Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-02

CSX Transportation (CSX)
Louisa, KY
January 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-2008-2

1.Name of Railroad Operating Train #1: CSX Transportation [CSX]	1a. Alphabetic Code: CSX	1b. Railroad Accident/Incident No.: 000041691
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.: 000041691
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 01 | Day 07 | Year 2008	7. Time of Accident/Incident: 03:03: ☐ 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	Huntington

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Louisa	37.1	N/A	KY	LAWRENCE

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
60 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
single main	2	51.6	4

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	U70303

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?
23 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)*: 19900

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)*	CSXT4822	1	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	2	0	0	0	0
(2) Total Derailed	2	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	23	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$572,340.00	$50,000.00	T220	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 10 Mi 43	Hrs 10 Mi 43

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 —	51. Was EOT Device Properly Armed? 1. Yes 2. No —
1	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)* 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 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

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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 N/A	117. Whistle 1. Yes 2. No 3. Unknown	Code N/A
Code(s)	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

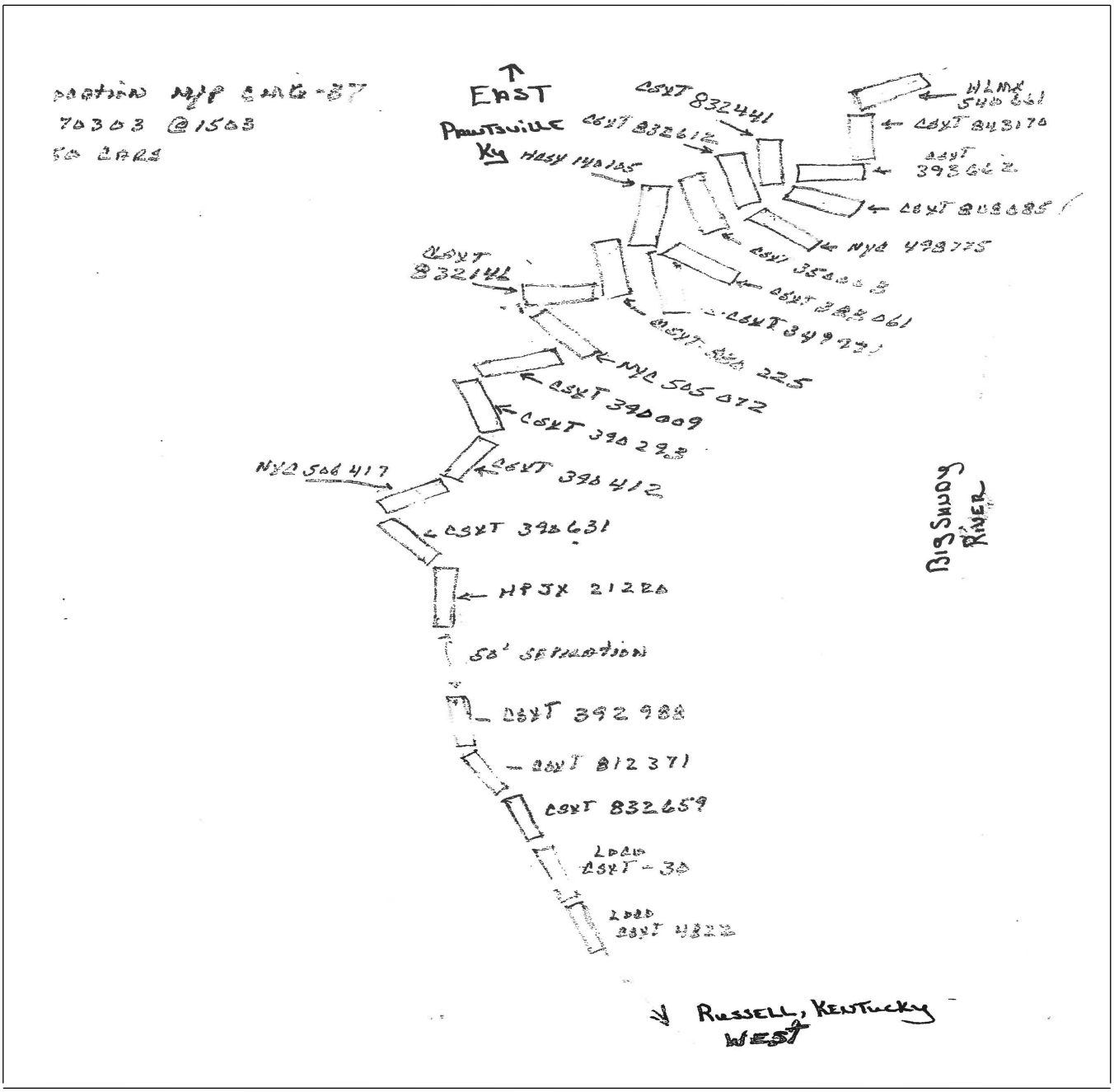
121. Age N/A	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 4. Stopped on Crossing 2. Stopped and then Proceeded 5. Other *(specify in narrative)* 3. Did not Stop	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 3. Passing Train 5. Vegetation 7. Other *(specify in narrative)* 2. Standing Railroad Equipment 4. Topography 6. Highway Vehicle 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 January 7, 2008, at approximately 3:03 p.m. EST, westbound CSX Transportation, Inc. (CSX) Unit Coal Train # U703-03, consisting of two locomotives and 150 loaded coal hopper cars, derailed both locomotives and the first 23 cars at milepost (MP) CMG 37.1 on the Huntington Subdivision. The derailment occurred about 12.6 miles east of Louisa, Kentucky (KY), in Lawrence County. The train crew consisted of an engineer and a conductor. The crew members reported for duty at Shelbiana, KY at 4:20 a.m EST.

