
# *Federal Railroad Administration*
# *Office of Safety*
# *Headquarters Assigned*
# *Accident Investigation Report*
# *HQ-2007-38*

## *CSX Transportation (CSX)*
## *Buchanan, Virginia*
## *June 21, 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-2007-38

| | | |
|---|---|---|
| 1.Name of Railroad Operating Train #1: CSX Transportation [CSX ] | 1a. Alphabetic Code: CSX | 1b. Railroad Accident/Incident No.: 000032950 |
| 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: CSX Transportation [CSX ] | 4a. Alphabetic Code: CSX | 4b. Railroad Accident/Incident No.: 000032950 |
| 5. U.S. DOT_AAR Grade Crossing Identification Number: | 6. Date of Accident/Incident: Month 06 \| Day 21 \| Year 2007 | 7. Time of Accident/Incident: 06:25:00 ☑ 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 |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | Huntington East |

| 14. Nearest City/Town | 15. Milepost (to nearest tenth) | 16. State Abbr | 16. State Code | 17. County |
|---|---|---|---|---|
| Eagle Rock | 205.2 | N/A | VA | BOTETOURT |

| 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 |
|---|---|---|---|
| 62 F | 1 | 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 | 3 | 89.1 | 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 | T 714-18 |

29. Speed (recorded speed, if available) — Code: R - Recorded; E - Estimated 26 MPH | E

30. Trailing Tons (gross tonnage, excluding power units): 20121

31. 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 |

31a. 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

| 32. Principal Car/Unit | a. Initial and Number | b. Position in Train | c. Loaded (yes/no) |
|---|---|---|---|
| (1) First involved (derailed, struck, etc) | CSXT390014 | 47 | yes |
| (2) Causing (if mechanical cause reported) | CSXT390014 | 47 | yes |

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 | 2 | 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 | 150 | 0 | 0 | 0 | 0 |
| (2) Total Derailed | 25 | 0 | 0 | 0 | 0 |

37. Equipment Damage — This Consist: $561,484.00

38. Track, Signal, Way, & Structure Damage: $175,000.00

39. Primary Cause Code: E61C

40. Contributing Cause Code: 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: Hrs 2 Mi 10

46. Conductor: Hrs 2 Mi 10

| 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: 2

## 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) — Code: R - Recorded; E - Estimated 0 MPH | N/A

58. 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

58a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

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57. 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

| 59. 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 |

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 | 0 | 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: $0.00

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

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 |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

Length of Time on Duty

72. Engineer/Operator: Hrs 0 Mi 0

73. Conductor: Hrs 0 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: 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: 0

84. Trailing Tons (gross tonnage, excluding power units): 0

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

| 90. 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 |

91. Equipment Damage This Consist: $0.00

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

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 |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

Length of Time on Duty

99. Engineer/Operator: Hrs 0 Mi 0

100. Conductor: Hrs 0 Mi 0

| Casualties to: | 101. Railroad Employees | 102. Train | 103. Other |
|---|---|---|---|
| Fatal | 0 | 0 | 0 |
| Nonfatal | 0 | 0 | 0 |

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. Code: N/A
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)

108. Vehicle Speed (est. MPH at impact): N/A

109. geographical) Code: N/A
1.North 2.South 3.East 4.West

## Rail Equipment Involved

111. Equipment Code: N/A
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)

112. Position of Car Unit in: N/A

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| 110. Position<br>1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing<br>4. Trapped | Code<br>N/A | 113. Circumstance<br>1. Rail Equipment Struck Highway User<br>2. Rail Equipment Struck by Highway User | Code<br>N/A |
|---|---|---|---|
| 114a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?<br>1. Highway User 2. Rail Equipment 3. Both 4. Neither | Code<br>N/A | 114b. Was there a hazardous materials release<br>1. Highway User 2. Rail Equipment 3. Both 4. Neither | Code<br>N/A |
| 114c. State here the name and quantity of the hazardous materials released, if any.<br>N/A | | | |

| 115. Type Crossing Warning<br>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<br>(See instructions for codes) | Code | 117. Whistle<br>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<br>1. Both Sides<br>2. Side of Vehicle Approach<br>3. Opposite Side of Vehicle Approach | Code<br>N/A | 119. Crossing Warning with Highway Signals<br>1. Yes 2. No 3. Unknown | Code<br>N/A | 120. Crossing Illuminated by Street Lights or Special Lights<br>1. Yes 2. No 3. Unknown | Code<br>N/A |
|---|---|---|---|---|---|

