Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-04

Burlington Northern Santa Fe (BNSF)
Temple, Texas
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-2005-4

1.Name of Railroad Operating Train #1: BURLINGTON NORTHERN SANTA FE CORPORATION	1a. Alphabetic Code: BNSF	1b. Railroad Accident/Incident No.: GC0105102
2.Name of Railroad Operating Train #2: BURLINGTON NORTHERN SANTA FE CORPORATION	2a. Alphabetic Code: BNSF	2b. Railroad Accident/Incident: GC0105102
3.Name of Railroad Responsible for Track Maintenance: BNSF Rwy Co. [BNSF]	3a. Alphabetic Code: BNSF	3b. Railroad Accident/Incident No.: GC0105102
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: 02:55: ☑ 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): 03

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
24	0	0	0	GULF

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
NOLANVILLE	235.7	N/A	TX	BELL

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
42 F		4		4		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
SINGLE MAIN TRACK		4	25.48		3

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	4. Work train	7. Yard/switching						
2. Passenger train	5. Single car	8. Light loco(s).			1		1	ubwwor ro02
3. Commuter train	6. Cut of cars	9. Maint./inspect.car						

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

29. Trailing Tons (gross tonnage, excluding power units): 6686

30. Method(s) of Operation (enter code(s) that apply)

a. ATCS	g. Automatic block	m.Special instructions	
b. Auto train control	h. Current of traffic	n. Other than main track	
c. Auto train stop	i. Time table/train orders	o. Positive train control	
d. Cab	j.Track warrant control	p. Other (Specify in narrative)	Code(s)
e. Traffic	k. Direct traffic control		g, j, N/A, N/A, N/A
f. Interlocking	l.Yard limits		

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	N/A
(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	1

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
(1) Total in Train	3	0	0	0	0
(2) Total Derailed	2	0	0	0	0

35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	51	0	0	0	0
(2) Total Derailed	0	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
16500	75000	H605	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	1	0	Hrs 8 Mi 25	Hrs 8 Mi 25

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: 1

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

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	4. Work train	7. Yard/switching						
2. Passenger train	5. Single car	8. Light loco(s).			1		1	HBART PL605
3. Commuter train	6. Cut of cars	9. Maint./inspect.car						

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

57. Method(s) of Operation (enter code(s) that apply)

a. ATCS	g. Automatic block	m.Special instructions
b. Auto train control	h. Current of traffic	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
7035			g | j | N/A | N/A | N/A	0

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	59. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.	Alcohol	Drugs
(1) First involved (derailed, struck, etc)	BNSF72 7092	83	yes		0	1
(2) Causing (if mechanical cause reported)	0	0	N/A	60. Was this consist transporting passengers? (Y/N)		N

61. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	3	0	0	0	0	(1) Total in Equipment Consist	52	0	23	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	3	0	2	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
126318	0	H605	N/A

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen	71. Engineer/Operator	72. Conductor
1	0	1	0	Hrs 10 Mi 25	Hrs 10 Mi 25

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

76. EOT Device? (1. Yes 2. No)	77. Was EOT Device Properly Armed? (1. Yes 2. No)	78. Caboose Occupied by Crew? (1. Yes 2. No)
1	1	2

Highway User Involved

79. Type	Code
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)	N/A

80. Vehicle Speed (est. MPH at impact)	81. Direction geographical) (1.North 2.South 3.East 4.West)	Code
0		N/A

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

84. Position of Car Unit in Train
0

85. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	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)	88. Signaled Crossing Warning (See instructions for codes) Code	89. Whistle Ban (1. Yes 2. No 3. Unknown) Code
Code(s): N/A | N/A | N/A | N/A | N/A | N/A | N/A		N/A

90. Location of Warning (1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach) Code	91. Crossing Warning Interconnected with Highway Signals (1. Yes 2. No 3. Unknown) Code	92. Crossing Illuminated by Street Lights or Special Lights (1. Yes 2. No 3. Unknown) Code
N/A	N/A	N/A

93. Driver's Age	94. Driver's Gender (1. Male 2. Female) Code	95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train (1. Yes 2. No 3. Unknown) Code	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
0	N/A	N/A	N/A

