



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2009-30***

***BNSF Railway Company (BNSF)
Sleeper, MO
June 29, 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.

57. Trailing Tons (gross tonnage, excluding power units) 7948	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) e N/A N/A N/A N/A	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter 0
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59. Principal Car/Unit (1) First involved (derailed, struck, etc) BN575533	a. Initial and Number 129	b. Position in Train 129	c. Loaded(yes/no) yes	60. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol 0 Drugs 0
(2) Causing (if mechanical cause reported) 0	0	0	N/A	61. Was this consist transporting passengers? (Y/N) N/A

62. Locomotive Units	a. Head End	Mid Train b. Manual c. Remote	Rear End d. Manual c. Remote	63. Cars	Loaded a. Freight b. Pass.	Empty c. Freight d. Pass.	e. Caboose
(1) Total in Train 3	0	0	0	(1) Total in Equipment Consist 41	0	95	0
(2) Total Derailed 0	0	0	0	(2) Total Derailed 7	0	0	0

64. Equipment Damage This Consist \$32,454.00	65. Track, Signal, Way, & Structure Damage \$0.00	66. Primary Cause Code H221	67. Contributing Cause Code N/A
Number of Crew Members		Length of Time on Duty	

68. Engineer/Operators 1	69. Firemen 0	70. Conductors 1	71. Brakemen 0	72. Engineer/Operator Hrs 4 Mi 50	73. Conductor Hrs 4 Mi 50
Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other	77. EOT Device? 1. Yes 2. No 1	78. Was EOT Device Properly Armed? 1. Yes 2. No 1
Fatal	0	0	0	79. Caboose Occupied by Crew? 1. Yes 2. No N/A	
Nonfatal	0	0	0		

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 N/A	82. Train Number/Symbol N/A
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83. Speed (recorded speed, if available) 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
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86. Principal Car/Unit (1) First involved (derailed, struck, etc) N/A	a. Initial and Number N/A	b. Position in Train N/A	c. Loaded(yes/no) N/A	87. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol N/A Drugs N/A
(2) Causing (if mechanical cause reported) N/A	N/A	N/A	N/A	88. Was this consist transporting passengers? (Y/N) N/A

89. Locomotive Units	a. Head End	Mid Train b. Manual c. Remote	Rear End d. Manual c. Remote	90. Cars	Loaded a. Freight b. Pass.	Empty c. Freight d. Pass.	e. Caboose
(1) Total in Train N/A	N/A	N/A	N/A	(1) Total in Equipment Consist N/A	N/A	N/A	N/A
(2) Total Derailed N/A	N/A	N/A	N/A	(2) Total Derailed N/A	N/A	N/A	N/A

