Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-42

Union Pacific (UP)
Glamis, CA
April 12, 2008

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-2008-42

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0408LA013
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: Union Pacific RR Co. [UP]	4a. Alphabetic Code: UP	4b. Railroad Accident/Incident No.: 0408LA013
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 04 | Day 12 | Year 2008	7. Time of Accident/Incident: 04:00: ☐ 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
5	5	0	0	Los Angeles

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Glamis	699.6	N/A	CA	IMPERIAL

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
87 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 Track	5	39.82	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	KATLB-09

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
50 MPH — R	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)*	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter
30. Trailing Tons *(gross tonnage, excluding power units)*: 7033	Code(s): e | N/A | N/A | N/A | N/A	0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	DDTB724138	76	yes
(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

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	4	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	111	0	1	0	0
(2) Total Derailed	32	0	0	0	0

37. Equipment Damage — This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$886,808.00	$151,273.00	T215	N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 4 Mi 30	Hrs 4 Mi 30

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	51. Was EOT Device Properly Armed? 1. Yes 2. No
1	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 — Code	58. Method(s) of Operation *(enter code(s) that apply)*	58a. Remotely Controlled Locomotive?
N/A MPH — N/A	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

64. Equipment Damage This Consist N/A

65. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

72. Engineer/Operator Hrs N/A Mi N/A

73. Conductor Hrs N/A Mi N/A

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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 N/A

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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

91. Equipment Damage This Consist N/A

92. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator Hrs N/A Mi N/A

100. Conductor Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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 N/A

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110. Position 1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	Code N/A	113. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	Code N/A
114a. 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	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	Code N/A
114c. State here the name and quantity of the hazardous materials released, if any. N/A			

115. Type 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	116. Signaled Crossing *(See instructions for codes)*	Code	117. Whistle Ban 1. Yes 2. No 3. Unknown	Code
Code(s) N/A N/A N/A N/A N/A N/A N/A		N/A		N/A

118. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	Code N/A	119. Crossing Warning with Highway Signals 1. Yes 2. No 3. Unknown	Code N/A	120. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown	Code N/A

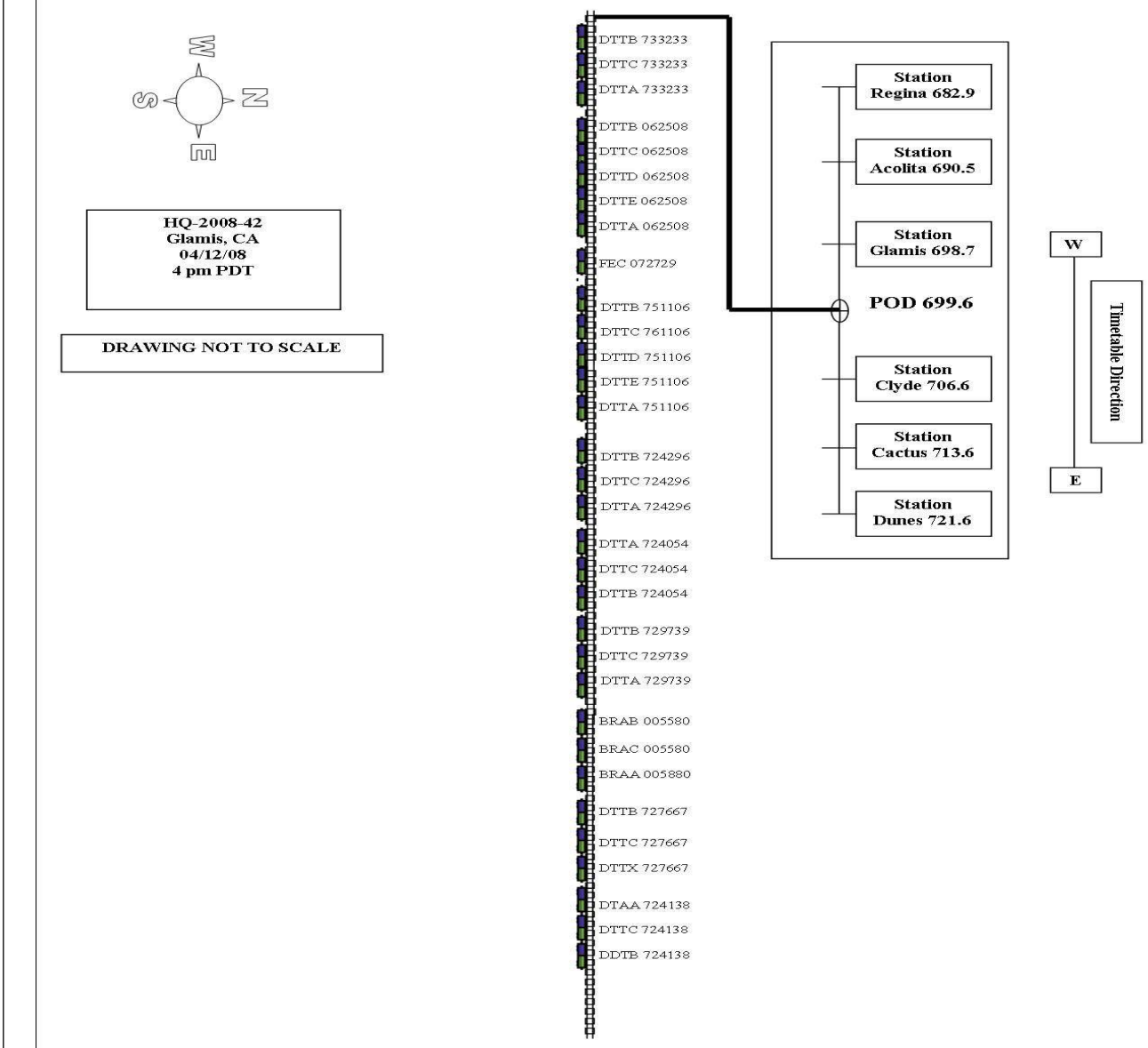
121. Age N/A	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*	Code N/A

