Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-29

Union Pacific (UP)
Dixon, Illinois
April 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.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2005-29

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 0405PR001
2.Name of Railroad Operating Train #2: Union Pacific RR Co. [UP]	2a. Alphabetic Code: UP	2b. Railroad Accident/Incident: 0405PR001
3.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	3a. Alphabetic Code: UP	3b. Railroad Accident/Incident No.: 0405PR001
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 04 / Day 05 / Year 2005	6. Time of Accident/Incident: 06:39:00 ☑ 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): 03

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
13	0	0	0	CHICAGO

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
DIXON	99.1	N/A	IL	LEE

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
55 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 NO. 2		5	53		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: 1

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

27. Train Number/Symbol: MPRPB 05 WE

28. Speed (recorded speed, if available) — R - Recorded; E - Estimated: 10 MPH — Code: R

29. Trailing Tons (gross tonnage, excluding power units): 4549

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): b, e, 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	yes
(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
N/A	N/A

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	4	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	53	0	25	0	0
(2) Total Derailed	0	0	0	0	0

36. Equipment Damage This Consist: 0

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

38. Primary Cause Code: H607

39. Contributing Cause Code: H899

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 7 Mi 9

45. Conductor: Hrs 7 Mi 9

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: 1

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

54. Train Number/Symbol: IAPSE0 4 WE

55. Speed (recorded speed, if available) — R - Recorded; E - Estimated: 7 MPH — Code: 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
4394			b | e | 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)	BRAB 9053	95	yes		N/A	N/A
(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
(1) Total in Train	4	0	0	0	0
(2) Total Derailed	0	0	0	0	0

62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	91	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
0	0	H607	H899

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 4 Mi 9	Hrs 4 Mi 9

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	88. Signaled Crossing Warning (See instructions for codes)	Code	89. Whistle Ban (1. Yes 2. No 3. Unknown)	Code
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				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

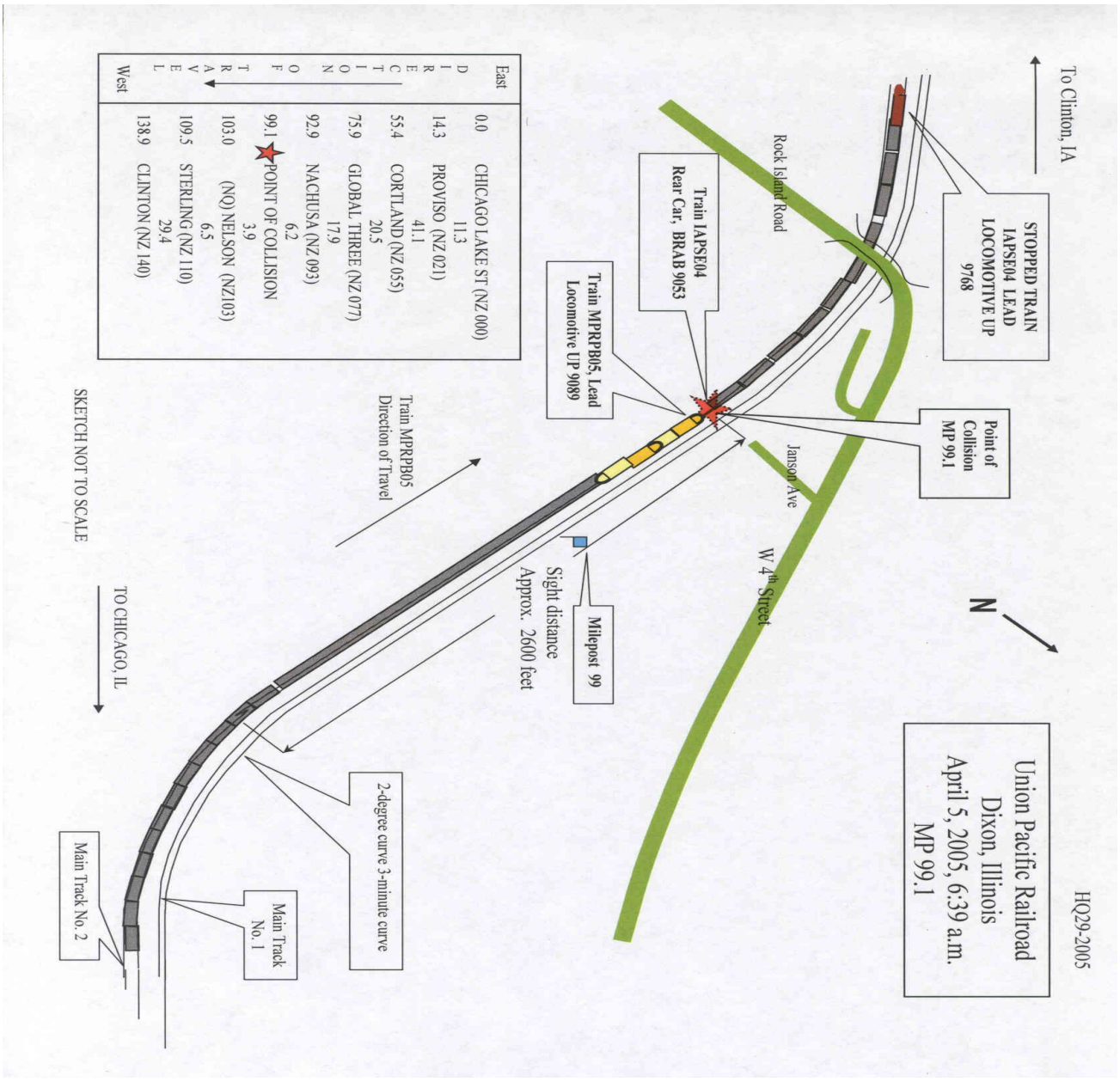
102. Highway Vehicle Property Damage (est. dollar damage)	103. Total Number of Highway-Rail Crossing Users (include driver)
0	0

