Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-44

Union Pacific (UP)
Owyhee, Idaho
May 20, 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-2005-44

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0505PC003
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.: 0505PC003
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 05 / Day 20 / Year 2005	6. Time of Accident/Incident: 12:45: ☑ 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
2	0	0	0	Pocatello Service

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Kuna	432.5	N/A	ID	ADA

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
52 F		4		2		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		5	52.47		4

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	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
	1	1. Yes	1	IG3SE-15

28. Speed (recorded speed, if available) R - Recorded E - Estimated: 63 MPH | Code: R

29. Trailing Tons (gross tonnage, excluding power units): 4057

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; 2. South 4. West
N/A

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	N/A	37	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
0	0

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	3	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	100	0	0	0	0
(2) Total Derailed	41	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
821664	231548	T215	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	45. Conductor
Hrs 6 Mi 45	Hrs 6 Mi 45

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	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
	N/A	1. Yes	N/A	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)	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)	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter
0			N/A N/A N/A N/A N/A	N/A

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.	Alcohol	Drugs
(1) First involved (derailed, struck, etc)	0	0	N/A		N/A	N/A
(2) Causing (if mechanical cause reported)	0	0	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	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	0	0	0	0	0	(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
0	0	N/A	N/A

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen	71. Engineer/Operator	72. Conductor
0	0	0	0	Hrs 0 Mi 0	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?	77. Was EOT Device Properly Armed?	78. Caboose Occupied by Crew?
1. Yes 2. No N/A	1. Yes 2. No N/A	1. Yes 2. No N/A

Highway User Involved

79. Type	Code
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)	N/A

80. Vehicle Speed (est. MPH at impact)	81. Direction geographical) 1.North 2.South 3.East 4.West	Code
0		N/A

82. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

Rail Equipment Involved

83. Equipment	Code
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)	N/A

84. Position of Car Unit in Train
0

85. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	N/A

86b. Was there a hazardous materials release by	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	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	Code
1. Yes 2. No 3. Unknown	N/A

90. Location of Warning	Code
1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	N/A

91. Crossing Warning Interconnected with Highway Signals	Code
1. Yes 2. No 3. Unknown	N/A

92. Crossing Illuminated by Street Lights or Special Lights	Code
1. Yes 2. No 3. Unknown	N/A

93. Driver's Age	94. Driver's Gender	Code
0	1. Male 2. Female	N/A

95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train	Code
1. Yes 2. No 3. Unknown	N/A

96. 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

97. Driver Passed Standing Highway Vehicle	Code
1. Yes 2. No 3. Unknown	N/A

98. 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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was	Code
1. Killed 2.Injured 3. Uninjured	N/A

100. Was Driver in the Vehicle?	Code
1. Yes 2. No	N/A

102. Highway Vehicle Property Damage (est. dollar damage)	103. Total Number of Highway-Rail Crossing Users (include driver)
0	0

