Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-55

Amtrak/Union Pacific (ATK/UP)
Martinez, California
October 1, 2007

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-2007-55

1.Name of Railroad Operating Train #1: Amtrak [ATK]	1a. Alphabetic Code: ATK	1b. Railroad Accident/Incident No.: 105753
2.Name of Railroad Operating Train #2: Union Pacific RR Co. [UP]	2a. Alphabetic Code: UP	2b. Railroad Accident/Incident No.: 1007RS003
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.: 1007RS003
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 10 | Day 01 | Year 2007	7. Time of Accident/Incident: 05:35: ☐ 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: 09

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
0	N/A	N/A	0	Roseville

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
Martinez	30.0	N/A	CA	CONTRA COSTA

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
75 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
Main Track 1	5	9.57	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
2	1	540

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?
38 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: 0

30. Trailing Tons (gross tonnage, excluding power units): N/A

Code(s): e | N/A | N/A | N/A | N/A

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	ATK 172	6	N/A
(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): Y

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	1	0	0	0	1	(1) Total in Equipment Consist	0	4	0	0	0
(2) Total Derailed	0	0	0	0	1	(2) Total Derailed	0	0	0	0	0

37. Equipment Damage — This Consist: $65,728.00

38. Track, Signal, Way, & Structure Damage: $0.00

39. Primary Cause Code: M404

40. Contributing Cause Code: N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	2	0

Length of Time on Duty

45. Engineer/Operator: Hrs 4 Mi 20

46. Conductor: Hrs 4 Mi 20

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 — 2

51. Was EOT Device Properly Armed? 1. Yes 2. No — N/A

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
1	1	YOZ55 01

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?
0 MPH R	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 | N/A | N/A | N/A | N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: 0

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	UPY 652	1	no
(2) Causing (if mechanical cause reported)	0	0	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

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	2	0	0	0	0
(2) Total Derailed	0	0	0	0	0

63. Cars	Loaded a. Freight	Loaded 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

64. Equipment Damage This Consist: $10,000.00

65. Track, Signal, Way, & Structure Damage: $496,269.00

66. Primary Cause Code: M404

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
1	0	1	1

Length of Time on Duty

72. Engineer/Operator: Hrs 2 Mi 0

73. Conductor: Hrs 2 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No: 2

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
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A					

116. Signaled Crossing (See instructions for codes)	Code: N/A	117. Whistle 1. Yes 2. No 3. Unknown	Code: 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