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-29-2005 Accident Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

A westbound Union Pacific Railroad (UP) freight train (MPRPB05) collided with the rear car of another UP westbound freight train (IAPSE04) operating ahead of it on the same main track on April 5, 2005, at 6:39 a.m CDT. The accident occurred in Dixon, Illinois (IL), at Milepost 99.1, on the UP Geneva Subdivision, Main Track No. 2.

The engineer and student locomotive engineer jumped from the lead locomotive prior to the collision and sustained serious injuries. The conductor was riding in a trailing locomotive and was not injured. When the collision occurred, the train ahead was moving west at 7 mph and the striking train was moving west at 10 mph, resulting in an impact speed of about 3 mph. There was no derailment of equipment on either train. The two-way rear end marking device was knocked off the rear coupler of the preceding train. The lead locomotive of the following train sustained no damage nor did the train sustain any damage; the preceding train sustained no damage. There was no damage to the track, wayside structures or the signal system.

At the time of the accident it was daylight and clear; the wind was from the south at 8 mph and the temperature was 55 degrees F.

The accident was caused by the failure of the crew of the striking train to comply with a requirement to move at Restricted Speed.

110. NARRATIVE

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

Circumstances Prior to the Accident

Method of Operation

The UP Geneva Subdivision extends west from Chicago, IL, milepost 0.00 to Clinton, Iowa (IA), milepost 138.9. The entire subdivision is comprised multiple main tracks. In the territory where the accident occurred there are two main tracks designated as Main Track No. 1 and Main Track No. 2. The main tracks are numbered from north to south. The railroad timetable direction of the train was west and the geographic direction was also west.
Trains are operated on the Geneva Subdivision by a Traffic Control Signal System (TCS) combined with an Automatic Train Control Signal System (ATC). ATC is operational on the entire Geneva Subdivision, with most of the subdivision equipped with noncontinuous--territory not equipped with fixed, intermidiate automatic wayside block signals. However, there are two continuous--territory that is equipped with fixed, intermidiate automatic wayside block signals and they are listed on page 7 in Chicago Area Timetable No. 3, effective December 12, 2004. The continuous block signal territory is between Control Point (CP) Y901 and CP Y015, at the east end of the subdivision and CP Y103 and CP Y138, at the west end of the subdivision. The territory where the accident occurred is noncontinuous wayside block signal territory. Continuous block signals are equipped with both ATC and wayside signals governing movement into each block. Noncontinuous block signal territory is also equipped with ATC, but wayside signals are located only at the approach to control points.

There are only two cab signal indications that can be displayed in the locomotive cab, a "clear" indication authorizing movement at maximum allowed track speed and a "restricting" indication authorizing movement only at Restricted Speed.

