Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-03

Burlington Northern Santa Fe (BNSF)
Bieber, California
January 8, 2005

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-2005-3

1.Name of Railroad Operating Train #1: BNSF Rwy Co. [BNSF]	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: NW0105107
2.Name of Railroad Operating Train #2: BNSF Rwy Co. [BNSF]	2a. Alphabetic Code: BNSF	2b. Railroad Accident/Incident: NW0105107
3.Name of Railroad Responsible for Track Maintenance: BNSF Rwy Co. [BNSF]	3a. Alphabetic Code: BNSF	3b. Railroad Accident/Incident No.: NW0105107
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 01 / Day 08 / Year 2005	6. Time of Accident/Incident: 04:55: ☑ AM ☐ PM

7. 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): 01

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
9	0	0	0	Northwest

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Bieber	89.7	N/A	CA	LASSEN

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

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Main Line (9801)		3	11.86		1

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry)	A. Spec. MoW Equip.	Code	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
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		6		2	JCUTC ARS08

28. Speed (recorded speed, if available) R - Recorded E - Estimated: 0 MPH; Code: R

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

30. 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): j N/A N/A N/A N/A

30a. 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

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

32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
0	0

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

34. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	0	0	0	0	0	(1) Total in Equipment Consist	8	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	2	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
58165	0	H702	N/A

Number of Crew Members / Length of Time on Duty

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	0	0	0	Hrs 0 Mi 0	Hrs 0 Mi 0

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	0
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No: 2

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

51. Caboose Occupied by Crew? 1. Yes 2. No: 2

OPERATING TRAIN #2

52. Type of Equipment Consist (single entry)	A. Spec. MoW Equip.	Code	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
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		1		1	HBARP AS203

55. Speed (recorded speed, if available) R - Recorded E - Estimated: 36 MPH; Code: R

57. 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

57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

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56. Trailing Tons (gross tonnage, excluding power units)	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)	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter
3175			j N/A N/A N/A N/A	0

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	BNSF41 22	1	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
0	0

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

61. 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	7	0	0	0	0
(2) Total Derailed	7	0	0	0	0

62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	9	0	9	0	0
(2) Total Derailed	0	0	9	0	0

63. Equipment Damage This Consist: 728727

64. Track, Signal, Way, & Structure Damage: 270000

65. Primary Cause Code: H702

66. Contributing Cause Code: N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
1	0	1	0

Length of Time on Duty

71. Engineer/Operator: Hrs 5 Mi 10

72. Conductor: Hrs 5 Mi 10

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	2	0	0

76. EOT Device? (1. Yes 2. No) 1

77. Was EOT Device Properly Armed? (1. Yes 2. No) 1

78. Caboose Occupied by Crew? (1. Yes 2. No) 2

Highway User Involved

79. Type: C. Truck-Trailer. F. Bus J. Other Motor Vehicle; A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian; B. Truck E. Van H. Motorcycle M. Other (spec. in narrative) — Code: N/A

80. Vehicle Speed (est. MPH at impact): 0

81. Direction geographical) (1.North 2.South 3.East 4.West) — Code: N/A

82. Position (1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped) — Code: N/A

86a. 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

Rail Equipment Involved

83. 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

84. Position of Car Unit in Train: 0

85. Circumstance (1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User) — Code: N/A

86b. Was there a hazardous materials release by (1. Highway User 2. Rail Equipment 3. Both 4. Neither) — Code: N/A

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of 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	N/A

88. Signaled Crossing Warning (See instructions for codes) — Code: N

89. Whistle Ban (1. Yes 2. No 3. Unknown) — Code: N/A

90. Location of Warning (1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach) — Code: N/A

91. Crossing Warning Interconnected with Highway Signals (1. Yes 2. No 3. Unknown) — Code: N/A

92. Crossing Illuminated by Street Lights or Special Lights (1. Yes 2. No 3. Unknown) — Code: N/A

93. Driver's Age: 0

94. Driver's Gender (1. Male 2. Female) — Code: N/A

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

96. 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

97. Driver Passed Standing Highway Vehicle (1. Yes 2. No 3. Unknown) — Code: N/A

98. 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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was (1. Killed 2.Injured 3. Uninjured) — Code: N/A