There were no injuries reported, no hazardous materials released, and no evacuation ordered. Total damages of this derailment was $622,340; $572,340 to equipment and $50,000 to track, signal, and structures.

At the time of the accident it was daylight, clear, and 60 °F.

The probable cause of the accident was a broken rail.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of CSX Unit Coal Train # U703-03 included a locomotive engineer and a conductor. They went on duty at 4:20 a.m. EST January 7, 2008, at the CSX Shelbiana Yard, in Shelbiana, KY. This is the home terminal for both crew members, and both employees received more than the required statutory off-duty rest period prior to reporting for duty. The train crew then deadheaded, via taxi, to the Coal Run Yard Office in Pike County, KY, a distance of about 12.5 miles, where they took charge of CSX Train # U703-03.

The assigned train consisted of two locomotives and 150 loaded coal hopper cars. It was 7,200 feet long and weighed 22,000 tons. The train was scheduled to travel to Russell, KY, with cars to be added at one location en-route. The train received an initial terminal train air brake test and departed Coal Run Yard at 6:54 a.m. EST the date of the accident.

The crew stopped the train in Paintsville, KY, to add cars while en-route. They added 50 coal cars and performed an intermediate terminal train air brake test prior to proceeding toward Russell.

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

In this area of the railroad, traveling in the direction of the train, there are in succession a 9-degree 7 minute curve to the left for 500 feet, followed by a 10-degree 15 minute left curve for 500 feet leading up to and at the point of the accident. There is a 0.20 to 0.21- percent ascending grade for about 750 feet. Traveling westward at the Point Of Derailment (POD) the grade is practically level.

The railroad timetable direction of the train was west. The geographic direction was north. Timetable directions are used throughout this report. At the accident location, trains operate on a single main track governed by a Traffic Control Signal System (TCS) as the method of operation.

THE ACCIDENT

CSX Unit Coal Train # U703-03 approached the accident area at a recorded speed of 23 miles per hour (mph). The speed was recorded by an event recorder on the controlling locomotive (CSXT 4822).

As the crew approached the accident site, they encountered a traffic control signal which displayed a clear indication at MP CMG 37.4, KX Cabin. The engineer was operating in power throttle notch no. 8 with no braking of any type. The first indication of any problem was when the engineer suddenly experienced an abrupt sensation of the bottom falling out from underneath the lead locomotive. At that moment, realizing the train had derailed due to the sudden drop of the lead locomotive, the engineer reportedly observed ballast flying by his window as the conductor reportedly observed the coal hoppers derailing on the south side of the track, the locomotive engineer immediately initiated an emergency brake application.

After the train stopped, the engineer stayed on the locomotive to establish radio communication with the CSX AO train dispatcher and advised him of the derailment. The conductor dismounted the lead locomotive and began walking on the south side of the train to survey the damage. He discovered the lead locomotive and several coal hoppers were derailed. Within minutes after the derailment, a CSX General Mechanical Foreman and a CSX Road Foreman were dispatched to the scene of the accident. A CSX Roadmaster from the engineering department was also dispatched to the scene of the accident. Upon their arrival, the CSX General Mechanical Foreman began assessing the damages to the rail equipment. The CSX Road Foreman of Engines began downloading the event recorder from both locomotives and conducting interviews with the locomotive engineer and the conductor. The CSX Roadmaster began assessing track damage.

The locomotive engineer and conductor suffered no injuries, there were no hazardous materials involved, and there were no evacuations ordered as a result of the accident.

ANALYSIS AND CONCLUSION

ANALYSIS - TOXICOLOGICAL TESTING:

No Federal Railroad Administration (FRA) post-accident toxicological test samples were collected as testing of the crew was not required by FRA Regulations.