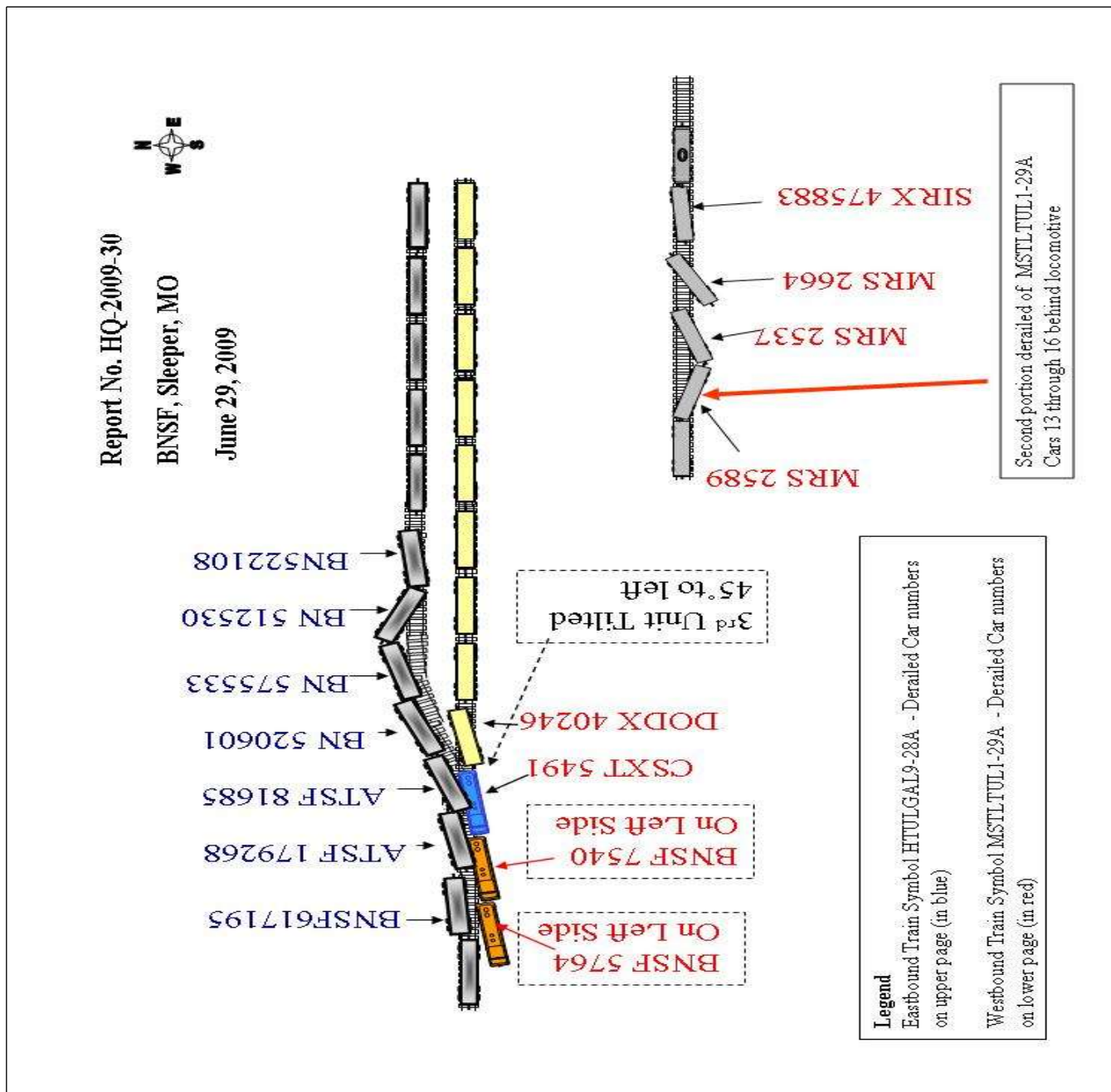
91. Equipment Damage This Consist N/A	92. Track, Signal, Way, & Structure Damage N/A	93. Primary Cause Code N/A	94. Contributing Cause Code N/A
Number of Crew Members		Length of Time on Duty	

95. Engineer/Operators N/A	96. Firemen N/A	97. Conductors N/A	98. Brakemen N/A	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	104. EOT 1. Yes 2. No N/A	105. Was EOT Device Properly 1. Yes 2. No N/A
Fatal	N/A	N/A	N/A	106. Caboose Occupied by Crew? 1. Yes 2. No N/A	
Nonfatal	N/A	N/A	N/A		

Highway User Involved				Rail Equipment Involved			
107. C. Truck-Trailer A. Auto B. Truck 108. Vehicle Speed (est. MPH at impact) N/A	F. Bus G. School Bus H. Motorcycle	J. Other Motor Vehicle K. Pedestrian M. Other (spec. in narrative) N/A	Code N/A	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
109. geographical 1. North 2. South 3. East 4. West N/A				112. Position of Car Unit in N/A			

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 1. Gates 2. Cantilever FLS 3. Standard FLS 4. Wigs 5. Hwy. traffic signals 6. Audible Warning 7. Crossbucks 8. Stop signs 9. Watchman 10. Flagged by crew 11. Other (spec. in narr.) 12. None				Code N/A	116. Signaled Crossing (See instructions for codes)				Code N/A	117. Whistle Ban 1. Yes 2. No 3. Unknown	
Code(s)				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	
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	
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	
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)	
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 BNSF Railway Company (BNSF) westbound freight train, proceeding at 37 mph, struck the side of a stopped BNSF eastbound freight train on June 29, 2009, at 8:20 a.m. CDT. (All times listed are in CDT.) The stopped eastbound freight train had been previously routed into a siding and the rear 11 cars were occupying the main track. The accident occurred at milepost (MP) 175.7 on the BNSF Cuba Subdivision at Sleeper, Missouri. The collision resulted in the derailment of three locomotives and five cars of the westbound train, and seven cars of the eastbound train. Both crew members of the westbound train sustained non life-threatening injuries and were trapped in the lead locomotive until rescuers removed the left front window and assisted them out. There were no injuries to the crew of the eastbound train. There was no release of hazardous materials.

