Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-09

Norfolk Southern (NS)
Tarentum, Pennsylvania
January 31, 2005

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-2006-9

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0106LV019
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: Union Pacific RR Co. [UP]	3a. Alphabetic Code: UP	3b. Railroad Accident/Incident No.: N/A
4. U.S. DOT_AAR Grade Crossing Identification Number:	5. Date of Accident/Incident: Month 01 / Day 31 / Year 2006	6. Time of Accident/Incident: 11:45: ☑ 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
42	28	0	0	Livonia/Lufkin

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Timpson	162.90	N/A	TX	SHELBY

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
69 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
Single Main Track		4	16.40		2

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: 1

26. Was Equipment Attended? 1. Yes 2. No — Code: 1

27. Train Number/Symbol: MMEE WX-29

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

29. Trailing Tons (gross tonnage, excluding power units): 5700

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): j 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; 2. South 4. West; 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	35	yes
(2) Causing (if mechanical cause reported)	NYC608728	35	yes

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	31	0	66	0	0
(2) Total Derailed	2	0	35	0	0

36. Equipment Damage — This Consist: 128123

37. Track, Signal, Way, & Structure Damage: 830800

38. Primary Cause Code: E40C

39. Contributing Cause Code: N/A

Number of Crew Members

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen
N/A	N/A	1	0

Length of Time on Duty

44. Engineer/Operator: Hrs 8 Mi 05

45. Conductor: Hrs 8 Mi 05

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 — N/A

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: N/A

53. Was Equipment Attended? 1. Yes 2. No — Code: N/A

54. Train Number/Symbol: N/A

55. Speed (recorded speed, if available) — R - Recorded; E - Estimated: 0 MPH — Code: 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

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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): N/A

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: N/A

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:

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

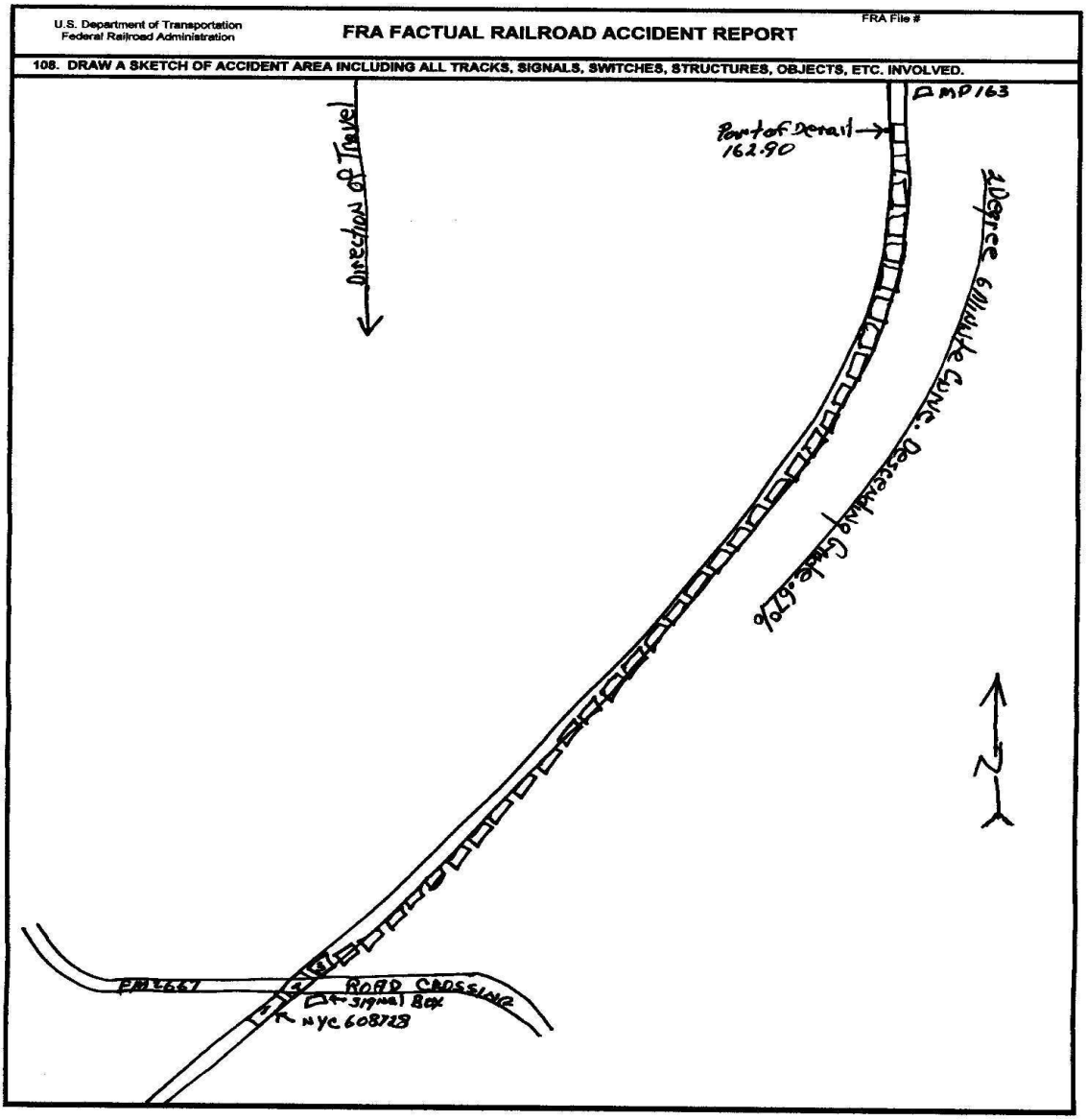
105. Locomotive Auxiliary Lights Operational? 1. Yes 2. No — Code: N/A

