Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-99

CSX Transportation
Woodstock, MD
December 15, 2006

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-2006-99

1.Name of Railroad Operating Train #1: CSX Transportation [CSX]	1a. Alphabetic Code: CSX	1b. Railroad Accident/Incident No.: 00027596
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident: N/A
3.Name of Railroad Responsible for Track Maintenance: CSX Transportation [CSX]	3a. Alphabetic Code: CSX	3b. Railroad Accident/Incident No.: 00027596
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 12 / Day 15 / Year 2006	6. Time of Accident/Incident: 02:15:00 ☑ AM ☐ PM

7. 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): 01

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
24	4	0	100	Baltimore

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Marriottsville, Md/Woodstock	26.1	N/A	MD	BALTIMORE

17. Temperature (F) (specify if minus)	18. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark	Code	19. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow	Code	20. Type of Track 1. Main 2. Yard 3. Siding 4. Industry	Code
40 F		4		4		1

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Old Main Line Single		2	46.4		3

OPERATING TRAIN #1

25. 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	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
	1	1. Yes	1	Q370-14

28. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	30. Method(s) of Operation (enter code(s) that apply)	30a. 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
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) Code(s): j N/A N/A N/A N/A	0

29. Trailing Tons (gross tonnage, excluding power units): 8839

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	N/A	28	yes
(2) Causing (if mechanical cause reported)	CMHX711117	27	yes

32. 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

33. Was this consist transporting passengers? (Y/N): N

34. 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	3	0	0	0	0
(2) Total Derailed	0	0	0	0	0

35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	80	0	11	0	0
(2) Total Derailed	16	0	4	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
357387	69000	E07C	N/A

Number of Crew Members

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen
N/A	0	1	0

Length of Time on Duty

44. Engineer/Operator	45. Conductor
Hrs 10 Mi 45	Hrs 10 Mi 45

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	0
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No	50. Was EOT Device Properly Armed? 1. Yes 2. No
1	1

51. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #2

52. 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	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
	N/A	1. Yes	N/A	N/A

55. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	57. Method(s) of Operation (enter code(s) that apply)	57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable
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	

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

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.	Alcohol	Drugs
(1) First involved (derailed, struck, etc)	N/A	N/A	N/A		N/A	N/A
(2) Causing (if mechanical cause reported)	N/A	N/A	N/A	60. Was this consist transporting passengers? (Y/N)	N/A	

61. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	N/A	N/A	N/A	N/A	N/A	(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	(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
N/A	N/A	N/A	N/A

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators N/A	68. Firemen N/A	69. Conductors N/A	70. Brakemen N/A	71. Engineer/Operator Hrs N/A Mi N/A	72. Conductor Hrs N/A Mi N/A

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

76. EOT Device? 1. Yes 2. No	77. Was EOT Device Properly Armed? 1. Yes 2. No
N/A	N/A

78. Caboose Occupied by Crew? 1. Yes 2. No — N/A

Highway User Involved

79. Type — Code: N/A
C. Truck-Trailer. F. Bus J. Other Motor Vehicle
A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian
B. Truck E. Van H. Motorcycle M. Other (spec. in narrative)

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

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

82. Position — Code: N/A
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing
4. Trapped

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: N/A
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

83. Equipment — Code: N/A
1.Train(units pulling) 3.Train (standing) 6.Light Loco(s) (moving)
2.Train(units pushing) 4.Car(s) (moving) 7.Light(s) (standing)
5.Car(s) (standing) 8.Other (specify in narrative)

84. Position of Car Unit in Train: N/A

85. Circumstance — Code: N/A
1. Rail Equipment Struck Highway User
2. Rail Equipment Struck by Highway User

86b. Was there a hazardous materials release by — Code: N/A
1. Highway User 2. Rail Equipment 3. Both 4. Neither

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of Crossing Warning	1.Gates	2.Cantilever FLS	3.Standard FLS	4.Wig Wags	5.Hwy. traffic signals	6.Audible	7.Crossbucks	8.Stop signs	9.Watchman	10.Flagged by crew	11.Other (spec. in narr.)	12.None
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A					

88. Signaled Crossing Warning (See instructions for codes) Code	89. Whistle Ban Code 1. Yes 2. No 3. Unknown
N/A	N/A

90. Location of Warning Code 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	91. Crossing Warning Interconnected with Highway Signals Code 1. Yes 2. No 3. Unknown	92. Crossing Illuminated by Street Lights or Special Lights Code 1. Yes 2. No 3. Unknown
N/A	N/A	N/A

93. Driver's Age	94. Driver's Gender Code 1. Male 2. Female	95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train Code 1. Yes 2. No 3. Unknown	96. Driver Code 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)
N/A	N/A	N/A	N/A