At the time of the accident it was daylight and clear. The temperature was 70 °F.

The accident was caused by the failure of the westbound crew to comply with a signal displaying a stop indication at the west end of the siding at Sleeper. Based on FRA analysis, a contributing factor of fatigue experienced by the train crewmembers operating the striking train was probable.

138. NARRATIVE

Circumstances Prior to the Accident

Train Symbol M-STLTUL1-29A

The crew of westbound train symbol M-STLTUL1-29A (Train No. 1 WB) consisted of an engineer and conductor. They first went on duty at 1:30 a.m. on June 29, 2009, at the BNSF Lindenwood Yard Office in St. Louis, Missouri. This was the away-from-home terminal for both crewmembers, and both received more than the statutory off-duty period prior to reporting for duty.

Train No. 1 WB originated in Venice, Illinois, on June 28, 2009, at the Terminal Railroad Association of St. Louis (TRRA) Madison Yard. TRRA mechanical department employees completed the Class I Air Brake Test at noon that day. A BNSF transfer crew then operated it from Madison Yard to Lindenwood Yard, where the head 58 cars and 3 locomotives were removed. A block of 38 cars and 3 serviced locomotives were added to the head-end. Ten military flat cars loaded with M-1 Abram Tanks were included in the 38-car block. The 38 cars received a Class I Air Brake Test and pre-departure inspection at Lindenwood Yard prior to the train's departure.

Train No. 1 WB departed St. Louis at 2:25 a.m., with the engineer seated at the controls on the north side of lead locomotive No. BNSF 5764, with the short end forward. The conductor was seated at his desk on the south side. Their train consisted of 3 locomotives, 56 loads, 44 empties, 6,236 feet long, and weighed 8,625 tons. The train was destined for Springfield, Missouri, with no change in the consist.

Train Symbol H-TULGAL9-28A

The crew of eastbound freight train symbol H-TULGAL9-28A (Train No. 2 EB) included an engineer and a conductor. They first went on duty at 3:30 a.m., June 29, 2009, at the BNSF Yard Office in Springfield. This was the home terminal for both crewmembers, and both received more than the statutory off-duty period prior to reporting for duty.

Train No. 2 EB consisted of 3 locomotives, 41 loads, 95 empties, 7,459 feet long, and weighed 7,948 tons.

This train received a Class 1 Air Brake Test before departing Tulsa, Oklahoma. It was destined from Springfield to St. Louis.

When Train No. 2 EB departed Springfield at 4:53 a.m., the engineer was seated at the controls on the south side of lead Locomotive No. BNSF 4383, with the short end forward. The conductor was seated at his desk on the north side. At approximately 6:25 a.m., near MP 206.9, the engineer and conductor exchanged locations and duties. The conductor, also a certified locomotive engineer, seated himself at the controls and began operating the train. He also continued the conductor's duties of completing the BNSF required Signal Awareness Form. The locomotive engineer seated himself at the conductor's desk. (Regardless of their duties, the conductor will continue to be referred to as the conductor and the engineer will be referred to as the engineer in this report.)

At 7:15 a.m., the BNSF Cuba Subdivision train dispatcher, located in Fort Worth, Texas, contacted the crew of Train No. 1 WB via radio, to confirm the footage of their train. A crewmember stated their train was 6,235 feet in length. The dispatcher then stated they would meet a train 7,500 feet in length at Sleeper, and this was acknowledged by a crew member. The dispatcher then contacted Train No. 2 EB, via radio, and told the crew that their train was lined into the Sleeper Siding to meet a train. This was acknowledged by a crewmember of Train No. 2 EB.

At approximately 7:20 a.m., Train No. 2 EB operated by a track side warning detector located at MP 193.8. The axle count provided matched the information shown on the train consist. At 7:54 a.m., it arrived at the west end of Sleeper Siding, MP 175.7, and was operated into the siding. The lead locomotive stopped 352 feet from the east end of the siding. The siding is 6,942 feet in length. Train No. 2 EB was 7,459 feet in length. This resulted in 11 cars fouling the main track west of the clearance point at the west end of the siding at Sleeper.

