Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-103

CSX Transportation (CSX)
Central Square, New York
November 19, 2005

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-2005-103

1.Name of Railroad Operating Train #1: CSX Transportation [CSX]	1a. Alphabetic Code: CSX	1b. Railroad Accident/Incident No.: 000016602
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.: 000016602
4. U.S. DOT_AAR Grade Crossing Identification Number:	5. Date of Accident/Incident: Month 11 / Day 19 / Year 2005	6. Time of Accident/Incident: 02:45:00 ☐ 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
8	6	1	0	Albany

13. Nearest City/Town	14. Milepost *(to nearest tenth)*	15. State Abbr	15. State Code	16. County
Central Square	16.8	N/A	NY	OSWEGO

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
51 F		2		1		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
St Lawrence Subdivis		3	7.9		2

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: 1

26. Was Equipment Attended? 1. Yes 2. No — Code: 1

27. Train Number/Symbol: Q62019

28. Speed *(recorded speed, if available)* — R - Recorded; E - Estimated: 38 MPH — Code: R

29. Trailing Tons *(gross tonnage, excluding power units)*: 10833

30. 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): j | N/A | N/A | N/A | N/A

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: 0

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	N/A	4	yes
(2) Causing *(if mechanical cause reported)*	0	0	N/A

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	4	0	0	0	0
(2) Total Derailed	1	0	0	0	0

35. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	79	0	43	0	0
(2) Total Derailed	18	0	10	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
888074	105000	T204	N/A

Number of Crew Members

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

Length of Time on Duty

44. Engineer/Operator	45. Conductor
Hrs 8 Mi 35	Hrs 8 Mi 35

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 — 1

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

51. Caboose Occupied by Crew? 1. Yes 2. No — 2

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: N/A

53. Was Equipment Attended? 1. Yes 2. No — Code: N/A

54. Train Number/Symbol: N/A

55. Speed *(recorded speed, if available)* — R - Recorded; E - Estimated: 0 MPH — Code: N/A

57. 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

57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2005-103

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
0			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)*
(1) First involved *(derailed, struck, etc)*	0	0	N/A
(2) Causing *(if mechanical cause reported)*	0	0	N/A

59. 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

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
(1) Total in Train	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

62. 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

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
0	0	N/A	N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
0	0	0	0

Length of Time on Duty

71. Engineer/Operator	72. Conductor
Hrs 0 Mi 0	Hrs 0 Mi 0

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	0	0	0

76. EOT Device? 1. Yes 2. No N/A

77. Was EOT Device Properly Armed? 1. Yes 2. No 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)*: 0

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: 0

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 — Code(s): N/A N/A N/A N/A N/A N/A N/A
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

88. Signaled Crossing Warning — Code: N/A
(See instructions for codes)

89. Whistle Ban — Code: N/A
1. Yes
2. No
3. Unknown

90. Location of Warning — Code: N/A
1. Both Sides
2. Side of Vehicle Approach
3. Opposite Side of Vehicle Approach

91. Crossing Warning Interconnected with Highway Signals — Code: N/A
1. Yes
2. No
3. Unknown

92. Crossing Illuminated by Street Lights or Special Lights — Code: N/A
1. Yes
2. No
3. Unknown

93. Driver's Age: 0

94. Driver's Gender — Code: N/A
1. Male
2. Female

95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train — Code: N/A
1. Yes 2. No 3. Unknown

96. Driver — Code: N/A
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)*

97. Driver Passed Standing Highway Vehicle — Code: N/A
1. Yes 2. No 3. Unknown

98. View of Track Obscured by *(primary obstruction)* — Code: N/A
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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was — Code: N/A
1. Killed 2.Injured 3. Uninjured