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code N/A	126. 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

Casualties to:	Killed	Injured	127. Driver 1. Killed 2.Injured 3. Uninjured	Code N/A	128. Was Driver in the Vehicle? 1. Yes 2. No	Code N/A
129. Highway-Rail Crossing Users	N/A	N/A	130. Highway Vehicle Property Damage *(est. dollar damage)*	N/A	131. Total Number of Highway-Rail Crossing Users *(include driver)*	N/A

132. Locomotive Auxiliary Lights? 1. Yes 2. No	Code N/A	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No	Code N/A
134. Locomotive Headlight Illuminated? 1. Yes 2. No	Code N/A	135. Locomotive Audible Warning Sounded? 1. Yes 2. No	Code N/A

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



137. SYNOPSIS OF THE ACCIDENT

On April 12, 2008, at approximately 4:00 p.m. PDT westbound Union Pacific (UP) Railroad Freight Train KATLB-09 consisting of four locomotives and 111 loads and one empty rail car traveling at an estimated speed of 56 mph derailed 32 loaded intermodal well cars on single main track near Glamis, California.

The derailment occurred at milepost 699.65 on the UP Los Angeles Service Unit, Yuma Subdivision. Movements on this part of the railroad are governed by Centralized Traffic Control (CTC) by a dispatcher located in San Bernardino, California. Authorized speed for passenger trains is 79 mph and 70 mph for freight trains designated as FRA Class 5 track regulated by the Los Angeles Area Timetable #3, effective June 18, 2006.

There were no injuries resulting from the accident and no hazardous materials involved.

The weather was clear and the temperature 87° F.

Estimated equipment damage is $ 866,808. Track and signal damages estimated at $ 151,273.

Post-accident drug testing was conducted on the engineer and conductor. The results of the test were negative.

The probable cause of the derailment was broken rail joint bars, FRA Code T215.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On April 12, 2008 after completing the required statutory off duty rest period a crew consisting of an engineer and conductor reported for duty at their away from home terminal in Yuma, Arizona at 11:30 am PDT. The crew was assigned to operate a westbound UP Intermodal Train KATLB-09 en route from Yuma, Arizona to West Colton, California.

