Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2009-44

Burlington Northern Santa Fe (BNSF)
St. Louis, MO
September 28, 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-2009-44

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: SF0909112
2.Name of Railroad Operating Train #2: BNSF Rwy Co. [BNSF]	2a. Alphabetic Code: BNSF	2b. Railroad Accident/Incident No.: SF0909112
3.Name of Railroad Operating Train #3: BNSF Rwy Co. [BNSF]	3a. Alphabetic Code: BNSF	3b. Railroad Accident/Incident No.: SF0909112
4.Name of Railroad Responsible for Track Maintenance: BNSF Rwy Co. [BNSF]	4a. Alphabetic Code: BNSF	4b. Railroad Accident/Incident No.: SF0909112
5. U.S. DOT_AAR Grade Crossing Identification Number	6. Date of Accident/Incident: Month 09 Day 28 Year 2009	7. Time of Accident/Incident: 05:52: ☐ 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	Springfield

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
St Louis	n/a	N/A	MO	ST LOUIS

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
66 F	2	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
Track 1330	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	YSTL223228

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?
10 MPH R	N/A	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 N/A 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 — 3

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	BNSF 3012	1	N/A
(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	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	0	0	23	0	0
(2) Total Derailed	0	0	0	0	0

37. Equipment Damage — This Consist: $10,539.00

38. Track, Signal, Way, & Structure Damage: $1,000.00

39. Primary Cause Code: H306

40. Contributing Cause Code: N/A

Number of Crew Members

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

Length of Time on Duty

45. Engineer/Operator: Hrs N/A Mi N/A

46. Conductor: Hrs 2 Mi 49

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
A	1	BNXX18598

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 E	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)*: 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 | N/A | N/A | N/A | N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: 0

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	BNXX18598	1	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

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	1	0	0

64. Equipment Damage This Consist: $200,000.00

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

66. Primary Cause Code: H306

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
3	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 10 Mi 52

73. Conductor: Hrs 0 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	2	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: 8

81. Was Equipment Attended? 1. Yes 2. No | Code: 2

82. Train Number/Symbol: LSPR816128

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

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 | 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: 0

86. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	BNSF2799	1	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

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	2	0	0	0	0
(2) Total Derailed	2	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: $17,500.00

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

93. Primary Cause Code: H306

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

110. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A

113. Circumstance	Code
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?	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

114b. Was there a hazardous materials release	Code
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	4.Wig Wags	7.Crossbucks	10.Flagged by crew
	2.Cantilever FLS	5.Hwy. traffic signals	8.Stop signs	11.Other *(spec. in narr.)*
	3.Standard FLS	6.Audible	9.Watchman	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
	N/A

117. Whistle Ban	Code
1. Yes 2. No 3. Unknown	N/A

118. Location of Warning	Code
1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	N/A

119. Crossing Warning with Highway Signals	Code
1. Yes 2. No 3. Unknown	N/A

120. Crossing Illuminated by Street Lights or Special Lights	Code
1. Yes 2. No 3. Unknown	N/A

121. Age	122. Driver's Gender	Code
N/A	1. Male 2. Female	N/A

123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train	Code
1. Yes 2. No 3. Unknown	N/A

124. Driver	Code
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)*	N/A

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

126. View of Track Obscured by *(primary obstruction)*	Code
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	N/A

Casualties to:	Killed	Injured
129. Highway-Rail Crossing Users	N/A	N/A

127. Driver	Code
1. Killed 2.Injured 3. Uninjured	N/A

128. Was Driver in the Vehicle?	Code
1. Yes 2. No	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?	Code
1. Yes 2. No	N/A

133. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	N/A

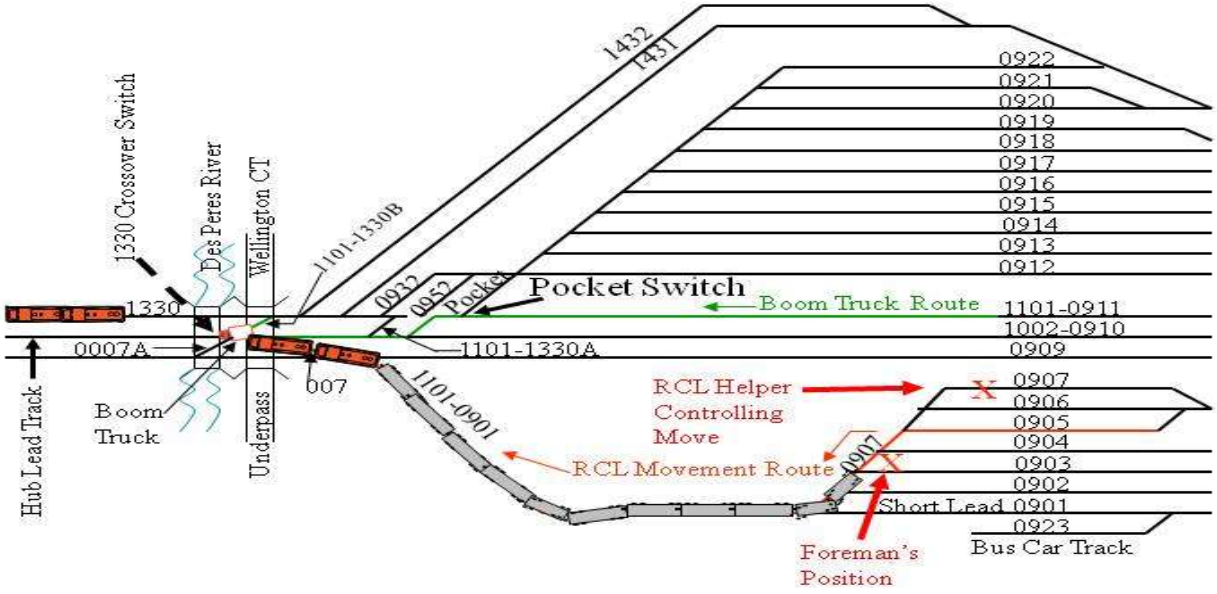
134. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	N/A

135. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	N/A

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

HQ-2009-44

BNSF RCL Shove
into
Boom Truck
September 28, 2009
5:52 p.m.
St. Louis, Missouri



The point of the shove was completely obstructed for both the Foreman and the RCL Helper.

This sketch is not to scale and does not capture the physical track layout that obstructed their view.

137. SYNOPSIS OF THE ACCIDENT

At 5:52 p.m. on September 28, 2009 a westbound Burlington Northern Santa Fe (BNSF) remote controlled locomotive (RCL) switcher consisting of 2 locomotives and 23 cars (9 container cars) struck the rear of an eastbound BNSF maintenance-of-way (MOW) boom truck. The boom truck had backed eastward and was occupying the area of track extending between the switch points and the frog of the lead switch giving access to Track # 1330. There were two men seated in the front seat of the vehicle and a third man standing on the passenger side running board. The RCL movement was proceeding west at 10 mph on the Yard Lead Track when it impacted the rear of the truck. Upon impact the third man was thrown clear. The truck was then shoved 510 feet west into two stored locomotives on an adjacent track north of the lead. The boom of the truck raked the side of the two stored locomotives. It then wedged between the locomotives causing both to derail. The second locomotive became uncoupled from the first. The boom truck and second locomotive were shoved an additional 188 feet before the RCL finally stopped shoving.

The two men in the truck were initially uninjured, but later complained of whiplash-type discomfort. The third man suffered back injuries and was admitted one night in hospital.

Approximately 1,500 gallons of diesel fuel were released from one of the stored locomotives into the River des Peres Storm Water Run-Off Ditch which eventually flows into the Mississippi River.

There are no RCL Zones established in this yard. In spite of that fact, the westbound RCL shoving movement was being controlled by the remote control operator (RCO) helper, who could not see the point. He was using a vest-mounted remote control transmitter and was standing on the ground near the east end of the cut. He was told by his foreman via radio that the track was clear. The foreman's view of the point of the shove was also obstructed.

The cause of the accident is FRA Code H306 - Shoving movement, absence of man on or at leading end of movement.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

BNSF HI-RAIL BOOM TRUCK BNXXX 18598
On September 28, 2009 at 7:00 a.m. a three member MOW gang consisting of a foreman, a truck driver, and a trackman, reported for work at the BNSF Lindenwood Rail Yard in St. Louis, Missouri. They are non-covered service employees. After an initial job briefing the gang boarded the assigned hi-rail boom Truck # BNXX 18598 and commenced to work in and around Lindenwood Yard. They worked for several hours replacing ties on the east end of the yard.

