Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-70

CSX Transportation
Grovetown, GA
August 4, 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-2006-70

1.Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
CSX Transportation [CSX]	CSX	R000024601
2.Name of Railroad Operating Train #2	2a. Alphabetic Code	2b. Railroad Accident/Incident
CSX Transportation [CSX]	CSX	R000024601
3.Name of Railroad Responsible for Track Maintenance:	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
CSX Transportation [CSX]	CSX	R000024601

4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident			6. Time of Accident/Incident
	Month	Day	Year	
	08	04	2006	06:15: ☑ AM ☐ PM

7. Type of Accident/Indicent (single entry in code box)						13. Other (describe in narrative)
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	02

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
0	0	0	0	Atlanta

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Grovetown	YYG15.2	N/A	GA	COLUMBIA

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
80 F		1		2		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
main track		4	19.4		1

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry)						A. Spec. MoW Equip.	Code	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
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			1	1	A74303

28. Speed (recorded speed, if available) R - Recorded E - Estimated			Code	29. Trailing Tons (gross tonnage, excluding power units)
	4	MPH	R	2067

30. 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		g
f. Interlocking	l.Yard limits		k
			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
Code: 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	6	no
(2) Causing (if mechanical cause reported)	N/A	N/A	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	2	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	0	0	70	0	0
(2) Total Derailed	0	0	4	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
37625	7550	H605	N/A

Number of Crew Members				Length of Time on Duty	
40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	0	1	1	Hrs 10 Mi 15	Hrs 11 Mi 15

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: 2

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry)						A. Spec. MoW Equip.	Code	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
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			1	N/A	U49202

55. Speed (recorded speed, if available) R - Recorded E - Estimated			Code
	0	MPH	R

57. 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

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

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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
12230			g k N/A N/A N/A	0

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)	CSXT4 48	1	no		N/A	N/A
(2) Causing (if mechanical cause reported)	0	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	2	0	0	0	0	(1) Total in Equipment Consist	94	0	0	0	0
(2) Total Derailed	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
1400	0	H605	H104

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen	71. Engineer/Operator	72. Conductor
1	0	1	0	Hrs 8 Mi 45	Hrs 8 Mi 45

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)	77. Was EOT Device Properly Armed? (1. Yes 2. No)	78. Caboose Occupied by Crew? (1. Yes 2. No)
1	1	2

Highway User Involved

79. Type — 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)

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) 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)

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: N/A

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: N/A

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
	N/A	N/A

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): N/A

103. Total Number of Highway-Rail Crossing Users (include driver): N/A

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

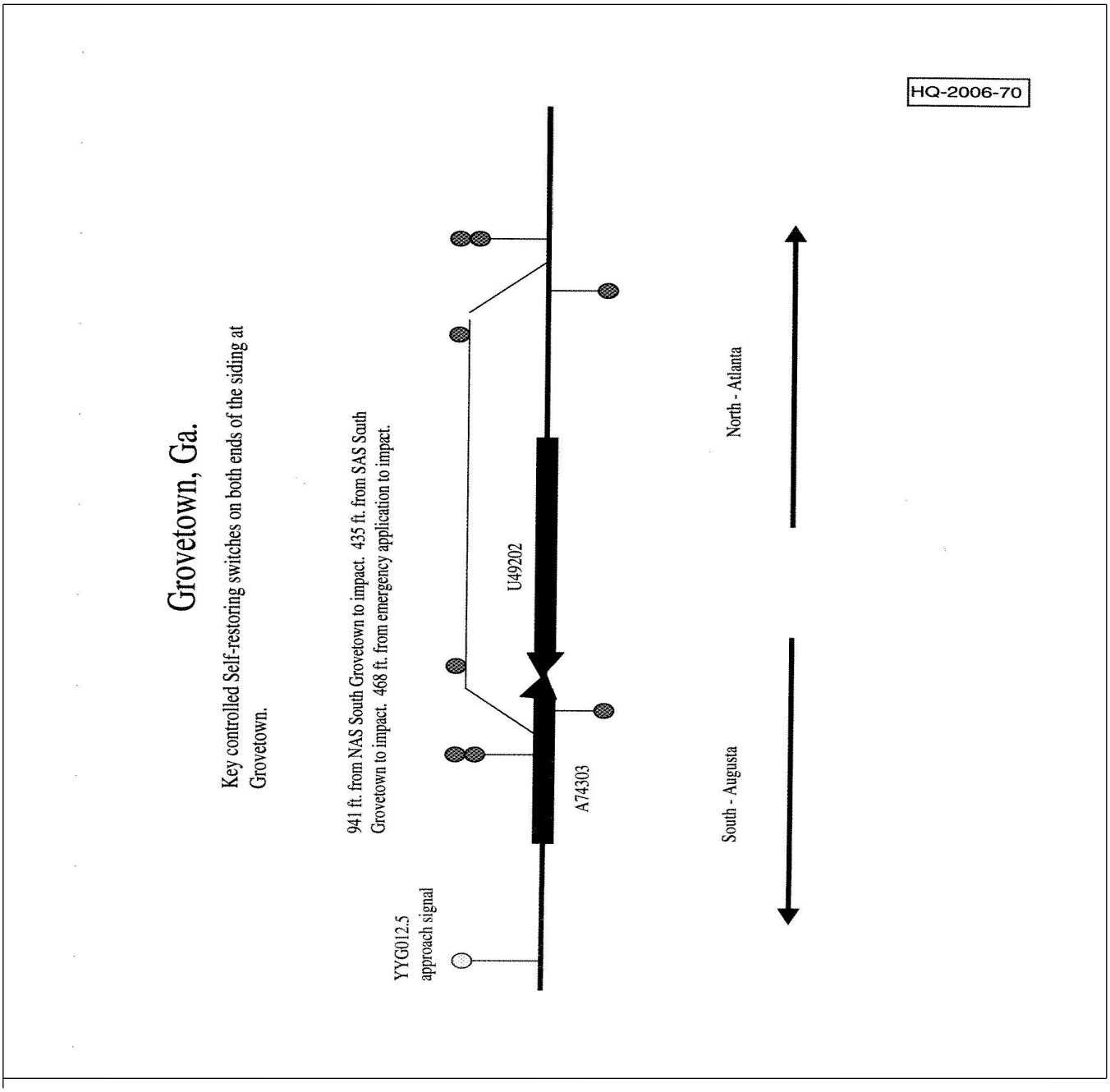
105. Locomotive Auxiliary Lights Operational? — Code: N/A
1. Yes 2. No