100. Was Driver in the Vehicle? — Code: N/A
1. Yes 2. No

102. Highway Vehicle Property Damage *(est. dollar damage)*: 0

103. Total Number of Highway-Rail Crossing Users *(include driver)*: 0

104. Locomotive Auxiliary Lights? — Code: N/A
1. Yes 2. No

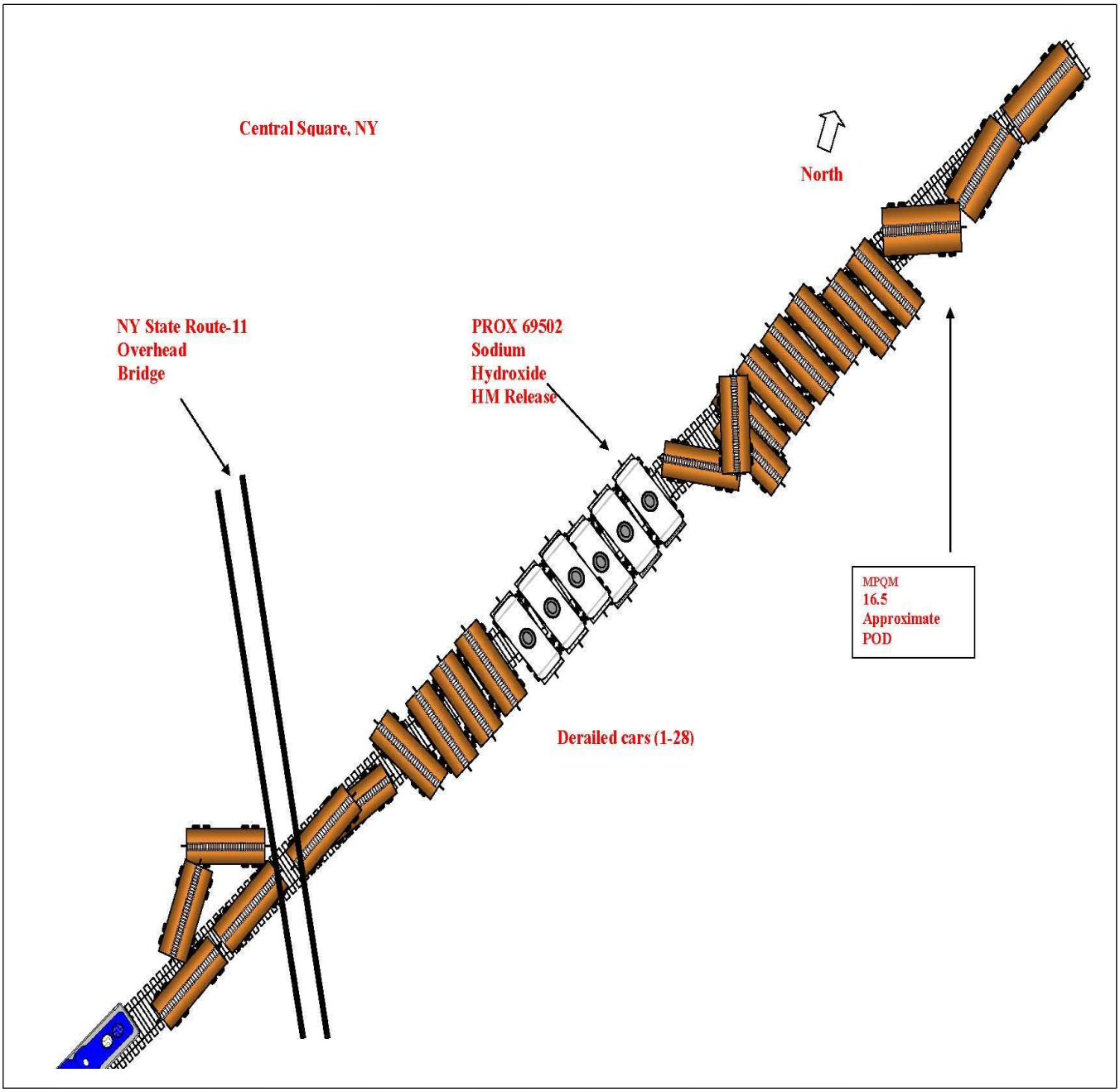
105. Locomotive Auxiliary Lights Operational? — Code: N/A
1. Yes 2. No

