Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-41

Heber Valley Railroad (HVRX)
Heber, Utah
May 10, 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-2005-41

1.Name of Railroad Operating Train #1: Heber Valley RR Utah [HVRX]	1a. Alphabetic Code: HVRX	1b. Railroad Accident/Incident No.: 200501
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident: 0
3.Name of Railroad Responsible for Track Maintenance: Heber Valley RR Utah [HVRX]	3a. Alphabetic Code: HVRX	3b. Railroad Accident/Incident No.: 200501
4. U.S. DOT_AAR Grade Crossing Identification Number:	5. Date of Accident/Incident: Month 05 / Day 10 / Year 2005	6. Time of Accident/Incident: 11:30: ☑ 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): 12

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

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Heber	5.0	N/A	UT	WASATCH

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
66 F		2		2		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		2	1		2

OPERATING TRAIN #1

25. 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	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
	5	1. Yes	2	N/A

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

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): 1 | 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	no
(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): Y

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	0	0	0	0	0
(2) Total Derailed	0	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	0	0	0	1	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
97760	0	H018	E08C

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: N/A

OPERATING TRAIN #2

52. 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	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
	2	1. Yes	1	#3

55. Speed (recorded speed, if available) R - Recorded E - Estimated			Code
E - Estimated	0	MPH	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
0			1 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)	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)	HVRX5 340	7	yes		N/A	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A	60. Was this consist transporting passengers? (Y/N)		Y

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	1	0	0	0	0	(1) Total in Equipment Consist	0	7	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
28820	0	H018	E08C

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 2 Mi 30	Hrs 2 Mi 30

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	2	5	0

76. EOT Device? 1. Yes 2. No | 2

77. Was EOT Device Properly Armed? 1. Yes 2. No | N/A

78. Caboose Occupied by Crew? 1. Yes 2. No | N/A

Highway User Involved

79. Type — Code: N/A
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)

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

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

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

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: N/A
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

83. Equipment — Code: N/A
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)

84. Position of Car Unit in Train: 0

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

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

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

87. Type of Crossing Warning — Code(s): N/A N/A N/A N/A N/A N/A N/A
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 Code (See instructions for codes):