The train consisted of four locomotives, 111 loads and one empty with 7,033 trailing tons and was 7,724 feet in length. The crew departed Yuma at 1:44 p.m. PDT heading geographically and timetable direction west. Timetable directions will be used throughout this report.

The engineer was seated at the controls on the north side of the leading locomotive and the conductor was seated on the south side of the leading locomotive. UP Train KATLB-09 took the siding at Dunes waiting for four freight trains to pass and then proceeded west passing another freight train on the siding at Cactus. The engineer stated he was following UP fuel conservation rules which require an engineer not to operate above run 5 if the timetable speed is over 50 mph.

Approaching the derailment site from the east traversing west there is tangent track from milepost 701.0 to the point of derailment (POD) at mile post 699.65 with a 0.25 percent descending grade. The train passed a hot box detector (HBD) at mile post 700.38.

THE ACCIDENT

The engineer was operating UP Train KATLB-09 at a recorded speed of 57 mph in run 5 approaching the point of derailment (POD). The maximum authorized speed for this train was 70 mph identified in the UP Los Angeles Area Timetable #3. According to the train crew, they did not observe or feel anything unusual prior to the derailment. The train had slowed to 50 mph when the derailment occurred. Speeds were recorded by the event recorder of the leading locomotive.

Approaching Highway 78 at mile post 698.40 the train experienced an emergency brake application; the engineer attempted to recover the air. The engineer and conductor looked back towards the rear of the train and observed a dust cloud. The conductor left the locomotive and walked towards the rear of the train and observed 32 intermodal bays derailed, identified as lines 76 through 107 on the consist. The engineer remained on the locomotive to establish an emergency radio distress call to the dispatcher. The train was blocking Highway 78, the only route in this remote area, and traffic began backing up on both sides of the crossing. The California Highway Patrol, Imperial County Sheriff's office, and the Brawley City Fire Department responded to the scene.

POST-ACCIDENT INVESTIGATION

A post accident investigation conducted by UP engineering forces and a California Public Utilities Commission (CPUC) track inspector discovered a pair of 100 percent center broken joint bars at the POD. The gage side joint bar was broken through the first bolt hole closest to the rail end. The field side bar was center broken. The bars were sent by UP Officials to Rail Sciences for analysis.

FRA reviewed the UP inspection reports for the period of March 31 through April 10, 2008 with special notice to the area of the POD. No defects were noted by the UP inspector and FRA took no exceptions to the reports. The UP inspection report for April 10, 2008 reflects the joint at the POD location was inspected and no defects were noted. UP rail detector inspection car reports for February 27, 2008 reflect no rail defects discovered in the area of the POD.

The FRA DOTX Geometry Car survey of the Yuma subdivision of March 10, 2008 did not reveal any conditions that would have contributed to the broken joint bars but did document tight gage in the vicinity of the POD, measured at 55.87". The FRA minimum track standard for FRA class 5 track is 56".

ANALYSIS AND CONCLUSIONS

The UP Rail Cut-Ins and Cut-Outs report revealed the joint at the POD was installed on January, 23, 2008. UP Track Inspection reports discovered the joint was inspected on April 10, 2008 and no defects were noted by the track inspector.

Rail Sciences conducted an analysis of the broken joint bars found at the derailment site. The report concluded, “UP Train KATLB-09 derailed due to a pair of broken joint bars that failed due to fatigue cracks which initiated from the joint in the rail flexing.”

The two crew members of UP Train KATLB-09 were subjected to FRA mandatory post-accident toxicology tested; both crew members had negative test results.

The event recorder for the controlling locomotive did not reveal abnormal train handling at or prior to the derailment. The FRA and UP signal inspectors reviewed the detailed train report generated from the hot box detector (HBD) at mile post 700.38 and found no defects recorded from the train.

CONCLUSION

The railroad was in compliance with its own Rules and all applicable FRA Standards. There were no witnesses to the accident. The train crew on UP Train KATLB-09 stated they never felt anything unusual traversing over the POD. The data reviewed from the event recorder rules out train handling as a contributing cause and the HBD findings did not reveal any equipment conditions that would have contributed to the derailment.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

FRA has concluded that the probable cause of the derailment was the broken joint bars, FRA cause code T215.