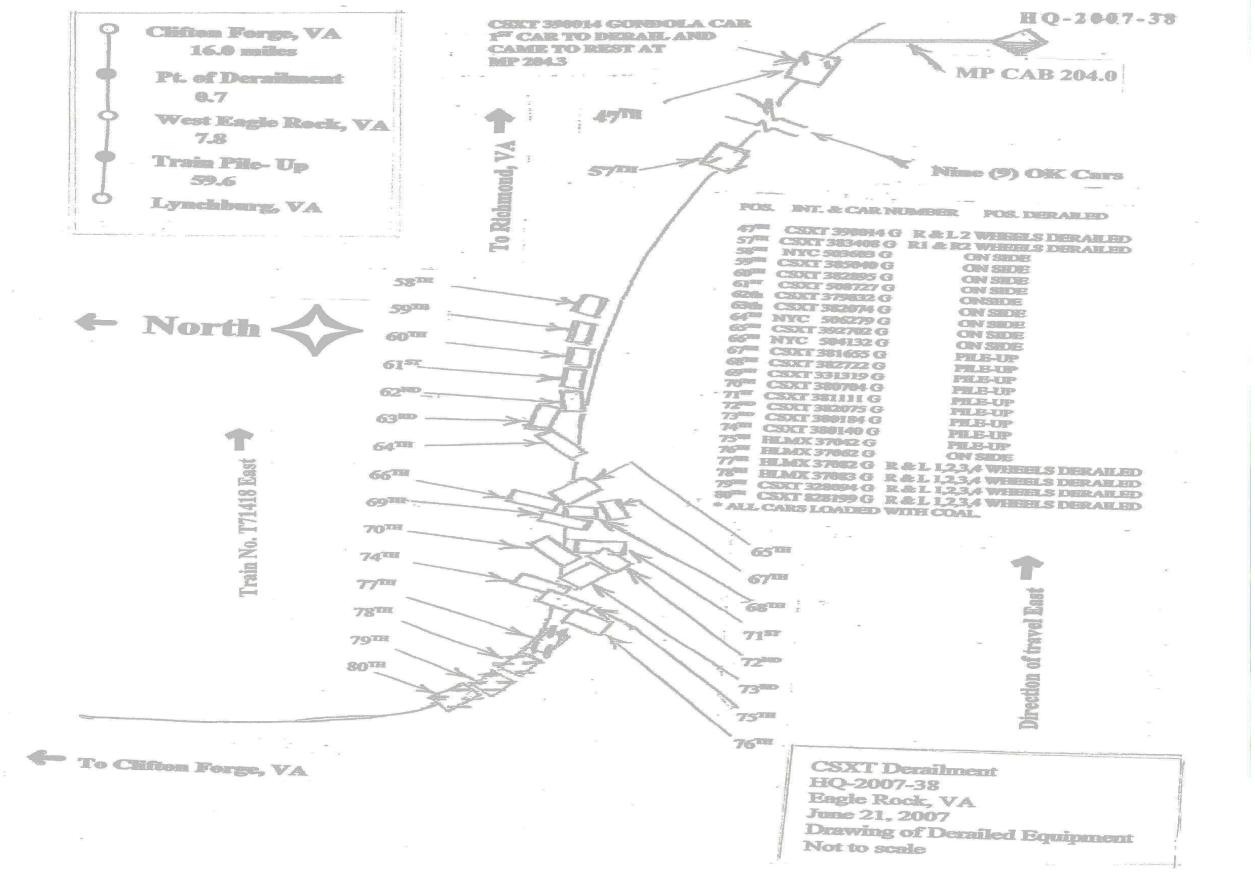
| 121. Age<br>0 | 122. Driver's Gender<br>1. Male 2. Female | Code<br>N/A | 123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train<br>1. Yes 2. No 3. Unknown | Code<br>N/A | 124. Driver<br>1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative) | Code<br>N/A |
|---|---|---|---|---|---|---|

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

| Casualties to: | Killed | Injured | 127. Driver<br>1. Killed 2.Injured 3. Uninjured | Code<br>N/A | 128. Was Driver in the Vehicle?<br>1. Yes 2. No | Code<br>N/A |
|---|---|---|---|---|---|---|
| 129. Highway-Rail Crossing Users | 0 | 0 | 130. Highway Vehicle Property Damage (est. dollar damage) 0 | | 131. Total Number of Highway-Rail Crossing Users (include driver) 0 | |

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

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



137. SYNOPSIS OF THE ACCIDENT

Eastbound CSX Freight Train No. T71418 derailed on June 21, 2007, at 6:25 a.m. The accident occurred near Eagle Rock, Virginia, at CSX Milepost CAB 205.2, on the James River Subdivision, Huntington Division East. The accident occurred about six miles from the city of Eagle Rock, Virginia.

The train derailed 25 loaded coal cars.

There were no casualties and no hazardous materials were involved. No one was evacuated. Estimated damages to the equipment, track and signals, were $561,484 and $175,000 respectively. The weather at dawn was clear and the temperature was 62 ° F.

The probable cause of the accident was a broken rim on the L2 wheel on CSXT 390014.

