Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-02

Norfolk Southern (NS)
York, Alabama
January 16, 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-2006-2

1.Name of Railroad Operating Train #1: CSX Transportation [CSX]	1a. Alphabetic Code: CSX	1b. Railroad Accident/Incident No.: 000019813
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: N/A	3a. Alphabetic Code: N/A	3b. Railroad Accident/Incident No.: N/A
4. U.S. DOT_AAR Grade Crossing Identification Number:	5. Date of Accident/Incident: Month 01 / Day 16 / Year 2006	6. Time of Accident/Incident: 12:30: ☐ 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
22	10	0	0	Alabama

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Cuba	276	N/A	AL	SUMTER

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
61 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
single main		4	43.5		1

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	R60616

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?
38 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

29. Trailing Tons (gross tonnage, excluding power units): 9339

Code(s): e | N/A | N/A | N/A | N/A

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	N/A	32	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/A

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	5	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	78	0	27	0	0
(2) Total Derailed	22	0	7	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
330821	248322	H503	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	0	Hrs 2 Mi 55	Hrs 2 Mi 55

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) 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 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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56. 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

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

64. Track, Signal, Way, & Structure Damage: 0

65. Primary Cause Code: N/A

66. Contributing Cause Code: N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
N/A	N/A	N/A	N/A

Length of Time on Duty

71. Engineer/Operator: Hrs 0 Mi 0

72. Conductor: 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
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 — 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 (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

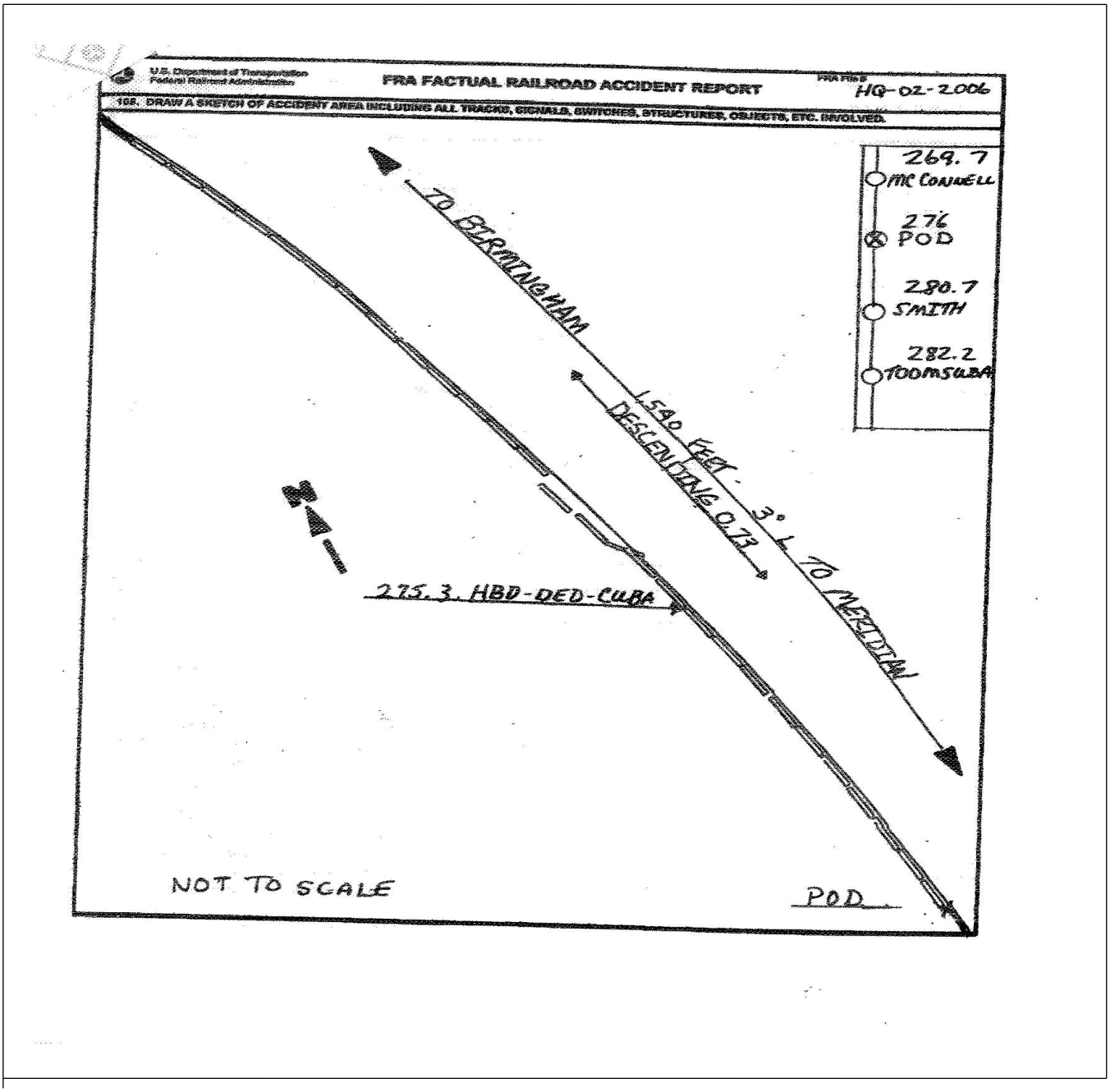
105. Locomotive Auxiliary Lights Operational? — Code: N/A
1. Yes 2. No

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-02-
2006
sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

On January 16, 2006, about 12:30 p.m. Central Daylight Time (CDT), CSX Transportation (CSX) northbound Train R60616 derailed on Norfolk Southern Corporation's (NS) Alabama Division, Western Region, AGS South District, at milepost (MP) 276. The derailment occurred on the single main track near Cuba, Alabama (AL). It is important to note since October 2005, CSX has been operating six detour trains daily over the NS railroad from New Orleans, Louisiana (LA) to Birmingham, AL.

