Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-85

Norfolk Southern
Centerville, PA
December 28, 2007

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2007-85

1.Name of Railroad Operating Train #1: Norfolk Southern Railway [NS]	1a. Alphabetic Code: NS	1b. Railroad Accident/Incident No.: 031372
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: Norfolk Southern Railway [NS]	4a. Alphabetic Code: NS	4b. Railroad Accident/Incident No.: 031372
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 12 | Day 28 | Year 2007	7. Time of Accident/Incident: 01:44:00 ☐ 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: 01

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
17	8	2	0	Pittsburgh

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
NEW FLORENCE	PT290.55	N/A	PA	WESTMORELAND

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
40 F	2	2	1

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. West — Code
MAIN #2	3	10	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	18GC228

29. Speed *(recorded speed, if available)* — Code: R
R - Recorded
E - Estimated 23 MPH

30. Trailing Tons *(gross tonnage, excluding power units)*: 4888

31. 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): d | N/A | N/A | N/A | N/A

31a. 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

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	ADMX029761	18	yes
(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	3	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	38	0	3	0	0
(2) Total Derailed	9	0	0	0	0

37. Equipment Damage — This Consist: $400,000.00

38. Track, Signal, Way, & Structure Damage: $72,000.00

39. Primary Cause Code: T319

40. Contributing Cause Code: N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	2	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 4 Mi 14	Hrs 4 Mi 14

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 — 1

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

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

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)* — Code: N/A
R - Recorded
E - Estimated N/A MPH

58. 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

58a. Remotely Controlled Locomotive?
0 = Not a remotely controlled
1 = Remote control portable

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57. 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

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

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(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

64. Equipment Damage This Consist N/A

65. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

72. Engineer/Operator Hrs N/A Mi N/A

73. Conductor Hrs N/A Mi N/A

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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 N/A

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

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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(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

91. Equipment Damage This Consist N/A

92. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator Hrs N/A Mi N/A

100. Conductor Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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. 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)*

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

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

Rail Equipment Involved

111. 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)*

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
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A					

116. Signaled Crossing *(See instructions for codes)*	Code	117. Whistle Ban 1. Yes 2. No 3. Unknown	Code
	N/A		N/A

118. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	Code	119. Crossing Warning with Highway Signals 1. Yes 2. No 3. Unknown	Code	120. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown	Code
	N/A		N/A		N/A

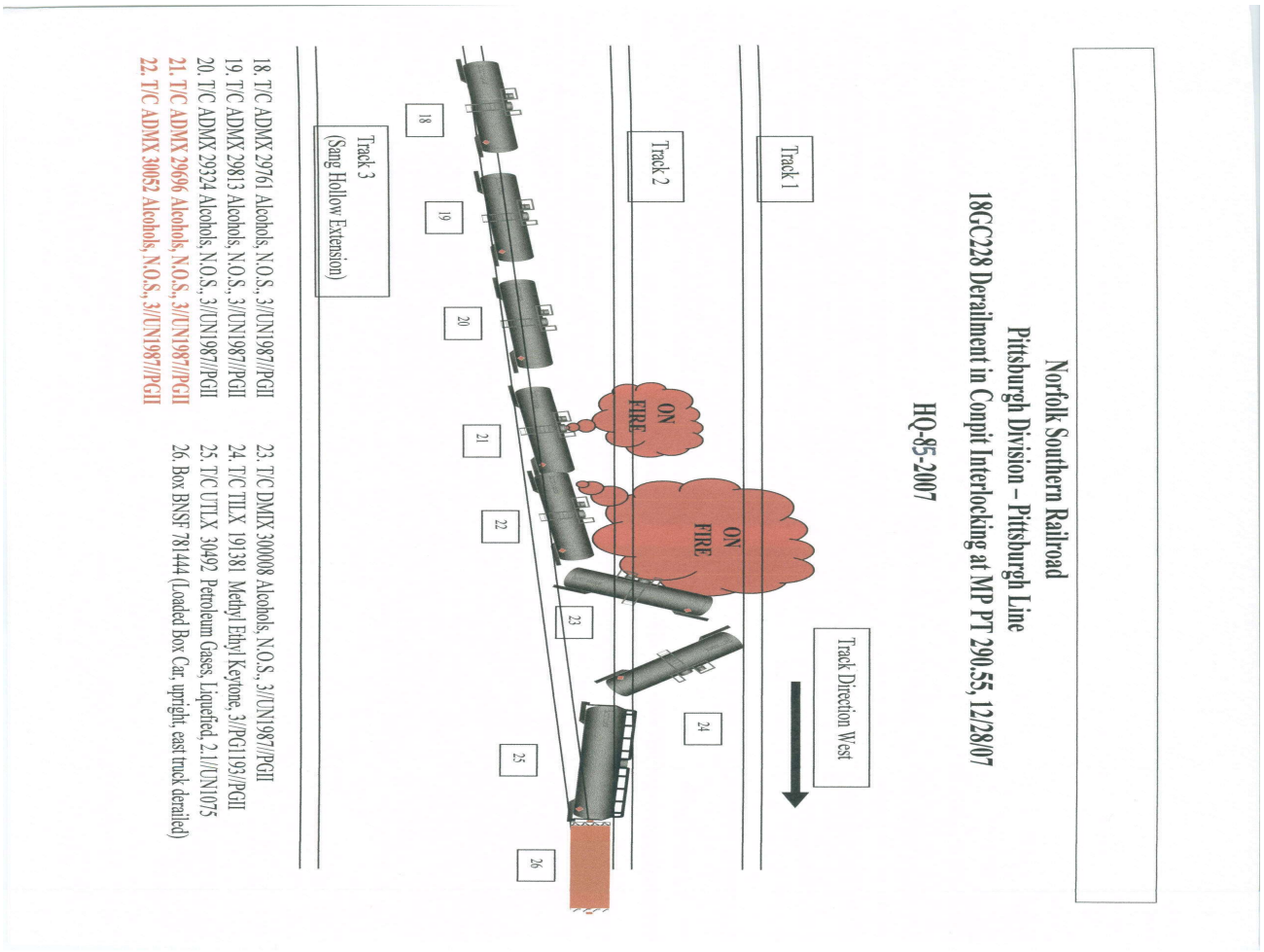
121. Age	122. Driver's Gender 1. Male 2. Female	Code	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*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

