



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2010-08***

***CSX Transportation (CSX)
Providence, VA
February 15, 2010***

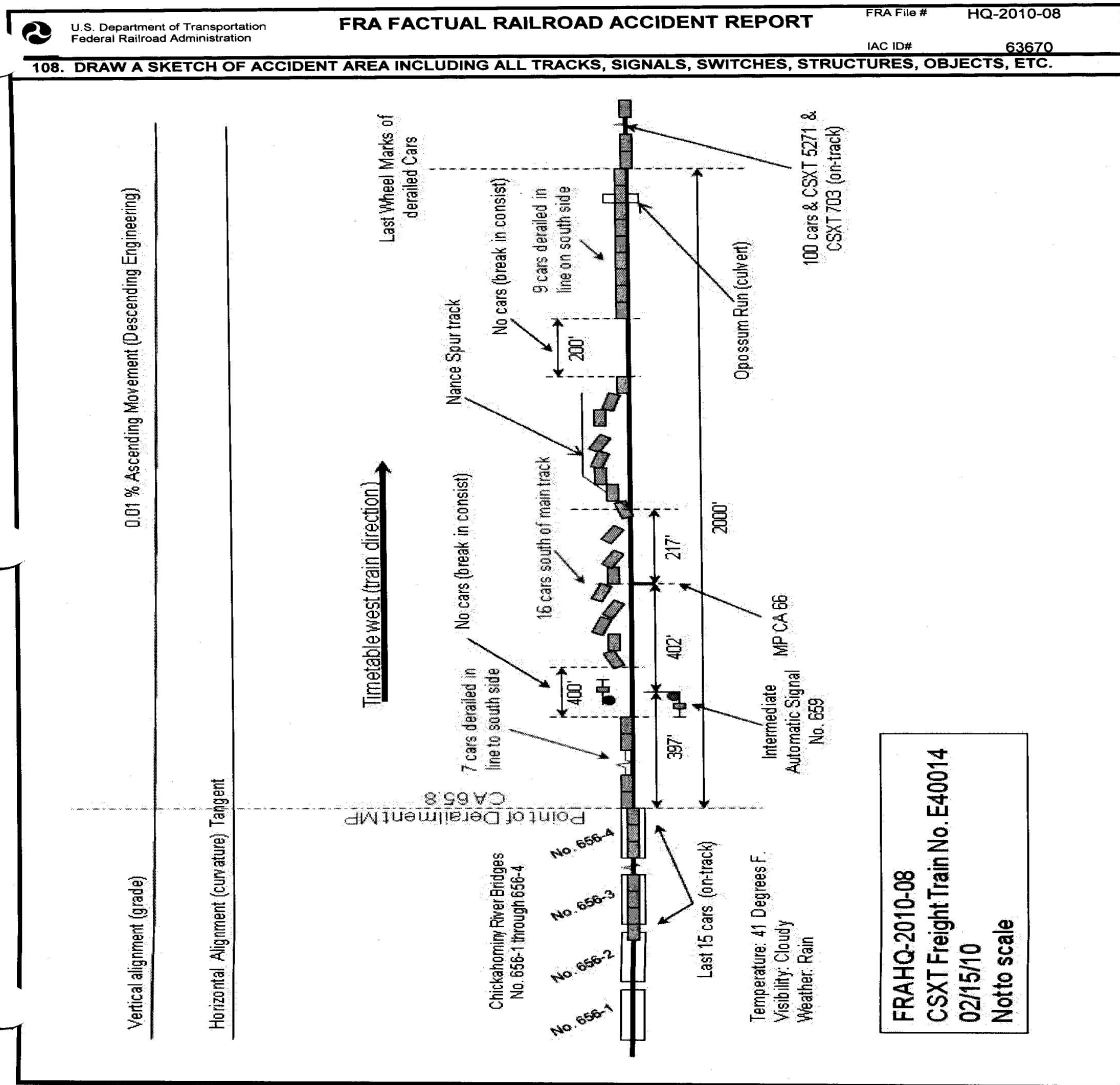
Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