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-2006-70 sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

Synopsis

On August 4, 2006, at 6:15 a.m. Eastern Standard Time (EST), CSX Train A74303 operating on the Atlanta Division, Georgia Subdivision in a northward direction struck CSX Train U49202 at milepost (MP) YYG15.2. The accident occurred in Grovetown, Georgia (GA) on single main track that parallels the Grovetown siding. Four empty rock cars from Train A74303 were derailed during the collision and the locomotives from both trains were damaged.

The total damages to rail equipment was $39,025. The total damages to track, signals, and structures was $7,550.

Two reportable injuries resulted from the collision. The engineer and the conductor of Train A74303 were given prescription medication. No hazardous materials were involved and no evacuation ordered.

The weather at the time of the accident was clear and 85 °F.

The probable cause of the accident is failure of Train A74303 to comply with restricted speed in connection with a restrictive indication of a block signal.

110. NARRATIVE

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

Circumstances Prior to the Accident
Train A74303

The crew of CSX Train A74303 included a locomotive engineer, a conductor, and a conductor trainee. On August 3, 2006, at 5 p.m., the conductor trainee was called by crew management to deadhead to Camak, GA and serve as the conductor on CSX Train A74303. At 7 p.m. the conductor went on duty at Augusta, GA and deadheaded to Camak. The locomotive engineer and the conductor trainee went on duty at Camak at 8 p.m. All crew members met or exceeded the required prior time off duty period prior to going on duty.

The crew received permission to occupy the North Siding at Camak from the BE dispatcher. At 8:10 p.m. they spoke with the trainmaster for a job briefing. They were taking two cuts of cars in Martin Marietta (MMA) quarry, putting them together. The crew confirmed their instructions and departed by van to the MMA depot to board the locomotives. They put their train together and performed a class 1 brake test on 78 cars. At 9:57 p.m. the crew obtained the Warren DTC block and proceeded south. They released the Warren block at 11:38 p.m.

At 11:53 p.m. the crew received authority No. 55149 to occupy the Warren, Thomson, Dearing, Grovetown, and Harrisonville DTC blocks. Train A74303 proceeded south towards Augusta, GA with 78 loaded cars and two locomotives. They arrived in Augusta on August 4, 2006, at 2:40 a.m. At 2:42 a.m. they released the Warren, Thomson, Dearing, Grovetown, and Harrisonville DTC blocks and the North siding at Camak to the BE train dispatcher.