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-09-2006.jpg



109. SYNOPSIS OF THE ACCIDENT

A Southbound Union Pacific Freight Train traveling at a recorded speed of 28 mph, derailed 37 cars, all remaining upright, on January 31, 2006, at 11:45 am. The accident occurred 2.1 miles South of Timpson, TX at UP milepost 162.9 on the UP's Southern Region, Livonia Service Unit, Lufkin Subdivision. The train had been operating on a 25 mph speed restriction for the previous 4 miles. The reason for the speed restriction was defective tie conditions.

Twenty eight of the derailed cars were Residue HAZMAT cars. There was no HAZMAT release and no evacuations. Amtrak does not operate on this subdivision. There were no casualties.

Total Estimated damage $958,923.00 (equipment $128,123.00 ; track $830,800.00)

At the time of the accident it was daylight and clear with calm winds. The temperature was 69 degrees F.

The cause of the accident was Side Bearing Clearance Insufficient on loaded car NYC 608728.

110. NARRATIVE

Circumstances Prior to the Accident:

The crew of train MMEEWX-29 included a locomotive engineer and a conductor. They first went on duty at 3:40 a. m. CST, January 31, 2006 at River Front Yard in Shreveport, LA. This is an away from home terminal for both crew members. Both crew members had received more than the statutory off duty period, prior to reporting for duty.

Their assigned freight train consisted of two locomotives, 31 loaded and 66 empty cars of several varieties. The train was 6024 feet long and weighed 5700 tons. The train was scheduled to travel to Englewood Yard, Houston, TX with no pick ups or set outs en route. The train was a detour train originating on the CSXT railroad at Waycross, GA and interchanged to the Union Pacific Railroad at Memphis, TN. The train originated as Q60125 on January 25, 2006 and received a Class I Brake Test and inspection at Waycross, Ga.

As the Southbound train approached the accident area, the locomotive engineer was seated at the controls on the West side of the leading locomotive. The conductor was seated on the East side of the leading locomotive.

Topography:

In this area of the railroad there is over 4000 feet of tangent track leading into a right hand 2 degree 6 minute curvature with a descending grade of .67% at the point of derailment.

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

Method of Operation:

As indicated by timetable, the method of operation from the yard limits at the 225.8 MP to the 158.4 MP at Garrison is Track Warrant Authority.