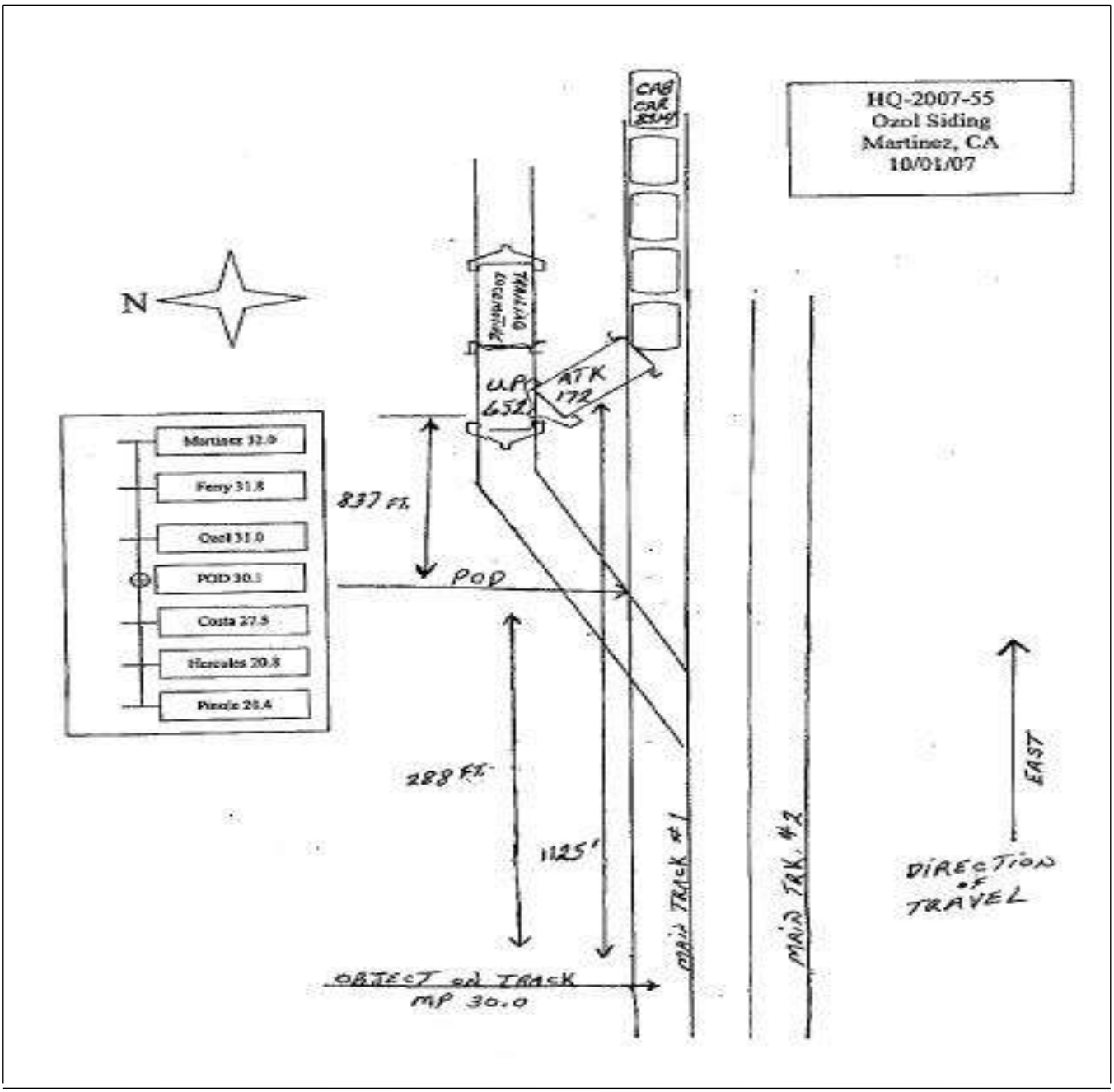
121. Age	122. Driver's Gender 1. Male 2. Female	Code: N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code: N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative)	Code: N/A
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 October 1, 2007 at approximately 5:35 p.m. PDT, eastward Amtrak Capitol Corridor Passenger Train ATK 540-01 operating in a cab forward configuration on Main Track No.1 of the Union Pacific (UP) Martinez Subdivision, derailed its locomotive at milepost 30.0. The derailed locomotive subsequently sideswiped the lead locomotive of westward UP Freight Train YOZ55-01, which was stationary on the west end of the siding at UP Ozol Yard, Martinez, California. This occurred as a result of the Amtrak train striking a center car cushioning device filler block that had dropped between the rails in the track from freight car UP 463046, which had been set out as a bad order car earlier from UP Train YOZ55-01. Locomotive ATK 172 derailed in the upright position and UP lead locomotive UP 652 was damaged but did not derail. The train came to rest just east of control point RV030, approximately 1,125 feet beyond the point of contact. Their were no injuries to either crews and no reported injuries to the 152 Amtrak Passenger Train passengers.

Damage was estimated at: ATK, $65,728, equipment; UP, $10,000, equipment, $496,269, track, signals and structures.

Weather at the time of the accident was daylight and clear, with a temperature of 75 degrees Fahrenheit.

The probable cause of the accident was an object on or fouling the track.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

For the purposes of this report, timetable directions will be used.

Amtrak 540-01 (Train # 1):

ATK Train # 1 consisted of cab car forward 8314, three passenger cars, one diner car, and locomotive ATK 172 at the rear. The train crew consisted of a locomotive engineer, conductor, and assistant conductor. After receiving their required statutory off-duty period, the crew reported for duty at 1:15 p.m., October 1, 2007, for their trip between Oakland and Sacramento, California.

According to the engineer, the train was traveling timetable direction east at 38 mph as it approached UP milepost 30.0. The locomotive engineer was seated at the controls and the conductor and assistant conductor were located in the train. Approaching MP 30.0 from the west, the track has a 1 degree curve and is practically level in grade. The maximum authorized timetable speed for passenger train movement is 40 mph.

The accident site is on UP's Roseville Division, Martinez Subdivision. In this part of the railroad, movements are authorized under Centralized Traffic Control (CTC) which is controlled by a UP dispatcher in Omaha, Nebraska.

Union Pacific UP YOZ55-01 (Train # 2):

The train crew on UP Train # 2 began work at Benicia, California, at 3:30 p.m., October 1, 2007, and traveled west to the UP's Ozol Yard in Martenez, California. Their train consisted of two locomotives and 12 freight cars and their assignment was to deliver cars to Ozol Yard, and return with cars for Benicia. After pulling the entire train over the west switch at Ozol Yard on Main Track # 1, the crew stopped to await a signal to proceed eastbound back into the yard by way of the Ozol Siding. After receiving the signal to proceed they

began their shoving movement eastward into the siding. The switchman stated that they coupled into the cars in the siding and could not "make the air" due to a bad order car (UP 463046). He also stated that they "kicked" the bad order car into Yard Track # 1 at the west end of Ozol Yard and then shoved the remainder of the cars into the clear. At this point, they cut the two locomotives away from the cars and returned to the west end of Ozol Siding to await the passage of ATK Train #1. The engineer was seated in his normal position in the locomotive cab and the switchmen were located on the ground.

