Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2009-39

Pacific Harbor Line, Inc. (PHL)
Long Beach, LA
August 8, 2009

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-2009-39

1.Name of Railroad Operating Train #1: Pacific Harbor Line Inc. [PHL]	1a. Alphabetic Code: PHL	1b. Railroad Accident/Incident No.: 0808091
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: Pacific Harbor Line Inc. [PHL]	4a. Alphabetic Code: PHL	4b. Railroad Accident/Incident No.: 0808091
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 08 | Day 08 | Year 2009	7. Time of Accident/Incident: 12:04:00 ☑ 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
0	N/A	N/A	0	Sytem

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
Long Beach	18.0	N/A	CA	LOS ANGELES

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
78 F	4	1	2

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
Hanjin Track 16	1	N/A	4

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
7	1	1800 BNSF

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	30. Trailing Tons *(gross tonnage, excluding power units)*	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
8 MPH — R	7306	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): f, n, N/A, N/A, N/A	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter — 0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	NOKL230123	145	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
0	0

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	1	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	133	0	12	0	0
(2) Total Derailed	9	0	5	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$80,000.00	$205,000.00	H306	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 6 Mi 4	Hrs 6 Mi 4

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 — 2

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

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
6	2	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

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2009-39

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)*	KOKL23041	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: $0.00

65. Track, Signal, Way, & Structure Damage: $0.00

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 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. 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

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2009-39

110. Position 1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	Code N/A	113. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	Code 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	Code N/A	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	Code 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 Ban 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		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

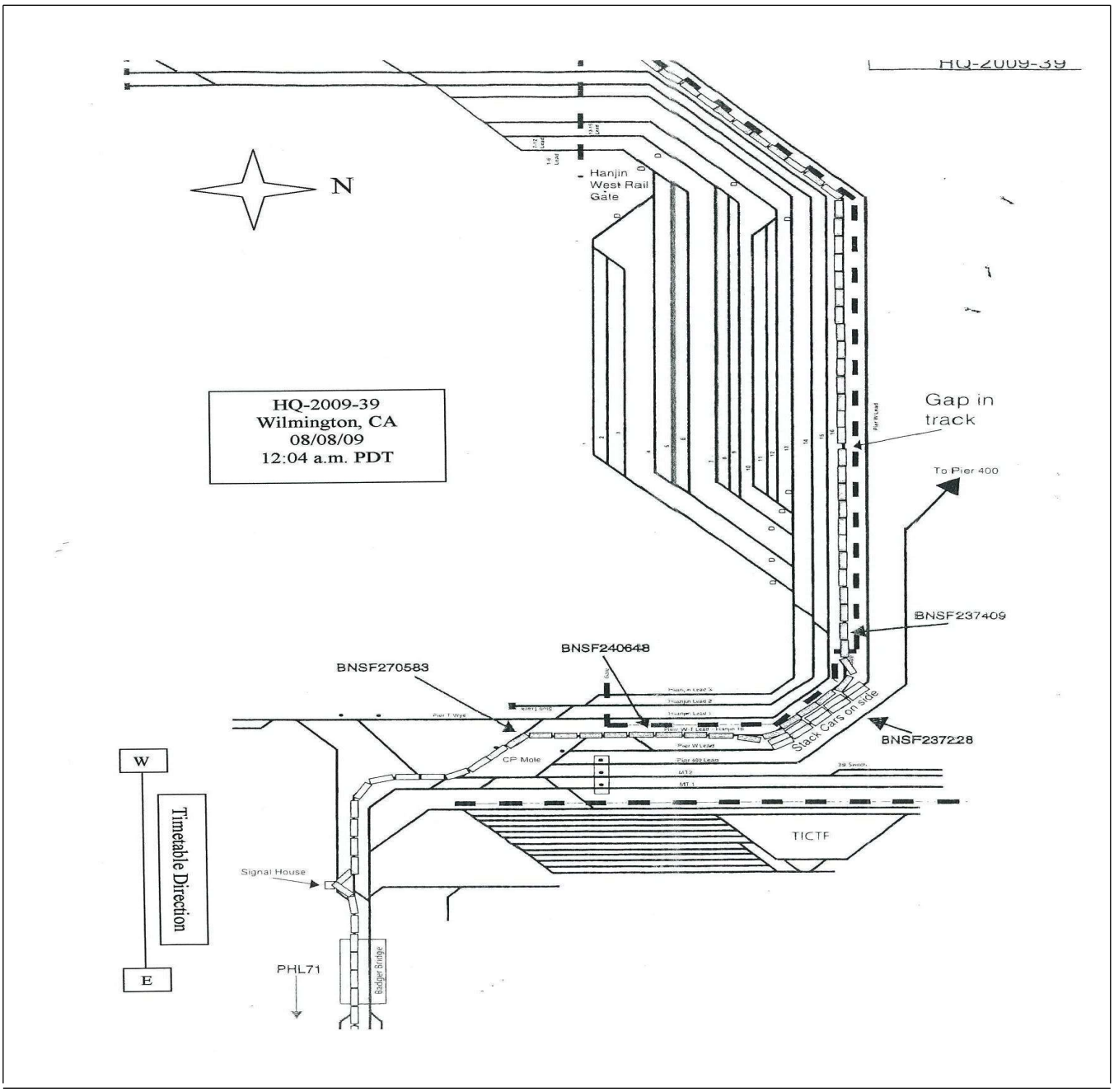
121. Age N/A	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify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

