

# Federal Railroad Administration Office of Safety Headquarters Assigned Accident Investigation Report HQ-2005-61

Burlington Northern Santa Fe (BNSF)
Belton, Montana
August 5, 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.

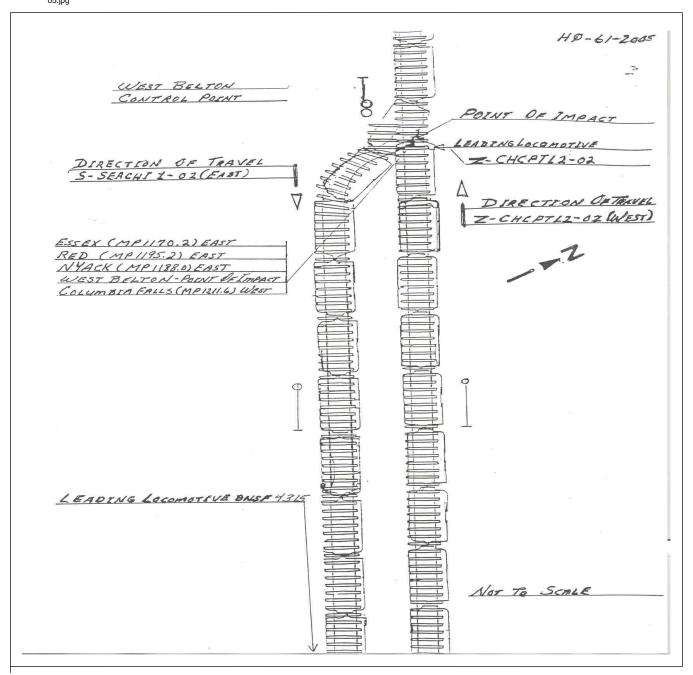
FEDERAL RAILRO					FRA F	ACTUA	L RA	ILF	ROAD A	CCI	DENT I	REPOR	T		FRA Fi	ile#	HQ-20	05-61		
1.Name of Railroad Ope	1a. Alphabetic Code					1b. 1	1b. Railroad Accident/Incident No.													
BNSF Rwy Co. [BNS		BNSF					MT0805100													
2.Name of Railroad Operating Train #2									2a. Alphabetic Code					2b. Railroad Accident/Incident						
BNSF Rwy Co. [BNSF]									BNSF					MT0805100						
3.Name of Railroad Responsible for Track Maintenance:									3a. Alphabetic Code					3b. Railroad Accident/Incident No.						
BNSF Rwy Co. [BNSF]									BNSF					MT0805100						
4. U.S. DOT_AAR Grade Crossing Identification Number									5. Date of Accident/Incident					6. Time of Accident/Incident						
									Month   Day   Year   08   04   2005					02:44:						
7. Type of Accident/Indicent 1. Derailment 4. Side collision									7. Hwy-rail crossing 10. Explosion-detonation 13. Other											
(single entry in code	llision	8. RR grade crossing 11. Fire/violetion 9. Obstruction 12. Other im						narrative)												
8. Cars Carrying HAZMAT Cars Damaged/Derailed 0						10. Cars Releasing HAZMAT			0		11. People Evacuated		0		12. Division  Monta		Montan	a		
13. Nearest City/Town					14. Milepost (to nearest			enth)	nth)		5. State Abbr Code		16. County							
Belton			on	(to nearest				1197.1			N/A   MT				FLATHEAD					
17. Temperature (F) (specify if minus)		18. Visib	•	(single entry) Code 19. 3.Dusk			l .	Weather (single entry) 1. Clear 3. Rain 5.Sl					;			pe of Track			Code	
	(specify if minus) 1. Dawn 86 F 2. Day				4.Dark 2				1. Clear 3. Rain 5.Sleet 2. Cloudy 4. Fog 6.Snow				1	1. Main 3. S 2. Yard 4. Ii			· ·		1	
21. Track Name/Number	r			22. FRA				7)	Code		23. Annual Track Densi			24. Tin		Direction		Code		
Single M				ain Tr	ack	Clas	s (1-9, 2	()	4 (gross tons in millions) 77.				1. North 3. East						4	
							OPER	AT.	ING TRA	IN#	1			i						
25. Type of Equipment		Freight tra				. Yard/swi	_	A	. Spec. Mo	W Equ	iip. Code		Equip	ment (	Code	27. 1	Γrain Nu	mber/	Symbol	
Consist (single entry) 2. Passenger train 5. Single car 8. Light loco(s).									1.4					Yes 2. No   1 ZO						
3. Commuter train 6. Cut of cars 9. Maint/inspect.car 1. 1 cs 2.1											30a Ren	emotely Controlled Locomotive?								
28. Speed (recorded speed, if available) Code R - Recorded a. ATCS g. Autom														0 = Not a 4-constity do Wighted						