THE ACCIDENT

As it approached the accident site, ATK Train # 1 was traveling eastbound on Main Track # 1 at 38 mph, as indicated by the event recorder. The engineer stated she was at MP 29.99 when she noticed a large steel or metal object lying between rails. The train was operating in "push mode", with the locomotive positioned at the rear of the train and the engineer operating the controls from the Cab Control Car. Seeing a UP switch crew at the west end of the siding at Ozol Yard, she activated the bell as required in train operating rules. As the train passed over the object, she did not immediately notice anything out of the ordinary.

ATK Train # 1 engineer stated that she was unaware anything unusual had occurred until she heard a radio transmission from the UP switch crew in the siding at Ozol advising her to stop the train because the locomotive on her train (ATK 172) was derailed. She immediately applied the brakes using a 12- to 15-pound brake pipe reduction to bring the train to a stop. The derailed locomotive continued moving eastbound, sideswiped the lead locomotive, UP 652, of UP Freight Train YOZ55-01 that was sitting in the siding and came to a stop approximately 1,125 feet beyond the point of contact with the object on the track.

After the train stopped, the engineer of ATK Train # 1 stated that the conductor exited and walked to the rear of the train. When he reached the locomotive at the rear of the train he discovered that the wheels of the trailing truck of the locomotive had derailed. He notified the engineer and then contacted the Amtrak Operations Center to advise them of the situation.

Main Tracks # 1 and # 2 were blocked. Main Track # 2 was opened to traffic about 7:45 p.m. There were no injuries to Amtrak or UP crews and no reported injuries to the 152 ATK passengers.

Damages were estimated at: ATK, $65,728, equipment; UP, $10,000, equipment, $496,269, track, signals and structures.

POST-ACCIDENT INVESTIGATION:

The subject Bad Order car that had been set out by the crew of UP Train # 2 was identified as UP 463046, which sustained a broken train line when the center car cushioning device filler block fell out of the car. After completing their movement, the UP crew proceeded back to the west end of the siding to wait for a signal to return back out onto Main Track # 1. The train dispatcher informed the crew that they would have to wait for eastbound Amtrak Passenger Train #540 to pass before receiving a signal to proceed. The switchman of Train # 2 stated that he remained in the vicinity of the derail switch and waited for the eastbound Amtrak train in order to make a visual inspection of it as it passed. He also stated while the train was passing his location, he noticed the trailing truck on locomotive ATK 172 derail as it moved over the west switch, and that the crew's foreman immediately called the Amtrak train on his "pack-set" radio and told them to stop their train because they were derailed.

The switchman on UP Train # 2 stated that following the derailment and collision with his lead locomotive, he walked past the switch at the west end of Ozol Yard and noticed a large metal object alongside the track that looked as though it may have been thrown out from under the passing Amtrak train, but he said he could not be certain where it came from.

Subsequent investigation revealed the object was the center car cushioning device filler block from bad order car UP 463046.

A review of all available records of inspections in the area of the derailment revealed that the track did not contribute to the accident.

ANALYSIS AND CONCLUSION:

ANALYSIS

UP Freight Train # 2 had occupied Main Track # 1 just prior to the arrival of ATK Passenger Train #1. Box car UP 463046 dropped a center car cushioning device filler block between the rails in the middle of the track sometime during the move. Due to their inability to get air through the car, the UP crew removed it from the train but apparently did not notice the center car cushioning device filler block laying on the track. ATK Train # 1 was traveling cab car forward and cleared the cushioning device filler block until it reached the locomotive, at which time locomotive ATK 172 derailed and struck standing locomotive UP 652 on the Ozol siding.

The cab car was equipped with a headlight, auxiliary lights, and the audible warning device. The locomotive was equipped with an event recorder as required. The ATK mechanical department in Oakland stated that these devices functioned as intended and were in compliance with Federal requirements. This was verified during a subsequent FRA inspection. The relevant event recorder data was downloaded by the ATK Road Foreman of Engines at the accident site. The analysis disclosed that the locomotive engineer was in compliance with railroad operating and train handling requirements. FRA reviewed the results of this analysis and concurred with the conclusions.

CONCLUSIONS:

The investigation revealed the Amtrak train was in compliance with its own and applicable Federal standards. A review of records relating to the inspection and maintenance of the equipment revealed there were no mechanical defects that would have contributed to the accident.

The accident was caused by train ATK 540 striking a center car cushioning device filler block belonging to car UP 463046, which had dropped between the rails on main track # 1 from UP train YOZ55-01. This then caused locomotive ATK 172 to derail and sideswipe UP 652, the lead locomotive of UP YOZ55-01 that was standing on Ozol Siding, facing west.

It is clear that the crew of UP train YOZ55-01 failed to identify that the freight car they had taken over Main Track # 1 and subsequently set-out of their train as a bad order car, had dropped its center of car cushioning device filler block onto the main track.

PROBABLE CAUSE

FRA concludes that the probable cause of the accident was an object on or fouling the track.