Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-94

Union Pacific (UP)
Lorraine, Wyoming
October 24, 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-2005-94

1.Name of Railroad Operating Train #1 Union Pacific RR Co. [UP]	1a. Alphabetic Code UP	1b. Railroad Accident/Incident No. 1005FW029
2.Name of Railroad Operating Train #2 Union Pacific RR Co. [UP]	2a. Alphabetic Code UP	2b. Railroad Accident/Incident 1005FW029
3.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	3a. Alphabetic Code UP	3b. Railroad Accident/Incident No. 1005FW029
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident Month 10 / Day 24 / Year 2005	6. Time of Accident/Incident 06:44: ☐ 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
7	0	0	0	Fort Worth

13. Nearest City/Town	14. Milepost *(to nearest tenth)*	15. State Abbr	15. State Code	16. County
Loraine	465.7	N/A	TX	MITCHELL

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
70 F	2	1	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 Track	5	35	4

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
1	1	KCXCI-22

28. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	30. Method(s) of Operation *(enter code(s) that apply)*	30a. Remotely Controlled Locomotive?
18 MPH R	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): g, j, N/A, N/A, N/A	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter; 4. West; 2. South — 0

29. Trailing Tons *(gross tonnage, excluding power units)*: 4735

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	78	0	3	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
0	700	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
1	0	1	0	Hrs 0 Mi 44	Hrs 0 Mi 44

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)* 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
1	1	IMNLB 22

55. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	57. Method(s) of Operation *(enter code(s) that apply)*	57a. Remotely Controlled Locomotive?
0 MPH R	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	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
4617			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)*	DDTB427018	80	no		0	0
(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	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	3	0	0	0	0	(1) Total in Equipment Consist	9	0	9	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	4	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
50539	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 1 Mi 24	Hrs 1 Mi 24

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
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
Code(s)	N/A	N/A	N/A	N/A	N/A	N/A	N/A					

88. Signaled Crossing Warning *(See instructions for codes)*	Code
	N/A

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

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

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

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

93. Driver's Age	94. Driver's Gender (1. Male 2. Female)	Code
0		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	Code
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)*	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)*	Code
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	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

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

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

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

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

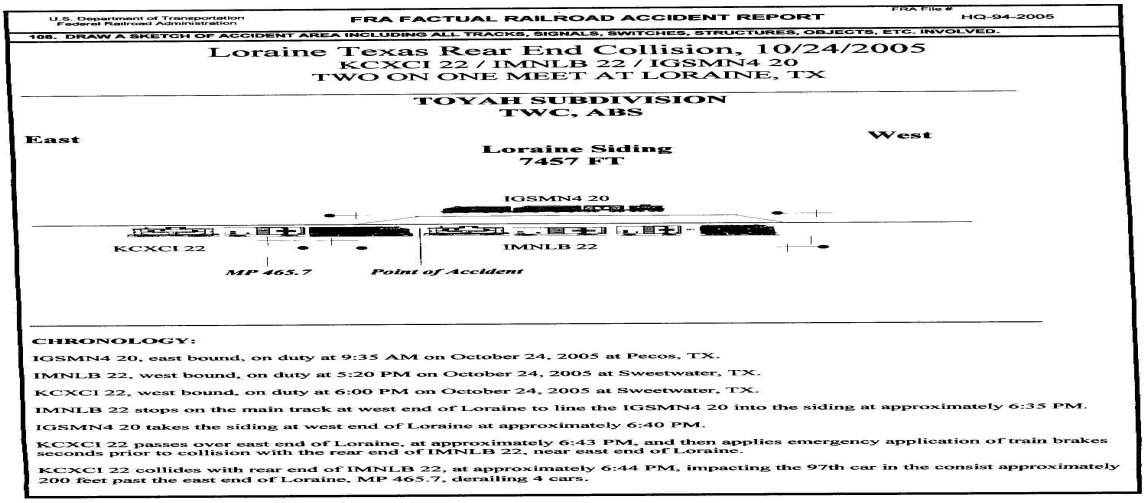
105. Locomotive Auxiliary Lights Operational? (1. Yes 2. No)	Code
	N/A

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.

HRX-94-2005.jpg



U.S. Department of Transportation
Federal Railroad Administration

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

Loraine Texas Rear End Collision, 10/24/2005
KCXCI 22 / IMNLB 22 / IGSMN4 20
TWO ON ONE MEET AT LORAINE, TX

TOYAH SUBDIVISION
TWC, ABS

East

West

Loraine Siding
7457 FT

IGSMN4 20

KCXCI 22

IMNLB 22

MP 465.7

Point of Accident

CHRONOLOGY:

IGSMN4 20, east bound, on duty at 9:35 AM on October 24, 2005 at Pecos, TX.

IMNLB 22, west bound, on duty at 5:20 PM on October 24, 2005 at Sweetwater, TX.

KCXCI 22, west bound, on duty at 6:00 PM on October 24, 2005 at Sweetwater, TX.

IMNLB 22 stops on the main track at west end of Loraine to line the IGSMN4 20 into the siding at approximately 6:35 PM.