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	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 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

On Saturday, August 8, 2009, at 12:04 a.m. PDT, a yard switcher, 1800 BNSF, operated by a crew of the Pacific Harbor Line (PHL), consisting of one locomotive and 145 articulated intermodal cars, was shoving into PHL Hanjin yard track 16 at Long Beach/Wilmington, California and impacted an unattended standing cut of cars on the same track at a recorded speed of 8.3 mph. The result of the impact caused 14 cars to derail and damaged a signal house that conveys information of track locking circuits to a control tower operating a lift bridge. There were no injuries or hazardous materials involved. The PHL yard switcher was operating on the PHL Alameda Corridor Subdivision. The head end of the lead locomotive stopped at milepost 17.7 with the point of impact occurring 8,315 feet west of the locomotive.

PHL's Alameda Corridor Subdivision operates in a timetable east-west direction. The subdivision is governed under centralized traffic control (CTC) by a PHL dispatcher located on the lift bridge. The maximum timetable speed in the area of the derailment is 10 mph.

Damage was listed as follows: equipment, $80,000; track, signal, and structures, $205,000.

At the time of the accident it was dark but clear and the temperature was 78 degrees F.

The probable cause of the accident was the absence of a man on or at leading end of shoving movement.

138. NARRATIVE

Circumstances Prior to the Accident

At 6:00 p.m. PDT, August 7, 2009, a train crew consisting of an locomotive engineer and an assistant locomotive engineer went on duty at their regular on duty reporting point, Pier A Yard at the Pacific Harbor Line (PHL) Yard, Wilmington, CA. This is the crew's home terminal and each had completed an off duty period in excess of 17 hours prior to reporting for duty. They were assigned to work yard job 1800 BNSF. Their assigned locomotive consist was a single, six-axle locomotive with the designation of PHL 71. The crew secured their paper work and assignment from the BNSF assistant trainmaster, who is referred to in these operations as a Dock Manager.

They were assigned to pick up their power in the round house, travel to the Long Beach Container Terminal (LBCT) at the Port of Long Beach, pick up 123 loads and 12 empties weighing 6,521 tons, and was 7,437 feet in length, and deliver them to Hanjin yard track 16. The train crew held a job briefing and departed to pick up their power at the round house at 6:50 p.m. and arrived at 7:05 p.m. After inspecting their locomotive and performing a standing air brake test, they departed for LBCT at 7:45 p.m. and arrived at 8:20 p.m. Between 8:20 p.m. and 10:10 p.m., the crew gathered up their train from four yard tracks and pulled their train from LBCT onto main track 1 where they waited for the control operator to release them to shove their cars into Hanjin yard track 16. At 11:16 p.m. the crew started their shove from main track 1 to yard track 16. After arriving Hanjin yard track 16 with the cars they picked up from LBCT, the crew was instructed by the BNSF assistant trainmaster to pick up 58 other cars that had been staged in track 16 and shove the whole cut of cars to Pier W for storage.