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code	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		N/A

Casualties to:	Killed	Injured	127. Driver 1. Killed 2.Injured 3. Uninjured	Code	128. Was Driver in the Vehicle? 1. Yes 2. No	Code
				N/A		N/A
129. Highway-Rail Crossing Users	N/A	N/A	130. Highway Vehicle Property Damage *(est. dollar damage)*	N/A	131. Total Number of Highway-Rail Crossing Users *(include driver)*	N/A

132. Locomotive Auxiliary Lights? 1. Yes 2. No	Code	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No	Code
	N/A		N/A
134. Locomotive Headlight Illuminated? 1. Yes 2. No	Code	135. Locomotive Audible Warning Sounded? 1. Yes 2. No	Code
	N/A		N/A

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



137. SYNOPSIS OF THE ACCIDENT

On Friday, December 28, 2007, at 1:44 p.m., Norfolk Southern Railway Co. (NS) freight train 18GC2-28 derailed near New Florence, PA. The derailment occurred on the NS Pittsburgh Division's Pittsburgh Line at Milepost PT. 290.55, while the train was moving eastbound at a recorded speed of 23 miles per hour.

At the time of the accident it was overcast and daylight with a prevailing easterly wind of about 5 mph. The temperature was 40° F. The railroad timetable direction in which the train was operating is east. The geographic direction was northeast. Timetable directions are used throughout this report.

The derailment resulted in nine railcars derailing, six of which were loaded with Alcohols, NOS, 3, UN 1987, PG II, one loaded with Liquified Petroleum Gas , 2.1, UN 1075, one loaded Methyl Ethyl Ketone UN1193, PGII. The 9th and final car was a load of malt liquor, a non hazardous material. Two of the eight cars leaked product and caught fire, no evacuation resulted.

There were no injuries to the public, emergency response personnel or the train crew. Damages to rail, structures and equipment were estimated to be approximately $500,000.

The cause of the derailment was subsequently identified as an improper match between the switch point and stock rail (gapping switch point). There were no other contributing factors identified.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

After receiving an 18 hour and 30 minutes rest period at their "away from home" terminal, the crew of NS train 18GC2-28 was called for duty at 9:30 a.m., EST on Friday, December 28, 2007. The crew, consisting of a locomotive engineer, a conductor and a conductor trainee, reported for duty at the NS Conway Yard, located in Conway, PA.

NS Train 18GC2-28 consisted of 3 locomotives, 38 loaded rail cars and 3 empty freight rail cars. The train was equiped with a two-way telemetry device or End -of-Train Device (EOTD). The train was 2779 feet in length and contained a total of 4888 trailing tons. Of the 41 freight cars in the consist, 17 cars contained hazardous material.