100. Was Driver in the Vehicle? (1. Yes 2. No) — Code: N/A

102. Highway Vehicle Property Damage (est. dollar damage): 0

103. Total Number of Highway-Rail Crossing Users (include driver): 0

104. Locomotive Auxiliary Lights? (1. Yes 2. No) — Code: N/A

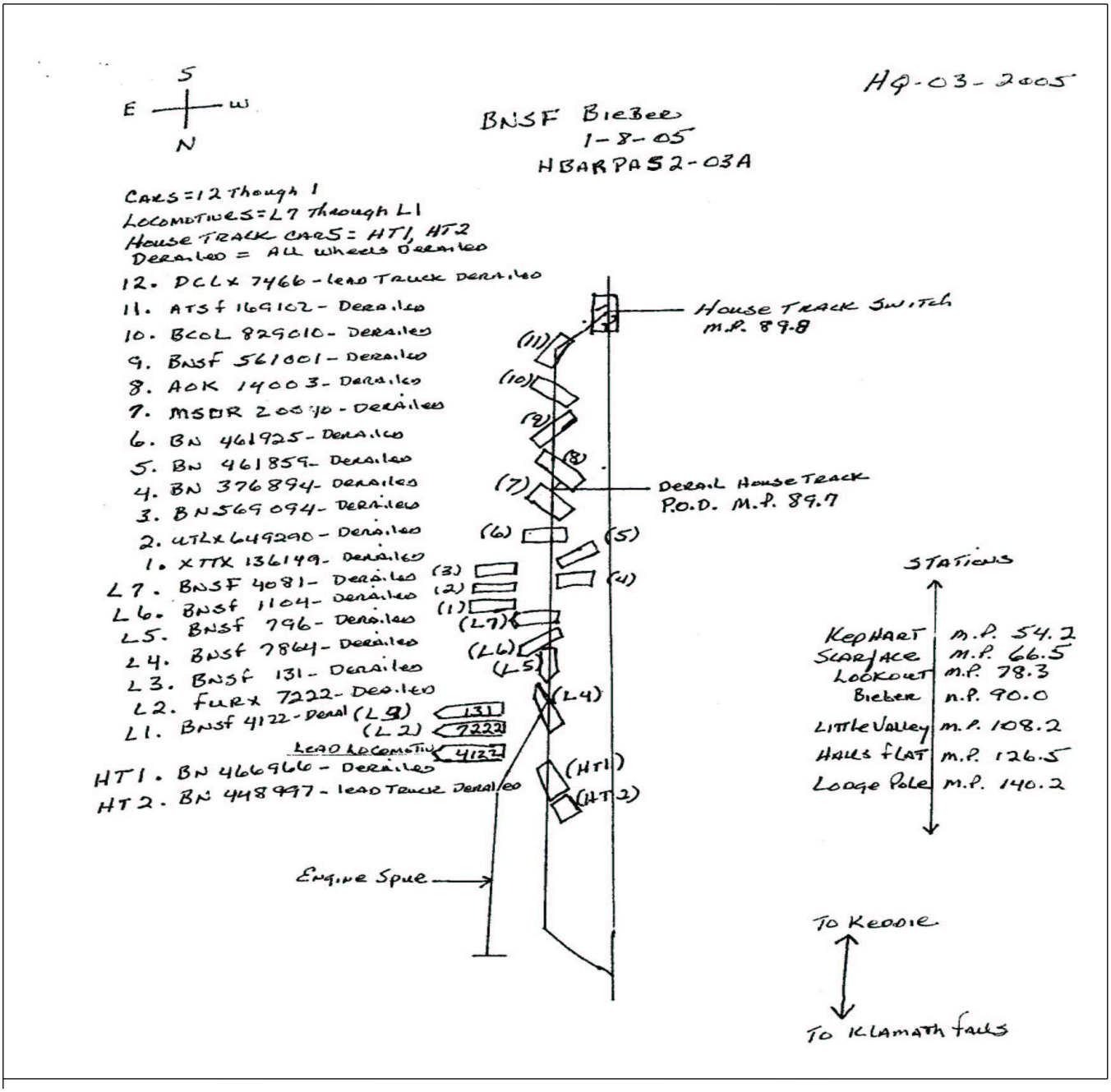
105. Locomotive Auxiliary Lights Operational? (1. Yes 2. No) — Code: N/A