138. NARRATIVE

The initial CSX accident/incident report indicated Buchanan, Virginia, as the nearest city, however, this was later changed to Eagle Rock, Virginia. This report will reflect Eagle Rock, Virginia as the nearest city.

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew on CSX Train No. T71418 eastbound consisted of a certified engineer and conductor. They went on duty at 4:15 a.m., Eastern Standard Time, on June 21, 2007, at Clifton Forge, Virginia. This was the home terminal for the crew members, and both members received more than the statutory off duty period prior to reporting for duty.

The freight train consisted of two locomotives, CSXT 358 and CSXT 419, and 150 loaded coal cars, and was equipped with an end-of-train device. The train length was 7,547 feet and had 20,121 trailing tons.

Train T71418 was a CSX unit coal train, and there were no plans to add or remove cars during the trip. This train originated at Newport News, Virginia, on June 18, 2007, and received all the required FRA inspections at this location. The CSX Mechanical Department employees performed these tests, and the train was in full compliance with the FRA regulations. The train traveled westward to the Fola Mine, Fola West Virginia. The train was loaded with coal and remained intact while being loaded. After loading, the train traveled eastward to Clifton Forge, Virginia, At this location, the train remained intact. The train required no inspection at this location. There were no plans to add or remove cars during the trip.

At Clifton Forge, Virginia, the train departed eastward at 4:45 a.m. en route to Richmond, Virginia.

As the eastbound train approached the accident area, the locomotive engineer was seated at the controls on the south side of the lead locomotive, and the conductor was seated on the north side opposite the engineer.

Approaching the accident site, CSX Train No. T71418 was operating in an eastward direction on a descending grade of .06 percent. The train was in a series of curves from 4.47- degrees to 1.00-degrees and

tangent track. The pile-up occurred in the spiral of a 4.28- degree curve. The track was constructed of 132-pound rail on concrete ties.

The railroad timetable direction for the train was east. The geographic direction was east. Timetable directions are used throughout this report.

THE ACCIDENT

CSX Train No. T71418 was being operated on single main track at 24 mph approaching the accident area. At the time the accident occurred, the train was being operated at
26 mph. Both speeds were recorded by the event recorder on the controlling locomotive. According to the event recorder, the engineer was operating the train in the number two throttle position. The maximum authorized speed for freight trains is 30 mph, as designated in the current CSX Timetable No. One, Huntington, Division East, effective Saturday, January 1, 2005. The train experienced an emergency application of the train air brakes. The engineer announced over the radio that the train was in emergency. The engineer stopped the head end of the train at about Milepost CAB 204.8.

The conductor detrained and walked westward inspecting the train. He found the 47th car derailed followed by nine cars on the rail. He found the 57th car through 80th car derailed. A total of 25 cars were derailed, and 23 cars were piled up. He called the engineer and informed him of the derailment. The engineer notified the dispatcher and CSX officials of the derailment.

The FRA Inspectors and CSX Officials discovered the Point of Derailment at CSX Milepost CAB 214.2. The first car derailed was CSXT 3900014. This car had a broken rim on the L2 wheel. Distinct marks were found on the south rail consistent with a broken wheel. The car came to rest at Milepost CAB 204.3, and the L2 and R2 wheels were derailed. Further investigation confirmed that Milepost CAB 214.2 was the initial point of derailment. At Milepost CAB 213.5, the wheel re-railed at a trailing point switch. The second point of derailment occurred at Milepost CAB 211.0. At Milepost CAB 207.3, the wheel re-railed at a joint bar. The third point of derailment occurred at Milepost CAB 206.7. The pile-up occurred Milepost CAB 205.3 to Milepost CAB 205.7.

No exceptions were taken with the track conditions or train handling. An FRA inspection of the remaining cars in the train was conducted, and no exceptions were taken.

ANALYSIS AND CONCLUSION

ANALYSIS

CSX Train No. T71418 was traveling eastbound on single main track at a recorded speed of 26 mph. The train experienced an emergency application of the train air brakes. The train derailed 25 loaded coal cars. The accident investigation revealed that the 47th car, CSXT 390014, traveled a distance of about 10 miles from the point of derailment, Milepost CAB 214.2, and derailed at Milepost CAB 205.2. This caused CSX Train No. T71418 to separate the train line and caused an emergency brake application. The car had successfully traveled past the CSX hot box detector at Milepost CAB 200.9, and the CSX wheel impact detector at Milepost CA 345. There was no indication of a wheel failure.

CONCLUSION

The carrier was in full compliance with their rules and all applicable Federal standards. The FRA accident investigation and data gathered revealed that the accident was caused by a broken rim on the L2 wheel on CSXT 390014. The primary cause code for a broken rim is E61C.

PROBABLE CAUSE

The FRA's investigation determined that the probable cause of the accident was a broken rim on the L2 wheel of car CSXT 390014.