Train No. 1 – MPRPB05 West

The crew of freight train UP MPRPB05 West (locomotive UP 9089) included a locomotive engineer, a conductor and a student locomotive engineer. They first went on duty at 11:30 p.m., CDT, April 4, 2005, at the UP Proviso Yard, in Northlake, IL, a suburb of Chicago. This was the home terminal for all crew members, and all had received more than the required statutory off-duty period, prior to reporting for duty.

Their train consisted of four locomotives, 53 loaded, and 25 empty cars of several varieties. It was 7,163 feet long, and weighed 4,549 tons. The train was scheduled to travel to South Pekin, Illinois, via the Geneva Subdivision and the Peoria Subdivision. The train would leave the Geneva Subdivision at Nelson, which is a junction with the Peoria Subdivision. Nelson is located at milepost 104.3. The locomotive cab signal and automatic train control system (ATC) on locomotive UP 9089 had been tested by UP personnel earlier in the day. The train received a Class 1 air brake test, and departed Proviso Yard at 12:30 a.m., April 5, and proceeded west. Due to having an extra person on the crew (a student locomotive engineer), the conductor felt the locomotive cab would be too crowded with the extra luggage; so he chose to ride in the cab of the third trailing locomotive.

The train crew experienced problems with the ATC at two locations early in the trip, first at Sunset Road, near milepost 29.3 and then at Kress, near milepost 32.1. At both locations, the cab signal would not restore itself to a “clear” indication when the wayside signal had changed to a “clear” indication. The cab signal would remain at “restricting.” The crew radioed to the UP Desk 11 train dispatcher in Omaha, Nebraska, to notify him about the problem. The train dispatcher authorized the crew to disable or “cut out” the ATC system, as permitted by the operating rules (General Code of Operating Rules-GCOR, effective April 3, 2005, Rule 17.3 “Cut In and Cut Out Requirements).

The train dispatcher then granted the train absolute block authority from Kress to Meredith, milepost 48.5, as permitted by GCOR Rule 17.7 "ATC Failure/Cut Out Enroute." A train with the ATC system cut out can proceed, not exceeding 49 mph, if it has an absolute block ahead of the train in noncontinuous wayside block signal system territory, which describes the particular territory within which Train MPRPB05 was operating. The train then proceeded to Meredith where the train dispatcher again granted the train absolute block authority, this time from Meredith to Cortland, CP Y055, milepost 55.4. The train dispatcher informed the crew that they would be "second out" at Malta, CP Y063, milepost 63, behind another train, but instructed them to keep moving west. At Cortland, the train left the control of the Desk 11 train dispatcher.

The territory from Cortland west to Clinton, IA, is controlled by the UP Desk 12 train dispatcher. At Cortland, the crew contacted the Desk 12 train dispatcher at 4:31 a.m. and inquired about how far west they would be proceeding. The train dispatcher told them he could take them as far as CP Y080, near Rochelle, IL, milepost 79.9, at the west end of Global Three Yard. The train dispatcher informed the crew that he had trains ahead of them but to keep running at 40 mph if they could and that he'd assist them in a short while. The crew reviewed GCOR rule 17.7 "ATC Failure/Cut Out Enroute" and decided they could proceed at 40 mph.

At about 5:45 a.m., there was a shift change at the train dispatching office and a new Desk 12 train dispatcher took over for the overnight train dispatcher. The departing train dispatcher did not notify the oncoming train dispatcher about the ATC trouble encountered by train MPRPB05 nor did he mention that the train was operating without absolute block authority as it proceeded west from Cortland behind Train IAPSE04 on Main Track No. 2. There were no entries on the dispatchers' train sheet (Dispatchers Record of Movement of Trains) or on the transfer regarding Train MPRPB05 having the ATC cut out and being required to operate at Restricted Speed without absolute block authority in advance of the movement.

At 6:23 a.m., the new Desk 12 train dispatcher contacted the crew of MPRPB05 to provide them with information on the routing at Nelson to deliver the train to a South Pekin crew. The instructions were completed at about 6:29 a.m. when the train was near Nachusa, milepost 92.9.

As Train MPRPB05 approached the accident area, the student locomotive engineer was operating the locomotive while seated at the controls on the north side of the locomotive cab. The locomotive engineer was seated on the south side of the locomotive cab. The conductor was not in the lead locomotive cab but was standing in the toilet compartment of the third trailing locomotive.