97. Driver Passed Standing Highway Vehicle Code 1. Yes 2. No 3. Unknown	98. View of Track Obscured by (primary obstruction) Code 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
N/A	N/A

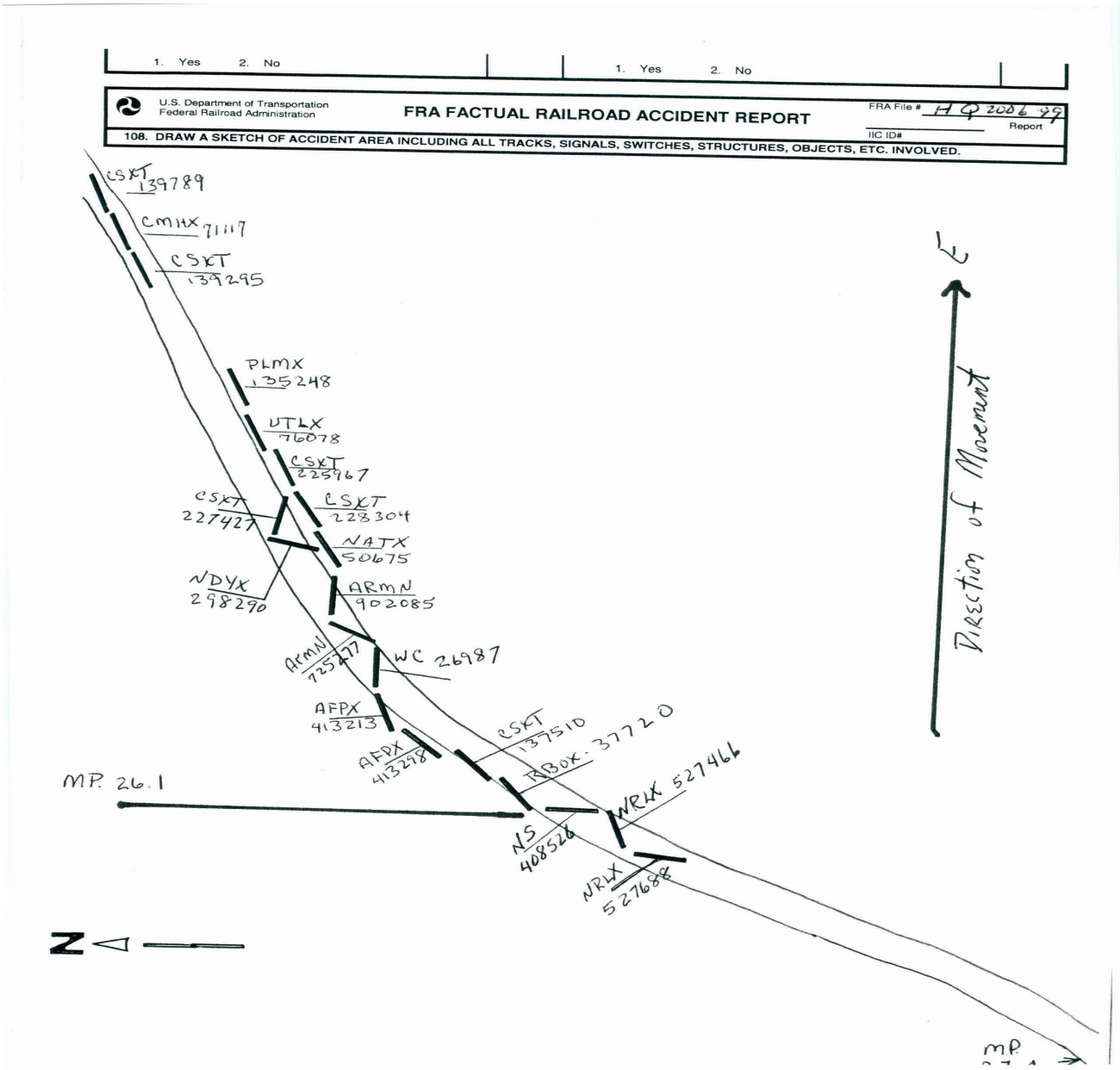
101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	N/A	N/A

99. Driver Was Code 1. Killed 2.Injured 3. Uninjured	100. Was Driver in the Vehicle? Code 1. Yes 2. No
N/A	N/A
102. Highway Vehicle Property Damage (est. dollar damage) N/A	103. Total Number of Highway-Rail Crossing Users (include driver) N/A

104. Locomotive Auxiliary Lights? Code 1. Yes 2. No	105. Locomotive Auxiliary Lights Operational? Code 1. Yes 2. No
N/A	N/A
106. Locomotive Headlight Illuminated? Code 1. Yes 2. No	107. Locomotive Audible Warning Sounded? Code 1. Yes 2. No
N/A	N/A