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

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

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

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

93. Driver's Age: 0

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

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

96. Driver — Code: N/A
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)

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

98. View of Track Obscured by (primary obstruction) — Code: N/A
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

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

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

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

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

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

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

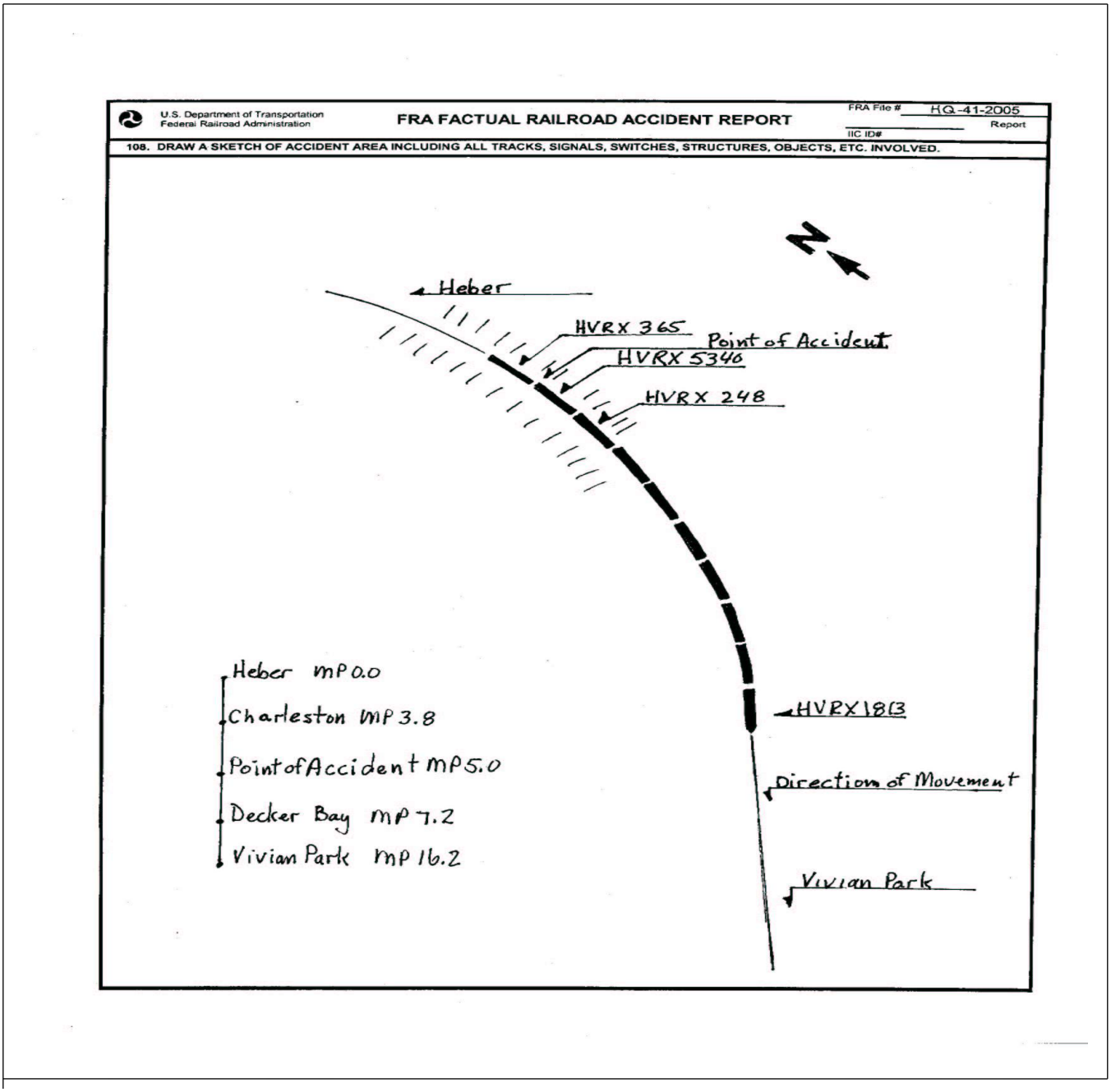
105. Locomotive Auxiliary Lights Operational? — Code: N/A
1. Yes 2. No

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

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

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

HQ-41-2005.jpg



109. SYNOPSIS OF THE ACCIDENT

Train #1

At about 11:30 A.M., May 10, 2005 a single, free rolling passenger car (HRVX 365), struck the rear end of standing HVRX Train #3 on the main track at Mile Post (MP) 5.0. The point of the accident is located between Charleston Siding and Decker Bay on Heber Valley Railroad main track.

Train #2

On May 10, 2005, HVRX Train #3, a tourist passenger train, departed Heber at about 11:00 A.M. En-route, the engineer experienced unusual wheel slip at three locations, MP 2, M P 4, and M P 5, which ultimately resulted in the train stalling. The stall occurred at approximately 11:30 A. M. at MP 5 located on a slight uphill grade and a right hand curve of approximately 6 degrees. The engineer called the conductor via radio and told him they would have to back up and try the hill again. The conductor, who was riding the caboose (in this case, the first car behind the locomotive), dismounted and began walking North toward the rear of the train. The train was stopped approximately 90 seconds when car HRVX 365, struck the rear of Train #3.

The collision resulted in the derailment of the rear truck (two axles) on car HRVX 5340. Minor injuries were reported by four passengers and two crew members. Total damage to the involved rail equipment HRVX 365, HRCX 5340, and HRVX 248 was $125,610. No track damage was reported.

At the time of the accident it was daylight; the sky was overcast; the temperature was 66 degrees.

The primary cause of the accident was the failure of the conductor to properly secure car HVRX 365 set out on Track Three. Contributing causes were continued operation of a car with a known defective hand brake, failure to insure the car was coupled to the three cars already in the track and the application of an effective track skate or other securement device.

As a result car HVRX 365 rolled out of Track Three, down a grade and into the rear of Train #3.

110. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

Train #1

At approximately 10:00 A.M. MDT May 10, 2005, a crew (conductor handling the movement) left two rear coaches on the main track and set out one coach (HRVX 365) into Track Three, in the Heber City Depot Yard, to what he thought was a coupling on two other cars that were secured in track three. The car set out was not stretched to ensure a proper coupling had been made. In addition, the hand brake on HRVX 365 was defective. The angle cock on car HRVX 365 was left open which resulted in the application of the air brakes. No wheel chocks or other devices were placed under the wheels, which is the normal practice at this location.