1. Name of Railroad Operating Train #1 CSX Transportation [CSX]		1a. Alphabetic Code CSX		1b. Railroad Accident/Incident No. R000073211	
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. R000073211	
5. U.S. DOT_AAR Grade Crossing Identification Number		6. Date of Accident/Incident Month 02 Day 15 Year 2010		7. Time of Accident/Incident 03:38:00 <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	
8. Type of Accident/Incident (single entry in code box)					
1. Derailment		4. Side collision		7. Hwy-rail crossing	
2. Head on collision		5. Raking collision		10. Explosion-detonation	
3. Rear end collision		6. Broken Train collision		11. Fire/violent rupture	
		9. Obstruction		12. Other impacts	
				13. Other (describe in narrative) Code 01	
9. Cars Carrying HAZMAT 0		10. HAZMAT Cars Damaged/Derailed N/A		11. Cars Releasing HAZMAT N/A	
				12. People Evacuated 0	
				13. Division Huntington	
14. Nearest City/Town Charles City		15. Milepost (to nearest tenth) CA65.8		16. State Abbr Code N/A VA	
				17. County NEW KENT	
18. Temperature (F) (specify if minus) 41 F		19. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		20. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 3	
				21. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1	
22. Track Name/Number SINGLE MAIN		23. FRA Track Code Class (1-9, X) 4		24. Annual Track Density (gross tons in millions) 35.3	
				25. Time Table Direction Code 1. North 3. East 2. South 4. West 4	
OPERATING TRAIN #1					
26. Type of Equipment Consist (single entry)		1. Freight train		4. Work train	
2. Passenger train		5. Single car		7. Yard/switching	
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code	
		9. Maint./inspect.car		27. Was Equipment Attended? Code 1. Yes 2. No 1	
29. Speed (recorded speed, if available) Code R - Recorded E - Estimated 48 MPH R		31. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits		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	
30. Trailing Tons (gross tonnage, excluding power units) 4200					
32. Principal Car/Unit		a. Initial and Number TILX 43134		b. Position in Train 101	
(1) First involved (derailed, struck, etc)				c. Loaded (yes/no) no	
(2) Causing (if mechanical cause reported)		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	
35. Locomotive Units		a. Head End		Mid Train	
		b. Manual		c. Remote	
		d. Manual		c. Remote	
(1) Total in Train		2		0 0	
(2) Total Derailed		0		0 0	
				36. Cars	
				a. Freight b. Pass. c. Freight d. Pass. e. Caboose	
				0 0 147 0 0	
				0 0 32 0 0	
37. Equipment Damage		38. Track, Signal, Way, & Structure Damage		39. Primary Cause Code	
This Consist \$814,816.00		\$39,000.00		T215	
				40. Contributing Cause Code T001	
Number of Crew Members				Length of Time on Duty	
41. Engineer/Operators 1		42. Firemen 0		43. Conductors 1	
				44. Brakemen 0	
				45. Engineer/Operator Hrs 4 Mi 18	
				46. Conductor Hrs 4 Mi 18	
Casualties to:		47. Railroad Employees		48. Train Passengers	
Fatal		0		0	
Nonfatal		0		0	
				49. Other 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		4. Work train	
2. Passenger train		5. Single car		7. Yard/switching	
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code	
		9. Maint./inspect.car		54. Was Equipment Attended? Code 1. Yes 2. No 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 g. Automatic block m. Special instructions b. Auto train control h. Current of traffic 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)		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)		60. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.					Alcohol N/A		Drugs N/A		
(1) First involved (derailed, struck, etc)		N/A		N/A		N/A											