Approaching the accident site from a point one mile east at milepost 98.1, there are, in succession, a tangent of 1,465 feet, a 2-degree 3-minute curve to the left of 1,172 feet, a tangent of 1,755 feet and then a 2-degree curve to the right of 888 feet to the point of collision. There is a 0.74 percent descending grade for 3,168 feet then a 0.00 percent grade for 2,112 feet to the point of accident. The grade then continues as a 0.63 percent descending grade for a considerable distance beyond.

It was daylight and clear; the wind was from the south at 8 mph with a temperature of 55 degrees F.

Train No. 2 – IAPSE04

The crew of Train IAPSE04 West (lead locomotive UP 9768) included a locomotive engineer and a conductor. They first went on duty at 2:30 a.m., CDT, April 5, 2005, at the UP Global Three Yard in Rochelle, IL. This was the home terminal for both crew members, and both had received more than the required statutory off-duty period prior to reporting for duty.

They were assigned to an intermodal freight train which consisted of four locomotives and 91 loaded cars of several varieties. It was 7,116 feet long and weighed 4,394 tons. The train was scheduled to operate to Clinton, IA, where there would be a crew change and the train would then continue on west. The automatic train control system had been tested by UP personnel earlier in the day. The train received a Class 1 air brake test, and departed Rochelle and proceeded west at 4:15 a.m., April 5, 2005.

The crew operated the train west without incident to Dixon, IL. The locomotive engineer operated the train past milepost 100 at Restricted Speed and then stopped at a point within about five car lengths of the rear car of a preceding train stopped on Main Track No. 2. Prior to approaching the rear end of the preceding train, the locomotive engineer of Train MPRPB05 had been in radio contact with the preceding train and had determined the approximate location of its rear car. The time was about 6:23 a.m. when Train IAPSE04 stopped with its locomotives near milepost 100.5 and the rear car near milepost 99. The crew of Train IAPSE04 was unaware of any following trains and did not radio any notification about being stopped near Dixon to any following trains.

After a delay of about 10 minutes, the crew of Train IAPSE04 received a radio transmission from the preceding train that it was again moving west. After waiting for the preceding train to move a sufficient distance west, the locomotive engineer of Train IAPSE04 released the train air brakes and began operating the train west. The locomotive engineer was seated at the controls on the north side of the locomotive cab and the conductor was seated on the south side of the cab. The time was approximately 6:38 a.m.

The Accident

Train No. 1 - MPRPB05 West

Approaching the accident site, the train was moving west at 34.2 mph (verified by locomotive event recorder data) on Main Track No. 2. The speed of the train was being controlled by the student locomotive engineer's use of the locomotive dynamic brakes.

The train crew's view was obstructed by the 2-degree 3-minute curve east of the accident site. As the train rounded the curve, the crew saw a train about one-half mile ahead. At first the crew thought the train was on Main Track No.1, but then realized that the train was also on Main Track No. 2. It was at this time that the student locomotive engineer applied the train's emergency brakes, using both the automatic brake valve and the toggle switch for the end-of-train device.

The student locomotive engineer and locomotive engineer both stood up from their seats. The locomotive engineer stated to the student locomotive engineer that he was leaving and exited the locomotive cab through the rear cab door. The student locomotive engineer followed him out that door. They traveled down the locomotive walkway to the steps on the north side of the locomotive where they both jumped off the moving locomotive onto the ground. They came to rest on Main Track No. 1. The train continued for a short distance until colliding with the rear end of Train IAPSE04, after which it stopped.

After the collision, the locomotive engineer walked west and remounted the lead locomotive, UP 9089. He used the locomotive radio to call the train dispatcher at 6:47 a.m. to notify him of the collision and that emergency personnel needed to be summoned.

The conductor exited the locomotive cab of the third locomotive and dismounted it on the north side. He noticed the student locomotive engineer was lying on Main Track No. 1. He walked over to him and noted that the student locomotive engineer was possibly injured. He provided him his coat to use as a pillow to make him more comfortable. The conductor then walked west up to the lead locomotive where he noticed the locomotive engineer was seated in the locomotive engineer's seat. He then saw the locomotive engineer stand and exit the front door of the locomotive and dismount the locomotive.

