Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-26

Union Pacific (UP)
Fairfield, NE
March 7, 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-2008-26

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0308NP002
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.: 0308NP002
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 03 Day 06 Year 2008	7. Time of Accident/Incident: 11:54: ☐ 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
0	N/A	N/A	0	North Platte

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Fairfield	247.7	N/A	NE	CLAY

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
19 F	4	6	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
Main Track No 2	4	178	3

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	CBTLU905

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?
43 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)*: 15510	Code(s): d e 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)*	UP48850	30	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
0	0

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	36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	1	(1) Total in Equipment Consist	110	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	38	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$1,887,315.00	$149,428.00	T214	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 5 Mi 53	Hrs 5 Mi 53

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 — 1

51. Was EOT Device Properly Armed? 1. Yes 2. No — 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 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	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A	1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	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	N/A	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	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 Code 1. Yes 2. No 3. Unknown
Code(s)	N/A N/A	N/A N/A	N/A N/A	N/A N/A	N/A	N/A

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

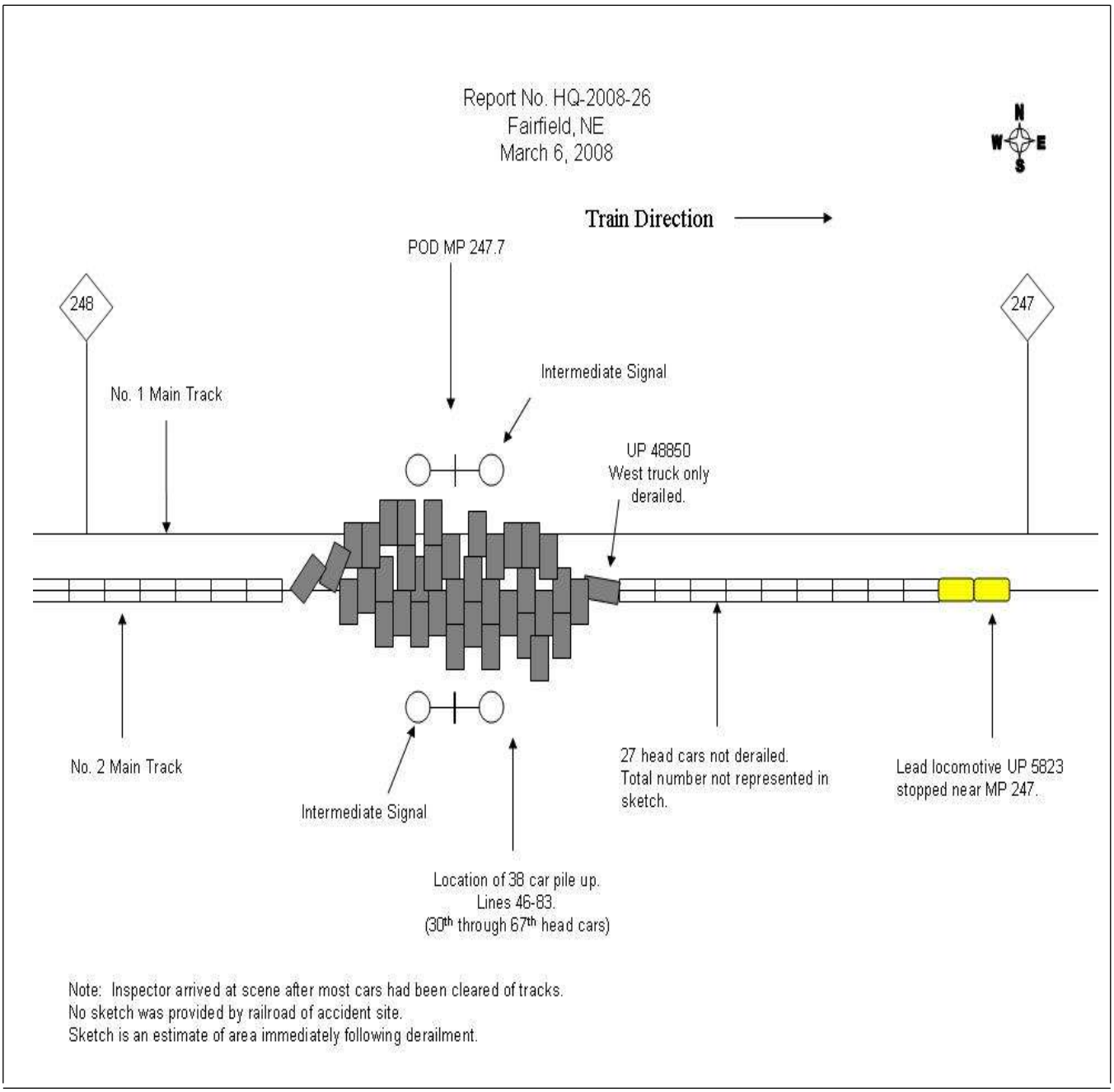
121. Age	122. Driver's Gender Code 1. Male 2. Female	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train Code 1. Yes 2. No 3. Unknown	124. Driver Code 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify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