(2) Causing (if mechanical cause reported)		N/A		N/A		N/A		61. Was this consist transporting passengers? (Y/N)					N/A				
62. Locomotive Units		a. Head End		Mid Train		Rear End		63. Cars		Loaded		Empty		e. Caboose			
				b. Manual		c. Remote				a. Freight		b. Pass.		c. Freight		d. Pass.	
(1) Total in Train		N/A		N/A		N/A		(1) Total in Equipment Consist		N/A		N/A		N/A		N/A	
(2) Total Derailed		N/A		N/A		N/A		(2) Total Derailed		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			
68. Engineer/Operators		69. Firemen		70. Conductors		71. Brakemen		72. Engineer/Operator		73. Conductor							
N/A		N/A		N/A		N/A		Hrs N/A Mi N/A		Hrs N/A Mi N/A							
Casualties to:		74. Railroad Employees		75. Train Passengers		76. Other		77. EOT Device?		78. Was EOT Device Properly Armed?							
Fatal		N/A		N/A		N/A		1. Yes 2. No N/A		1. Yes 2. No N/A							
Nonfatal		N/A		N/A		N/A		79. Caboose Occupied by Crew?		1. Yes 2. No							
OPERATING TRAIN #3																	
80. Type of Equipment Consist (single entry)		1. Freight train		4. Work train		7. Yard/switching		A. Spec. MoW Equip.		Code		81. Was Equipment Attended?		Code		82. Train Number/Symbol	
		2. Passenger train		5. Single car		8. Light loco(s).				N/A		1. Yes 2. No		N/A		N/A	
		3. Commuter train		6. Cut of cars		9. Maint./inspect.car											
83. Speed (recorded speed, if available)		Code		85. Method(s) of Operation (enter code(s) that apply)				85a. Remotely Controlled Locomotive?									
R - Recorded		N/A		a. ATCS		g. Automatic block		m. Special instructions									
E - Estimated		MPH		b. Auto train control		h. Current of traffic		n. Other than main track									
N/A		N/A		c. Auto train stop		i. Time table/train orders		o. Positive train control									
84. Trailing Tons (gross tonnage, excluding power units)		N/A		d. Cab		j. Track warrant control		p. Other (Specify in narrative)									
				e. Traffic		k. Direct traffic control		Code(s)									
				f. Interlocking		l. Yard limits		N/A N/A N/A N/A N/A									
86. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded(yes/no)		87. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.					Alcohol N/A		Drugs N/A		
(1) First involved (derailed, struck, etc)		N/A		N/A		N/A											
(2) Causing (if mechanical cause reported)		N/A		N/A		N/A		88. Was this consist transporting passengers? (Y/N)					N/A				
89. Locomotive Units		a. Head End		Mid Train		Rear End		90. Cars		Loaded		Empty		e. Caboose			
				b. Manual		c. Remote				a. Freight		b. Pass.		c. Freight		d. Pass.	
(1) Total in Train		N/A		N/A		N/A		(1) Total in Equipment Consist		N/A		N/A		N/A		N/A	
(2) Total Derailed		N/A		N/A		N/A		(2) Total Derailed		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			
95. Engineer/Operators		96. Firemen		97. Conductors		98. Brakemen		99. Engineer/Operator		100. Conductor							
N/A		N/A		N/A		N/A		Hrs N/A Mi N/A		Hrs N/A Mi N/A							
Casualties to:		101. Railroad Employees		102. Train		103. Other		104. EOT		105. Was EOT Device Properly							
Fatal		N/A		N/A		N/A		1. Yes 2. No N/A		1. Yes 2. No N/A							
Nonfatal		N/A		N/A		N/A		106. Caboose Occupied by Crew?		1. Yes 2. No							
Highway User Involved								Rail Equipment Involved									
107. C. Truck-Trailer. F. Bus J. Other Motor Vehicle Code		A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian		B. Truck E. Van H. Motorcycle M. Other (spec. in narrative)		N/A		111. Equipment		3. Train (standing) 6. Light Loco(s) (moving) Code		1. Train(units pulling) 4. Car(s) (moving) 7. Light(s) (standing)		2. Train(units pushing) 5. Car(s) (standing) 8. Other (specify in narrative)		N/A	
108. Vehicle Speed (est. MPH at impact)		N/A		109. geographical Code		1. North 2. South 3. East 4. West		112. Position of Car Unit in		N/A							