Train No. 2 - IAPSE04

The locomotive engineer had released the brakes and the train had traveled several hundred feet west, approaching milepost 100.5. The train was moving at about 7 mph when the crew experienced a severe run-in/run-out of the train's slack, immediately followed by a train-induced emergency air brake system application, after which the train came to a stop. The locomotive engineer stated to the conductor that he thought that perhaps another train had run into their train. The locomotive engineer radioed to the Desk 12 train dispatcher at 6:39 a.m. that the train had just gone into emergency near milepost 100.5. Neither the locomotive engineer nor the conductor suffered any injuries.

After a job briefing, the conductor dismounted the locomotive and placed a red fusee on the adjacent Main Track No. 1 and started walking east to inspect the train and to determine what had happened. The locomotive engineer was not able to restore the train's brake pipe air pressure. While the conductor walked the train, the locomotive engineer stayed on the locomotive to maintain radio communications with the train dispatcher.

The conductor walked the length of the train. When he arrived at the rear of the train, he found no damage; the rear car of his train was separated from the lead locomotive of another train by about three car lengths. He observed that no equipment from either train had derailed, as far as he could see. The end-of-train device from Train IAPSE04 was lying on the ballast about four car lengths east of the rear car of Train IAPSE04, next to the second locomotive of the following train. A man walked up to him and identified himself as the conductor on the other train. This conductor told him that he didn't really know what had happened because he was in the third trailing locomotive when his train stopped. This conductor asked the conductor of Train IAPSE04 if he had heard the train dispatcher issue an absolute block to his train by radio. The conductor of Train IAPSE04 responded that he had not hear such authority issued by the train dispatcher.

When the conductor of Train IAPSE04 arrived at the rear end of his train, there were already several Lee County and Dixon Police and Fire Department emergency personnel at the scene. The emergency personnel were attending to two injured crew members of Train MPRPB05.

Post-Collision

A short time later, several railroad officers arrived at the scene. They made a check for equipment damage and employee injuries. No locomotives or cars had derailed and there was no hazardous material involvement. The collision was not a FRA-reportable accident due to there being no damages.

The locomotive engineer of Train MPRPB05 had suffered a laceration to his leg; the student locomotive engineer suffered a fractured ankle bone. The injuries to both employees were FRA-reportable. The conductor was not injured. No post-accident testing of any kind was performed on any of the employees from either train. The crews on both trains were relieved on the site. The crew of Train IAPSE04 was transported back to Rochelle; the engineer and student engineer of Train MPRPB05 were both taken to a local hospital where they were treated and released. The employees were then transported back to Proviso. The conductor of Train MPRPB05 was also transported back to Proviso.

Analysis

Train MPRPB05 Employee Work History Evaluation

An employee work history evaluation was made on the three crew members of Train MPRPB05. Fatigue was not deemed to be an factor in this accident. The locomotive engineer had worked 14 days out of the last 30 days. He had been off duty for eight hours 10 minutes prior to reporting for duty at 11:30 p.m., April 4, 2005. The conductor had worked 10 days out of the last 30 days. He had been off duty for 34 hours 20 minutes prior to reporting for duty at 11:30 p.m., April 4, 2005. The student engineer had worked 22 days out of the last 30 days. He had been off duty for 21 hours prior to going on duty at 11:30 p.m., April 4, 2005.

The locomotive engineer's certification was current. His last operational evaluation ride was January 13, 2005, his last operational stop test was January 23, 2005, and his last operating rules exam was July 13, 2004. He had received seven operational tests in the last 365 days, with no failures.

The conductor's last ride with an officer was February 20, 2005. His last operational stop test was February 1, 2005 and his last operating rules exam was February 24, 2005. He had received ten operational tests in the last 365 days, with no failures.

The student locomotive engineer's last operational stop test was March 28, 2005. His last evaluation ride with an officer was March 3, 2005, and his last operating rules exam was February 4, 2005. He had received 13 operational tests in the last 365 days, with no failures.

Signal System

UP locomotive 9089 was operated as the lead locomotive of Train MPRPB05 and is equipped with a Union Switch & Signal (US&S) MicroCab onboard signal system. It has the capability of operating in multiple train control and cab signal wayside applications. The Geneva Subdivision is equipped with a version of ATC that has only two cab signal indications. They are "clear" authorizing movement at maximum allowed track speed, or "restricting" which authorizes the train to move, but only at a speed not to exceed Restricted Speed. A 100hz alternating current (100hz) is applied to the rail by the wayside equipment which is picked up by the locomotive's onboard ATC system.