104. Locomotive Auxiliary Lights?	Code
1. Yes 2. No	N/A

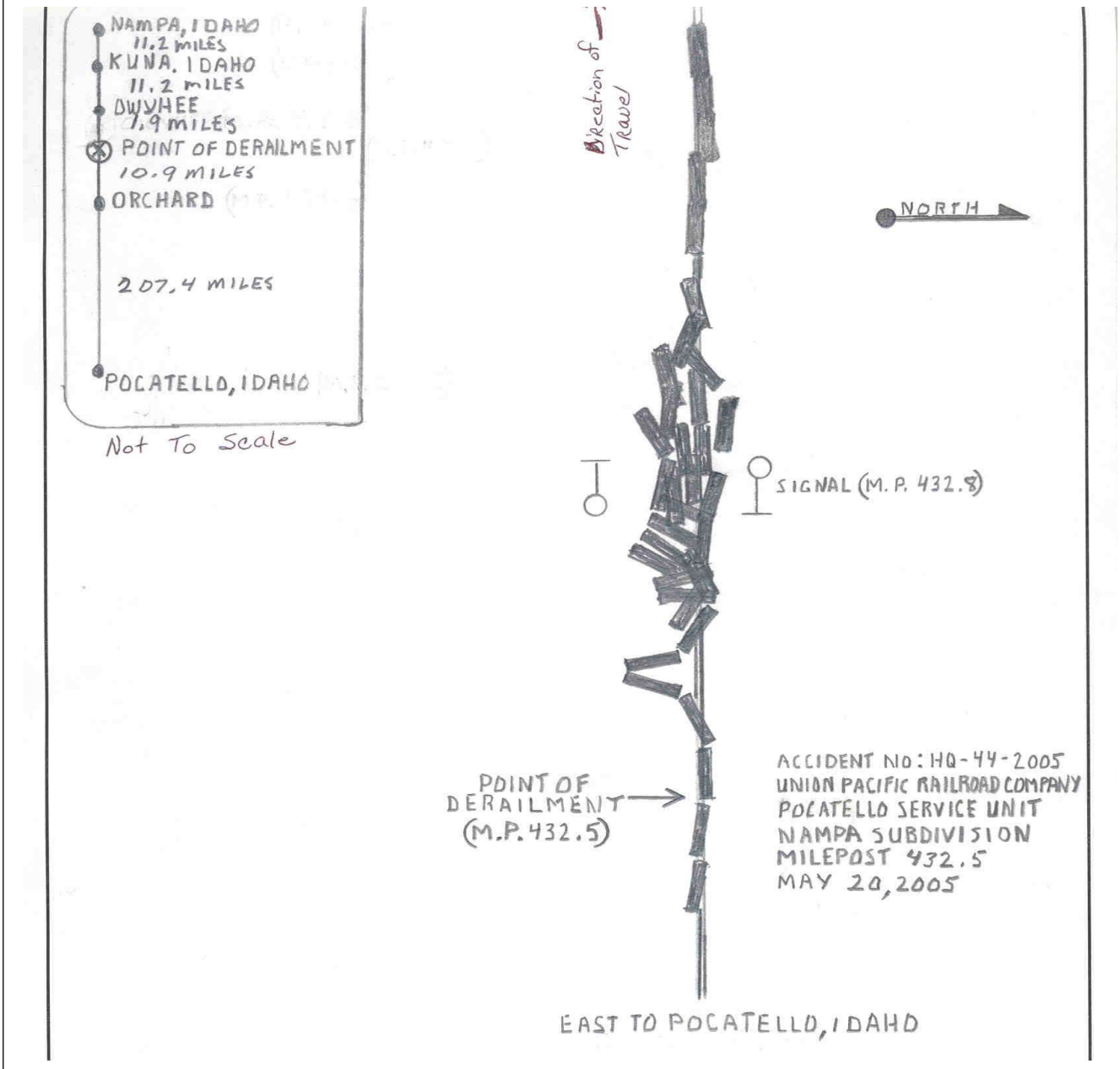
105. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	N/A

106. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	N/A

107. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	N/A

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

HQ-44
Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

On May 20, 2005, at 12:45 a.m. (MDT), a westbound Union Pacific Railroad Company (UP) intermodal freight train Symbol, IG3SE-15, derailed. The accident occurred on the UP's Pocatello Service Area, Nampa Subdivision, on a single main track at milepost 432.5, located about 13 miles east of Kuna, Idaho. A total of 41 loaded articulated container platforms derailed.

There was no release of hazardous material and no injuries to the train crew employees.

The total estimated damage was $1,053,192 ($ 821,664 for equipment , $186,770 for track, and $44,778 for signal).

At the time of the accident it was dark, the weather was cloudy, with a temperature of 52° F.

The probable cause of this accident was a pair of corresponding broken joint bars; which broke due to transverse defects.

110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Circumstances Prior to the Accident

The crew of train IG3SE-15 consisted of a locomotive engineer and conductor. Following a statutory off duty period, they reported for duty at their designated home terminal, Pocatello, Idaho, on May 19, 2005, at 6 p.m. (MDT), to operate the train, west, to Nampa, Idaho, a distance of 242.6 miles.