At 5:30 a.m. Train A74303 departed Augusta Yard with 70 empty cars and two locomotives bound for MMA at Camak. At 5:41 a.m. the crew received authority No. 55485 and proceeded north on the Harrisonville block. At 6:10 a.m. Train A74303 passed an approach signal at MP YYG12.5 at 38 miles per hour (mph). At 6:13 a.m. the train was still 5,240 feet from the point of impact and operating in No. 5 throttle position. The engineer was seated at the controls on the east side of the locomotive cab, the conductor was seated on the west side of the cab, and the conductor trainee was positioned in the middle seat.

The line segment both trains were operating is located on the Atlanta Division, Georgia Subdivision. The territory is governed by ABS-DTC authority. Approaching the accident site from the south the approach signal is located at MP YYG 12.5. The south end of Grovetown siding is located at milepost YYG15.1 and also serves as the dividing point between the Harrison DTC block and the Grovetown DTC block. There is a 0.7 per cent ascending grade in the northbound direction and the mainline track speed is 50 mph.

Train U49202

The crew of CSX Train U49202 included a locomotive engineer and a conductor. They went on duty at 9:30 p.m. on August 3, 2006, at Tilford Yard in Atlanta, GA. This is the away from home terminal for both crew members that are assigned to extra board in Augusta, GA. Train U49202 consisted of two locomotives, lead locomotive No. CSXT 448, and 94 loaded freight cars. They departed Tilford Yard at 10:59 p.m. and received their first signal at Howell at 11:36 p.m. The crew operated southbound toward Augusta under normal operating conditions obtaining and releasing the following DTC blocks: Stone Mountain, Redan, Lithonia, Conyers, Almon, Covington, Social Circle, Rutledge, Madison, Buckhead, Greensboro, Union Point, Crawfordville, Barnett, Camak, Warren, Thomson, and Dearing.

On August 4, 2006, at 4:22 a.m. the crew obtained the Grovetown DTC block from the BE train dispatcher and proceeded south. At 4:49 a.m. the train crew released the Thomas and Dearing DTC blocks and stopped on the main track at the south end of Grovetown. The engineer was seated at the controls on the west side of the locomotive cab and the conductor was seated on the east side of the cab.

The direction of movement in this report is based on timetable direction of North and South.

The Accident

Train A74303 was operating at 38 mph as it passed the approach signal MP YYG12.5. The engineer acknowledged the signal and reduced locomotive throttle to No. 5 position. The train slowed to 27 mph as it approached the accident site. The conductor trainee noticed they were not slowing down to take the Grovetown siding as required. He started calling the engineer's name and shook him to get his attention. During this time the train passed the stop signal indication at 27 mph.

Train U49202 was stopped on the mainline at Grovetown waiting for Train A74303 to take the siding. Moments before impact the crew noticed the headlight of Train A74303 and determined it was on the mainline. The engineer grabbed the handset to call Train A74303, but realized it was too late and braced for the impact.

After the collision, the engineer of Train A74303 went out the locomotive cab door to the lead locomotive of Train U49202 and saw the crew members were not hurt. He then contracted the CSX dispatcher about the accident. Both the engineer and conductor of Train A74303 had reportable injuries.

CSX, Grovetown Police Department, Fire Department, and Rescue Department responded to the accident.

Analysis & Conclusion

The engineer and conductor of Train A74303, through their own admission, did not recall the elapsed time from approach signal MP YYG12.5 to when they observed Train U46202.

At 6:14 a.m. Train A74303 event recorder indicated they passed the stop signal and the siding switch with the throttle in the No. 5 position and the train operating at 27 mph. At 6:15 a.m. the locomotive throttle was in idle position, the train was placed in emergency, and the independent brake applied. The impact speed is four mph. It was also evident on the event recorder the horn blew once for five seconds and the bell was on for 19 seconds.

The crew of Train A74303 was tested under Federal Railroad Administration regulations and the results were negative.

The Fatigue Avoidance Scheduling Tool (FAST) is a software product which uses employee's sleep and work schedules to predict individual work performance, effectiveness, and alertness over a period of time. Effectiveness can be defined as a measure of speed of making correct and accurate decisions and is highly correlated with reaction time, cognitive output, and overall operator performance.

Based on information furnished by crew members and the hours of service documents completed by the train crew, the circadian rhythms software program calculated that the engineer, conductor, and conductor trainee of Train A74303 were each found to be at 68% effective at the time of the accident.

Train A74303 came to rest 941 feet from the south end of the Grovetown siding switch, derailing the four empty rock cars.

Probable Cause

The Federal Railroad Administration found the probable cause of the accident to be the failure of Train A74303 to comply with restricted speed in connection with a restrictive indication of a block signal.

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