106. Locomotive Headlight Illuminated? (1. Yes 2. No) — Code: N/A

107. Locomotive Audible Warning Sounded? (1. Yes 2. No) — Code: N/A

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

HQ-03-2005.jpg



109. SYNOPSIS OF THE ACCIDENT

Train No. 1:
On January 7, 2005, at 7:10 p.m. PST, a southbound BNSF local freight train, L-NWE8911-07, set out the entire consist of eight cars at Bieber, California, in the house track. Thereafter, those cars were re-designated as job number J-CUTCARS-08. After setting out the cars, the brakeman applied the required number of handbrakes to properly secure the cars, lined the derail in the correct position to protect the cars in the house track from rolling toward the main track but walked past the main line switch without restoring it to its normal position for main track movement. Train No. 1 then departed Bieber, leaving the main track switch lined onto the house track for a northbound movement.

Train No. 2:
At 4:55 a.m. PST on January 8, 2005, the crew of a northbound BNSF freight train, H-BARPAS2-03, consisting of seven locomotives, 13 loads and 44 empty freight cars was traveling at 40 mph. The engineer observed the house track switch at Bieber was lined against the movement and he initiated an emergency application of the train's air brake system about 100 feet prior to entering the house track switch. Train No. 2 traveled over the bi-directional derail which derailed the leading locomotive in an easterly direction. The leading locomotive then struck the southern most freight car of Train No. 1 in the house track in a glancing blow, also derailing two of the eight cars in the track. All seven of the locomotives and 12 empty freight cars of Train No. 2 derailed as a result of the collision.

The two employees (engineer and conductor) of Train No. 2 sustained non life-threatening injuries and were transported from the derailment site to Fall River Mills Hospital for treatment and were subsequently released.

The consist of the train, including seven locomotives and twelve cars, sustained $728,727.00 in damage; two cars of the eight left in the house track sustained $58,165.00 in damage; damage to track and structures was $270,000.00; total cost of the derailment was $1,056,892.00.

At the time of the accident it was dark and snowing. The temperature was 31 degrees Fahrenheit.

The accident was caused by failure of the brakeman on the southbound local freight train to return the main track switch to its normal position for main track operations.

The probable cause was contributed to the brakeman on Train No.1 who neglected to restore the main track switch to normal position after use at Bieber, California, MP 89.7, resulting in Train No. 2 unexpectedly being diverted onto the house track at main track speed (40 MPH) and derailing. FRA cause code H702 "Switch improperly lined."

110. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT:

Train No. 1:
The crew of train BNSF 2707, L-NWE8911-07, timetable South, included a locomotive engineer, a conductor, and a brakeman. They first went on duty at 3p.m. PST, January 7, 2005, at the BNSF Klamath Falls Yard in Klamath Falls, Oregon. Klamath Falls is the home terminal for the crew members and they received more than the statutory off-duty period prior to reporting for duty.

Their assigned local freight train consisted of two locomotives, zero loads, and six empty cars. The train was 470 feet long and weighed 185 tons. The train was scheduled to travel to Westwood, California, with cars to be added and removed at four locations en route. The train received an initial terminal train air brake test and departed Klamath Falls Yard at 3:45 p.m.

The crew stopped the train to add and remove cars at four locations en route prior to setting out the final eight cars at Bieber, California, and to proceed with lite locomotives to Westwood, California.