The train, designated as an extended haul train, consisted of 3 locomotives, 100 loaded articulated container platforms, 0 empties, weighed 4,057 trailing tons, and was 6,688 feet in length. The train consist was equipped with an armed 2-way end of train device, and received a Class I air brake test on May 18, 2005, at 9:20 a.m., in North Platte, Nebraska.

The crew boarded the train and departed Pocatello on May 19, 2005, at 7 p.m., and proceeded west without incident.

As the train approached the accident site, the locomotive engineer was seated in the cab at the controls located on the right (north) side of the leading locomotive. The conductor was seated opposite the engineer on the left (south) side of the cab in the front seat.

Approaching the accident site from the east to west, the track is tangent nine tenths of a mile in length from milepost 431.6 to the point of the accident and two miles beyond. The track grade in the accident area is 0.50 percent descending.

In the accident area, trains operate on a single main track under the authority of a Traffic Control System. The Union Pacific Railroad, Portland Area, Timetable No. 2, effective 0001 Sunday, October 29, 2000, authorizes a maximum train speed of 70 mph for freight trains. The timetable and geographic direction the train was traveling, was west.

The Accident

According to the engineer and conductor, the trip was uneventful as the train approached the accident area. They felt a tug on the train, then a short surge forward. A train line induced emergency brake application (TIE) occurred and the train slowed to a stop. While approaching, and at the time the accident occurred, the train was being operated at a speed of 63 mph as indicated by the printout of the event recorder from the lead locomotive UP3863.

They became aware of the derailment after the train stopped and the conductor walked toward the rear of the train to investigate. The conductor contacted the engineer and advised him that platforms were derailed and piled up on each side of the right of way. After receiving the report from the conductor, the engineer notified the dispatcher that their train was derailed.

No emergency response personnel were called to the accident and there were no injuries or casualties.

A total of 41 platforms, positioned 37th through 77th behind the locomotive consist, were derailed to the north and south of the track structure at various angles to the roadbed. The derailed platforms were loaded with 79 empty intermodal containers.

As result of the derailment, 2,100 feet of track and the signal located at milepost 432.8 was damaged.

The piont of derailment (POD) occurred at milepost 432.5 on single main track.

Analysis

This accident met Title 49 CFR, Part 219, Subpart C, Post Accident Toxicological Testing criteria. The UP tested both the engineer and conductor under the FRA post accident toxicological testing requirements. The results of the tests were negative.

An inspection of the data printout from the leading locomotive event recorder indicated no unusual events which could contribute to the cause of the accident. According to the print out, at 12:45 a.m., a train line induced emergency brake application occurred.

Four days prior to the accident, on May 16, 2005, a UP track inspector inspected the track in the area of the accident and noted no defective conditions. This was the last documented FRA required inspection performed prior to the accident.

An equipment inspection was made, and no condition was found that could have contributed to the cause of the accident. Lateral marks and indentations across the tread of the wheels were observed on the right number three wheel of the leading locomotive and on 19 other wheels on several of the trailing platforms and located on wheels to the north side of the train. The marks are indicative of striking the end of a rail head.

Post accident examination of the track structure disclosed a pair of corresponding broken joint bars installed on the north rail at milepost 432.5. Each joint bar had a transverse defect, about 3/4 of an inch in diameter, located near the middle, and progressing from the bottom outside edge toward the top and center of each bar. Each bar appeared to have experienced a catastrophic failure as result of weakening from the transverse defect. The receiving rail for westbound traffic at the joint bar connection showed signs of battering.

An independent investigator was contracted by UP to determine the cause. The investigator concluded that the cause of the accident was due to broken joint bars.

Conclusion

Lateral marks and indentations were found across the tread of the wheels on the right number three wheel of the leading locomotive and on 19 other wheels on the north side of the train. The receiving rail for westbound traffic at the joint bar connection at the POD showed signs of battering. Broken joint bars at that location each had a transverse defect and appeared to have experienced a catastrophic failure as result of weakening from the defect. An independent investigator determined the cause to be broken rail joint bars.

Probable Cause

The FRA determined that the probable cause of this accident was a pair of corresponding broken joint bars; which broke due to transverse defects.