Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-71

CSX Transportation (CSX)
Washington, D.C.
November 9, 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-2007-71

1.Name of Railroad Operating Train #1: CSX Transportation [CSX]	1a. Alphabetic Code: CSX	1b. Railroad Accident/Incident No.: 000039072
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.: 000039072
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 11 | Day 09 | Year 2007	7. Time of Accident/Incident: 02:45:00 ☐ 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	N/A	N/A	0	BALTIMORE

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
WASHINGTON	134.0	N/A	DC	WASHINGTON, DC

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
46 F	2	2	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
TRACK 3	2	N/A	2

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
6	2	N/A

29. Speed (recorded speed, if available) — Code: R - Recorded; E - Estimated 4 MPH | E

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

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): h | 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)	HLMX 10013	67	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/A

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	0	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	89	0	0	0	0
(2) Total Derailed	8	0	0	0	0

37. Equipment Damage — This Consist: $175,902.00

38. Track, Signal, Way, & Structure Damage: $25,000.00

39. Primary Cause Code: H018

40. Contributing Cause Code: H008

Number of Crew Members

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

Length of Time on Duty

45. Engineer/Operator: Hrs 0 Mi 0

46. Conductor: Hrs 0 Mi 0

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
N/A	N/A	N/A

56. Speed (recorded speed, if available) — Code: R - Recorded; E - Estimated N/A 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

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. 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

DEPARTMENT OF TRANSPORTATION
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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 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

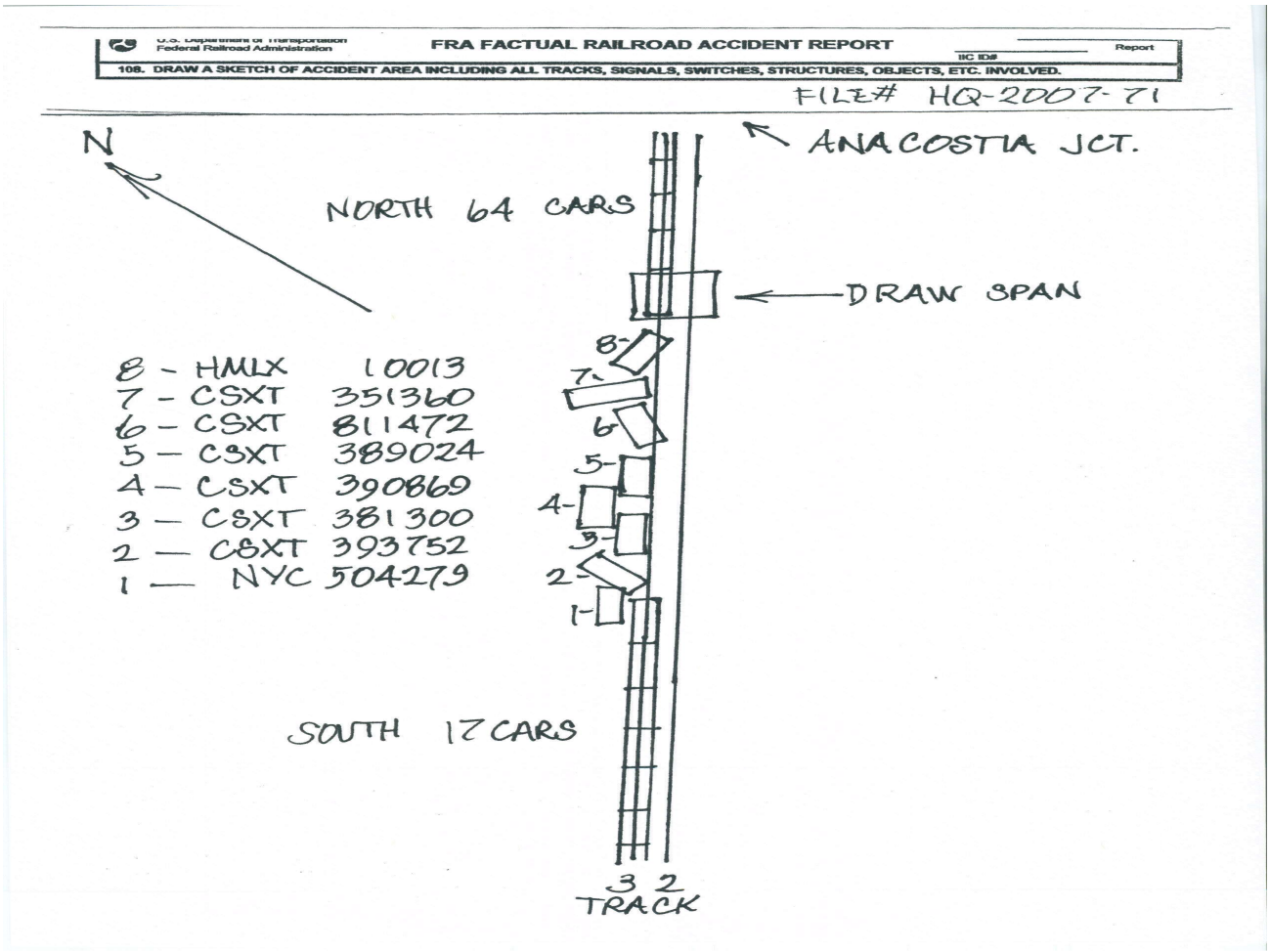
121. Age N/A	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify 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 Friday, November 9, 2007 at 2:45 PM EST, while securing the consist of northbound coal train V61505, engine CSX 4716 - CSXT 4744 at Benning Yard at Washington, D.C., a Utility Employee failed to apply sufficient hand brakes before coupling the cars to yard air, resulting in all 89 loaded coal cars rolling out of the yard. The cars rolled southbound onto main track 3 on the Anacostia River bridge, which collapsed, derailing 8 cars, five of which fell into the river. There were no injuries and no hazardous materials release reported. Weather was daylight, cloudy, 46 degrees.