Weather:

The weather was reported as clear, in daylight, with calm winds. The temperature was 69 degrees F.

The Accident:

The train was being operated at 28 mph approaching the accident area. This speed was recorded by the event recorder of the controlling locomotive. Maximum authorized timetable speed for this portion of track is 49 MPH; However, Track Bulletin Form A Number 093773 on Lufkin (612) to UP 4602 South At Shreveport. Do not exceed speed given. Line 8, from 167.5 MP to 161.5 MP, 25 MPH on Main Track. This slow order has been in effect since 01/04/06 1616 hours.

The engineer stated that he was operating the locomotives in dynamic braking and as the train was descending the .67% grade the train started dragging down. The engineer had notched off on the throttle to zero and the train continued to slow down and went into emergency a few feet before it stopped.

Once the train stopped the conductor got off of the locomotives and started walking the train. After walking about 35 car lengths he discovered the derailed cars. Upon this discovery he notified the dispatcher that they had a derailment. It was discovered that a total of 37 cars were derailed and that 2 were loaded and the other

35 were empty. It was also discovered that 28 of the derailed cars were Residue HAZMAT cars. There was no HAZMAT release and no evacuations. Also there were no human casualties. Once the cars were re-railed they were moved to Appleby, TX for repairs.

Analysis:

The Manager of Train Operations at Lufkin, TX made the decision not to have the train crew drug tested.

During the accident investigation it was determined that the cause of the of the derailment was Stiff Trucks on NYC 608728, Loaded Gondola.

On 02/17/2006 FRA Inspectors From Marshall, TX and Houston, TX met with Foreman General from Alexandria, LA, Union Pacific Railroad to inspect NYC 608728 that was to be jacked and repaired.

Upon Inspection it was found that the subject car was equipped with Stucki Constant Contact Side Bearings. It was also discovered that on the “A” end of the car the right and left side, constant contact side bearings were in contact with the body bolster in a manner other than by design.

Measurements of the above subject side bearings were taken using the recommended method, as described by the equipment manufacturer of the constant contact side bearing. (A.Stucki Company, Yard and shop inspection pocket guide, Rev. 4/09/04, Section 3.1.3, page 39.)

The first inspection was made by measuring the vertical distance between the mounting surface of the constant contact side bearing and the body side bearing wear plate. Both bearings measured less than the 4 7/8 inch allowed.

The second inspection used the “Sum of Pairs Method” which requires the use of inside calipers and a steel rule. When using the sum of pairs method, I measured the right and left side of the truck constant contact side bearing. The vertical distance between the body side bearing wear plate and the truck bolster surface to which the side bearing cage is mounted, when measured using the sum of pairs method, the constant side bearings measured 9 3/8 inches.

Design measurements for constant contact side bearings of this type when using the sum of pairs method may be as low as 9 7/8 inch, or as high as 10 ½ inch. No individual space should be less than 4 7/8 inch for any standard or extended travel side bearing.

Next the car was raised off the trucks on the “A” end. It was noted that the Center Plate was not setting all the way down into the bowl, as seen that there was no wear on the truck bolster bowl. Also it was noted that the constant contact side bearing blocks were crushed and broken at the “A-L” position. We then removed the Cap, Blocks and Rollers on both sides and lowered the car back down into the bowl and re-measured the constant contact side bearing clearance. The “A-R” measurements remained the same but the “A-L” measurements decreased by 1/8 inch.

The car was again raised and the side bearings re-assembled and a 1/4 inch shim placed into the bolster center plate bowl and the car lowered back into place. The constant contact side bearings were once again measured. On this measurement the sum of pairs method was used and the total measurement was 9 13/16 inches with no measurement less than 4 7/8 inch.

Conclusions:

It was determined from the measurements of the constant contact side bearings, the evidence of the condition of the side bearing blocks and the lack of wear on the center plate bowl, that the weight of the car had been riding completely on the constant contact side bearings and not allowing the “A” end truck to rotate properly. This allowed the “A” end truck to produce sufficient force onto the outside rail into the 2 degree 6 minute right hand curvature to turn the rail over and cause the derailment.