Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-07

Norfolk Southern (NS)
Plainfield, New Jersey
February 15, 2007

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-2007-7

1.Name of Railroad Operating Train #1: Norfolk Southern Corp. [NS]	1a. Alphabetic Code: NS	1b. Railroad Accident/Incident No.: 028206
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: Consolidated Rail Corp. [CRSH]	4a. Alphabetic Code: CRSH	4b. Railroad Accident/Incident No.: 053746
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 02 Day 14 Year 2007	7. Time of Accident/Incident: 06:40:00 ☐ AM ☑ PM

8. 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) — Code: 12

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
75	N/A	N/A	0	North Jersey

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
South Plainfield	6.92	N/A	NJ	MIDDLESEX

18. Temperature (F) (specify if minus)	19. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark — Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow — Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry — Code
19 F	4	1	4

22. Track Name/Number	23. FRA Track Class (1-9, X) — Code	24. Annual Track Density (gross tons in millions)	25. Time Table Direction 1. North 2. South 3. East 4. — Code
Whittaker Lead	1	00	3

OPERATING TRAIN #1

26. 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	27. Was Equipment Attended? 1. Yes 2. No — Code	28. Train Number/Symbol
	1	1	NS68Q

29. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	31. Method(s) of Operation (enter code(s) that apply)	31a. Remotely Controlled Locomotive?
26 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

30. Trailing Tons (gross tonnage, excluding power units): 9686

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

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	NS9476	1	no
(2) Causing (if mechanical cause reported)	0	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	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

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	75	0	2	0	0
(2) Total Derailed	0	0	1	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
13200	0	H702	N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 7 Mi 40	Hrs 7 Mi 40

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	0	0	0

50. EOT Device? 1. Yes 2. No	51. Was EOT Device Properly Armed? 1. Yes 2. No
1	1

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

OPERATING TRAIN #2

53. 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	54. Was Equipment Attended? 1. Yes 2. No — Code	55. Train Number/Symbol
	N/A	N/A	N/A

56. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	58. Method(s) of Operation (enter code(s) that apply)	58a. 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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57. Trailing Tons (gross tonnage, excluding power units): 0

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

59. 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

60. 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

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

62. 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

63. 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

64. Equipment Damage This Consist: 0

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

66. Primary Cause Code: N/A

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
0	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 0 Mi 0

73. Conductor: Hrs 0 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No: N/A

78. Was EOT Device Properly Armed? 1. Yes 2. No: N/A

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

OPERATING TRAIN #3

80. 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

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

82. Train Number/Symbol: N/A

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

84. Trailing Tons (gross tonnage, excluding power units): 0

85. 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): N/A | N/A | N/A | N/A | N/A

85a. 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: N/A

86. 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

87. 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

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

89. 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

90. 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

91. Equipment Damage This Consist: 0

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

93. Primary Cause Code: N/A

94. Contributing Cause Code: N/A

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
0	0	0	0

Length of Time on Duty

99. Engineer/Operator: Hrs 0 Mi 0

100. Conductor: Hrs 0 Mi 0

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	0	0	0
Nonfatal	0	0	0

104. EOT 1. Yes 2. No: N/A

105. Was EOT Device Properly 1. Yes 2. No: N/A

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

Highway User Involved

107. 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) Code: N/A

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

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

Rail Equipment Involved

111. Equipment 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) Code: N/A

112. Position of Car Unit in: N/A

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110. Position	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A	1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	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	N/A	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	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	116. Signaled Crossing (See instructions for codes)	Code	117. Whistle 1. Yes 2. No 3. Unknown	Code
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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

