Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-102

Union Pacific
Peck, KS
December 22, 2006

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-2006-102

1.Name of Railroad Operating Train #1 Union Pacific RR Co. [UP]	1a. Alphabetic Code UP	1b. Railroad Accident/Incident No. 1206WH013
2.Name of Railroad Operating Train #2 Union Pacific RR Co. [UP]	2a. Alphabetic Code UP	2b. Railroad Accident/Incident 1206WH013
3.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	3a. Alphabetic Code UP	3b. Railroad Accident/Incident No. 1206WH013
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident Month 12 / Day 22 / Year 2006	6. Time of Accident/Incident 02:00: ☑ 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) — **05**

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
7	0	0	0	Wichita

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Riverdale	267.5	N/A	KS	SUMNER

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
40 F		4		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
Single Main		4	12		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: 1

26. Was Equipment Attended? 1. Yes 2. No — Code: 1

27. Train Number/Symbol: RWTCK-21

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

29. Trailing Tons (gross tonnage, excluding power units): 1393

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): n 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): 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	2	0	0	0	0
(2) Total Derailed	0	0	0	0	0

35. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	48	0	0
(2) Total Derailed	0	0	0	0	0

36. Equipment Damage — This Consist: 70000

37. Track, Signal, Way, & Structure Damage: 0

38. Primary Cause Code: H401

39. Contributing Cause Code: H525

Number of Crew Members

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen
N/A	0	1	0

Length of Time on Duty

44. Engineer/Operator: Hrs 3 Mi 00

45. Conductor: Hrs 3 Mi 00

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 — 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: 1

53. Was Equipment Attended? 1. Yes 2. No — Code: 1

54. Train Number/Symbol: LV05421

55. Speed (recorded speed, if available) R - Recorded; E - Estimated: 25 MPH — Code: E

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
2467			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)	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)	UP1674	1	N/A		0	0
(2) Causing (if mechanical cause reported)	0	0	N/A	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	2	0	0	0	0
(2) Total Derailed	2	0	0	0	0

62. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	6	0	56	0	0
(2) Total Derailed	0	0	1	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
310125	21810	H401	H525

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 11 Mi 00	Hrs 11 Mi 00

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	2	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	N/A

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
N/A		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
N/A

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		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
N/A		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
	N/A	N/A

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

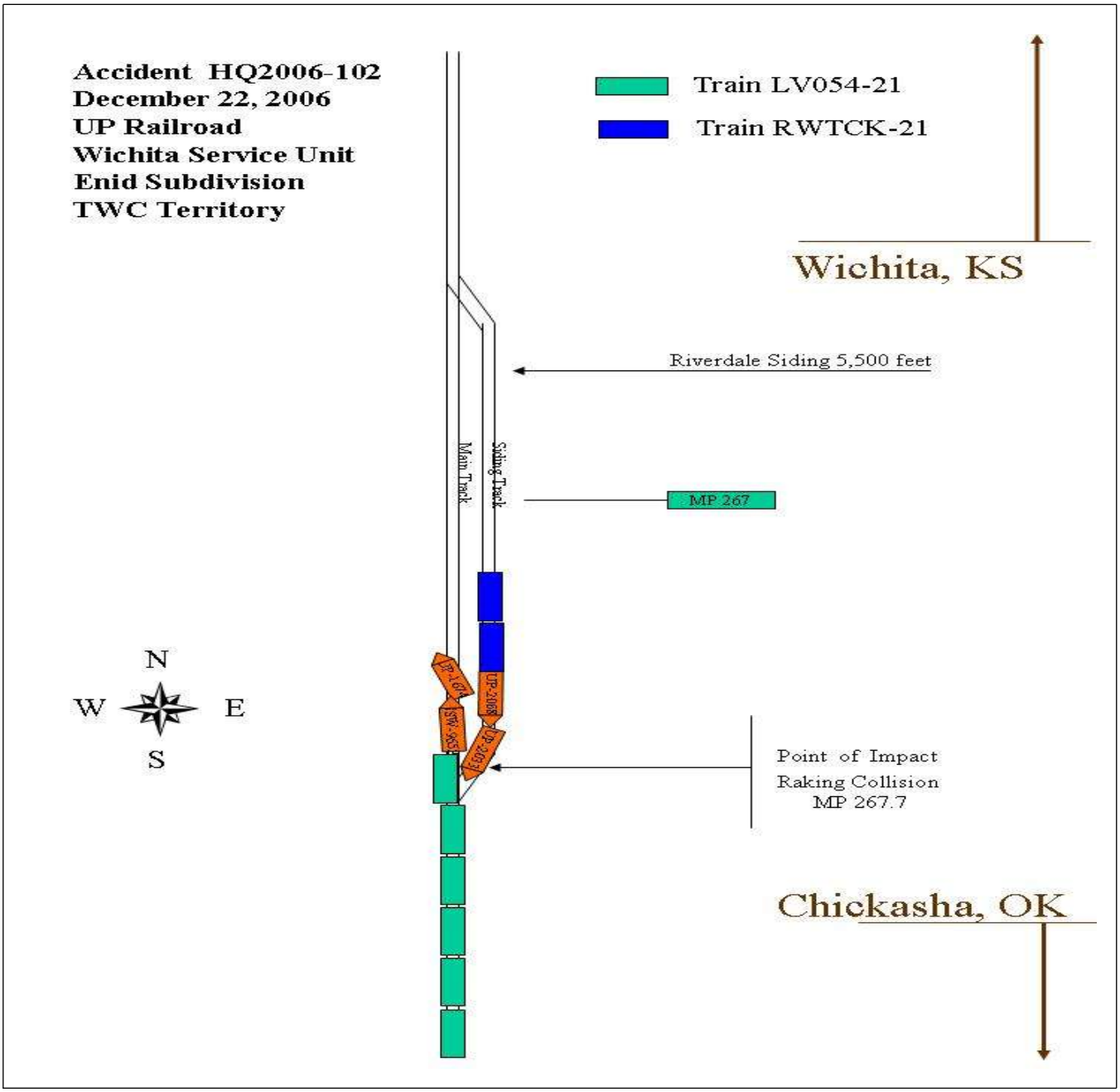
102. Highway Vehicle Property Damage (est. dollar damage)	103. Total Number of Highway-Rail Crossing Users (include driver)
N/A	N/A