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

SKETCH
HQ-2006-99.jpg



109. SYNOPSIS OF THE ACCIDENT

DATE: 12-15-2006

TIME: 02:15 am

VISIBILITY: Foggy and dark

TEMPERATURE: 40°

An eastbound CSX mixed freight derailed 20 cars on 12-15-2006 at 2:15 am. The derailment occurred near Marriottsvitle Maryland, Carroll County at CSX milepost 26.1 on the Old Main Line subdivision. Of the 20 cars derailed, 4 were tank cars. There was major concern with the PLMX 135248, a tank car loaded with Anhydrous Ammonia. This car came to rest in an inverted position, therefore a determination could not be made as to possible leakage and extent of damage until the car was righted by the salvage crew. The Carroll County Emergency Management team on scene commanders then initiated a precautionary evacuation for a one mile radius.

The estimated damages for track and equipment was set at $426,387 - not to include labor.

The probable cause of the derailment was determined to be dragging brake rigging equipment from the A-end truck of the 28th car in the consist.

110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Circumstances Prior to the Accident:

The crew of the CSX 0370-14 east, engineer and conductor, went on duty at 3:30 pm (est) on Dec.14, 2006 at Cumberland Terminal Maryland. Both engineer and conductor had received more than the statutory off duty period prior to reporting for duty. Their assigned mixed freight train, the Q370-1 4 consisted of 3 locomotives, 80 loads, and 11 emptys, comprising a total of 8839 trailing tons. The Class I Brake Test was done at Cumberland Terminal Maryland.

At 11:59 pm, this train notified the dispatcher of their undesired emergency brake application at milepost 43.8. The locomotive HLCX 6319 was not loading, and their train stalled on grade. The conductor then proceeded to walk the train and inspect for separation of the consist, kinked EOT hose, or any other non-conformity. Once confirmation was made that the train was intact, the dispatcher directed the 0787-14 to cut their power away from their train and help the 0370-14 over the grade to East Hood. (01.10 am). Once over the grade, the D787-14 cut away its power, and the 0370-14 was able to continue eastward. The train was being operated at 25 mph as they approached the derailment area. The engineer was seated at the controls on the south side of the lead locomotive and the conductor was seated on the north side of that same locomotive. At 2:15 am the Q370-14 experienced another undesired emergency brake application. After inspection of the train, the conductor notified the dispatcher of derailment at milepost 26.1. The speed at the time of the derailment was 23 mph as indicated by the lead locomotive event recorder. The maximum authorized speed in this territory is 25 mph.

On the approach to the point of derailment (POD), from the west on single track mainline, there are a succession of curves and tangents. From milepost 27, heading east, there is a long tangent of 390 feet, then a 10 degree 12 minute right hand curve 560 feet long. Next an 11 degree 27 minute left curve 752 feet long, a 10 degree 00 minute right curve 380 feet long, a 4 degree 47 minute left curve that's 780 feet, a tangent of 210 feet, a 4 degree 35 minute right curve of 565 feet, a tangent of 560 feet and a 5 degree 12 minute right curve -of which the POD is 102 feet into the west spiral of that curve. The track grade approaching the POD is a .28% descending eastward grade. There are no highway crossings, track switches, or wayside signals in this stretch of track.

The Accident:

Of the 20 derailed cars, 4 were tank cars. The PLMX 135248, a loaded tank car of particular importance, had come to rest in an inverted position 30-40 feet from the rail, Its contents were that of "Anhydrous Ammonia," a very dangerous inhalant hazard if released into the

atmosphere. The particular spot where this tank came to rest was the soft ground substrate of the adjacent Patapsco River bed, which served as cushioning for its top protective cover. Before efforts were made to move this car, the Carroll County Emergency Management Team initiated a precautionary evacuation of a one mile radius. The approximate number evacuated of personnel was 100, for a period of 4.5 hours. The salvage crew "Cranemasters" had set the tank upright by 7:30 pm. A CSX Hazmat manager and team crew member got on top of the PLMX 135248 and confirmed that the integrity of the valves were intact and there was no chance of leakage.

Analysis and Conclusions:

The CSX was found to be in full compliance with all applicable federal standards. The lead locomotive was equipped with a speed recorder and event recorder as required. This event recorder was downloaded by the Road Foreman of Engines, and it shows the engineer employed good train handling throughout the course of the trip. The train crew members were the only witnesses to the incident.
The total damage was placed at $69,000.00 for track and car damage was placed at $426,387. These figures are excluding labor costs.

Probable Cause:

The FRA determined that the derailment occurred because the CSXT 138295 had downed and dragging brake rigging from the A-end truck. Physical evidence indicates that this did eventually cause the derailment.