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

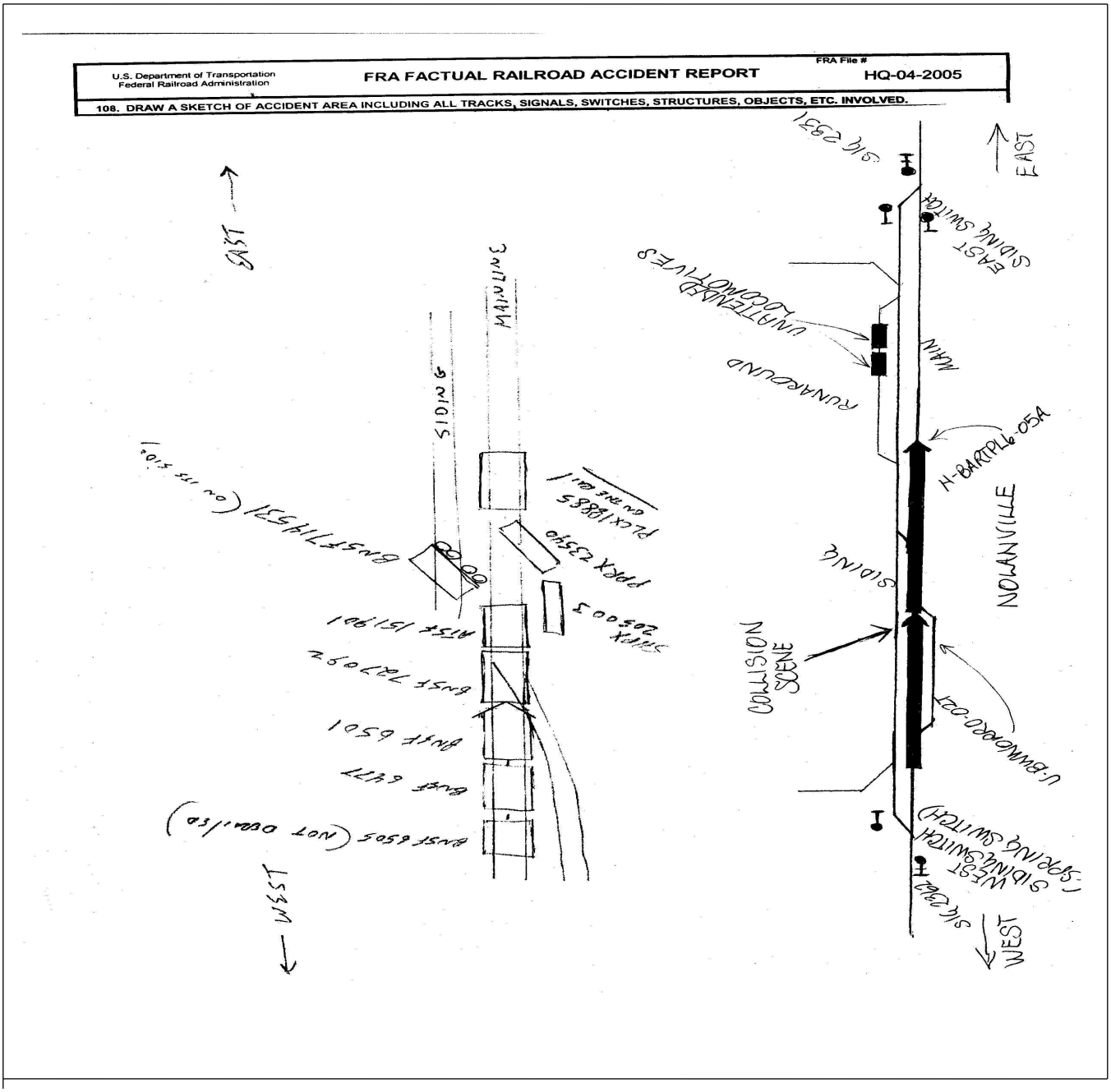
101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was (1. Killed 2.Injured 3. Uninjured) Code	100. Was Driver in the Vehicle? (1. Yes 2. No) Code
N/A	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	105. Locomotive Auxiliary Lights Operational? (1. Yes 2. No) Code
N/A	N/A
106. Locomotive Headlight Illuminated? (1. Yes 2. No) Code	107. Locomotive Audible Warning Sounded? (1. Yes 2. No) Code
N/A	N/A

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

HQ-04-2005.jpg



109. SYNOPSIS OF THE ACCIDENT

On Saturday, January 8, 2005, at 2:55 AM CST, while moving eastbound in dense fog, BNSF loaded rock train UBWWORR0-02T, engine BNSF 6501 struck the rear end of standing eastbound BNSF manifest train HBARTPL6-05A, engine BNSF 7014, derailing the rear five cars of the standing train and the lead two units of the rock train. There were no injuries and no hazardous materials release reported.