The 100hz is used to control the operation of the train by the presence of the 100hz or the absence of the 100hz. Presence of the 100hz allows a locomotive to travel at track speed and the absence of the 100hz requires the locomotive to reduce to Restricted Speed and not to exceed Restricted Speed until a locomotive again receives the 100hz induced through the rail. The ATC is required to work in conjunction with the automatic block signal system. There is also a "high speed setting" of the ATC which requires the locomotive engineer to perform certain functions to control the speed of the train within certain time frames, depending on whether the train is moving at a speed greater than or less than 40 mph. When the cab signal continuously displays a restricting signal, a warning horn sounds in the locomotive cab every 90 seconds to alert the crew of the restriction.

The ATC system test dates on locomotive UP 9089 were in compliance. The last test record for a 49 CFR Part 236.586 Daily or After Trip Test, was April 4, 2005; the last test record for a 49 CFR Part 236.587 Departure Test was April 4, 2005; the last test record for a 49 CFR Part 236.588 Periodic Test, was March 14, 2005. A review of the locomotive repair history revealed that there have been eight failures of the ATC system on the UP 9089 since April 4, 2004. UP technicians found these failures to be of the intermittent variety and could not determine the exact causes.

After the incident at Dixon, two Locomotive Electrical Maintenance Technicians were assigned to thoroughly inspect UP 9089. Their investigation into the ATC failures resulted in UP changing out two EPROM (erasable / programable read-only memory) microchips on the CPU (computer processing unit) of the US&S MicroCab unit, along with a vital output card and a vital input card. All jumpers and switches were checked on the CPU to assure they were in the correct position. No ATC failures have been reported for the UP 9089 since these repairs were made.

FRA reviewed the signal trouble logs for the UP Geneva Subdivision for ATC failures of wayside equipment. ATC wayside failure reports were minimal and did not reflect a trend of maintenance issues for the wayside equipment.

Train Dispatcher/Train Radio Transmissions

FRA reviewed recorded radio transmissions between Train MPRPB05 and the Desk 11 and Desk 12 train dispatchers. On April 5, 2005, the crew of Train MPRPB05, locomotive UP 9089, had reported by radio an ATC failure with the onboard equipment early in the trip to the Desk 11 train dispatcher. The train dispatcher authorized the crew by radio to remove the ATC from service at milepost 32.1. The Desk 11 train dispatcher then provided Train MPRPB05 with absolute blocks ahead of it as far as Control Point (CP) Cortland, milepost 55.0. At Cortland, Train MPRPB05 entered the territory controlled by the Desk 12 train dispatcher.

There is a radio conversation between the third trick Desk 12 train dispatcher and the crew of Train MPRPB05 at about 4:31 a.m., April 5, that demonstrates a lack of knowledge of GCOR Rule 17.7 by both the train dispatcher and the crew of the train. The crew of Train MPRPB05 called the train dispatcher to inquire about how far the train will be proceeding. The train dispatcher responded: "I'll get you headed down towards the, uh, CP Y080, anyway, over." The crew responded: "All right, CP Y080. Can we get another block, over?" The train dispatcher responded: "Well, right now I got trains ahead of you. What are you, without a block, you able to run 40, is that correct, over?" The crew responded: "Yeah, that's correct. I just wanted to know what's going on, that's all." The train dispatcher responded: "Yeah, we'll just keep you running at 40 for now and I'll do what I can here in just a little bit, over." The crew responded: "All right." After that, there were no more radio transmissions between that particular Desk 12 train dispatcher and Train MPRPB05.

Train MPRPB05 operated westward from Cortland for 43.7 miles without any absolute blocks at speeds above Restricted Speed until colliding with the rear of Train IASPE04 at milepost 99.1. Train MPRPB05 passed a total of eight control points prior to impacting the rear end of Train IAPSE04. This radio conversation also demonstrates a lack of knowledge by the Desk 12 train dispatcher and by the crew of Train MPRPB05 regarding the type of signal system used in that particular territory. Correct application of GCOR Rule 17.7 depends on whether or not cab signals are operative and also whether the train is operating in continuous or noncontinuous block signal territory. As designated in UP Timetable No. 3, Effective 0001 Sunday, December 12, 2004, Geneva Subdivision, page 7, special instructions, Rule 17.7, continuous block signals are only between CP Y901 and CP Y015 and between CP Y103 and CP Y138.