Prior to the crew boarding the train, Motive Power and Equipment (MP&E) personnel conducted an initial terminal air brake test. NS Train 18GC2-28 departed Conway Yard, Conway, PA at 10:30 a.m. for the next crew-change point at Altoona, PA.

Approaching the accident area at milepost (MP) PT 290.55, NS Train 18GC2-28 was moving east (geographic northeast) at 23 miles per hour on track number 1. NS Train 18GC2-28 was operating on tangent track with a .28% ascending grade. The previous signal aspect displayed was approach-medium, indicating that at Conpit interlocking, the train would take a diverging route from Main Track Number 1 to Main Track Number 2, then crossing from Main Track Number 2 to Main Track Number 3, through a number 15 turnout. Once on Main Track Number 3, the train would continue directly to Altoona, PA.

As the train moved through Conpit Interlocking, the locomotive engineer was seated at the controls on the right side (north) of the locomotive cab; the conductor and conductor trainee were both seated on the left side (south) of the locomotive cab.

The ACCIDENT

NS TRAIN 18GC2-28 EAST:

As the train was moving through the interlocking, the engineer noticed the that train was “pulling hard”. At about the time the Engineer noticed this, a train-line initiated, unintentional emergency application of the train brakes occurred. As the train came to a stop, the crew looked back over their train and observed several cars on their sides and a fire burning.

At 1:44 p.m., the crew of NS Train 18GC2-28 advised the train dispatcher of the situation. The crew was instructed to identify the cars derailed and if possible, to safely move any cars not derailed away from the area of the fire. While the engineer remained in the cab of the locomotive, the conductor and conductor trainee began walking west toward the derailment. As the conductor approached the area of the fire, the conductor trainee returned to the locomotive.

The conductor continued walking and encountered a man running from the area. The man stated that he worked for a propane company and was in the process of filling propane tanks used for railroad switch heaters when he observed the accident occur. After a short conversation, the conductor continued walking westward and determined that the 18th through the 25th cars, which all contained hazardous materials, were on their sides, with fire burning near the center of the eight cars. The 26th car, which contained non-regulated malt Liquor, was also found derailed, in an upright position and in line with the railroad.

After identifying the derailed equipment, the conductor returned to the locomotive and moved the first 17 cars approximately one mile east, stopping the train and awaiting further instructions. As Emergency Response personnel arrived on the scene, the conductor shared train consist and hazardous materials information.

Emergency Responders subsequently determined that two tank cars; ADMX 29696, the 21st car in the train and ADMX 30052, the 22nd car in the train were leaking and caught fire. All of the other hazardous materials cars remained intact with only superficial, but extensive damages.

At 7:45 p.m., with the emergency response and cleanup effort well under way, the crew of NS Train 18GC2-28 was released from the area. The crew departed the Conpit derailment site with the head 17 cars arriving at Johnstown, PA about 8:30 p.m. After securing the train, the crew was transported to Altoona, PA via taxi cab. Altoona, PA is the “home” terminal for the train crew members.

ANALYSIS AND CONCLUSIONS

ANALYSIS - OPERATING PRACTICES:

a) Train Handling

Approaching Conpit Interlocking from approximately two miles to the west, the train crew observed Signal 202.8 display Medium Approach indication, indicating that the train was going to switch from Main Track Number 1 to Main Track Number 2 at Conpit Interlocking.

Just prior to passing signal 202.8, the event recorder download from lead locomotive NS 2633 on Train 18GC228, shows the throttle being gradually reduced from the Run 7 to Run 2 position. After passing the signal, the throttle was further reduced to the idle position and the engineer switched to dynamic brake mode.

The event recorder shows that the dynamic brake was slowly applied from the 2nd to 4th dynamic brake position, and briefly to the 5th position, as train speed was reduced from about 45 miles per hour to 30 miles per hour over a distance of about one and 1/4 mile. At 30 miles per hour, the dynamic brake was reduced to idle and the Engineer slowly started to increase his throttle from the Run 1 to the Run 3 position. The train speed continued to slow to about 23 miles per hour just prior to the train-line initiated emergency application of the brakes.

The engineer said the train started to pull hard after crossing from Main Track # 1 to Main Track # 2. The head-end of the train was continuing through the long crossover from Main Track # 2 to Main Track # 3 when crew members reported feeling a slight nudge or jerk.