The cause of the accident was H018 “failure to properly secure hand brakes on cars”, violation of CFR 232.103.n.ii and CSX Operating Rules 103-D (applying sufficient handbrakes) and 103-C (testing handbrakes before leaving equipment unattended.
Contributing cause was H008 “improper operation of train line air air connections”.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT:

The derailment occurred on the CSX Transportation, Inc., Baltimore Division, Capital Subdivision, at MP QL 134.0, Washington, D. C., on main track 3. Method of operation is current of traffic (ABS), and maximum speed is 25 MPH for freight trains with no other restrictions in that area. Baltimore Division Timetable No. 5 dated June 8, 2003 was in effect. At the time of the accident, Track 3 was out of service and a barricade was in place to prevent movements into this track.

The yard at Benning is on a wide right hand turn southbound with 0.52 percent downward grade on for approximately one-quarter mile into the interlocking at Anacostia Jct.. Southward from the interlocking the track levels off to 0.0 percent gradient on the Anacostia River drawbridge and then rises from the south end of the bridge. The south end of the cars was standing on the 0.52 percent gradient and the north end was standing on tangent track with no gradient. Weather was daylight, cloudy, 46 degrees.

Train V61505 operated from Fulton Yard in Richmond, Virginia with a consist of two units, CSXT 4716 - CSXT 4744, and eighty-nine cars loaded with coal, with train weight totaling 12,014 tons and a length of 4525 feet. The crew on duty at the time of the derailment consisted of a locomotive engineer and a conductor called from the Richmond extra list, and a utility employee regularly assigned at Benning Yard. Their work orders included a record of a Class 1 Inspection and Air Brake Test completed on their train at Russell, Kentucky on November 2, 2007 at 7:20 pm and a Class 3 Air brake Test completed at Fulton Yard in Richmond, Virginia on November 9, 2007 at 5:40 am.

The Engineer was on duty at Richmond, Va. November 9, 2007 at 4:00 am, after statutory rest of 39 hours. He was hired in 2000; his last rules test was in 2007; his efficiency test record for the past twelve months shows 50 tests with no failures and no tests for securing unattended equipment or testing hand brakes noted.

The Conductor was on duty at Richmond, Va. November 9, 2007 at 4:00 am, after statutory rest of 69 hours. He was hired in 1994, his last rules test was in 2007. His efficiency test results past twelve months show 80

tests with no failures, no tests for testing hand brakes before leaving equipment unattended, and one test for securing unattended equipment.

The Utility Employee was on duty at Washington, D. C. November 9, 2007 at 1:00 pm after statutory rest of 51 hours. He was hired in 2005, his last rules test was in 2006 , his efficiency test record for the past twelve months shows 26 tests with no failures and no tests for securing unattended equipment noted.

The crew boarded V61505 at Fulton Yard in Richmond and traveled north on the RF&P and then Capital Subdivisions to Washington. V61505 arrived on main track 2 at Anacostia Jct. and contacted the Yardmaster at Benning Yard for instructions and notified him that the conductor was not qualified in Benning Yard. The Utility Employee on duty at Benning was attached to the crew on V61505 to pilot the road crew while working in the yard and protect the rear on the train while making a shoving move from the main track into the yard.