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-2006102_Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

At 2 a.m. (c.s.t.), on December 22, 2006, Union Pacific Railroad Company (UP) northbound local freight Train Symbol LV054-21 collided with empty UP rock Train Symbol RWTCK-21. The collision occurred at milepost 267.5 on the Enid Subdivision of the Wichita Service Unit, at Riverdale, Kansas, 23 miles south of Wichita, Kansas.

Two locomotives and one car on the northbound freight train derailed with no hazardous material release, resulting in $401,935 damage to track and equipment. All four crew members were taken for treatment of minor injuries and for Federal Railroad Administration (FRA) Post-Accident Toxicological Testing.

The weather was dark and cloudy and the temperature was 40 degrees Fahrenheit.

The probable cause of the accident was failure of southbound Train Symbol RWTCK-21 to stop in the clear of the main track.

110. NARRATIVE

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

Circumstances Prior to the Accident

Train Symbol RWTCK-21 (Train No.1)

On December 21, 2006, at 11 p.m. (c.s.t.), the crew of Train Symbol RWTCK-21 went on duty at their away-from-home terminal of Wichita. The crew consisted of a conductor and an engineer, both of whom had received the required statutory off-duty rest period prior to reporting for duty. They departed Wichita at approximately 11:30 p.m., in a crew van after receiving the required track warrants, track bulletins, and other documents needed for their trip. Their train was at Midland siding approximately 8 miles south of Wichita. They arrived at Midland at 12 midnight on December 22, 2006. After coupling their train, a Class 1 air brake test was performed prior to departing Midland. The train consisted of two locomotives, UP 2033 and UP 2068; 48 empty rock cars; 1,393 trailing tons; and was 2,057 feet in length.

As the southbound train approached the accident area, the locomotive engineer was seated on the west side and the conductor was seated on the east side of the locomotive. The engineer was operating the train and the conductor was reviewing track warrants in anticipation of receiving a mandatory directive from the train dispatcher. The track is tangent both north and south from the accident site for several miles.

The railroad timetable and geographic direction was south.

Train Symbol LV054-21 (Train No.2)

On December 21, 2006, at 3:30 p.m. (c.s.t.), the crew of Train Symbol LV054-21 went on duty at their home terminal of Chickasha, Oklahoma. The crew consisted of a conductor and an engineer, both of whom had received the required statutory off-duty rest period prior to reporting for duty. They departed Chickasha at approximately 6 p.m., after receiving the required track warrants, track bulletins, and other documents needed for their trip. No inspections or air brake tests were required prior to their departure, and none were performed. A Class 1 air brake test was performed on the train at Chickasha by a yard switching crew, prior to the crew reporting for duty. The train consisted of two locomotives, UP 1674 and SSW 9653; 6 loaded cars; 56 empties; 2,467 trailing tons; and was 3,868 feet in length.