This review of the Event Recorder from the lead locomotive (NS 2633) reveals the train was operated in accordance with NS Pittsburgh Division Timetable Number Four, effective 12:01 a.m. Thursday, December 15, 2005 and all Dispatcher Bulletins issued.

b) Engineer Certification

The engineer's certification date was September 9, 2007 with his most recent check monitoring event recorded on April 17, 2007. Vision and hearing exams were current as were state and national motor vehicle background checks.

The engineer attended an Operating Rules Class March 27, 2007. Carrier records indicate the class included air brake, safety, and hazardous material training. The engineer also attended an operating rule, power brake, safety, and hazardous material class March 8, 2006.

c) Efficiency Test Records

A review of the prior six months Efficiency Test Records of the three crew members involved was conducted by FRA, a total of 286 Tests/Observations were reviewed revealing two non operating failures.

Engineer:

Twenty Observations and 54 Tests for a total of 74 Efficiency Tests/Observations were recorded for the Engineer from June 28, 2007 through December 28, 2007. Twenty of these tests were performed several hours post accident, when the crew took the remainder of the train from Conpit to Johnstown. These twenty tests were the only efficiency tests conducted on the Pittsburgh Line for this Engineer during the previous six month period.

Tests for the Engineer included:

Category 1 (Approach & Stop Signals Tests)
Category 2 (Restricted Speed Tests)
Category 3 (Speed Restriction Tests.)

No efficiency test failures were recorded.

CONDUCTOR:

Sixty Observations and 84 Tests for a total of 144 Efficiency Tests/Observations were recorded for the Conductor from June 28, 2007 through December 28, 2007. Twenty Tests were performed several hours post accident, when the crew took the remainder of their train from Conpit to Johnstown. Eighty-nine Tests were recorded on the Pittsburgh Line prior to the derailment.

Tests for the Conductor included:

Category 1 (Approach & Stop Signal Compliance)
Category 2 (Restricted Speed Compliance)
Category 3 (Speed Restriction Compliance.)

No failures were reported.

CONDUCTOR TRAINEE:

Thirty-five Observations and 33 Tests were performed for a total of 68 Efficiency Tests/Observations were recorded for the Conductor/Trainee from June 28, 2007 through December 28, 2007. Twenty Tests were performed several hours post accident, when the crew took the remainder of their train from Conpit to Johnstown. These twenty tests were the only efficiency tests conducted on the Pittsburgh Line for this Conductor Trainee during the previous six month period.

Tests for the Conductor/Trainee included:

Category 1 (Approach & Stop Signal Compliance)
Category 2 (Restricted Speed Compliance)
Category 3 (Speed Restrictions)
Category 6 (Communication),
Category 11 (Compliance with movement of hazardous materials.)

Two failures were recorded while working on other sub divisions. One failure was for failing to report to work on time and the second failure was for the use of unapproved personal protective equipment.

ANALYSIS:

FRA obtained fatigue related information, for the 10-day period preceding this incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

CONCLUSION:

Upon analysis of that information FRA concluded fatigue was not probable for any of the employees.

CONCLUSION

A review of the Operating Practices Regulations by FRA personnel showed no non-complying conditions nor causal factors that were identified as a contributing factor in this accident.

MOTIVE POWER & EQUIPMENT:

ANALYSIS

An axle that was buried under debris was believed to be the first axle to derail. When pulled from the debris field the axle and its wheels were cleaned and measured. FRA personnel found the axle and wheels to comply with both the AAR Standards and the minimum Federal Standards set forth in 49 CFR § 215.103.

All other equipment involved in the derailment was inspected for freight car safety standards and contributing factor and no deficiencies were noted.

All locomotive inspection data including cab signals, air brake maintenance, 92 day inspections, and FRA Form F6180.49a (Blue Forms) were collected and reviewed for compliance with the regulations. No non-complying conditions were found.

CONCLUSION

A review of the Motive Power and Equipment Regulations by FRA personnel showed no non-complying conditions nor causal factors that were identified as a contributing factor in this accident.

SIGNAL & TRAIN CONTROL

ANALYSIS

In the area of the derailment, the signal system is a Traffic Control System (TCS), supplemented by Cab Signals. Main Track 1 and Main Track 2 are signaled in both directions with Rule 261 governing the wayside signals and the cab signal system in effect. There is a Dragging Equipment Detector at milepost PT 304.4, which the train had passed approximately 10 miles previous to the point of derailment. Both the signal system and dragging equipment detector were found to be in proper working order.

CONCLUSION

A review of the Signal and Train Control Regulations by FRA personnel showed no non-complying conditions nor causal factors that were identified as a contributing factor in the accident.