At about noon the foreman received a cell phone call from a surfacing gang foreman also working in the yard. The surfacing gang was engaged in tamping and raising yard Track # 11. They had broken a rail on the west end of Yard Track # 11 and requested the boom truck gang repair it. The foreman informed his men of the new assignment and they departed to replace the broken rail. After determining the stock rail size they loaded a replacement section of rail and proceeded to the Hub Lead area.

At about 1:00 p.m. the foreman requested permission from the first shift yardmaster to place the boom truck on the rail and hi-rail to Yard Track # 11. The request was granted and they proceeded eastward to the work location.

BNSF Train L-SPR8161-28A
At about 1:30 p.m., shortly after the boom truck had operated to Track # 11, the two coupled light locomotives, BNSF 2799 and BNSF 2373, of BNSF Train L-SPR8161-28A were placed on the Belt Stub Track. This area is located north of the Hub Lead and west of the crossover switch. The locomotives were secured and unattended at the time of the accident.

BNSF HI-RAIL BOOM TRUCK BNXX 18598 Hi-Rail Boom Truck (Train 2) Approaching Accident Site
At about 5:40 p.m. the MOW boom truck crew was ready to depart Yard Track # 11 and the foreman

requested permission from the second shift yardmaster to go from the current location west to the Hub Track. The yardmaster then advised the RCO foreman, via radio, of the intended MOW boom truck move. The RCO foreman acknowledged receipt of the instructions.

The boom truck was then operated west with the front of the truck facing west. The driver was in the driver's seat on the south side and the foreman was seated in the front passenger seat on the north side. The trackman was on the ground and lined the # 10 Pocket Track hand-operated crossover switch to proceed west then lined it back after the boom truck proceeded through it. The RCO foreman witnessed the MOW boom truck advance westward as he was standing by yard Track # 903. The MOW boom truck then advanced 600 feet west to the # 1330 Crossover switch and the trackman lined it for the diverging move.

At about 5:51 p.m. the MOW boom truck backed eastward over the # 1330 Crossover switch points, but stopped between the heel of the switch and the frog to wait for the trackman to board the passenger side foot board. The driver and foreman observed the trackman proceed to the passenger side foot board and were discussing the switch position of the next switch in their route.

BNSF YARD TRAIN Y-STL2232-28A

The crew of BNSF Train Y-STL2232-28A consisted of an RCO foreman and an RCO helper. They went on duty at 3:03 p.m. on September 28, 2009 at the BNSF Lindenwood Yard in St Louis. This is the home terminal for both crewmembers and each had their required statutory off-duty rest period prior to reporting for duty. The foreman and the helper each had 6 years experience as remote control operators. Each man had a remote control transmitter attached to his vest and a company radio.

They were assigned to RCL # BNSF 3012 with trailing Locomotive # BNSF 2112. They received a job briefing from the trainmaster on duty and the second shift yardmaster who went on duty at 2:00 p.m. The MOW forces were working on Yard Track # 11 so the RCO crew waited an hour before preparing for work. At about 4:00 p.m. they prepared the locomotives which were parked on the Hub Lead Track and set the locomotives up for remote control operations. The RCO crew then commenced routine switching operations on the west end of the yard.

At approximately 5:40 p.m. the crew coupled the locomotives to the west end of a cut of 23 rail cars on Yard Track # 905 to double over to Yard Track # 903. The RCO foreman was positioned at Yard Track # 903 switch stand approximately 825 feet east of the locomotives located on the west end of the movement. He witnessed the MOW boom truck proceeding west out of Track # 11. The RCO helper was in control of the RCL. He had finished lacing the air hoses from the locomotives located on the west end of the cut of cars and walked to the east end of Yard Track # 905. He was over 1,300 feet east of the locomotives being operated westward.

In this area traveling east to west and starting at the corresponding main track milepost (MP) 6.8 from Yard Track # 905 to MP 7.1 the accident site is approximately 1,385 feet with a .5-percent descending grade.

