trucks of the A-end of the GATX 53754 were worn and would not allow the truck to swivel properly.

I inspected the trucks of the GATX 53754 and found them worn in the body bolster and truck side friction wear plate areas.

The cars carrying hazardous materials were trans loaded into trucks. The empty cars were loaded onto trailers and transported to Temple, Texas for disposition. All other damaged cars at the site were transported to Temple by truck for disposition.

The area effected by the hazardous material spill was remediated by contractors and BNSF employees.

Conclusions:

An investigation by the FRA determined that the cause of the accident was " Truck Bolster Stiff, Improper swiveling" Code E46C, not allowing the lead truck of the GATX 53754 to align to the rail and setting off to the west side #4 leading wheel at mile post 246.8 and being followed by remaining twenty three (23) cars.