The crew arrived at Bieber at about 6:30 p.m. to make their final set out of eight cars. All eight cars were loaded grain hopper cars. On arrival, the engineer stopped the train at the main track switch allowing entrance to the house track (switch 9801) in order to allow the conductor and brakeman to detrain. After detraining, the conductor advised the engineer to move south about 10 car lengths to clear the
house track switch in order for the set out to be lined back in to the house track. After that task was performed, the conductor lined the main track switch and the brakeman lined the derailing switch for a non derailing position. The brakeman then gave the engineer a car count via radio to complete the reverse movement into the house track. The reverse movement was made as advised by the brakeman and after the south end car of the train had cleared the derail, the brakeman stopped the movement, requested an automatic air brake set, turned the angle cock on the trailing locomotive, and pulled the uncoupling lever on the south end car of the set out. The brakeman then advised the engineer to pull ahead to clear the main track switch, as the conductor had already boarded the lead engine when it stopped in the house track. The brakeman then secured the cars in the house track by applying the required number of handbrakes, then proceeded to line the derail back for the derailing position. The brakeman completed the task of relining and locking the derail (a bi-directional derail capable of derailing equipment moving toward it from either direction). The brakeman then proceeded toward the main track switch and passed it by in order to pick up a telemetry device, which was about 20 feet south of the main track switch leading to the house track, and placed it in the trailing locomotive of the lite locomotive train consist. He then advised the engineer via radio that the switches were lined correctly at Bieber house track, that he was aboard the train and the engineer could begin moving south toward Westwood.

As the engineer slowly moved southward toward Westwood, California, the brakeman walked from the trailing locomotive to the lead locomotive. Upon arrival, the brakeman again told the engineer and conductor the switches were properly lined. The conductor then wrote a time of 1910 (7:10 p.m.) on the BNSF Signal Awareness Form as the time the house track switch at Bieber was restored to the proper position for main track movement. The engineer initialed the Signal Awareness Form in confirmation of the time the switch was restored to normal position.

The train activity report submitted by the conductor for the southbound local train LNWE8911-07 indicates a time of departure from Bieber Station at 1845 (6:45 p.m.). However, a download from the locomotive on the local indicated a departure time from Bieber Station at 7:10 p.m., which was in correspondence with the signal awareness form. It appears the conductor of the local freight estimated a time of arrival and departure from Bieber Station.

The train departed Bieber, southbound, at 7:10 p.m., January 7, 2005 without further incident. The crew went off duty at 10:15 p.m., January 7, 2005, at Westwood, California, after 7 hours and 15 minutes on duty.

Train No. 2:
The crew of BNSF 4122, HBARPAS-03, timetable North, included a locomotive engineer and a conductor.
They first went on duty at 11:45 p.m. PST, January 7, 2005, at BNSF Station Keddie, California. This was
the away from home terminal for both crew members and both employees received the statutory off duty period prior to reporting for duty.

Their assigned freight train consisted of seven locomotives, 13 loads and 44 empty cars of several varieties. The train was 3,492 feet long and weighed 3,176 tons. The train was scheduled to travel with the above crew from Keddie, California, to Klamath Falls, Oregon. The train received its initial terminal air brake test at Barstow, California. Train No. 2 had two crew changes at run-through stations (Bakersfield and Stockton, California) after departing Barstow and prior to arriving at Keddie, California. It departed Keddie at 1:20 a.m. PST, January 8, 2005.

As Train No. 2 approached the accident area, the engineer was seated at the controls on the east side of the leading locomotive. The conductor was seated on the west side of the leading locomotive.

In this area of the railroad, the terrain and grade are comparatively level and there are no curves within two
miles in either direction of the accident area.

The geographic direction and the railroad timetable direction are the same. Therefore, railroad timetable directions will be used throughout this report.

THE ACCIDENT:

Train No. 1:

Train LNWE8911-07 south operating from Klamath Falls, Oregon, to Keddie, California, made a set
out of eight rail cars (J-CUTCARS-08) in the house track at Bieber, California. After the set out was completed, the brakeman lined the derail for a derailing position into the house track, as required. The brakeman then neglected to restore the switch to its normal position. Train No. 1 departed Bieber Station and left the main track switch lined onto the house track, and, thereby, set up the next northbound train to enter the house track from what should have been a main track movement through Bieber Station. Train No. 2 was unexpectedly diverted onto the house track and over a derail protecting a standing cut of eight cars on the house track.

Train No. 2:

Train No. 2, HBARPAS-03 north was being operated at 40 mph approaching the accident area. At the time the accident occurred the train was being operated at 36 mph. Both speeds were recorded by the event recorder off the controlling locomotive. The maximum authorized speed for the train was 49 mph, as designated by BNSF Northern California Division Timetable No. 7, dated January 21, 2004.

