Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-59

Union Pacific (UP)
Thrall, Texas
August 2, 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-2005-59

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0805SA001
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.: 0805SA001
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 08 / Day 02 / Year 2005	6. Time of Accident/Incident: 06:30: ☑ 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
0	0	0	0	San Antonio Division

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Thrall	137.3	N/A	TX	WILLIAMSON

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
82 F		1		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		4	46		1

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: RHXBT C-01

28. Speed (recorded speed, if available) — Code
R - Recorded
E - Estimated 46 MPH — Code: R

29. Trailing Tons (gross tonnage, excluding power units): 7424

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	12	yes
(2) Causing (if mechanical cause reported)	0	0	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	4	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	58	0	0	0	0
(2) Total Derailed	36	0	0	0	0

36. Equipment Damage — This Consist: 557591
37. Track, Signal, Way, & Structure Damage: 236480
38. Primary Cause Code: M204
39. Contributing Cause Code: N/A

Number of Crew Members

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

Length of Time on Duty

44. Engineer/Operator: Hrs 9 Mi 30
45. Conductor: Hrs 9 Mi 30

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: 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) — Code
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): 0

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	0	N/A
(2) Causing (if mechanical cause reported)	0	0	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
0	0	0	0

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:

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-59-2005.jpg

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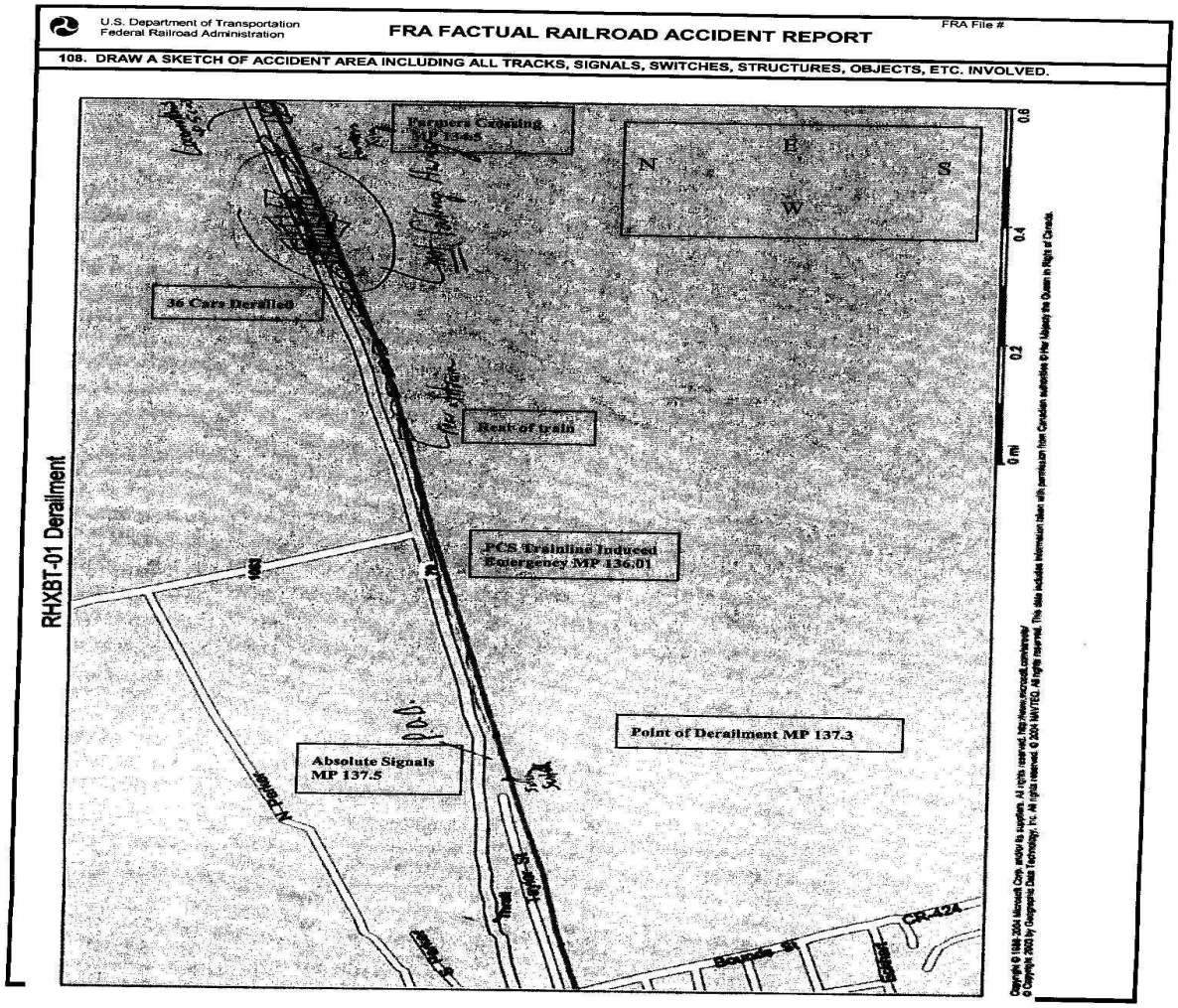

109. SYNOPSIS OF THE ACCIDENT

A northbound Union Pacific Train RHXBTC-01 derailed on August 02, 2005 at approximately 6:30 a.m. The accident occurred near Thrall, Texas at milepost 137.3 on the Union Pacific San Antonio subdivision.