The method of operation is by General Code of Operating Rules (GCOR), Rule 6.28 - Movement on Other Than Main Track. The current BNSF timetable is Timetable Number 7, effective 0800, July 22, 2009. The timetable direction and geographical direction are east and west.

THE ACCIDENT

The RCO helper was standing on the ground utilizing a vest-mounted remote control transmitter when he operated the 2 locomotives and 23 cars westward at a recorded speed of 10 mph. After shoving the movement 1,380 feet with the two locomotives located on the unprotected point, the movement struck the rear of the MOW boom truck which was fouling the Hub Lead Track at the # 1330 Switch. Upon impact the trackman standing on the passenger side running board was thrown clear. The truck was then shoved 510 feet westward striking the two stored locomotives on Track # 1330 which were located north of the lead. The boom of the truck raked the side of the two stored locomotives. It then wedged between them causing both to derail and uncouple. The boom truck and second locomotive were shoved an additional 188 feet before the RCL finally stopped shoving. A St. Louis Fire Department-operated ambulance transported the injured trackman to the hospital. The Missouri Department of Natural Resources responded to the accident because of the diesel released into the River des Peres.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL TESTING:

The RCO foreman, RCO helper, and the second shift yardmaster were drug tested for blood, breath, and urine.

CONCLUSION:

Blood, breath, and urine tests were negative for the RCO foreman and RCO helper. The FRA post-accident testing program laboratory reported the second shift yardmaster tested positive for marijuana in both urine and blood. Based on the toxicological evidence it appears probable that the yardmaster had used marijuana within a few hours of the accident. Although it cannot be concluded with certainty that the yardmaster was impaired by the drug at the time of the accident, some level of decrement of performance and/or judgment as a result of his most recent use should be considered as possible.

ANALYSIS – RCO FOREMAN AND HELPER OPERATING PERFORMANCE:

BNSF Remote Control Train Y-STL2232-28A shoving movement was being operated at 10 mph approaching the accident site without benefit of either crewmember able to observe the point. Even after impacting the boom truck and shoving it into the two parked locomotives, the helper couldn't understand why the movement was slowing down. The yardmaster contacted the crew, via radio, to stop the movement due to impact with the boom truck.

CONCLUSION:

Without the benefit of observing the proceeding point of the movement and the track area west of it, the crew did not comply with GCOR Rule 6.28 - Movement on Other Than Main Track - Trains or engines must move at speeds that will allow stopping in 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 crew was also not in compliance with BNSF Springfield Division General Notice 903, dated October 26, 2009. Item 2 - St Louis Missouri - Lindenwood Yard - RCO Operations, which states, in part: "All movements are considered shove movements and require point protection. When using a remote control locomotive in "shared" or pitch and catch operation, the RCO protecting the point in direction of movement must be the primary operator controlling the movement."

ANALYSIS - OPERATING PERFORMANCE, MAINTENANCE-OF-WAY HI-RAIL BOOM TRUCK:

The track gang was in compliance with required procedures in establishing on-track safety. They had communicated with the first shift yardmaster, via radio, before setting the hi-rail vehicle on the Hub Lead and proceeding to the west end of Track # 11 to repair a broken rail. The track gang foreman notified the second shift yardmaster, via radio, that they were ready to proceed from Track # 11 to the Hub Lead to set off. The second shift yardmaster notified the RCO crew, via radio, that the boom truck was proceeding to the Hub Lead to clear. The RCO crew observed the truck exit Track # 11 and proceed west. The track gang had restored the hand-operated switch to normal alignment giving access from the Hub Lead Track to Track # 1330. They were prepared to back the truck into the clear when they were struck from the rear.

CONCLUSION:

The actions of the track crew did not contribute to this accident.

ANALYSIS – FATIGUE:

The Federal Railroad Administration (FRA) obtained fatigue related information for the 10-day period preceding this accident/incident, including a 10-day work history (on-duty/off-duty) for the RCO foreman and RCO helper.

CONCLUSION:

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

PROBABLE CAUSE & CONTRIBUTING FACTORS:

Primary Cause Code H306 - Shoving movement, absence of man on or at leading end of movement. The FRA has conducted an independent investigation and concurs with the BNSF's accident cause findings.