Familiarity with this information and the requirements of GCOR Rule 17.7 should have alerted either the train crew or the train dispatcher that Train MPRPB05 was not authorized to move at a speed greater than Restricted Speed without an absolute block being established ahead of the movement. The ATC system in use does not allow the cab signals to be used when the ATC is cut out. This seems to have been a point of confusion on the correct application of GCOR Rule 17.7 for both the train dispatcher and the train crew.

Train Dispatcher Records

FRA examined the Dispatchers Record of Movement of Trains and noted that there was no record of any absolute blocks being provided to train MPRPB05 west of Cortland, although east of Cortland there was a record. There was no notation in "Unusual Occurrences" that the previous problem had been corrected. FRA interviews with the train dispatchers revealed that at shift change time in the train dispatching office, there had been no information given by the departing third-trick Desk 12 train dispatcher to the oncoming Desk 12 train dispatcher about the ATC trouble encountered by Train MPRPB05 or the fact that the train was still operating without the benefit of cab signals/ATC and was proceeding west from Cortland without absolute block authority. Apparently there was no mention of this in conversation when the two train dispatchers transferred control from one shift to the other.

Crew Action/Inaction

A review of the performance of the crew of Train MPRPB05 reveals several areas of noncompliance with the railroad's operating rules. The following are actions required by the UP System Special Instructions, Effective April 3, 2003:

- Riding Engines–"SSI 1.30, page 34." This special instruction requires that the conductor ride on the lead locomotive, unless there is at least one trainman present on the engine, which there was not. The conductor spent the entire trip in the cab of the third trailing locomotive.

- Cab Red Zone–"SSI 1.47, page 36, Duties of Crew Members, item C, All Crew Members Responsibilities, Cab Red Zone." This special instruction requires that the conductor be in the locomotive cab control compartment when the crew experiences what is termed a "Cab Red Zone Environment," such as when the train is required to operate at Restricted Speed. The conductor was not in the locomotive cab for the entire trip.

- Conductor Report Form–"SSI 1.47, A5, Conductor Report Form." This special instruction requires that the conductor fill out a Conductor Report Form, a railroad form on which the conductor is supposed to enter information about the trip while the train is en route, such as other than clear signals encountered, train defect detector results, train delays, Cab Red Zones, main track switch operation and main track switch restoration to normal. The form is used as a "memory jogger." The conductor failed to complete this form.

- Proper Action–"SSI 1.47, C4, Proper Action." This special instruction requires that if the engineer 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. The conductor and locomotive engineer both failed to comply with this rule.

FRA Violations

A FRA Operating Practices inspector submitted to the UP a violation report denoting one violation of CFR 49, Part 240.0305.A(2), Unlawful to exceed speed by 10 MPH or fail to stop within half the range of vision resulting in a reportable accident incident under Part 225. (In part)

A FRA Signal and Train Control inspector has submitted to the UP a violation denoting eight violations of CFR 49, Part 236.567.04.

Conclusions

The signal system was not to blame for this accident. There was a failure by the train dispatcher on Desk 12 and the crew of Train MPRPB05 to properly understand and properly implement the requirements of GCOR Rule 17.7 in noncontinuous block signal system territory when the ATC system is cut out.

Probable Cause

The FRA determined that the accident occurred because of a failure of the crew of Train MPRPB05 to operate the train at Restricted Speed as required by GCOR Rule 17.7. The crew of Train MPRPB05 did not understand the requirements of GCOR Rule 17.7 when they cut out the ATC in noncontinuous block system territory.

Contributing Factors

A contributing factor to this accident was an apparent lack of understanding of GCOR Rule 17.7 by the third trick train dispatcher. He asked the crew of Train MPRPB05 if they could proceed at 40 mph in a situation where 40 mph is not permissible. He asked this question in such a manner that led the crew to believe that 40 mph was a permissible speed. It is felt that his action also contributed to the accident. The fact that the train crew chose to consult a GCOR operating rule book indicated that they were in doubt as to the correct course of action. Unfortunately, the operating rule book did not help the crew and they interpreted the rule incorrectly and operated the train at a speed higher than Restricted Speed.

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