Train R60616 departed Meridian, Mississippi (MS) at 11:55 a.m. with five locomotives and 105 cars (22 hazardous material cars). Approaching Cuba, Train R60616 was operated in dynamic braking mode. However, before the train slack fully adjusted, the locomotive engineer initiated a brake pipe reduction at a recorded speed of 39 miles per hour (mph). The train slowed to about 10 mph before an undesired emergency application of the train air brakes occurred.

The conductor dismounted and walked back to inspect the train. The conductor discovered the 32nd through 60th cars had derailed. Ten of the 29 cars derailed contained hazardous material. However, nine of the cars containing hazardous material remained up-right. There were no leaks or injuries because of the derailment.

At the time of the accident, it was daylight with clear visibility. The temperature was 61 ̊F.

The cause of this derailment is train handling.

110. NARRATIVE

Circumstances Prior to Derailment

On January 16, 2006, following the statutory off duty period (10 consecutive hours or more), a CSX locomotive engineer and conductor went on duty at 8:35 a.m. at Meridian, MS. The crew was to operate CSX detour Train R60616 northward over the NS, AGS South District from Meridian to Birmingham. This was the home terminal for both crew members.

Dynamic brakes on the lead locomotive failed upon arrival at Meridian. The inbound locomotive engineer informed the relieving engineer there were five locomotives in the consist, dynamic brakes were not dependable on the lead locomotive, and the second and third locomotives were not on line. Therefore, the inbound engineer isolated the lead locomotive and set the dynamic brakes to normal position before going off duty.

At 11:55 a.m. CDT, CSX northbound Train R60616 departed Meridian en route to Birmingham. This assigned mixed freight train consisted of locomotives UP 9660 (D-8), UP 2785 (SD-40), FURX 3017 (SD-40), CSXT 8102 (SD-40), and UP 4632 (SD-70), 105 cars (78 loads, 27 empties, 9,339 tons). Twenty-two cars in this train contained hazardous material or residue.

As the train approached the derailment site, the locomotive engineer was seated at the control stand of the lead locomotive, short hood forward. The conductor was seated in the first seat of the lead locomotive, opposite the engineer.

Approaching the derailment site, the track is tangent for one-half mile leading into a 3-degree left-hand curve in the direction of travel. This curve is 1,540 feet long. The point of derailment was in this left-hand curve 20 feet north of MP 276.0. The grade through this same track segment is descending in the direction of travel, beginning at 0.83 descending to the point of derailment area that is 0.73 descending. The grade continues to descend for six tenths of a mile before reaching a gradual ascending grade.

NS timetable direction is northward and the geographic direction is eastward. Timetable directions are used throughout this report.

The Accident

Approaching the derailment site, Train R60616 was being operated at a recorded speed of 39 mph. However, at the time of the derailment the train was operated at 38 mph. Both speeds were recorded by the event recorder on the controlling locomotive. The maximum authorized speed for mixed freight trains is 50 mph, as designated by the current NS timetable No. 15, effective July 2003.

The locomotive engineer was operating the train in dynamic brake mode while attempting to slow the train for a 25 mph temporary speed restriction between MP 274.4 and 274.3. However, the train was not slowing as rapidly as the locomotive engineer had anticipated. Therefore, while operating at 39 mph, the locomotive engineer initiated a 23 pound automatic brake pipe reduction before train slack had fully adjusted. Subsequently, train speed reduced to 10 mph before an undesirable emergency application of the train air brakes occurred.

The conductor dismounted the lead locomotive and walked back to assess the train and discovered the 32nd through 60th cars (29 cars) had derailed. The 32nd through the 44th cars derailed, but remained upright. The 45th (covered hopper containing plastic) and 46th cars (tank car containing acrylic acid) derailed and came to rest on their sides on the west side of the track. The 47th car (loaded auto rack) also came to rest on its side on the west side of the track. The 48th car (loaded auto rack) derailed and overrode the 47th car, also coming to rest on the west side of the track. The 49th through 60th cars derailed, but remained upright. There was no release of hazardous material.

Analysis and Conclusion

The engineer made a 23 pound automatic brake pipe reduction at 39 mph, with the locomotive in dynamic braking mode and before the train's slack had fully adjusted. This created buff forces that turned the west rail over, derailing 29 rail cars.

The engineer and conductor submitted to Federal cause drug testing as outlined in 49 CFR Part 219.301(b)(1). The results were negative.

Probable Cause

Buffing or slack action, excessive train handling.