As the north bound train approached the accident area, the locomotive engineer was seated on the east side and the conductor was seated on the west side of the locomotive. The engineer was operating the train and the conductor was reviewing track warrants in anticipation of receiving a mandatory directive from the train dispatcher.

Approaching the accident the track is tangent both north and south. The grade at the north switch is level, ascending to a 0.54-percent descending grade at the mid-point of the siding or approximately 2,750 feet from the south siding switch. From the mid-point of the siding there is a 0.65-percent descending grade to the south switch.

The Accident

Train Symbol RWTCK-21

At approximately 1:55 a.m., after lining the north siding switch, Train Symbol RWTCK-21 proceeded south on the Riverdale siding. The Riverdale siding is approximately 5,500 feet in length. While traveling south, the speed varied from 10 to 13 mph. Approaching the south switch, the engineer used the locomotive brakes (independent brakes) to control the train. Meanwhile, the conductor, seated on the opposite side of the cab from the engineer, was reviewing paperwork. No obstructions were evident in either direction.

The engineer of Train Symbol RWTCK-21 dimmed his headlight so as not to "blind" the opposing train. After dimming the headlight, he could not see the clearance point very well. He applied the independent brake and realized the train would not stop before fouling the main track. The engineer initiated an emergency application of the train and engine brakes. Nearing the south end of the siding, the conductor stated he asked the engineer if they were able to stop before reaching the switch. The engineer was talking on the radio and did not respond immediately. The conductor then asked the engineer if the train was in emergency. The engineer responded that it was.

The train came to rest approximately 30 feet from the switch, fouling the main track. At this time the crew of Train Symbol RWTCK-21 could see the northbound train approaching. The engineer made a third attempt to contact the northbound train and warn them to stop. The engineer of the northbound train replied that he had placed his train in emergency. A few seconds later, the conductor went to the other side of the locomotive cab and stood behind the engineer's seat.

Impact followed, and the northbound train came to rest approximately four car-lengths north of the lead locomotive of Train Symbol RWTCK-21.

Train Symbol LV054-21

Approaching the accident site, the crew was talking to the UP Enid Subdivision dispatcher and the crew haul driver on the radio. The crew was coordinating a convenient location to secure the train so the crew haul driver could transport them from Midland siding to their final release point, Wichita, KS. Due to these conversations over the radio, the crew was not able to hear the warning of southbound Train Symbol RWTCK-21, until it was too late to stop.

The train approached Riverdale at approximately 40 mph. The maximum authorized speed at this location is 40 mph. Their track warrant was in effect to the North siding switch at Riverdale. The crew had 1 hour 30 minutes left to work at the time of the accident. The crew was planning to secure the train at Midland siding, approximately 10 miles north of Riverdale. It is estimated that impact occurred at 20 mph. The maximum authorized speed for this particular type of train is 40 mph. The event recorders on Train Symbol LV054-21 could not be downloaded by local UP management. The event recorders on Train Symbol LV054-21 were sent to UP headquarters for data retrieval.

Analysis and Conclusions

Analysis
FRA post-accident toxicological testing was performed on the crew members of both trains. The results were negative on all employees.

Conclusions
The crew of Train Symbol RWTCK-21 failed to stop their train before fouling the main track. In addition, the crew of Train Symbol RWTCK-21 contributed to the accident by improper use of the independent (locomotive) brakes.

The engineer did not follow UP Air Brake and Train Handling Rule 33.6.4 (B), Stopping, Level or Descending Grade without Dynamic Brakes, Slack Bunched.:

1. If in power, gradually reduce the throttle to IDLE.
2. Wait for the slack to adjust.
3. At a sufficient distance from the stop, make a minimum brake pipe reduction and actuate.
4. Make further split reduction(s) as needed and actuate. Allow locomotive to develop draft forces.
5. As the train comes to a stop, make a final brake pipe reduction and allow the locomotive brakes to apply.

Probable Cause

The Federal Railroad Administration determined that the contributing cause is H525: Independent (Engine) brake, improper use (Except Actuation).

The Federal Railroad Administration found that the primary cause of the accident was H401: Failure to stop train in the clear.