E - Estimated 3 MPH   R b. Auto train control h. Curr														1 = Remote control portable						
c. Auto train stop i. Time									ble/train orders o. Positive train control arrant control p. Other (Specify in parret)					2 = Remote control tower						
avaludina mavvam vmita)								varrant control p. Other (Specify in narrati traffic control Code(s)						e) 3 = Remote control transmitter - more than one						
e. Traffic k. Dir									ic control			1			control			10		
21 Daineinel Con/Unit	1		$ \begin{array}{c cccc} & e & N/A &$								,									
31. Principal Car/Unit a. Initial and Number b. Positi						JII II II C. Loa							nat were positive in				Alcoho		Drugs	
(1) First involved (derailed, struck, etc) N/A				1					no the appropriate box.										N/A	
(2) Causing (if mechanical 0					0				N/A 33. Was this consist			consist tra	ransporting passengers? (Y/N)					l	N/A	
cause reported)  34. Locomotive Units a. Head				Mid T	rain r	Re	ar End		35. Car	<u> </u>			Lo	ade		Emp	ty	Η_		
	End			Manual c. Remote			l. Manual c. Rem		ote				reight	b. Pass.	_		d. Pass.	e. C	aboose	
(1) Total in Train		3		0	0	0	0		(1) Total	in Eq	uipment Co	onsist	57	0	0	)	0		0	
(2) Total Derailed		1		0	0	0	0		(2) Total	Derai	led		0	0	C	)	0		0	
36. Equipment Damage	;	15000	3		ck, Signal,	•	1000	)	38. Prima Code	ary Ca	use	11000		39. Con	ributing	g Caus	se	NT/ *		
This Consist 15000 & Structure Da  Number of Crew Members							1000		11222					h of Time on Duty						
40 Facinary						42. Conductors   43. Brakemen				<u> </u>					45. Conductor					
40. Engineer/ Operators N/A	THE HOME			1 0				44. Engineer/Operator Hrs 8 Mi			29	43. Coi		Irs	8	Mi	29			
	. Railr	oad Emplo	Employees 47. Train Passengers 48. Other				Other	49. EOT Device?						50. Was EOT Device Properly Armed?					ied?	
Fatal		0 0				0		1. Yes 2. No 1					1. Yes 2. No 1					1		
Nonfatal		N/A		0			0		51. Caboose Occupied by Crew?				2. No   N/2					N/A		
Nonratai N/A								CINI	1. Yes 2. ING TRAIN #2					.100					11///	
50 m	1	Freight trai	in	4 W/a	rk train 7	. Yard/swi					. ~ :	50 117	T		, , 1	<b>.</b>			~ .	
<ol> <li>Type of Equipment Consist (single entry</li> </ol>	•	Freignt tra Passenger				. Yaru/swi . Light loce	_	Α.	. Spec. Mo	w Equ	ıp. Code	53. Was	Equip: nded?	ment (	Code	54. T	rain Nu	mber/	Symbol	
Consist (single chiry)						_	1					Yes	2. No 1 SSEAC							
55. Speed (recorded speed, if available) Code 57. Method(s) of Operation									enter code(s) that apply)					57a. Remotely Controlled Locomotive?						
								natic block m.Special instructions						0 = Not a remotely controlled						
E - Estimated 0		MPH	R	a. ATCS																