110. NARRATIVE

The collision occurred on the single main track of the Burlington Northern Santa Fe Railway, Gulf Diviision, Lampassas Subdivision, at MP 235.7, Nolanville, Bell County, Texas. Method of operation is ABS/TWC, and maximum speed is 55 MPH for freight trains with no other restrictions in that area. Gulf Division Timetable No. 5 dated June 8, 2003 was in effect. The west siding switch at Nolanville is on tangent track with no gradient. Moving east from the switch there is a 0.65 downward grade on tangent track for approximately one-half mile, and then the track levels off to 0.0 gradient. The rear of H-BARTPL6-05A was standing on tangent, level track approximately three-quarters mile from the siding switch.

Train U-BWWORR0-02T (BNSF 6501 East) originated at Brownwood, Texas and consisted of three units and fifty-one gondola cars loaded with crushed rock, with train weight totaling 6686 tons and a length of 2927 feet.. The crew on duty at the time of the collision consisted of a locomotive engineer and a conductor. The engineer was hired September 22, 1997 as a switchman, promoted to engineer April 10, 2003, his last rules test was April 6, 2004, and his last efficiency test was January 4, 2005. The Conductor was hired April 6, 1973, his last rules test was February 27, 2004, and his last efficiency test was December 22, 2004.

They were both on duty at Temple, Texas on Friday, January 7, 2005 at 6:30 PM after statutory rest of 10 hours and 30 minutes for the engineer and 23 hours and 15 minutes for the conductor. The crew deadheaded in a limo to Brownwood to move U-BWWORR0-02T from Brownwood to Temple. Their work orders included notification that the train had received a Class 1 Inspection and Air Brake Test by a previous crew who made up the train in Brownwood Yard.

U-BWWORR0-02T departed from Brownwood at 10:25 PM CST and traveled east on the Lampassas Subdivision without incident. The train possessed a track warrant from MP 277 to the east siding switch at Nolanville on the main track. When the train was approximately five miles west of Nolanville, the Slaton Sub Dispatcher asked the crew, “do you want a track warrant to go in the siding there at Nolanville or are you just going to go ahead on in (the siding)”. After a confusing back and forth the dispatcher repeated his question, “...you just want to take the siding at Nolanville and get a track warrant ? Or you want one to the siding and then go in, over?” The crew on U-BWWORR0-02T replied, “Ah, whichever is easiest for you there, John.” The dispatcher then issued another track warrant from MP 238 to CTC Gober and he stated that he assumed that the U-BWWORR0-02T would operate east through the siding from the west siding switch at Nolanville and re-enter the main track at the east siding switch at Nolanville.

The crew on U-BWWORR0-02T stated that they were to pick up two locomotive units from the runaround track about midway between the ends of Nolanville siding, which is about 13,000 feet long. They had decided to operate on the main track to the east end of Nolanville, cut away from their train, move west through the siding to the runaround track, couple the two additional units, move east and couple back to the head end of their train, and then proceed east to Temple. They stated that they were aware that another train was in the vicinity because they had heard the Dispatcher give the BNSF 7014 East a warrant from ESS Nolanville to CTC Gober with a verbal instructions to follow BNSF 6501 EAST from ESS Nolanville to CTC Gober. Because of the move they planned to make at Nolanville, the crew on U-BWWORR0-02T (BNSF 6501 East) stated that they assumed that the H-BARTPL6-05A (BNSF 7014 East) was behind them and that the main track was clear between the west siding switch at Nolanville and the east siding switch Nolanville.