ANALYSIS:

FRA obtained fatigue related information, for the 10-day period preceding the 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 - LOCOMOTIVE ENGINEER OPERATING PERFORMANCE:

The locomotive was also equipped with a speed indicator and an event recorder as required by Federal Regulations. The relevant event recorder data was downloaded by the CSX Road Foreman of Engines at the accident site and analyzed by CSX Officials.

CONCLUSION:

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

ANALYSIS - CSX and FRA MECHANICAL INSPECTIONS:

The CSX General Foreman, a CSX Mechanical Supervisor of cars, and a CSX Locomotive Mechanical

Supervisor who performed the initial mechanical inspections, reported no mechanical failures or exceptions concerning the locomotives or the hopper cars involved in the derailment. The FRA Motive Power and Equipment (MP&E) Inspector who performed a thorough mechanical inspection on both locomotives and hopper cars involved in the derailment, also reported no exceptions noted due to mechanical failure.

CONCLUSION:

Both mechanical inspections conducted by CSX and FRA revealed that the locomotives and hopper cars were in compliance of the Federal Safety Standards and were not considered the cause or a contributing factor involved in the derailment.

ANALYSIS - CSX & FRA SIGNAL INSPECTIONS:

All switch tests and inspections performed by a CSX Signal Maintainer at KX Cabin between November and December 2007, and January 2008, revealed that the signal system was functioning properly. An FRA signal inspection performed by FRA's Signal and Train Control Inspector also revealed that the signal system was functioning properly with no exceptions noted.

CONCLUSION:

The signal system at KX Cabin was functioning properly and was not a factor in the derailment.

ANALYSIS - CSX TRACK INSPECTIONS & TRACK DATA REPORTS:
CSX track inspection records dated between November and December 2007, revealed that the Main Track in the accident location had been inspected in accordance with the Federal Track Safety Standards. A CSX Track Disturbance Report dated 2007, revealed no track disturbance work was performed within the specified milepost location of the accident. CSX Service Failures and Detected Rail Defect Reports revealed no prior rail failures or rail defects noted within the accident location. A CSX Critical Exception Report - GRMS 2, identified no surface deviations reported within the specified milepost location where the derailment occurred. Sperry Rail Defect Records dated 2007 and 2008, revealed no internal or external rail defects detected within the derailment area at the time rail testing procedures were performed.

CONCLUSION:

Based on the required track inspections that were conducted and periodic geometry tests that were performed concerning the track structure, it is evident that the track was maintained in accordance of 49 CFR, Part 213, Federal Track Safety Standards (TSS).

ANALYSIS - FRA TRACK INSPECTION:

Approaching the accident site from the east, an FRA walking track inspection was conducted from MP CMG 38.0 to MP CMG 37.3. Track speed in this location is 40 mph, Class 3. The track structure consisted of the No. 1, No. 2 Main Tracks, and a turnout located at KX Cabin. In this location, the track structure consisted of 136, 122, and 141 lb. continuous welded rail (CWR) sections. The crossties were installed in the track in 2000, which were determined to be structurally sound and in good condition, including the single Main Track from MP CMG 37.4 to MP CMG 37.3, east of the POD.

Rail gage measurements taken throughout these locations measured between 56-½" to 56-5/8". Crosslevel on both the No. 1, No. 2, and single Main Tracks measured between 0" to 1/16". The turnout at KX Cabin consisting of all switch components was found to be tight, intact, and properly maintained. From MP CMG 37.0 to MP CMG 36.8 at the west end on single Main Track the gage measured 56-½" and the crosslevel measured 0".

Within the area of the derailment, the track structure consisted of 141 lb. and 136 lb. CWR. During the course of the inspection, the crossties and rail fastening system throughout these locations were found to be structurally sound and in good condition. CSX timetable speed at this location is 25 mph, Class 2. The last recorded FRA main line track inspection conducted in the accident location, prior to the derailment, was May 24, 2007. During the course of the inspection, there were no exceptions noted.

CONCLUSION:

All FRA track measurements taken in the course of the post accident investigation indicate the track structure was maintained in accordance of 49 CFR, Part 213.

OVERALL CONCLUSION:

The railroad was in full compliance with their own and all applicable Federal Standards. The train crew members were the only witnesses to the accident. They could not provide information that could be used to determine any other type failures other than the abrupt failure of the lead locomotive falling off of the rail.

Climatological data revealed an average of 63 °F the day of the accident, and 55 °F the day before. Sudden and large changes in ambient temperature create steel stress and rail movement causing internal rail defects to grow rapidly. Not all internal rail defects are detected by ultrasonic testing techniques, therefore, the rapid growth of an undetected internal rail defect can lead to a broken rail. Other contributing factors are track roadbed conditions, various types of rolling stock, speed, and tonnage.

PROBABLE CAUSE & CONTRIBUTING FACTORS:

The probable cause of the accident is a broken rail with no other contributing factors.

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