125. Driver Passed Highway Vehicle Code 1. Yes 2. No 3. Unknown	126. View of Track Obscured by *(primary obstruction)* Code 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
N/A	N/A

Casualties to:	Killed	Injured	127. Driver Code 1. Killed 2.Injured 3. Uninjured	128. Was Driver in the Vehicle? Code 1. Yes 2. No
			N/A	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? Code 1. Yes 2. No	N/A	133. Locomotive Auxiliary Lights Operational? Code 1. Yes 2. No	N/A
134. Locomotive Headlight Illuminated? Code 1. Yes 2. No	N/A	135. Locomotive Audible Warning Sounded? Code 1. Yes 2. No	N/A

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



137. SYNOPSIS OF THE ACCIDENT

Eastbound Union Pacific Railroad Company (UP) Unit Coal Train CBTLU9-05 derailed on March 6, 2008, at 11:54 p.m. CST. The accident occurred near the town of Fairfield, Nebraska at milepost (MP) 247.7 on the North Platte Service Unit, Marysville Subdivision. As a result of the accident 38 cars were derailed.

There were no injuries or hazardous material spilled as a result of the derailment. Total damages reported for the derailment totaled $2,036,743.

At the time of the accident it was dark, cloudy, and snowing with a temperature of 19 °F.

The cause of the derailment has been determined to be the result of a broken insulated joint bar.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of UP Unit Coal Train CBTLU9-05 included a locomotive engineer and a conductor. They first went on duty at 6 p.m. CST March 6, 2008 at North Platte, Nebraska. This was the home terminal for both crewmembers and both had received more than the required statutory off-duty rest period prior to reporting for duty.

The assigned freight train consisted of 3 locomotives, 110 loaded cars and no empties. The train was 6,162 feet long and weighed 16,134 tons. The train was destined for Ladue, Missouri. The train received a Class I air brake test at North Platte on March 6, 2008. UP Unit Coal Train CBTLU9-05 is designated as an extended haul train. The train departed North Platte at 7:10 p.m. CST, March 6, 2008.

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

The track at, and leading up to the point of derailment (POD), is tangent and on a 0.26-degree descending grade. It is constructed of 133-pound Continuous Welded Rail (CWR) on concrete ties. At the POD there is an intermediate signal; no other track structures exist in the accident area.

THE ACCIDENT

UP Unit Coal Train CBTLU9-05 was being operated at 43 mph approaching the accident area and at the time of the derailment. Speeds were recorded by the event recorder of the controlling locomotive. The maximum authorized speed for the train is 50 mph as designated in the UP System Special Instructions speed restrictions for unit coal trains.