At about 4:54 a.m., January 8, 2005, it was dark and snowing moderately at Bieber, California. At approximately 100 feet south of the Bieber house track switch, the engineer of Train No. 2 noticed the switch target displaying red. [A target sign would not be visible if the switch were lined correctly for main track movement.] At this time, the engineer already had his train in lite dynamic braking mode in order to slow for a 25mph speed restriction at mile post (MP) 88.4.

When the engineer saw the red target on the switch at MP 89.7, he yelled at the conductor and told him to “take cover, the switch is lined wrong.” At about the same time, the engineer, using the automatic brake handle, initiated an emergency application of the train’s air brake system. Both crew members could see, through use of the locomotive headlights, there were cars standing in the clear on the house track. After the emergency application was made, both the engineer and conductor moved off of their locomotive seats and towards the middle of the cab.

At about 4:55 a.m., the lead locomotive hit the bi-directional derail placed at the clearance point about 120
feet north of the entrance switch to the house track on the south end of the house track. The derail was placed on the east rail (engineer’s side approaching north) of the house track, and is designed to derail equipment moving over it from either direction.

After hitting the derail, the lead locomotive was immediately directed in an easterly direction and away from a direct hit on the eight standing cars, approximately 30 feet north of the derail. After derailing, the lead locomotive struck the south car standing in the house track in a glancing blow. Due to the impact of the lead locomotive with the standing cars in the house track, the lead locomotive overturned to the east (to the right, or engineer’s side). Train No. 2 derailed all seven locomotives and 12 leading cars in its consist, and two grain hopper cars of Train No. 1 standing on the house track. The severity of the derailment was due to the speed at the time of the derailment, the sudden buffing force caused by the derailment and subsequent impact with the standing loaded grain cars. An overview of the derailment looked like what is commonly known as a “general pile up.”

After the train came to rest, both crewmen escaped from the cab of the lead locomotive. The locomotive had been crushed on its west side (conductor’s side approaching north) due to the collision with the standing cars on the house track and was overturned to the east side. It took approximately 10 minutes for the two crewmen to extricate themselves from the locomotive cab.

Both crew members had private mobile telephones. The engineer called the BNSF train dispatcher and advised him of the situation. The dispatcher advised the engineer he would notify all proper authorities and
call for emergency assistance. The conductor called local 911 emergency services. A private citizen living nearby who heard the derailment, and shortly thereafter saw it, also called 911 emergency services. Emergency services from Fall River Mills, California, arrived on the scene within about 35 minutes. The crew was transported to Fall River Mills Hospital and given care at that facility.

The engineer sustained a cracked vertebrae and was released by Fall River Mills Hospital on Monday, January 10, 2005. The engineer was expected to be off work for 30 days. The conductor sustained minor cuts and bruises and was released by Fall River Mills Hospital on Saturday, January 8, 2005. The conductor was expected to be off work for five days.

There were nine hazardous material cars in the consist, none of which were derailed or affected.

Fuel tanks on two of the seven locomotives ruptured. BNSF 4122, the lead locomotive, and BNSF 4081, the trailing locomotive, each lost an estimated 1250 gallons of diesel fuel. The estimate was determined by BNSF officials on the scene using the capacity of the fuel tanks when fueled at Barstow, California, versus the amount the train would have used traveling from Barstow to Bieber. The capacity of the fuel tanks was 4,000 gallons. The locomotives were General Electric CF 44-9W.

There were no evacuations or fires due to the spill. The spill was initially thought to be minor in nature by BNSF officials at the scene. However, due to the ice and snow piled up around the locomotives at the initial time of inspection, the leakage went unnoticed for approximately eight hours. Clean up crews were called in and proper authorities notified.

Analysis and Conclusions:

Analysis:

At the time of the accident, BNSF rules and instructions required crews operating in non-signaled territory,
under authority of Track Warrant Control (TWC), to complete a particular procedure when main track switches were used within a block. The procedure was then and is now in accordance with FRA guidelines announced in Notice of Safety Advisory 2005-01. However, due to this accident, BNSF has refined its rules and instructions.

The lead locomotive of Train No. 2 was equipped with a speed indicator and an event recorder as required.
The relevant event recorder data was downloaded by the road foreman of engines at the accident site and analyzed by the senior road foreman of engines in Seattle, Washington. The analysis disclosed the engineer of Train No. 2 was in compliance with all applicable railroad operating rules and train handling requirements. FRA reviewed the results of this analysis and concurred with the conclusions.