HAZARDOUS MATERIALS

After Emergency Responders declared the site safe for work, wreck crews began removing the derailed cars from the derailment site. All cars derailed had extensive damage and were to be moved to an area on the north side of the derailment site for transloading. After this operation was completed, these cars were cut-up for scrap on site. This included the eight cars containing hazardous materials and one car which contained a non hazardous material.

There were two cars that leaked and caught fire. They were ADMX 29696 and ADMX 30052.

Tank Car ADMX 29696 is a DOT 111A100W1 tank car built 8/87 with a capacity of 30,135 gallons. It was loaded with Alcohols, n.o.s., UN1987 and was leaking from a sample valve. The loss of product from the sample valve was minimal.

Tank Car ADMX 30052 is a DOT 111A100W1 tank car built 3/91 with a capacity of 30,110 gallons. It was loaded with Alcohols, n.o.s., UN1987 and was punctured by the drawbar of the adjacent rail car. This resulted in a loss of approximately 15,000 gallons of product.

CONCLUSION

A review of the Hazardous Materials Regulations by FRA personnel showed no non-complying conditions nor causal factors that were identified as a contributing factor in this accident.

ANALYSIS-TRACK

a) Inspections

A review of the carriers records revealed a switch instruction test was conducted with no exceptions noted. All records of tests were found to be in compliance with the requirements of 49CFR 236, Rules and regulations governing Railroad Signal and Train Control Systems.

A review of the carriers records reveal a high rail and visual track inspection was conducted in the area of the incident on Friday, December 28, 2007 with no exceptions noted. Additional inspections were performed December 18, 21, 24 and 26 reporting no defects in regards to the derailment location. This was found to be in compliance with the requirements of 49 CFR §213, Track Safety Standards.

b) Structure

The point of derailment (POD) was determined to be at the point section of a number 15 left hand turnout located within the CP Conpit interlocking. This particular switch is identified as switch 15 located on Main Track #2 and positioned to divert rail traffic from Main Track # 2 track to Main Track # 3 track in an east direction. This switch is Samson Electro-Pneumatic powered and is remotely controlled by a dispatcher.

Switch Number 15, located at CP Conpit interlocking was in accordance with NS Standard Plans for the construction of a number 15 turnout. The turnout is constructed with wood ties spaced approximately 19 ½ to 20 ½ inches apart and supported by granite rock ballast. Both right and left switch points and stock rails are Samson undercut 132 pound, manufactured in 1995. Switch points measured 38 feet in length and stock rails 60 feet in length. The frog is a Rail Bound Manganese, 136 lb, manufactured in 2000.

Switch point clips, stops, connecting rods, and floating heel blocks, bolts and fastenings were tight with no sign of wear visible. All gage, slide and brace plates were properly lagged, braces tight, and no indication of lateral, longitudinal, or vertical movement present. Both stock rails were securely seated.

Double shoulder tie plates measuring 14 by 7 ¾ inches were used on the closure and turnout sections of this switch and spiked in accordance with NS Standard Procedures. Rail anchors were applied through the turnout and each side of the switch. The turnout was completely welded in track eliminating all rail joints.

An impact mark was present on the right-hand facing switch point. This mark would indicate the switch point was struck by a wheel flange, which had either got behind the point (picked) or climbed the point.

This switch point would have been the closed point diverting traffic from track number two to track number three. Wheel markings on the ties between the field side of the switch point/turnout rail and the gage side of the south stock rail were also visible. Corresponding wheel marks were evident on the gage side of the north turnout rail in the area outside the straight closure rail. Both sets of wheel marks continued east to the frog section area where the derailed equipment came to rest.

Inspection showed the right hand closed switch point was found to be gapping approximately 7/16 inch and failed the 3/8 inch obstruction test. The right hand switch point was worn and measured 5/16 inch below the top of the stock rail for approximately 14 inches. The number four switch clip on the left switch point, approximately 18 feet east of the point was found to be broken.

As a result of these findings FRA personnel recommended the imposition of a Civil Penalty against Norfolk Southern Rwy. Co. for violation of 49 CFR §213.135.03 for improper fit between the right-hand switch point and the right hand stock rail of number 15 switch at Conpit Interlocking.

PROBABLE CAUSE

The probable cause of the accident is determined to be a gapping switch point, cause code T-319. Testing confirmed the improper fit between the right hand switch point and the right hand stock rail at number 15 switch, in the Conpit Interlocking.