The locomotive engineer was at the controls in the locomotive cab. The assistant engineer had positioned himself on the point of the leading car in the direction of travel when the shoving movement commenced. The train moved westward (shoving movement) from the main track to the yard track. The assistant engineer was provided with a hand-held radio and controlled the shoving movement by way of radio communications established with the locomotive engineer.

They came to and made a coupling with what they believed were the 58 cars they were instructed to pick up that were standing just in the clear of Pier W crossovers on Hanjin Track 16. The crew was unaware they had actually picked up only 10 cars and that there was a gap of approximately 1,000 feet behind where the additional cut of 48 were coupled together and were standing at the west end on the same track. They coupled the air and released a handbrake at 11:45 p.m.

Approaching the accident site from the east, trains traverse yard and lead tracks during switching operation. Visibility is restricted due to curves in the track and yard tracks being occupied with freight cars. There was illumination adequate to provide ambient light in the yard, however there were dark shadows on the track the crew was working on due to cars staged on adjacent tracks of the accident site. Movement authority in the Hanjin storage yard is governed by Other Than Main Track rules up to the main track where traffic control (CTC) begins. The grade is virtually flat and the maximum authorized speed is 10 mph. Movements are governed under centralized traffic control by a dispatcher located in a small building on the lift bridge, identified as the Badger Bridge. The job operates between CP West Thenard, milepost 16.1 and CP LAXT, milepost 19.3.

The Accident

The crew on the 1800 BNSF yard job, handling 123 loads and 12 empties, shoved westward on Hanjin yard track 16 and coupled to what they believed to be 58 cars on the east end of track 16. However, they did not realize they had coupled to only 10 cars and the remaining 48 cars were separated by approximately 1,000 feet that were standing at the west end of track 16. At this point, the assistant engineer who was riding the point had disembarked and was on the ground but failed to verify what they had coupled to and failed to notice the 1,000 foot gap between the cuts.

After coupling the air and releasing hand brakes on the cut of cars they coupled to, the assistant engineer obtained a ride to the rear of his train at Hanjin West Gate from a train clerk. He was unable to see track 16 from the vehicle he was riding in. The crew intended to shove the train to a point on Pier W storage track where they planned to secure the train and leave it for storage. The movement was being controlled by the assistant engineer who was positioned on the point of the leading car in the direction of movement on the west end of track 16. After opening the gate at West Hanjin, he instructed his engineer via radio to shove 20 car lengths. About 17 minutes elapsed from the time coupling was made to the 10 cars until movement started. After instructing his engineer to shove, the assistant engineer said something to the effect of “no air on the rear,” and then dismounted from the west car in track 16. At this point, the train had shoved 1,031 feet but the rear end had not moved. Impact occurred at 12:04 a.m. at a recorded speed of 8.3 mph when the train impacted the 48 cars standing at the west end of track 16. After impact, the rear of their train moved 54 feet. The impact caused an undesired emergency of the air brake system and also caused 13 cars to jack-knife and derail on various curves of yard track 16. In addition, one empty stack car jack-knifed and derailed on the main track and damaged a signal box that controlled the lift bridge, Badger Bridge.

There were no injuries reported and hazardous materials were not involved.

Post-Accident Investigation

Following the accident, FRA conducted an investigation to determine the facts and probable cause. The investigator conducted interviews with the crew members and managers involved.

According to the crew, the switching operations were normal and there were no mechanical issues with the locomotive. The primary communication between crew members was by radio augmented by hand signals and vocal instructions. No issues were reported with communication between crew members during the shift. Information recovered from the event recorder on the lead locomotive PHL 71 and the recordings of the crews radio communications indicate that prior to the accident, switching operations were routine and without problems.

The first car involved was NOKL230123, the 145th car in the consist, which struck car NOKL23041 the lead car of the 48 left on the same track. There were no injuries and no hazardous materials were involved.

Photographs were taken hours after the accident occurred and a sketch of the accident including all tracks, signal, switches, structures, and objects involved were drawn. An analysis of the data of the locomotive event

recorder was completed and recorded communications between crew members were analyzed.

A review of all tests, records and inspections of the equipment, track and signals excluded each as contributing to the accident.