The railroad collected toxicological samples from all crew members of Trains No.1 and No. 2. None of the samples were positive.

A memo, dated February 28, 2005, was received by FRA's Alcohol and Drug Control Program Manager,
Mr. Lamar Allen, in regard to the crew members of Train No. 2. Within the memo, Mr. Allen states, "length of time from accident to collection----was over 4 hour goal." Considering the time of the accident, 4:55 a.m., until the time the collection was made, 2:10 p.m., and considering the emergency services the crew of Train No. 2 went through during that period, FRA can take no reasonable exception to the time frame. A report explaining the delay was received from BNSF.

Factors Surrounding the Accident that were not Causal:

The conductor of Train No.1 received four track warrants between Klamath Falls, Oregon and MP 120 (Halls Flat) on the Gateway Subdivision that have relevance to his lack of attention to detail and rules compliance.

The first track warrant, #131, authorized movement of his train from MP 3 (South Klamath Falls) to the North Switch at Siding Mammoth (NSS Mammoth) on the main track. Box 20 on the warrant was checked, stating, "be prepared to stop at the following switch(es) until known to be in normal position." NSS Mammoth was written in to box 20 as required. Mammoth Station is located at MP 44.7.

The second track warrant, #135, voided track warrant #131 and authorized movement of his train from MP 35 (south of Station Stronghold) to MP 70 (south of Station Scarface). Box 20 on this warrant was checked, "be prepared to stop at the following switch(es) until known to be in normal position." NSS Mammoth was written in to box 20 as required.

The third track warrant, #138, voided track warrant #135 and authorized movement of his train from MP
50 (south of Mammoth Station) to MP 100 (south of Station Bieber). Box 20 on this warrant was not checked. Train No. 1 did stop at the North Siding Switch at Mammoth and lined the main track switch to its
normal position. The conductor of Train No. 1 advised the dispatcher, prior to giving up track warrant No. 135, the switch was returned to its normal position. However, neither the conductor nor the engineer noted the completed task on the Signal Awareness Form as required by BNSF rules and regulations.

The conductor of Train No. 1 noted on his Train Activity Report/Safety Checklist (front page of signal awareness form) that his train arrived at Bieber Station at 1800 (6:00 p.m.) and departed at 1845 (6:45 p.m.). However, the signal awareness form shows the "South House Track Switch Bieber" restored at 1910 (7:10 p.m.). Download of locomotives in the consist of Train No. 1 confirmed the train departed Bieber house track at 1910 (7:10 p.m.).

Factors Causal to the Accident:

Weather and time of day were distinguishable factors in the cause of this accident. They probably contributed to the manner in which the brakeman and conductor on Train No.1 completed the task of setting out cars at Bieber.

When Train No.1 arrived at Bieber house track, the brakeman detrained adjacent to the derail. The conductor detrained adjacent to the main track switch. Each employee aligned the switch they had assigned themselves for a movement of eight cars and two engines back into the house track from the main track. Had the conductor stayed on the locomotive, the brakeman would most likely have remembered he had lined the main track switch initially, and would have remembered to realign it prior to departure. This was confirmed by interview of the brakeman. The conductor got off of the locomotive at the main track switch with the sole intention of saving his brakeman the walk in the foot of snow on the ground. The walk the brakeman would have had to traverse in the cold and snowing weather was approximately 120 feet from the main track switch to the derail and back (240 feet total).

The crew of Train No.1 did have a job briefing prior to the movement in and out of the house track at Bieber. The job briefing did include what each trainman and the engineman had to do to complete their tasks. The crew of Train No.1 knew each other well and they respected each other professionally. Given their familiarity with each other, it remains unclear why the brakeman walked right by a improperly lined main track switch in dark, non-signaled territory, and then within a ten minute period, advised the rest of his crew and the dispatcher the switch had been properly lined.

An investigation was held by company officials and FRA into the likelihood of another person improperly lining the switch and no probability of that likelihood arose.