The crew was instructed to proceed north from Anacostia Jct. on main track 3 and back their train into Benning Yard through the hand-throw crossovers at “New Connection”, leave the train on yard track 5, and attach the yard air. To complete the move, the south end of V61505 needed headroom past the southward home signal from the yard onto main track 3 toward the Anacostia River Bridge. In a job briefing the Utility Employee instructed the Conductor to cut off the locomotives and allow the air to go down after the shoving move was completed, and then close the angle cock on the north end car so the Utility Employee could secure the cars and couple the yard air hose to the south end of the cars.

V61505 proceeded north on main track 3, shoved south into the yard through the hand-throw crossovers to yard track 5 and pulled north on yard track 5 to clear the Anacostia Jct. Interlocking by about fifteen cars. After movement stopped, the Conductor uncoupled the locomotives and closed the angle cock on the north end car. He then proceeded to the cab of the lead locomotive where he and the engineer to secured the locomotives and prepared for relief.

THE ACCIDENT:

After the locomotives were uncoupled from the train causing the air brakes to apply in emergency, the Utility Employee removed the end-of train device, coupled the yard air hose, and opened the angle cock on the south end car. He then opened the yard air angle cock to leave the cars on air and proceeded north to apply hand brakes to the cars.

As he was applying a hand brake he observed that the air brakes were releasing and then that the cars beginning to move southward. He hurried to the south end in an attempt to stop the cars from rolling away. He attempted to uncouple the yard air hose, but couldn’t, and then in a panic he closed the angle cock on the south end car, which in effect bottled the air. When the cars continued moving away, the yard air hose uncoupled, but because the angle cock on the car was closed, the air brakes remained released.

As the Conductor alighted with his grip from the locomotive north of the cars, he observed the cars rolling away south and ran to catch them, but was unsuccessful.

The eighty-nine loaded coal cars rolled out of the yard and onto the bridge on main track 3, which was out of service due to undermined pilings, crashed through the barricade, and continued south across the bridge. The first seventeen cars from the south end traversed the undermined section of the bridge, but the eighteenth through twenty-fifth cars derailed and collapsed the bridge. Five of the cars ended up in the river. There were no injuries and no hazardous materials releases reported.

ANALYSIS: INSPECTIONS, TESTING, AND EVALUATIONS PERFORMED:

On November 12, 2007, CSX Transportation performed 2 scenario’s of the derailment. Each scenario was set up with 79 cars of loaded coal placed in the same location with two locomotives attached on the north end. The secured the train with 35% of the handbrakes applied and tested the cars

In the first scenario, CSXT reports that they made a full service application and then cut the locomotives away, allowing the train to go into emergency, just as the download indicates. CSXT then reported that they closed the angle cock on the head end and allowed the rear angle cock to remain closed. They timed the process for twenty-three minutes and did not get any visual or audible release.

The second scenario was followed as closely as possible to the sequence of events as described by the conductor and utility man/pilot as described in their written statements and interviews, CSXT reported that they made a full service reduction and cut the locomotives away, allowing the train to go into emergency as they did in the first scenario. CSXT then reported that they verified that the train had an emergency brake application and closed the angle cock on the head car, waited three minutes and removed the EOT and then connected the ground air line to the train. In less than 50 seconds, the brakes on the entire train began to release.

FRA MP&E Specialist Clay inspected the consist of V61505 at Benning Yard and found all equipment functioning as intended and FRA S&TC Inspector Whaley and a CSX Signal Supervisor conducted comprehensive testing of signal apparatus in the vicinity and found no exceptions taken to the signal system.

TOX TEST RESULTS:

The engineer, conductor, and the utility employee involved in the collision were drug and alcohol tested. All employees tested negative.

CONCLUSION:

When the Utility Employee coupled the yard air to the cars, the increase in air pressure in the train line released the air brakes. Because he had not applied sufficient hand brakes to secure the cars it allowed the eighty-nine loaded coal cars to roll south out of the yard to the point of derailment.

PROBABLE CAUSE:

The cause of the accident was H018 “failure to properly secure hand brakes on cars”, violation of CFR 232.103.n.ii and CSX Operating Rules 103-D (applying sufficient handbrakes) and 103-C (testing handbrakes before leaving equipment unattended.
Contributing cause was H008 “improper operation of train line air air connections”.