IGSMN4 20 takes the siding at west end of Loraine at approximately 6:40 PM.

KCXCI 22 passes over east end of Loraine, at approximately 6:43 PM, and then applies emergency application of train brakes seconds prior to collision with the rear end of IMNLB 22, near east end of Loraine.

KCXCI 22 collides with rear end of IMNLB 22, at approximately 6:44 PM, impacting the 97th car in the consist approximately 200 feet past the east end of Loraine, MP 465.7, derailing 4 cars.

109. SYNOPSIS OF THE ACCIDENT

Union Pacific train KCXCI-22, was traveling west bound on the main track Toyah subdivision, under a restricting signal at approximately 18 mph. Union Pacific train IMNLB-22 was stopped on the main track between switches at Loraine, TX. As the crew of KCXCI-22 approached the rear of the IMNLB-22, they applied an emergency application of the train brakes, approximately 5 cars prior to impact. Union Pacific train IMNLB-22 had several empty intermodal cars on rear of their consist. Due to possibility of the setting sun in their eyes, the crew of the KCXCI-22 alleges they did not see the actual end of the train but rather a loaded intermodal car a head of the empties. The rear-end impact collision resulted in several cars on the IMNLB-22 to derail and impact the side of a 3rd train, east bound IGSMN4-20, which had entered the siding at Loraine.

This occurred on October 24, 2005 at approximately 6:44 PM CST. The weather was clear, daylight, and 70 degrees. Location of the accident occurred at Loraine siding, mile post 465.7. Loraine siding is located in the city of Loraine, TX where highway 20 and Main street intersect.

There were no fatalities or known injuries.

A total of 11 cars were damaged, 4 of which derailed, with estimated damages at approximately $55,809.73 for rail car damage and track work, not including clearing cost of $34,700.00.

110. NARRATIVE

INFORMATION PROVIDED ON OPERATING TRAIN # 3:

OPERATING TRAIN #3

25. Type of Equipment 1. Freight Train 4. Work Train 7. Yard/switching A. Spec. MofW Equip. 26. Was Equipment Code 27. Train Number/Symbol
Consist (single entry) 2. Passenger Train 5. Single Car 8. Light loco(s)
Code Attended? IGSMN4 20
3. Commuter Train 6. Cut of cars 9. Maint./inspect. car 1 1. Yes 2. No
1

28. Speed (recorded speed, if available) Code 30. Method(s) of Operation (enter code(s) that apply) 30a. Remotely Controlled Locomotive?
R - Recorded 02 MPH E a. ATCS g. Automatic block m. Special instructions
0 = Not a remotely controlled operation
E - Estimated b. Auto train control h. Current of traffic n. Other than main track 1 = Remote control portable transmitter
29. Trailing Tons (gross tonnage, c. Auto train stop I. Time table/train orders o. Positive train control 2 = Remote control tower operation
excluding power units) d. Cab signals j. Track warrant control p. Other (specify in narrative) 3 = Remote control portable
3550 e. Traffic control k. Direct traffic control Codes (s) transmitter - more than one Code
f. Interlocking l. Yard limits G J
remote control transmitter 0

31. Principal Car/Unit a. Initial and Number b. Position in Train c. Loaded (yes/no) 32. If railroad employee(s) tested for drug/alcohol use,

(1) First involved

(derailed, struck, etc.) DTTA 27434 10 YES enter the number that were positive Alcohol Drugs

in the appropriate box. 0 0

(2) Causing (if mechanical, cause reported) N/A N/A N/A 33. Was this consist transporting passengers? (Y/N) N

34. Locomotive Units a. Head End Mid Train Rear End 35. Cars Loaded Empty e. Caboose

b. Manual c. Remote

d. Manual e. Remote a. Freight b. Pass. a. Freight b. Pass.

(1) Total in Train 2 0 0 0 0 (1) Total in Equip.

Consist 62 0 0 0 0

(2) Total Derailed 0 0 0 0 0 (2) Total Derailed 0 0 0 0 0 0

36.

Equipment Damage

This Consist 37. Track, Signal, Way, & Structure Damage 38. Primary Cause Code 39. Contributing Cause Code

5270 0 H605 N/A

Number of Crew Members Length of Time on Duty

40. Engineers/ Operators 41. Firemen 42. Conductors 43. Brakemen 44. Engineer/Operator 45. Conductor

1 0 1 0 Hrs: 9 Mins: 9 Hrs: 9 Mins: 9

Casualties to: 46. Railroad Employees 47. Train Passengers 48. Others 49. EOT Device? 50. Was EOT Device Properly Armed?

Fatal 0 0 0 1. Yes 2. No 1 1. Yes 2. No 1

Nonfatal 0 0 0 51. Caboose Occupied by Crew? 1. Yes 2. No 2

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

CIRCUMSTANCES PRIOR TO THE ACCIDENT

KCXCI 22 West

The engineer and conductor of the KCXCI 22, reported for duty on October 24, 2005 at 6:00 PM, at Sweetwater, TX. This was the home terminal for the crew, and all received more than the statutory off duty period, prior to reporting for duty. The KCXCI 22, freight train, departed terminal at approximately 6:05 PM and headed west toward Pecos,TX with a track warrant to Loraine siding hold the main. The maximum speed was 50 MPH unless restricted in the current UP Sunset Area time table # 1.