At approximately 8:18 a.m., Train No. 1 WB was approaching the westbound absolute signal at the east end of Sleeper Siding, MP 174.1. The Approach Signal Aspect being displayed would have come into view of the crew 2,106 feet prior to passing it. The conductor and engineer did not communicate to each other the name of the signal aspect displayed. They made no transmission on the radio indicating they were passing a signal displaying an Approach Aspect, requiring slowing to 30 mph and being prepared to stop before passing the next signal.

The conductor of Train No. 2 EB was asleep when the head end of Train No. 1 WB went by and woke him. He proceeded to the platform of his locomotive to inspect Train No. 1 WB and observed the train was not slowing down. He knew that his train would not be in the clear. He returned to the cab and asked the engineer if the crew of Train No. 1 WB knew the main track was not clear at the west end of the siding. The engineer then contacted Train No. 1 WB on the radio and told them the rear of Train No. 2 EB was fouling the main track. The conductor of Train No. 1 WB replied that they were operating on a clear signal.

As Train No. 1 WB approached the accident area, the engineer was seated at the controls on the north side of the lead locomotive. The conductor was standing in the middle of the cab adjacent to the control stand. The train was being operated in throttle position Run 3, at a recorded speed of 37 mph.

The method of operation in this area is by signal indication of a traffic control system (TCS) on single Main Track. The maximum authorized speed is 40 mph, as listed in BNSF Springfield Division, Timetable No. 6, dated January 17, 2007.

Beginning at MP 170.0 (5 miles east of the collision) the track profile indicates there are nine curves located between MP 170.0 and MP 175.1. There are 6 left-hand and 3 right-hand curves with varying degrees of curvature ranging from 3-degrees 26-minutes to 6-degrees 5-minutes. The steepest grade in this segment of track is 1.36 percent, and although somewhat undulating, it is basically ascending grade westbound from MP 170.0 to MP 174.4. Then, from MP 174.4 to MP 175.1, the grade is descending westbound. One-half mile prior to West Sleeper, MP 175.7, begins an ascending grade.

The railroad timetable directions are east and west. The geographic directions are northeast and southwest. Timetable directions are used throughout this report.

The Accident

Approaching the accident site, the crew of Train No. 1 WB failed to take appropriate action regarding an Approach Signal Aspect displayed at MP 174.1 at the east end of Sleeper Siding. Approximately 700 feet prior to passing a Red Absolute Signal Aspect displayed at the west end of Sleeper Siding, MP 175.7, the train was placed in emergency. Unable to stop before passing the signal resulted in striking stopped cars of Train No. 2 EB occupying the Main Track, at 37 mph. The three locomotives and five cars of Train No. 1 WB were derailed, with the two lead locomotives turned on their sides. The derailed cars included the 1st and the 13th through 16th cars, behind the locomotive consist. The 2-man crew of Train No. 1 WB sustained non life-threatening injuries. Seven cars of Train No. 2 EB were derailed, the 124th through 130th cars, behind the locomotives.

Analysis and Conclusions

Analysis - Toxicological Testing: The crews of Train No. 1 WB and Train No. 2 EB were transported to St. Johns Hospital in Lebanon, Missouri, for blood, breath, and urine testing.

Conclusion: Blood, breath, and urine tests were negative for the crewmembers of both trains.

Analysis - Train No. 1 WB Engineer and Conductor's Operating Performance: Train No. 1 WB was being operated at 37 mph approaching the accident site. The westbound absolute signal at the east end of Sleeper Siding, MP 174.1, was displaying an Approach Signal Aspect. This was verified by analysis of the download of the lead locomotive No. BNSF 5764 video camera, and the east end Sleeper Siding signal event recorder. At approximately 700 feet in advance of the westbound absolute signal at the west end of the Sleeper Siding, the crew observed a Red Signal Aspect and the engineer immediately made an emergency application of the train brakes. They were unable to stop, and Train No. 1 WB lead locomotive No. BNSF 5764 struck car No. BN 575533, the 129th car from the lead locomotive of Train No. 2 EB. The lead locomotive derailed and rolled onto its left side. The conductor and locomotive engineer were thrown around in the cab.