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DEPARTMEN FEDERAL RA					FRAF	ACTUA	L RAILF	ROAD AC	CIDENT I	REPO	ORT	F	RA File #	HQ-200	<u>5-61</u>			
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)  a Remote control transmitter - more remote control trainsmitter - m					ote control ter - more t	han one	0				
58. Principal Car	Number	b. Posit	ion in Trai	n c. Loae	ded(yes/no)	59. If railroad	l emplo	d for drug	l for drug/alcohol use,									
(1) First involved FEC70 (derailed, struck, etc) 42					6 15				yes enter the number that were positive in the appropriate box.  Alcoh N/A									
(2) Causing (if mechanical 0					0				N/A 60. Was this consist transporting passengers? (Y/N)									
cause reported)						0		17/21				N						
61. Locomotive U	. Locomotive Units a. Head End b. Ma			Mid 7	Гrain c. Remote		ear End d c. Remote	62. Cars	62. Cars Lo a. Freight				b. Pass. c. Freight d. Pass.					
(1) Total in Train		3		0	0	0 0		(1) Total in Equipment Consis			71	0	0	0	0			
(2) Total Der	(2) Total Derailed			0	0	0	0	(2) Total D	Perailed		0	0	0	0	0			
63. Equipment Da This Consist	7000					Way,	0	65. Primar Code	65. Primary Cause 66. Contributing Code 66. Code				ributing Ca	use	N/A			
Number of Cre					& Structure Damage							Time on Duty						
67. Engineer/	68. F	iremen		69. Co	nductors	70. Bı	akemen	71. Engine	eer/Operator			72. Con						
Operators 1		0			1		0		Hrs 1	Mi	29		Mi 29					
Casualties to:	73. Ra	ilroad E	mployees	74. Trai	n Passenge	rs 75. Ot	her		76. EOT Device?				EOT Devic	Armed?				
Fatal		0		0			0	1. Y		1	1.	1						
Nonfatal		0			0		0	78. Caboo	ose Occupied by  1. Yes	y Crew	? 2. No				N/A			
	Highway User Involved									Rail F	il Equipment Involved							
79. Type							83. Equipr	83. Equipment										
C. Truc A. Auto D. Pick	ck-Trailer. k-Up Truck				Motor Veh	icle	1.Train(uni	3.Train (standing) 6.Light Loco(s) (moving) 1.Train(units pulling) 4.Car(s) (moving) 7.Light(s) (standing)										
B. Truck E. Van					r (spec. in	narrative)	2.Train(units pushing) 5.Car(s) (standing) 8.Other (specify in narrative) N/A											
80. Vehicle Spee		0			geograph		84. Position of Car Unit in Train 0											
(est. MPH a	it impact)	0	1.Ne	orth 2.Sc	outh 3.East	4.West	85 Circum											
82. Position Code 1. Stalled on Crossing 2. Stopped on Crossing 3. Moving Over Crossing 1. Rail Equipment Struck Highway User												Code						
4. Trapped	Rail Equipment Struck by Highway User																	
86a. Was the highway user and/or rail equipment involved code in the impact transporting hazardous materials?													Code					
1. Highway Us	-	-			4. Neither		N/A	1. High	way User 2.	Rail E	quipment	3. Both	4. Neither	r	N/A			
86c. State here the						eleased, if	•	1							ı			
97 Tymo of 1	Gotos	4	XX7: XX7		7.0	l1	N/A		00 6:1-16	· · · · · · · · · · · · · · · · · · ·	- W/	C- 1-	00 377-:	d. D	C- 1-			
87. Type of 1. Crossing 2.			.Wig Wa .Hwy. tra		als 8.Stop		0.Flagged by 1.Other (spec		88. Signaled C			Code	89. Whis		Code			
Warning 3.Standard FLS 6.Audible 9.					9.Watc	hman 1	2.None		2. No 3. Unkr						1			
Code(s)	N/A	N/A	N/	/A	N/A	N/A	N/A	N/A					KIIOWII	N/A				
90. Location of W 1. Both Sides								Interconnecte gnals	ed Code		_	uminated by Street Special Lights			Code			
2. Side of Vehicle Approach								6			1. Yes							
3. Opposite Side of Vehicle Approach					N/A		2. No . Unknown		N/A	2. No 3. Unkno	own	N/A						
93. Driver's 94. Driver's Gender Code 95. Driver Drove Behind								rain Code	96. Driver		_	Code						
							k by Second '		ain 1. Drove around or thru the Gate 4. Stopped on 2. Stopped and then Proceeded 5. Other (spec						g			
0 2. Female N/A			1.	108 2	l. No	J. UHKNOW	N/A 3. Did not Stop narrative) N/A											
97. Driver Passed	_	Co	ode 98.		Track Obs		(primary ob								Code			
Highway Vehi 1. Yes 2. No 3.		l N	/A		nanent Stru ding Railro			ing Train 5. \ ography 6. \	Vegetation Highway Vehic		Other (s		arrative)		N/A			
101. Casulties to Highway-Rai			1			99. Drive		o 0.1	Code		100. Was D		e Vehicle?	Code				
Crossing Users		Kille		d Injured		1 2.Injured 3.	-	ninjured N/A			1. Yes 2. No							
0					0	_	nway Vehicle dollar dama	e Property Damage 0 103. Total Number of Highway-Rail Cross (include driver) 0						ing Users				
104. Locomotive	Auxiliary I	ights?				(est.	Code	1	notive Auxilia	ry Ligh				0	Code			
1. Yes		2	2. No				N/A	1.	Yes		2. No				N/A			
106. Locomotive Headlight Illuminated?							Code	107. Locor	107. Locomotive Audible Warning Sounded?						Code			
1. Yes 2. No							N/A	1.	1. Yes 2. No						N/A			