At an unknown time, HVRX 365 rolled out of Track 3 onto the main track and struck Train #2 at about 11:30 A.M.

Train #2

The crew of Train #3, a tourist passenger train, included an engineer, a conductor, and two car attendants. They went on duty at 9:00 A.M., MDT, May 10, 2005 at Heber, Utah. This is the home terminal for all crew members. All crew members received more than the statutory off duty period, prior to reporting for duty.

The train consisted of one locomotive, seven passenger cars and a caboose. The train was about 670 feet long and weighed 421 tons (with locomotive). The train was scheduled to travel from Heber Station, Mile Post MP 1, to Vivian Park, MP 16, and return. The scheduled departure time was 11:00 A. M., MDT.

The train was then shoved back to a coupling on the two coaches left on the main track. The train then shoved back to the station for passenger loading. The train then received a proper air test, passengers were boarded, and Train #3 departed southbound at 11:01 a.m. under timetable authority.

En-route, the engineer experienced unusual wheel slip at three locations, MP 2, M P 4, and M P 5, which ultimately resulted in the train stalling. The stall occurred at approximately 11:30 A. M. at MP 5 located on a slight uphill grade and a right hand curve of approximately 6 degrees. The engineer called the conductor via radio and told him they would have to back up and try the hill again. The conductor, who was riding the caboose (in this case, the first car behind the locomotive), dismounted and began walking North toward the rear of the train. The train was stopped approximately 90 seconds when car HRVX 365, struck the rear of Train #3.

Timetable direction is North /South; geographical direction is East/West; timetable direction will be used in all references to direction.

The Collision.

Train #1

Car HRVX 365, which was set out in Track Three, began to move freely because it did not have an operative hand brake; the air brakes released due to a loss of air pressure (bleed off), there was not a chock or derail applied to prevent movement on to the main track; and it was not coupled to the cars previously placed in Track Three. The car rolled out of Track Three, passed through the Track Three switch, rolled five miles and struck Train #3. The main track is a continuous downhill grade from the Track Three switch to a point just prior to impact, where there is a slight upgrade. The speed of car HRVX 365, at point of impact, was estimated to be between 10 and 18 MPH.

Damage to HVRX 365 was $28,820.

Train #2

At the time of the collision, the engineer was sitting at the controls of the locomotive and the train was stopped. The conductor was walking to the rear, through the train, to protect the intended reverse movement when the impact occurred and was knocked down.

Total damage to the involved rail equipment, HRCX 5340, and HRVX 248 was $96,790. There was no track damage and no release of hazardous material.

There were four injured passengers. All passenger injuries were determined to be minor (bruises, contusions, and a possible concussion). The four passengers were taken via ambulance (WASATCH, Co. Emergency Services) to Heber Valley Medical Facility. The four passengers were underage children who were not accompanied by their parents on the trip. Ambulance services were used by the railroad as a precautionary measure due to the age of the passengers. Also, two railroad employees sustained injuries. A car attendant sustained injuries to her shoulder. Another attendant, sustained a bruise to his knee.

All injuries were treated at Heber Valley Medical Facility, and released.

There were no toxicological tests, under any authority, administered to the crew of Train #3.

The primary cause of the accident was the failure of the conductor to follow HVRX Operation Rule 1.53 and to properly secure car HVRX 365 and to ensure it was secure with the other cars in Track 3. Also, after setting the car out, and knowing the handbrake was not in working order, some means should have been taken to prevent undesired movement.

Conclusion.
Inspection of the site revealed there was not a derail south of the station to protect against uncontrolled movement from the yard. It was recommended derails be placed in order to prevent any uncontrolled movements in the future. This recommendation has been completed.

Rail car HRVX 365 had a broken latch bracket, which prevented the hand brake from working properly. The break in the bracket was old and its existence was known by the crews working at the time. The rail car was out of service until repaired.

HVRX modified Operating Rule 1.53 on securement of equipment.

At the time of the accident, HVRX did not have an active Operational Testing Program. Following the FRA investigation into this accident, HVRX instituted a Operating Rules Training and Testing Program.