When BNSF officials questioned the brakeman concerning his memory of realigning the switch, the answer was; "I think I did, but I can't remember for sure." When questioned by the FRA investigator, the answer
was essentially the same, with one part added, "I guess I left the switch open." There was no defensive posture taken by the brakeman during the interview. He calmly and with sorrow accepted the responsibility. He mentioned weather as a possible input into the reason for the mistake. He said, "nothing else was going on in my life that may have caused me to have my mind on something else."

The FRA investigator also examined efficiency testing as a contributing factor. Efficiency testing is done to reinforce rules knowledge and compliance by employees and to ensure employees are aware of the requirements of rules. Testing is done any day of the week at any time of day or night, and in all areas, particularly in those areas which present the highest incidence of failure.

Testing records of the three employees attached to Train No. 1 were retrieved and reviewed for quality, quantity, location, day of week, and time of day. Following is a breakdown of those employee records:

The brakeman, time period of six months prior to the accident on January 8, 2005.

1. No weekend tests were made
2. All tests were made during the hours of 9:30 a.m. and 10:30 a.m.
3. All tests made on the Gateway Sub were at Mile Post 2.0 (Klamath Falls) or between Mile Post 152.0 and Mile Post 187.9 (between Westwood and Keddie). No tests were made between MP 2.0 and MP 152.0 (150 miles of the subdivision no tests were made)
4. No failures were noted.
5. All tests were made on Thursday or Friday, except one made on a Tuesday.
6. One test was made on "operation of switches."
7. Two tests were made on "reporting clear of limits."
8. Last test was made on October 10, 2004.

The conductor, time period of six months prior to accident on January 8, 2005.

1. No weekend tests were made.
2. Most tests were made between the hours of 8:30 a.m. and 11:45 a.m.; some were made between 4:00 p.m. and 6:00 p.m.
3. Majority of tests were made on the Gateway Subdivision between MP 4.0 and 35.0 (near Klamath Falls) and between MP 125.0 and MP 176.0 (between Halls Flat and Keddie). No tests were made between MP 40.0 and MP 108.0.
4. Four failures were noted, one for reporting clear of limits, one on use of radio, and two on "All other failures."
5. All tests were made on a Thursday or Friday, except for four made on a Tuesday.
6. The kinds of tests completed represented a good cross-section.
7. One test was made in October and one was made in November; the last tests were made on December 16, 2004 (7 tests).

The engineer, time period of five months prior to the accident on January 8, 2005.

1. The engineer did not work the road local between Klamath Falls and Keddie during this period. Instead, he worked road freight on the Gateway Subdivision or the Oregon Trunk. Time on each was split about 50/50.
2. Weekend tests are about ½ the total tests.
3. Good separation of times tested.
4. One failure noted for "all other failures."
5. Most tests made on Gateway Subdivision were between MP 2.0 and MP 15.0 (near Klamath Falls) or between MP 194.0 and MP 199.0 (near Keddie)
6. No tests were made in September or November.
7. Last test was made on December 8, 2004.

The road local, Train No. 1, works out of Klamath Falls on Monday, Wednesday and Friday at 3:00 p.m. on duty. The train returns out of Keddie on Tuesday, Thursday and Saturday at 8:00 a.m. on duty.

Officer testing, Gateway Subdivision:

1. In general, the BNSF Operational Testing Plan was followed, except:
   - a defined shortage of tests between MP 50.0 and MP 90.0 for all trains on the subdivision;
   - little or no testing of the local freight train (Train no.1) except nearby initial terminals;
   - tests were not distributed during all days of the week nor throughout all times of the 24 hour day .
2. Nearly all of the tests between MP 50.0 and MP 90.0 were conducted by a Maintenance of Way Manager or Maintenance of Way personnel.

A violation has been recommended for failure to follow the BNSF written operational testing program.

Conclusions:

The BNSF railroad was not in compliance with its own rules and requirements, nor the Federal standards requirements of 49 CFR Part 217.9 (a), that part reading, "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:

The probable cause was contributed to the brakeman on Train No.1 who neglected to restore the main track switch to normal position after use at Bieber, California, MP 89.7, resulting in Train No. 2 unexpectedly being diverted onto the house track at main track speed (40 MPH) and derailing. FRA cause code H702 "Switch improperly lined."

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