At 11:54 p.m. UP Unit Coal Train CBTLU9-05 was traveling eastward at milepost 247.7. The engineer was seated at the control stand and the conductor was seated at his normal position in the cab when a train line initiated emergency air brake application brought the head-end of the train to a stop at milepost 247. The accident resulted in the derailment of 38 cars including the 30th through the 67th head cars of the train. The weather was dark, cloudy, and snowing with a temperature of 19 °F. Visibility was unrestricted approaching the accident area.

ANALYSIS AND CONCLUSIONS

ANALYSIS - FRA TRACK INSPECTION:

FRA and Nebraska Public Service Commission (NPSC) personnel performed a post-accident track inspection.

CONCLUSION:

Inspection of the track in the accident area revealed the track to be in compliance with Federal regulations.

ANALYSIS - RAILROAD TRACK INSPECTION RECORDS AND WAYSIDE DETTCTORS:

The last ultrasonic rail detection test through this area was on March 5, 2008. No defects were noted in the accident area. The track was also inspected by hi-rail vehicle on March 5, 2008 with no exceptions noted in the derailment area. UP reported that the train defect detector located at milepost 260.2 produced no alarms for UP Unit Coal Train CBTLU9-05.

CONCLUSION:

No contributory conditions were disclosed by previous railroad track inspections or from track wayside detectors.

ANALYSIS - EQUIPMENT:

UP Staff inspected the non-derailed portion of the train. The UP Officials and FRA Investigators inspected the derailed portion of the train.

CONCLUSION:

No equipment was found having conditions which may have caused or contributed to the cause of the accident.

ANALYSIS - LOCOMOTIVE ENGINEER OPERATING PERFORMANCE:

The locomotive was equipped with an event recorder as required and an on-board camera. The relevant event recorder data was downloaded on site by the Director of Road Operations and analyzed by the UP Officials and FRA Personnel. The locomotive camera data was downloaded and sent to UP facilities in Omaha Nebraska for analysis.

CONCLUSION:

The locomotive engineer was in compliance with all applicable railroad operating and train handling requirements.

Analysis - FRA Post-Accident Toxicological Testing: Post-accident toxicology testing of the crew was conducted. UP officials determined that the accident was a “major” accident as defined by Federal regulations.

Conclusion: FRA Post-Accident Toxicological Result Reports indicates that the two employees tested had negative test results.

ANALYSIS - FATIGUE:

FRA obtained fatigue related information, for the 10-day period preceding this incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

CONCLUSION:
Upon analysis of that information FRA concluded fatigue was not probable for any of the employees.

ANALYSIS - LAB ANALYSIS OF BROKEN RAIL:

Post-accident evaluation of the track components produced a broken insulated joint bar. One-half of an 8-hole insulated joint bar was found at the accident scene. Evidence of rail batter was noted on the rail head at the broken end of the joint bar. The broken joint bar and associated rail was shipped to the Rail Sciences, Inc. Laboratory in Omaha, Nebraska for further analysis.

CONCLUSION:
The following information is taken from the UP Derailment Track/Rail Report with Project History # 36-2008-013. "Based on the evidence received, the derailment was caused by broken insulated joint bars. The bars failed due to fatigue cracks which initiated on the top of the bars."

DISCUSSION:
"Both of the joint bars in the insulated joint contained areas of fatigue fracture initiating at the top of the bars. There is leaving end rail batter present at the top of the rail in the joint. There is an indication of movement of the joint bars relative to the rail of approximately 0.1 inch. In addition, the insulation in the insulated joint is stripped in several locations..." The lab report also states that the joint bar was manufactured in 2005.

OVERALL CONCLUSIONS:

The data reviewed from the event recorder ruled out train handling as a cause. There were no failed or defective mechanical components found in the accident area. Inspections of the equipment also revealed no suspect components. There was no grade and curvature in the area that would have contributed to the cause. Post-accident toxicology testing was performed with the results being negative.

All findings and post-accident analysis substantiates a broken insulated joint bar.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

The FRA determined that the derailment was caused by a broken insulated joint bar.