Nearing Nolanville, U-BWWORR0-02T passed two successive approach signals and encountered a stop signal at the West Siding Switch at Nolanville. They stopped, operated the spring switch by hand, lining it for the siding and then back for the main track, and then flagged through at the stop signal; proceeding east on the main track at restricted speed in dense fog. The crew spotted a flashing red light and recognized it as an end-of-train marker on the rear of a train but initially thought that it was on the passing siding .When they realized that the marker was on the main track the engineer applied the air brakes in emergency but it was too late to prevent the collision. After stopping at the red signal at the west siding switch Nolanville, the U-BWWORR0-02T had steadily accelerated to a recorded speed of 28 MPH before reducing speed to a recorded 18 MPH at impact. The engineer stated that the visibility was about fifty feet at the time of the accident. The engineer was seated at the controls on the right side of the lead unit and the conductor was seated in the lead unit on the left side just prior to the collision.

Train H-BARTPL6-05A (BNSF 7014 East) consisted of three locomotive units and seventy-five cars of mixed freight totaling 7468 tons and a length of 4603 feet.

The train had originated at Barstow, Ca. and had last received a Class 1 Inspection and Air Brake Test at Belen, NM. The crew on duty at the time of the collision consisted of a locomotive engineer and a conductor that had both reported for duty at Sweetwater, Tx. Friday, January 7, 2005 at 4:30 PM CST after statutory rest of more than 48 hours. The engineer was hired as a conductor May 28, 1970, was promoted to engineer May 1, 1997, his last rules test was May 12, 2004, and his last efficiency test was January 4, 2005. The Conductor was hired April 12, 2004, his last rules test was July 9, 2004, and his last efficiency test was September 3, 2004.

The crew boarded H-BARTPL6-05A at Sweetwater, and traveled east on the Lampassas Subdivision without incident to Nolanville, where the train was stopped on the main track at the east siding switch Nolanville because the yard at Temple could not handle them. The crew stated that they were monitoring the radio during the two hours they were stopped at Nolanville and they heard the warrants issued and discussions on the work to be performed at Nolanville between the Dispatcher and the BNSF 6501 East (U-BWWORR0-02T). They assumed that the U-BWWORR0-02T would enter the passing siding at the west siding switch at Nolanville, operate through the siding, pick up the two units, and re-enter the main track at the east end of the siding proceeding ahead of them to Temple. The first indication that something had happened was at approximately 2:55 AM CST when the air brakes on their train went into emergency. The engineer was seated at the controls at the right side of the lead unit and the conductor was seated on the left side of the lead unit when the collision happened.

The collision resulted in the derailment of the five rear cars of the H-BARTPL6-05A and the two lead locomotive units of the U-BWWORR0-02T. There were no injuries and no hazardous materials releases reported.

A BNSF Signal Supervisor and an FRA S&TC Inspector conducted comprehensive testing of signal apparatus in the vicinity and found no exceptions taken to the signal system. An FRA MP&E Inspector inspected the consist of U-BWWORR0-02T when it arrived at Temple and found the fifth car from the engine with the air cut out and all other equipment functioning as intended.

Both engineers, both conductors, and the dispatcher involved in the collision were drug and alcohol tested. The conductor on U-BWWORR0-02T returned a positive for marijuana and the other four employees returned negative results.

The FRA determined the cause of the accident was the failure of the crew on U-BWWORR0-02T to control the speed of their train to be able to stop within half the range of their vision while operating at restricted speed, a violation of General Code of Operating Rules rule 6.27.

Factors contributing to the accident were:

1) Lack of concise communication;

a) When the crew on the U-BWWORR0-02T did not clearly state their intentions for completing their work at Nolanville, the dispatcher should have recognized the possible confusion and given them specific instructions. The radio communications that preceded the issuance of track warrant 8839 are difficult to decipher, although a legitimate track warrant was finally issued.

b) Knowing that the options for completing their work were limited by the H-BARTPL6-05A stopped on the main track, the dispatcher should have notified the UBWWORR0-02T of the presence of that other train.

c) When the U-BWWORR0-02T encountered the stop signal at the west siding switch, a radio transmission notifying the dispatcher of the situation would have alerted both the dispatcher and the crew on H-BARTPL6-05A of the intention of U-BWWORR0-02T to move east on the main track and would have given both the opportunity to announce the presence of the train standing on the main track ahead.

2) The practice of issuing track warrants in ABS/TWC territory through sections of track that are already occupied by another train. This practice may create a false impression that the train receiving the track warrant has exclusive use of that section of track as it would in TWC operation, and can result in the train crew to be less vigilant when encountering potentially dangerous situations, as happened in this case.