As the westbound train approached the accident area, the locomotive engineer was seated at the controls on the north side of the leading locomotive watching out and observing signals ahead. The conductor was seated on the south side of the leading locomotive watching out, observing signals, calling out signals, maintaining signal log book, and monitoring the radio.

In this area of the railroad there are, in succession, a 10 degree curve to the right of about 1400 feet, followed by a tangent of about 2200 feet to the point of the accident. There is a 0.7 percent degree descending grade. In this area of Interstate Highway 20, which goes over the tracks, the tracks continue straight west for about 2,200 feet to the first crossing and another 2,000 feet to the second crossing and then continues on west adjacent to Interstate Highway 20 for a considerable distance beyond.

The railroad timetable direction of the train was west. The geographic direction was southwest. Timetable directions are used throughout this report.

IMNLB 22 West

The engineer and conductor of the IMNLB 22, reported for duty on October 24, 2005 at 5:20 PM, at Sweetwater, TX. This was the home terminal for the crew, and all received more than the statutory off duty period, prior to reporting for duty. The IMNLB 22, freight train, departed terminal at approximately 5:30 PM and headed west toward Pecos, TX.

IGSMN4 20 East

The engineer and conductor of the IGSMN4 20, reported for duty on October 24, 2005 at 9:35 AM, at Pecos, TX. This was the away from home terminal for the crew, and all received more than the statutory off duty period, prior to reporting for duty. The IGSMN4 20, freight train, departed terminal at approximately 1000 AM and headed east toward Sweetwater, TX

THE ACCIDENT

KCXCI 22 West

As the train passed the west end of Roscoe siding the train began running on approach signals and then at east end of Loraine passed a restricted signal at 18 MPH. At approximately 6:44 PM the train pasted the east end of Loraine, MP 465.7, where the crew was unable to see the rear end of IMNLB 22, due to the possible glare of the sun, and as a result the train impacted the rear end car, 97th car, of IMNLB 22 at 13 MPH. The speeds were recorded by the event recorder of the controlling locomotive.

IMNLB 22 West

Upon arrival at Loraine siding, approximately 6:35 PM, IMNLB 22 remained on the main track and pulled down to west end where the conductor lined the switch for an east bound train, IGSMN4 20. At approximately 6:44 PM, after IGSMN4 20 had been lined into the siding and west switch restored for the main, the crew on IMNLB 22 felt the impact from KCXCI 22 resulting in 4 cars derailing, cars 80 thru 83, into IGSMN4 20, damaging 7 cars.

IGSMN4 20 East

At approximately 6:40 PM upon arrival at Loraine siding the IGSMN4 20 was lined into the siding by the conductor, of the IMNLB 22, to meet two west bound trains. At approximately 6:43 PM IGSMN4 20 pulled down to east end of Loraine siding to await the second train, KCXCI 22, presently pulling up to east end of Loraine siding. At approximately 6:44 PM KCXCI 22 passed east end of Loraine siding and misjudged the rear end of the IMNLB 22 and placed train into emergency several seconds before impacting rear end of the train at approximately 200 feet past east switch of Loraine siding, MP 465.7.

ANALYSIS

The south bound train, KCXCI 22, with engineer and conductor on board failed to comply with restricted speed on the Toyah subdivision in track warrant, ABS, territory. The post-accident toxicological test performed on the engineer and conductor, of the KCXCI 22, were performed by the UP railroad, due to accident/incident was non qualifying for FRA. The results of the test, both alcohol and drug, performed by UP railroad showed negative for both crew members. No evaluation and testing of lead locomotive, of the KCXCI 22, were performed by UP railroad, except download and analysis of recorder data. The train, KCXCI 22, was equipped with a speed indicator and an event recorder as required. The relevant event recorder data was downloaded and analyzed by the manager of train operations at Odessa, TX. The analysis disclosed that the locomotive engineer was not in compliance with railroad operating and train handling requirements of operating train under a restricting signal at restricted speed. The FRA reviewed the results of this analysis, and concurred with the conclusions. Also no FRA test on track or locomotive equipment were done but visual inspection of accident area with photographs of Loraine siding were taken.

CONCLUSION

The railroad was not in full compliance with their own standards and regulations when the crew operated KCXCI 22 under a restricted signal at a speed which did not allow them to stop short of train ahead. The train crew members of the KCXCI 22 were the only witnesses to the accident, and they had no information that could be used to determine why the train did not stop short of the train ahead. Based on the evidence the inattention of both the engineer and conductor were predominant factors in the resulting rear-end collision.

PROBABLE CAUSE AND CONTRIBUTING FACTOR

The FRA determined the probable cause to by the Failure of the engineer on KCXCI 22 to comply with restricted speed in connection with the restrictive indication of a block or interlocking signal caused the rear-end collision at Loraine TX.