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108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED. Sketch HQ-61-05.jpg



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DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION

### FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2005-61

### 109. SYNOPSIS OF THE ACCIDENT

On August 4, 2005, at 2:44 p.m., Mountain Daylight Time (MDT), a westbound BNSF Railway (BNSF) intermodal train, symbol Z-CHCPTL2-02 collided with the side of a standing eastbound intermodal train symbol, S-SEACHI1-02. The collision occurred at the west Belton control point, milepost 1197.1, on the BNSF Montana Division, Hi Line Subdivision, located near Belton, Montana.

As a result of the collision the leading locomotive of the striking train was damaged and derailed staying upright. The standing train had two railcars damaged but not derailed

There were no injuries, no release of hazardous materials and no evacuation. The railroad reported a total of \$23,000 in damages (\$22,000 for equipment and \$1,000 for track and structure).

The probable cause of the accident was the crew of train Z-CHCPTL2-02 failed to comply with a block signal indication of an approach (yellow) signal.

At the time of the collision it was daylight and clear. The temperature was 85 degrees.

## 110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Circumstances Prior to the Accident

BNSF Train Z-CHCPTL2-02

On August 4, 2005, after completing a statutory off-duty period, a train crew consisting of an engineer and a conductor went on duty at their away from home duty station in Havre, Montana, at 6:15 a.m., MDT. The train crew was assigned to operate a westbound intermodel train from Havre to Whitefish, Montana a distance of about 255 miles.

The train consisted of three locomotives, 57 loads, 0 empties, 3,912 trailing tons and was 5,317 feet in length.

The crew boarded the train and BNSF Mechanical personnel made a Class 1 A (extended haul) air brake test prior to the train departing Havre at 8:00 a.m.

The train approached the accident area geographically northwest and timetable west. Timetable directions will be used throughout the report. The engineer was seated at the controls, on the right side (east) of the locomotive. The conductor was seated on the left side (south) of the locomotive.

Approaching the accident site from east at about milepost 1195.95, the track is tangent for about three quarters of a mile, then leads into a right hand 2-degree 27-minute curve about 1,580 feet in length, tangent about 1,300 feet in length to the point of collision and about 800 feet beyond. The grade is 0.45 percent ascending.

In the accident area, trains operate on a single main track under the authority of a Traffic Control System (TCS), controlled by a dispatcher in Fort Worth, Texas. The maximum authorized speed for freight trains is 60 miles per hour (mph).