106. Locomotive Headlight Illuminated? — Code: N/A
1. Yes 2. No

107. Locomotive Audible Warning Sounded? — Code: N/A
1. Yes 2. No

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

HQ-103-2005 test.jpg



109. SYNOPSIS OF THE ACCIDENT

A southbound CSX freight train derailed one locomotive, and 28 cars on CSX's Albany Division, on Saturday, November 19, 2005, at 2:45 p.m. The accident occurred in Central Square, NY at milepost QM16.8, on the Saint Lawrence Subdivision.
Six of the 28 derailed cars contained hazardous materials; two were transporting Sodium Hydroxide Solution, and four contained Chlorine. One of the tank cars containing Sodium Hydroxide Solution was leaking. The leak was contained and the product was trans loaded. The second car containing Sodium Hydroxide Solution was trans loaded at the accident site. The four derailed tank cars containing Chlorine were rerailed and moved to Dewitt Yard in Syracuse, NY.
There was no evacuation and no injuries to the train crew. A local school district cancelled classes for Monday, November 21, 2005 as a precaution during re-railing of the Chlorine tank cars. Equipment damage is estimated at $888,074.00; track damage is estimated at $105,000.00; and, the environmental hazardous material remediation cost is estimated at $345,494.31.
At the time of the accident it was daylight, and clear. The temperature was 51 °F.
The probable cause of the accident was attributed to a broken field weld at the outer rail.

110. NARRATIVE

The following information was obtain from an investigation that was performed by the Federal Railroad Administration.
Circumstances Prior to the Accident
The crew of CSX Q62019 south, included a locomotive engineer and a conductor. They went on duty at 6:10 am EST, November 19, 2005, at the CSX Yard Office in Massena, NY.
This is the home terminal for the crew, and they received more than the statutory off duty period, prior to reporting for duty.
CSX mixed freight train Q62019 originated in a Canadian National Railroad rail yard in Montreal, Canada. A CSX train crew operated the train in a south direction from Montreal, Canada to Massena, NY. The inbound train crew de-boarded the train on arrival in Massena, NY. The outbound train crew boarded the train and departed Massena, NY. Massena, NY is a crew change location.
The outbound train crew's assigned train consisted of 4 locomotives, 79 loaded and 43 empty cars of several varieties. The train was 8,080 feet long, and weighed 10,833 tons. Their freight train was scheduled to travel from Massena, NY to Dewitt Yard in Syracuse, NY. There was no inspection of the train before departing Massena, NY.
As the southbound mixed freight train approached the accident area, the locomotive engineer was seated at the controls on the west side of the locomotive. The conductor was seated on the east side of the locomotive. The engineer and conductor had an unobstructed view of the area approaching the accident site.
In this area of the railroad, there are, in succession, a tangent about 7,393 feet long, followed by a 1- degree 4-minute curve to the right about 500 feet, a tangent about 200 feet, a 1-degree 20-minute curve to the right about 500 feet, a tangent about 100 feet, and a 2-degree 4-minute curve to the left about 1,000 feet in length. There is an overhead bridge supporting State Route 11 highway over the single main track at the north end of the 2-degree 4-minute curve to the left. There is a .29 percent ascending grade.
The railroad timetable direction of the train is south. The geographical direction was south. Timetable directions are used throughout this report.
The Accident
The freight train was being operated at 38 mph approaching the accident site. The speed was recorded by the