After Train No. 1 WB came to a stop, the conductor of Train No. 2 EB was called, via radio, the engineer of Train No. 1 WB. The engineer stated they were trapped in the cab due to damage and position of locomotive from the accident. Approximately 30 minutes later, Sleeper Fire Department responders were able to remove a section of the windshield and assist them out of the locomotive. Following their removal, they were examined by EMS personnel from St. Johns Hospital, then transported to St. Johns Hospital in Lebanon by BNSF management personnel.

At the accident site, railroad managers entered the cab of locomotive No. BNSF 5764 and located a Signal Awareness Form, which the conductor was required by BNSF to maintain during the trip. The form had been completed from the beginning of the trip and indicated that the train had clear signals all the way from MP 7 to, and including, the westbound absolute signal at MP 174.1. However, the conductor had not entered required information at the top of the form, such as date, train symbol, and names of the conductor and locomotive engineer.

Conclusion: The crew of Train No. 1 WB failed to comply with the applicable operating rules regarding an approach signal displayed at the east end of the siding at Sleeper, and, a stop signal displayed at the west end of the Sleeper Siding. The crew also failed to communicate to each other the name of the signal aspect displayed by the westbound absolute signal at the east end of Sleeper Siding when it became visible, as required by General Code of Operating Rules (GCOR) No. 1.47(C)(2). After receiving the approach signal at the east end of the siding, the crew failed to reduce their speed to 30 mph and proceed prepared to stop at the next signal, as required by GCOR No. 9.1.8. After receiving a red signal at the west end of the siding, the crew failed to stop their train before getting by the signal, as required by GCOR Nos. 9.1.15 and 9.5.

Analysis - Train No. 2 EB Engineer and Conductor's Operating Performance: Train No. 2 EB was stopped on the siding at Sleeper with 11 cars with approximately 869 feet of their train fouling the main track at the west end. As the conductor and engineer were reviewing their consist, they observed from the locomotive controls that the end of train device at the rear of their train was showing zero air pressure for the brake system, and shortly thereafter the train experienced an emergency application of the air brakes. The conductor then called Train No. 1 WB. The Train No. 1 WB engineer responded and stated that Train No. 2 EB was not in the clear.

He said their locomotive was turned over, and they were hurt. Upon being advised of this, Train No. 2 EB conductor made an emergency call to the train dispatcher requesting emergency vehicles be sent to the west end of Sleeper Siding. The conductor then got his gloves and portable radio and began walking towards the rear of his train. Train No. 2 EB engineer remained on the locomotive. As the conductor walked towards the collision site, he found the 13th through the 16th car of Train No. 1 WB derailed. Arriving at the point of collision, he shut down locomotive No. CSXT 549, which was still running. After determining Train No. 1 WB conductor and engineer were out of their locomotive and being treated by emergency personnel, he aided firefighters with identifying hazardous materials cars in both trains.

Conclusion: The actions of the crew of Train No. 2 EB did not contribute to this accident.

Analysis - Emergency Response: The Laclede County Office of Emergency Management, Sleeper Fire Department, Lebanon Fire Department, Eldridge Fire Department, St. Johns EMS, Laclede County Sheriff, Missouri State Highway Patrol, and Missouri Department of Natural Resources responded to the accident.

Conclusion: Sleeper Fire Department personnel extricated the conductor and engineer from locomotive No. BNSF 5754. St. Johns EMS examined and treated the conductor and engineer for minor injuries. Sleeper and Lebanon Fire Department Personnel inspected both trains for hazardous materials leaks, and none were located. Emergency response personnel stayed on the scene until 3 a.m., June 30, 2009.

Analysis - Fatigue: The Federal Railroad Administration (FRA) obtained fatigue related information, including a 10-day work history, for the crews of Train No. 1 WB and Train No. 2 EB.

Conclusion: Upon analysis of that information, FRA concluded fatigue was probable for both members of both crews however, the engineer and conductor of Train No. 2 EB were stopped where they should have stopped; consequently, the possibility of fatigue related to this crew did not play a part in this accident. However, fatigue related to the crew of No. 1 WB is considered as a contributing factor in this accident.

Overall Conclusions: The railroad was in full compliance with their own and Federal standards.

Probable Cause & Contributing Factors

Primary Cause Code H-221 - Automatic block or interlocking signal displaying a stop indication - failure to comply. Secondary Cause Code H199 - Employee physical conditions, other - FRA fatigue analysis finds that fatigue of the crewmembers operating the offending/striking train was probable.

The FRA has conducted an independent investigation and concurs with the BNSF's accident cause findings.