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 N/A	116. Signaled Crossing (See instructions for codes)				Code N/A	117. Whistle Ban 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 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			Code N/A	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 February 15, 2010 at approximately 3:38 p.m. CSX Transportation Inc. (CSX) empty coal train # E400-14 operating west at Milepost (MP) CA 65.8 on the CSX Peninsula Subdivision experienced an undesired emergency train air brake application. Upon inspection of the train, the conductor discovered that several cars had derailed. The derailment occurred in a rural area of Charles City County, VA approximately 17 miles east of Richmond, VA city limits.

Further examination of the derailment revealed 32 empty coal hoppers cars, 101st through 132nd had derailed. There were no injuries reported, no evacuations ordered, and no hazardous materials released as a result of this derailment. At the time of the accident it was daylight with light rain. The wind was out of the east at 15 mph. The temperature was 41 degrees Fahrenheit.

The probable cause of this accident was a broken rail joint in continuous welded rail (CWR) joint at the west abutment of the Chickahomony River Bridge # 656-4.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

CSX Train E400-14

The crew of CSX Transportation (CSX) empty freight train # E400-14 west included a locomotive engineer and a conductor. The crew went on duty at 11:30 a.m. EST, February 15, 2010 at the CSX Newport News Rail Yard in Newport News, Virginia. This was the home terminal for the crew members and all received more than the required statutory, off-duty rest period prior to reporting for duty.

The assigned freight train was 7,800 feet long, weighed 4,200 tons and consisted of two multiple-unit (MU) locomotives and 147 empty coal hopper cars. The train was scheduled to travel from Newport News to Richmond, Virginia with a final destination of Russell, Kentucky. The train received an initial terminal train air brake test and departed Newport News Rail Yard at 2:00 p.m.

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

In this area of the Peninsula Subdivision the track is tangent from MP CA 62.8 through the point of derailment (POD) at MP CA 65.8 leading to a 30-minute right-hand curve at MP CA 66.9. The profile at this location consists of a 0.01 % ascending grade in relation to increasing mileposts, the same direction as westbound CSX Train E400-14.

The railroad timetable direction of the train was west. The geographic direction was northwest. 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) with wayside block signals.

THE ACCIDENT

CSX Freight Train # E400-14 approached the accident area at a recorded speed of 48 miles per hour (mph). At the time the accident occurred the train was being operated at 48 mph. Both speeds were recorded by the event recorder of the controlling locomotive (CSXT 703). The maximum authorized speed for freight trains is 50 mph as designated in the current CSX Huntington Division East Timetable # 2.

As the crew approached the accident site they were operating on a clear signal aspect with good visibility. They were on single main track crossing the Chickahomony River Bridge. The engineer was operating the locomotive consist in the # 5 throttle position; no locomotive dynamic or train air brakes were applied. At Roxbury Road crossing at MP CA 67.0 the crew experienced an undesired emergency train air brake application and the conductor asked the engineer if he had dumped the air; the engineer replied "no". The head end of CSX Train # E400-14 came to a complete stop at MP CA 67.3.

After the train stopped the locomotive engineer remained on the locomotive to establish radio communication with the train dispatcher. The conductor exited the locomotive and started a walking inspection on the south side of the train. When he reached MP CA 66.3 he could see that rail cars were derailed and reported that to the engineer via radio. The conductor could not safely pass the derailed cars on that side of the train so he obtained a 3-step protection from the engineer and crossed through the train to continue his assessment of the damage. After crossing through the train CSX Road Foreman of Engines arrived and instructed the conductor to cut away (locomotives and cars) from the damaged cars and pull west to clear Roxbury Road crossing.

The first responders were the Charles City and County Sheriff's Department, CSX Road Foreman of Engines followed by CSX Road-master, CSX Asst. Road-master, CSX Car Foreman, and CSX Trainmaster. After the initial assessment was done Crane-master Inc. and Hulcher Services Inc. were called in to assist in clearing and repairing the derailment site.

The CSX Road Foreman of Engines began downloading the event recorder data from the lead locomotive (CSXT 703), while the CSX Trainmaster collected statements from the locomotive engineer and the conductor. The CSX Road-master began assessing track damage.

At the point of derailment (POD), the Peninsula Subdivision is a single-track line and the method of operation is Traffic Control (TCS). The track is tangent from Milepost CA 62.8 through the POD at Milepost CA 65.8 leading to a 30-minute right-hand curve at Milepost CA 66.9. The maximum authorized timetable speed is 70 mph for passenger trains and 50 mph for freight trains (FRA Class 4), as listed in the current Huntington Division East Timetable # 2. The profile of the Peninsula Subdivision at this location consists of a 0.01 % ascending grade in relation to increasing mileposts, the same direction as the westbound CSX- Train E400-14s operating. The point of derailment was determined to be a rail joint (broken joint bars) located on the west end of the Chickahomony River Bridge # 656-4.