A review of the crew members rules classes, training, certifications, hours of service, and efficiency tests also excluded each as contributing to the accident.

Damages were estimated at $80,000 for equipment and $205,000 for track, signals, and structures.

Analysis and Conclusion

The accident did meet the requirements of 49 CFR Part 219 Subpart C, Post Accident Toxicological Testing, however, the locomotive engineer and assistant engineer on the 1800 BNSF yard job were tested under company authority. The decision not to test under federal authority was made by the senior PHL manager on site at the accident scene. FRA's investigation revealed that he was confused about the distinction between the $1 million damage threshold for a major train accident and the lower $150,000 threshold for an impact accident. Toxicology test results on the crew were negative. FRA is recommending a violation for non-compliance with 49 CFR Part 219 Subpart C Post Accident Testing.

Communications between trains, switch crews, and train dispatchers are by radio and all radio conversations in this area are recorded. The recorded conversations demonstrate that all employees involved in this accident were aware of each other's movements and instructions. With the exception of the PHL locomotive engineer, the crew members were following the instructions given them to control their movements.

Applicable Rules

The engineer failed to meet the requirements of 49 CFR Part 220.49, Radio Communication Used In Shoving, Backing or Pushing Movements. The engineer failed to stop in one-half the remaining distance specified unless additional instructions were received. The last recorded directive the engineer received was to back up 20 car lengths. Analysis from the event recorder located on his engine and recorded radio communications revealed the engineer had traveled approximately 18 car lengths prior to impact. The event recorder also indicated the engineer did not have air set on his locomotive nor his train indicating he was unprepared to stop his train within one-half the remaining distance.

The assistant engineer failed to meet the requirements of 49 CFR Part 218.99, Shoving or Pushing Movements item (3) Point Protection, which states, "when rolling equipment or lite locomotive consist is shoved or pushed, point protection shall be provided by a crew member or other qualified employee by: visually determining that the track is clear"and the General Code of Operating Rules (GCOR) 6.5 Handling Cars Ahead of Movement, which states, "when cars or engines are shoved, a crew member or other qualified employee must be in position to protect the movement by being on the equipment to observe leading end of movement and in the direction of movement". The assistant engineer failed to be on or at the leading end of movement when the shove commenced.

The locomotive engineer and the assistant engineer failed to meet the requirements of PHL's General Code of Operating Rules (GCOR) 6.28, which states, "except when moving on a main track or on a track where a block system is in effect, trains or engines must move at a speed that allows them to stop within half the range of vision short of: train, engine, railroad car, men or equipment fouling the track, stop signal, or derail or switch lined improperly."

The locomotive engineer and the assistant engineer failed to meet the requirements of PHL's General Code of Operating Rules (GCOR) 7.4 "Precautions For Coupling Or Moving Cars or Engines, which states, "make couplings at a speed of not more than 4 mph. Stretch the slack to ensure that all couplings are made prior to shove."

The locomotive engineer performed a daily inspection of locomotive PHL 71 and noted no issues with the locomotive or the locomotive operation. He had four years as a promoted engineer. He had the required statutory off duty period between shifts (17 hrs 28 min) and he was working his regular assignment. His last rules exam was on May 16, 2009. PHL conducted 147 pass and 23 fails efficiency test from August 11, 2008

through August 11, 2009. Of those 23 failed tests, he failed "shoving movements" on May 5, 2009.

The assistant engineer was hired May 16, 2009 with less than four months experience. He had the required statutory off duty period between shifts (17 hrs 50 min) and he was working his regular assignment. His last rules exam was on May 15, 2009. PHL conducted 24 pass and 4 fails in his short tenure. Of those four failed tests, he failed switching safely and efficiently when he left a gap between cars inside of yard on June 9, 2009. Following PHL's investigation of the accident and determining the failure of the assistant engineer to control the shove, he was released from his duties with the railroad.

PHL was in compliance with its own rules and Federal requirements of 49 CFR Part 217.9 (a) that read, in part, "each railroad to which this part applies shall periodically conduct operational tests and inspections to determine the extent of compliance with its code of operating rules, timetables, and timetable special instructions in accordance with a written program . . . "

Probable Cause & Contributing Factors

FRA has concluded the probable cause of the accident was the absence of man on or at leading end of shoving movement.