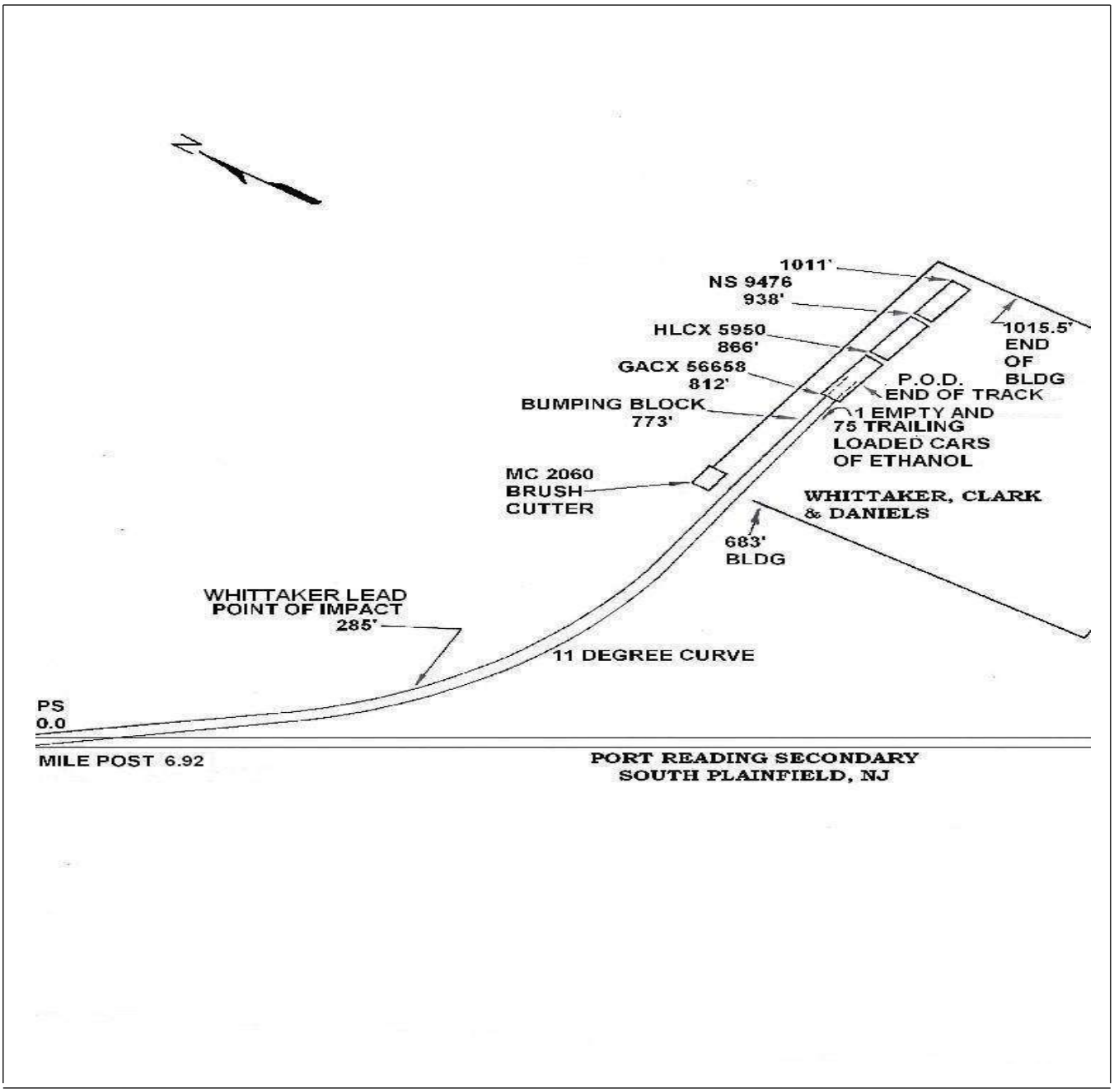
121. Age	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other (specify in narrative)	Code N/A
0						

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	0	0	130. Highway Vehicle Property Damage (est. dollar damage)	0	131. Total Number of Highway-Rail Crossing Users (include driver)	0

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

A eastbound NS freight train was diverted from the main track by a switch improperly lined, on February 14, 2007, at 6:40 p.m. The train entered an industrial track, struck a brush cutter and proceeded into the industrial building. The accident occurred on a private industrial lead known as the Whittaker Lead in South Plainfield, New Jersey, adjacent to Milepost 6.92, Conrail Shared Assets (CRSH) Port Reading Secondary mainline.

There were no injuries to the train crew. The leading locomotive sustained estimated damage of $24,000. The trailing locomotive sustained estimated damage of $ 4,000 and the brush cutter was totaled (due to its age) at $3,000. Damage to the building was estimated at $250,000. Both locomotives and one end of a trailing car derailed when they ran out of running rail within the building.

At the time of the accident it was dark and clear. The temperature was 19° F.

The accident was caused by a track foreman who failed to comply with CRSH Timetable Special Instruction 405-1 procedure and the Federal Railroad Administration Emergency Order No. 24 [Docket No. FRA-2005-22796, Notice No. 1].

138. NARRATIVE

Circumstances Prior to the Accident:

A three man Maintenance of Way (M of W) Group consisting of a track foreman, class one machine operator, and a trackman were assigned to cut brush on the Port Reading Secondary main track between Block Station Center and CP Bound Brook. The group had worked normal assignments of 8 hours each day prior to this assignment.

The track foreman had permission at 8:58 AM from the South Jersey Dispatcher to occupy the Port Reading Secondary main track with an on track brush cutter number WC 2060 that was parked on the Whittaker-Clark and Daniels private industrial lead at Mile Post 6.92. The switch for the siding is facing east. The machine operator and the trackman operated the brush cutter east of the siding switch to Mile Post 7.2 to cut brush.

Due to inclement weather, the track supervisor reached the machine operator by cell phone at 11:42 a.m., informing him that he needed to prepare to tie up the brush cutter and report back to South Plainfield yard to remove snow from the switches.

The machine operator moved the brush cutter west of the switch of the private siding and stopped. He stated that he told the trackman to throw the switch, and after the machine goes by, throw it back normal and put the (M of W) lock on it. The trackman stated that the machine operator told him to throw the switch and lock it. The trackman threw the switch, locked the switch with a (M of W) lock without throwing the switch back to the normal position. The track foreman was standing near the switch, to the north of the trackman, but down a slight embankment at his vehicle.