The Chickahomony River Bridge is made up of four separate open decked plate girder bridges with timber bridge ties attached directly to the top of the parallel girders using standard anchor bolts. All four structures were built in 1910. The running surface is continuous-welded rail (CWR) using an every-other tie rail box anchoring system. The Chickahomony River Bridges are numbered in relation to the increasing mileposts. Chickahomony River Bridge # 656-1 is 478 ft 11 inches in length. Bridge # 656-2 is 439 ft 11 inches in length. Bridge # 656-3 is 407 ft 2 inches in length and bridge # 656-4 is 405 ft 9 inches in length. The average deck height above land or water is 11ft. The three land islands connecting these bridges are approximately 60 ft in length each. As a result of the derailment CSX replaced the first eight bridge ties on the extreme west end of the fourth span of # 655-4 in the area of the POD. Minor concrete chipping was visible in this area with no reported structure damage. The typography surrounding the Chickahomony River is primarily wet lands with the river forming finger like streams under the four spans. Access to the derailment site is relatively good on the abandoned road-bed which was a casualty of the rail consolidation plan of 1977. These bridges are fixed and waterways are non-navigable.

In an effort to expedite the restoration of train service CSX cleared the abandoned roadbed by pushing the thirteen empty derailed coal hopper cars south to the edge of the wet lands. This abandoned roadbed proved to be a major asset during the restoration and salvage operations.

The rail joint bar failure occurred on the south rail; both the field and gage side bars were center broken. The

track in the derailment area is constructed of CWR; the rail section is 122 lb CB section rail milled at Sumitomo (Japan) in August 1975. The date this rail joint was installed is unknown. The joint bars were straight 6 hole standard rail "head contact" bars designed for 122 lb CB rail. The rail ends were drilled through the 4 outermost holes indicating a plan to weld out this joint at some point. A total of 2,000 feet of track was disturbed. The track and signal damage is estimated to be \$39,000.

The track structure immediately west of POD off the end of Chickahomony Bridge # 656-4 was constructed of 122 lb CB, CWR placed on 14-3/4 inch tie plates attached to standard timber crossties using 6 inch cut spikes with a 5-spike pattern; 2 gage side rail spikes, 1 field side rail spike, and 2 anchor spikes opposite sides of the rail. The ballast consists of granite stone with an adequate cross-section. The west approach to Chickahomony Bridge # 656-4 at the time of the derailment had a saturated sub-grade condition that allowed excessive vertical movement.

This subdivision operates four Amtrak trains daily. In addition to the passenger service CSX moves 35.3 million gross tons (MGT) of freight annually on this subdivision which includes placarded hazardous material cars.

Car Damage was \$814, 816.00

ANALYSIS AND CONCLUSION:

ANALYSIS - TOXICOLOGICAL TESTING:

Toxicology testing was conducted because the initial damage estimates exceeded one million dollars.

CONCLUSION:

Test results were negative for both crew members.

ANALYSIS – FATIGUE:

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 the fatigue data gathered FRA concluded that fatigue was not a contributing factor in this accident.

ANALYSIS - LOCOMOTIVE ENGINEER OPERATING PERFORMANCE:

The locomotive was 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 – SIGNALS

A thorough signal inspection performed by FRA's Signal and Train Control Inspector and CSX Manager of Signals revealed that the signal system was functioning properly with no exceptions noted.

CONCLUSION:

The signal system was functioning properly and was not a contributing factor in the derailment.

ANALYSIS - TRACK INSPECTION RECORDS:

An audit of CSX Track Inspection Reports dated from December 1, 2009 through February 14, 2010 revealed that the Main Track in the accident location had been inspected in accordance with the Federal Track Safety Standards (TSS). A CSX Daily Track Inspection Report, dated December 2, 2009 revealed that a bolt was found missing from a CWR joint at MP CA 65.9 in the area of the POD. A CSX Daily Track Inspection Report, dated January 4, 2010 revealed that a center cracked or broken joint bar was found at MP CA 65.9 in the area of the POD. The inspection report also indicates a 10 mph slow order was issued at that location. A CSX Daily Track Inspection Report, dated February 8, 2010 revealed that a deviation from uniform profile on either rail exceeded allowable 2.3125", was found at MP CA 65.9 in the area of the POD. The inspection report indicates a 25 mph slow order was issued at that location. There was no speed restriction in effect at the time of the incident.