According to the conductor he observed an approach (yellow) signal indication at the east Belton control point, milepost 1195.0. The conductor verbally communicated the signal indication to the engineer. The engineer did not communicate back.

BNSF Train S-SEACHI1-02

On August 4, 2005, after completing a statutory off duty period, a train crew consisting of a locomotive engineer and a conductor went on duty at Whitefish, at 1:15 p.m., MDT, . The crew was assigned to operate an eastbound intermodel train from Whitefish to Helena, Montana., a distance of about 338 miles.

The train consisted of 71 loads, 0 empties, 5,979 tons and was 6,611 feet in length. The train departed Whitefish, at 1:44 p.m.

The Accident

BNSF Train Z-CHCPTL2-02

According to the printout of the locomotive event recorder the train was being operated at 33 mph approaching the accident site.

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# DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION

### FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2005-61

According to the engineer and conductor, after traversing through the curve and approaching west Belton control point they observed the absolute signal was red. The crew also observed a train traveling eastward into the Belton siding. The engineer initiated an emergency airbrake application and told the conductor to prepare for a collision.

The train collided with the eastbound (S-SEACHI1-02) train at the 15th car (FEC70642) from the head end at a recorded speed of 3 mph.

According to the engineer, after the train came to a stop, he called the train crew of the S-SEACHI1-02 to make sure no one had been injured. The conductor left the cab to inspect the train and the engineer called the dispatcher and informed him of the collision, via radio communication.

### BNSF Train S-SEACHI1-02

According to the conductor, the trip was uneventful as the train approached the accident area.

The train was operating into the siding on an restricting (lunar) block signal at the west Belton control point.

Belton is a designated siding with control points at both ends.

According to the conductor, both he and engineer observed a westbound train approaching and determined a collision was eminent. The engineer initiated an emergency airbrake application, stopping the train before the collision. The westbound train struck them at the 15th car. After the collision they departed the train to inspect the accident.

### Analysis and Conclusion

The accident did not meet the Criteria for 49 CFR, Part 219, Subpart C, Post Accident Toxicological Testing.

The leading locomotive of the striking train derailed and remained upright as a result of the collision. The railcars (two) that were struck on the standing train were damaged but not derailed.

According to the conductors interview of the Z-CHCPTL2-02, he observed a yellow approach signal prior to passing by the signal at east Belton control point.

According to the engineers interview of the Z-CHCPTL2-02, he failed to observed a yellow approach signal at east Belton control point.

According to locomotive event recorder of the Z-CHCPTL2-02, the engineer was operating the train at a speed of 33 mph and did not make a reduction in his speed after passing the yellow approach signal. An emergency airbrake application was initiated until about 840 feet from the point of impact.

The engineer failed to comply with BNSF GCOR, approach signal (9.1.8) at east Belton. Rule 9.1.8 instructs the crew to be prepared to stop at the next signal, trains exceeding 30 mph immediately reduce to that speed.

According to the engineer and conductor interviews. of the Z-CHCPTL2-02, the crew failed to comply with BNSF GCOR rule 1.47- paragraph C., that states in part;

### C. All Crew Members' Responsibilities

- 1. If proper action is not being taken, crew members must remind engineer of such condition and required action.
- 2. Crew member in the engine control compartment must be alert for signals. As soon as signals become visible or audible, crew members must communicate clearly to each other the name of signals affecting their train. They must continue to observe signals and announce any change of aspect until the train passes the signal. If the signal is not complied with promptly, crew members must remind the engineer and/or conductor of the rule requirement.
- 3. When the engineer and/or conductor fail to comply with a signal indication or take proper action to comply with a restriction or rule, crew members must immediately take action to ensure safety, using the emergency brake valve to stop the train, if necessary.

As a result of the side collision at west Belton control point the BNSF conducted a safety blitz that emphasized signal aspects and the meaning of each. During the blitz special emphasizes was placed on the actions to be placed on a yellow approach signal indication.

# Probable Cause

The probable cause of the accident was the failure of the train crew of the Z-CHCPTL2-02 to comply with an automatic block or interlocking signal displaying other than a stop indication (cause code H222). The FRA concurs with the findings.

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