The track foreman stated that he see the trackman throw the switch, when the machine passed, and lock the switch. He stated that he personally should have checked the switch.

There was no Switch Position Awareness Form (SPAF) completed by the track foreman, no Job Briefing at the completion of the work between the track foreman, machine operator and trackman. The track foreman canceled his Form D with the dispatcher at 12:17 p.m. and said the switches are lined and locked normal. The work group left the site.

The crew of train NS 68Q included a locomotive engineer and a conductor. They went on duty at 11:00 a.m., est, February 14, 2007, at the NS Harrisburg yard in Harrisburg, Pennsylvania. This was the home terminal for the train crew and both received more than the statutory off duty period, prior to reporting for duty.

Their assigned freight train consisted of two locomotives, 2 empty box cars and 75 loaded cars of Ethanol. It was 4,710 feet long, and weighed 9,686 tons. The train was scheduled to travel to Sewaren, New Jersey. The train received an initial terminal train air break test, and departed Harrisburg Yard at 12:30 p.m.

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

In this area of the railroad there are, in succession, a 2 degree curve to the right of about 2,000 feet, followed by a tangent of 3,880 feet to the industry switch, a 11degree curve to the left, 285 feet to the point of the accident, and 448 feet beyond into a industrial building.

The railroad timetable direction of the train was east. The geographic direction was southeast. Timetable directions are used throughout this report.

The Accident:

Train NS 68Q East
The train was being operated east, on the Port Reading Secondary, approaching the accident area. Maximum authorized timetable speed for this train was 30 mph. The engineer noticed the switch target was red approximately 100 feet before entering the private track. He then applied an emergency break application to the rear of his train first and upon entering the siding he noticed a CRSH brush cutter and initiated a full emergency break application. The recorded train speed was 26 mph when the collision to the brush cutter occurred on the Whittaker Lead.

The train impacted the brush cutter and pushed it down the track to the industrial building door, where it derailed to the north, taking out two structural support beams of the northeast corner of the building. The train continued into the building striking a concrete barrier, where trackage ended, and continued to a stop at the east wall of the building.

Brush cutter CRSH WC2060

The brush cutter was parked 285 feet east of the main track switch, on the Whittaker Lead and was unattended. The brush cutter had been parked there by a CRSH machine operator.

Analysis and Conclusions:

Analysis:

The track foreman had seven years service with CRSH, and had been a foreman for only five months. He was book of rules qualified and had received instruction on EO-24. His last date of qualification was on March 14, 2006, and he attained a scoring grade of 90.

For four months, he was a foreman working out of the Oak Island yard headquarters, where he did not have the opportunity to take main track out of service. He was transferred to South Plainfield headquarters and had been a foreman there for about a month. He had only taken track out of service 2-3 times.

When he was in Oak Island yard, he did not have to make SPAF forms out when handling yard switches. It did not occur to him, until after being notified that the accident happened, that he should have made out the SPAF form and complied with EO-24. He was unaware that the trackman was not qualified in the book of rules.

The machine operator had 32 years service with CRSH. He was book of rules qualified, and had received instruction on EO-24. His last date of qualification was on March 16, 2006, and he attained a scoring grade of 100. He thought the trackman understood his instructions for handling the switch. He was unaware that the trackman was not qualified in the book of rules.

The trackman had only 8 months service with CRSH and was not book of rules qualified, and had received no instruction on EO-24. He did not know he was not to operate main track switches in non-signaled territory, without being qualified on the railroad's operating rules relating to their operation.

Conclusions:

The train crew was in full compliance with the operating rules of the railroad. The train crew members were the only witnesses to the accident, and had no information that could be used to determine why the switch was left in the wrong position.

The track foreman felt that he lacked experience in taking form D's and making out SPAF forms. But when he worked as a welder, he said that they used to take track out of service and at the end of the day they would make sure everything was correct.

Had he followed proper procedures that he had been trained on, made out a SPAF form and held a job briefing with his group, the accident would not have happened. His assuming the trackman had lined and locked the switch for the main track, failing to make out a SPAF form and hold a job briefing put the NS train crew in a position for serious injury or death.

The foreman, machine operator and trackman were terminated from service with CRSH.

The railroad concluded that the accident happened because of non-compliance to Timetable Special Instruction 405-1 and Emergency Order No. 24 procedures. I concur with their conclusion.

Probable Cause and Contributing Factors:

The track foreman's failure to complete the SPAF form and hold a job briefing with his work group to discuss the switch position was the primary contributing factor in this accident.

The FRA concluded that the accident occurred because the track foreman did not comply with CRSH Timetable Special Instruction 405-1 procedure and the Federal Railroad Administration Emergency Order No. 24 [Docket No. FRA-2005-22796, Notice No. 1].