event recorder on the controlling locomotive and indicated a speed of 38 mph at the time of the accident. The maximum authorized speed for freight trains is 40 mph as designated in the current CSX Albany Division Timetable No. 4, effective Monday, November 1, 2004.
The train was moving south on CSX Transportation's Saint Lawrence Subdivision single main track. The train was moving on a tangent, followed by a 1-degree 4-minute curve to the right, followed by a tangent, a 1-degree 20-minute curve to the right, another tangent, and then a 2-degree 4-minute curve to the left when the conductor felt a jolt and turned around to see their train derailing. The engineer heard a snap at about the same time the conductor told him their train was on the ground. An unintentional train line emergency brake application occurred before the engineer could make a full service application of the brakes. The train crew began to make an emergency transmission over the radio after they discovered their train was on the ground. CSX's Saint Lawrence Subdivision Train Dispatcher acknowledged the emergency transmission.
The conductor dismounted the locomotive to make an inspection of the train. The conductor found the trailing locomotive and the first 28 cars in the train derailed. The derailed locomotive and cars extended around the curve and under the overhead bridge supporting State Route 11 spanning the main track at the north end of the curve. The conductor's inspection of the derailed equipment disclosed that six tank cars loaded with hazardous materials were involved in the derailment. The 12th, 13th, 14th, and15th cars were loaded with chlorine, and, the 16th and 17th cars were loaded with sodium hydroxide solution. Inspection of the derailed tank cars containing hazardous material disclosed the 17th car, PROX69502, leaked a small amount of sodium hydroxide solution. The leak was contained and the product was trans loaded at the accident site.
The train crew stated local emergency responder teams arrived shortly after the accident occurred. Two members of CSX's hazardous material team responded. EPS Vermont also responded.
There was no evacuation and there were no injuries reported by the train crew.
Analysis and Conclusions
The locomotive was equipped with a speed indicator and an event recorder. The event recorder data was downloaded by a CSX Road Foreman of Engines from Selkirk, NY.
The train crew was interviewed by CSX Transportation officials. No exception was taken to the operation of the train.
The train crew was not tested for Alcohol and Drug use.

Inspection of the main track was made by representatives from CSX Transportation's Engineering Department. Inspection of the main track disclosed a break in a field weld in the outer rail in the curve. The outer rail of the curve was rolled out allowing the wheels to drop in the gage side of the east rail. There were wheel flange marks on the web of the outer rail in the curve. There were marks on the gage corner and head of the rail of the receiving end of rail.
Inspection of the CSX track inspection records, automated track geometry inspection records, and the internal rail inspection records was made. The track inspection records indicated the last inspection was made on November 18, 2005. The inspection of the main track was made from a hi-rail vehicle traversing the single main track. There were no exceptions noted on the inspection record. CSX's TGC-2, automated track geometry inspection train made an automated inspection of the single main track on July 5, 2005. There were no exceptions noted in the area of the accident. CSX employs a contractor to make internal inspections of the rail. The last internal inspection of the main track was completed on November 10, 2005. The internal rail inspection records disclosed that there were no exceptions to the rails in the area of the accident.
The train accident committee determined the front of the trailing locomotive, CN5542, was the first to derail. The wheel marks on the ties and rail extended from the locomotive back into the general pile up of freight cars. The distance from the broken field weld to the derailed locomotive was about 500 feet. The accident committee determined the POD is the broken weld.
CSX determined the probable cause of the train accident as a T204, broken rail - broken weld (field).
FRA made a visual inspection of the accident site, track inspection records, automated track inspection records, train accident track notes, and, the internal rain inspection records. FRA concurs with the results of CSX Transportation's investigation.
Conclusions
Train Q62019 south was being operated within the requirements of the operating and train handling requirements.
Inspection records disclosed the track was last inspected on November 18, 2005. The track was found in compliance. Internal rail inspection records disclosed the last internal inspection of the rails was made on November 10, 2005. No exceptions were found in the area of the accident.
The investigation disclosed a broken field weld in the outer rail in the curve about 500 feet north of the derailed locomotive. Wheel marks extended north on the ties and rail from the locomotive into the general accident site.
Probable Cause & Contributing Factors

The FRA has determined that the probable cause of the accident was attributed to a broken field weld at the outer rail.