A CSX Critical Exception Report - TGC-2, dated February 4, 2010 identified a deviation from uniform profile of 2.06" on the right rail (south) exceeds allowable for the intended class at MP 65.85 in the area of the POD. The report listed periodic inspection as the remedial action.

A December 2, 2009 walking joint inspection report by CSX for CWR inspections revealed a batter rail end at a joint in the south rail at MP CA 65.85. The report indicates no remedial action required and lists continued inspections on; 01/02/2010, 01/11/2010, 01/20/2010, 02/02/2010 and 02/10/2010.

A review of CSX speed restrictions in the area of the derailment revealed a speed restriction of 25 mph was put into effect on January 4, 2010, between MP CA 65.8 - MP CA 65.9 and remained in effect through February 12, 2010. This report lists two cause codes "401" cross-level-warp from January 4, 2010 to February 11, 2010 and code "141" ballast compaction from February 11- 12, 2010.

CONCLUSION:

The review of records indicates recurring surface irregularities along with CWR joint maintenance issues in the area of the derailment.

ANALYSIS – TRACK:

The track is tangent from Milepost CA 62.8 through the POD at Milepost CA 65.8 leading to a 30-minute right-hand curve at Milepost CA 66.9. The profile of the Peninsula Subdivision at this location consists of a 0.01 % ascending grade in relation to increasing mileposts, the same direction as the westbound CSX- E400-14.

Approaching the accident site from the east, an FRA walking inspection was conducted from MP CA 65.7 to CA 66.3. Track speed for freight trains is 50 mph, Class 4, and no speed restrictions were in effect. The track structure leading to the POD was on the Chickahomony River Bridge # 656-4 which is in tangent track and is 405 ft 9 inches in length. Track notes taken leading to the POD found no exceptions to TSS. The POD was directly on the west abutment of the Chickahomony River Bridge # 656-4. The west approach to Chickahomony Bridge # 656-4 at the time of the derailment had a saturated sub-grade condition that allowed excessive vertical movement. The saturated sub-grade condition showed no evidence of recent work to correct the surface or remove the saturated sub-grade. The bridge ties at the west bridge approach showed signs of compression allowing the base of the south rail at the POD to come in contact with the concrete abutment.

The site of the POD (MP CA 65.8) was agreed upon by both CSX Engineering personnel and FRA Track Inspectors.

CONCLUSION:

CSX Engineering personnel and FRA Inspectors agreed on POD (MP CA 65.8) and the center broken joint bars as the probable cause. A contributing factor was the presence of saturated sub-grade at the west approach to the Chickahomony River Bridge # 656-4, allowing excessive vertical movement.

ANALYSIS CONCLUSION

The derailment was preventable. CSX should had taken effective remedial action after learning of the surface, CWR joint and batter rail end irregularities.

A CSX Critical Exception Report - TGC-2, dated February 4, 2010 identified a deviation from uniform profile of 2.06" on the right rail (south) exceeds allowable for the intended class (4) at MP 65.85, which was measured to be 794 ft east of MP CA 66.0. At the time of the geometry survey a temporary speed restriction of 25 mph was in place, reducing it to Class 2. Consequently no speed restriction was issued and only periodic inspections listed as remedial action. A field measurement showed the POD 799 ft. east of MP CA 66.0.

The audit of the Track Inspections Reports for the preceding two and one half months leading up to the derailment, revealed recurring surface irregularities along with CWR joint maintenance issues in the area of the derailment.

The audit of CSX Walking Joint Inspection Reports revealed that the December 2, 2009, report revealed a batter rail end joint in the south rail at MP CA 65.85. The report indicates no remedial action was required and lists continued inspections on; 01/02/2010, 01/11/2010, 01/20/2010, 02/02/2010 and 02/10/2010.

The area of the POD had a 25 mph speed restriction for 39 days preceding the derailment ending February 13, 2010 just two days before the derailment.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

The probable cause of the accident is center broken CWR joint bars. Contributing factor is saturated sub-grade defect not properly identified/or corrected allowing excessive vertical rail movement.