There were no injuries to the train crew. The train derailed at the 8th car in the consist, (12th position in train with 4 locomotives on the lead) with 36 of 58 cars derailed. Damage to cars and track is estimated at 794,071 dollars.

At the time of the accident it was dawn and clear with a temperature of 82 degrees.

The cause of derailment was car DISX 2680 being out of the center bowl and resting on the center pin when the car was loaded.

110. NARRATIVE

The crew of the Union Pacific train RHXBTC - 01 included a locomotive engineer and a conductor. They first went on duty at 09:00 p.m. hours CST on August 01, 2005. Both crew members received more than the statutory off duty period, prior to reporting for duty. The crew was taken to their train at the Texas Lehigh Company, Southwest of Austin, where they performed an initial terminal brake test.

Their assigned freight train consisted of four locomotives and 58 loaded cement cars. It was 2,666 ft. in length and weighed 7,424 tons. The train was scheduled to travel to Beaumont, Texas.

As the Northbound train approached the accident area, the engineer was in his seat facing forward on the right side of the cab, at the controls of the leading locomotive. The conductor was seated in the front seat on the left hand side of the cab of the leading locomotive.

In this area, the track is tangent for about 15,000 feet in both directions from the point of the accident with no descending/ascending grade. Texas Highway 79 runs parallel to the track on the North side.

The railroad timetable direction of this train is North. The geographic direction of the train is East.

The Accident/Derailment:

The train was being operated at 46 mph at the time of the derailment as recorded by the event recorder. The timetable speed for this section of track is 60 mph as per current Union Pacific San Antonio Timetable No. 2 Effective 10/29/2000..

At approximately 06:30 a.m. CST on August 02, 2005 Union Pacific train RHXBTC-01 derailed at milepost 137.3 on the Union Pacific San Antonio Subdivision. The derailment started with the 8th car in the consist (12th position due to 4 locomotives on the lead of the train) and 36 of 58 loaded cement cars derailed. As per statements from the train crew, and downloaded interpretations of the event recorder, the train went into emergency. Due to the fact that it was a trainline induced emergency, the crew did not realize that the derailment had occurred and took no immediate action.

Analysis and Conclusion:

Evaluation and Testing of Equipment Involved

The Union Pacific Railroad evaluated 18% of the derailed cars. These were the cars that they were able to salvage to reconstruct the conditions prior to, and after the accident. The evaluation consisted of measurements taken on the wheels, trucks, side bearings and brake rigging. It was noted that all of the mechanical measurements were within the requirements as set forth in the Code of Federal Regulations.

The Union Pacific Railroad simulated the conditions that they alleged caused the derailment. With the car being out of the center bowl and resting on the pin, the simulation of the derailment revealed similar damage to one or more of the cars. The damage characteristics caused to the bolster and the center pin were consistent with the damages caused by the derailment. They concluded that it could have been loaded in an with the car up out of the bowl resting on the center pin, creating shifting and an unbalanced load enroute. Due to the catastrophic damage at the derailment sight, there is no evidence to refute these findings as they are consistent with the damage and other data available.

FRA Testing and Inspections

FRA on sight investigation of the derailment showed that the lead five cars had been pulled in the opposite direction of movement as the center pins holding the trucks into the bolster were either missing or bent in the reverse position. Other damage showed that the cars were pulled to the left side of the train and almost all of the damaged/derailed cars were on the North side (left side) of the track area.

FRA inspections of locomotive and cars repair and maintenance records did not reveal any conditions that would have caused or contributed to the cause of the accident. FRA Inspections of the track repair records showed that the computer repair records for the this area of track were not updated; however subsequent proper maintenance records were provided by the carrier.

Tox Test Results

The crew was tested in accordance with requirements set forth in 49 CFR Part 219 (Subpart C). The toxicological test results on the crew were negative.

Conclusion:

The railroad was in full compliance with their own and , and all applicable Federal standards. The train crew members were the only witnesses to the derailment and they had no pertinent information as to why the train derailed. Based on the information available, testing performed by the railroad, and the characteristics of the derailment, if the freight car was loaded with the car off center and out of the bowl resting on the pin, it could cause a shifted or shifting load and that could have been the primary cause of the accident. Due to the extensive damage to track and equipment it is difficult to determine with any certainty if there were any other contributing factors. The FRA does not dispute the findings of the railroad at this time.