Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-90

Canadian National
Marissa, IL
November 20, 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-2006-90

1.Name of Railroad Operating Train #1: Illinois Central RR Co. [IC]	1a. Alphabetic Code: IC	1b. Railroad Accident/Incident No.: 539380
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident: N/A
3.Name of Railroad Responsible for Track Maintenance: Illinois Central RR Co. [IC]	3a. Alphabetic Code: IC	3b. Railroad Accident/Incident No.: 539380
4. U.S. DOT_AAR Grade Crossing Identification Number: 296124L	5. Date of Accident/Incident: Month 11 / Day 20 / Year 2006	6. Time of Accident/Incident: 07:45: ☑ 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): 07

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

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Marissa	37.40	N/A	IL	ST CLAIR

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
30 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
Single Main Track		4	35		1

OPERATING TRAIN #1

25. Type of Equipment Consist (single entry)	A. Spec. MoW Equip.	Code	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
1. Freight train; 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		1	1	1	C71391 20

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

29. Trailing Tons (gross tonnage, excluding power units): 3327

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)				
e	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	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.

Alcohol	Drugs
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	2	0	0	0	1
(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	105	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
383	80000	M302	M305

Number of Crew Members				Length of Time on Duty	
40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	0	1	0	Hrs 10 Mi 35	Hrs 10 Mi 35

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	3
Nonfatal	N/A	0	1

49. EOT Device? 1. Yes 2. No: N/A

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)	A. Spec. MoW Equip.	Code	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
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		N/A	N/A	N/A	N/A

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

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			N/A N/A N/A N/A N/A	N/A

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)	0	0	N/A		N/A	N/A
(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	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	0	0	0	0	0	(1) Total in Equipment Consist	0	0	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
0	0	N/A	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
0	0	0	0	Hrs 0 Mi 0	Hrs 0 Mi 0

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

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

80. Vehicle Speed (est. MPH at impact)	81. Direction geographical) 1.North 2.South 3.East 4.West	Code
5		1

82. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	3

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

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)	1

84. Position of Car Unit in Train
1

85. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	1

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

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)	02	03	06	07	N/A	N/A	N/A					

88. Signaled Crossing Warning (See instructions for codes)	Code
01	

89. Whistle Ban	Code
1. Yes 2. No 3. Unknown	2

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

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

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

93. Driver's Age	94. Driver's Gender 1. Male 2. Female	Code
43		2

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

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)	3

97. Driver Passed Standing Highway Vehicle	Code
1. Yes 2. No 3. Unknown	2

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	8

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	3	1

99. Driver Was	Code
1. Killed 2.Injured 3. Uninjured	1

100. Was Driver in the Vehicle?	Code
1. Yes 2. No	1

102. Highway Vehicle Property Damage (est. dollar damage)
25000

103. Total Number of Highway-Rail Crossing Users (include driver)
4

104. Locomotive Auxiliary Lights?	Code
1. Yes 2. No	1

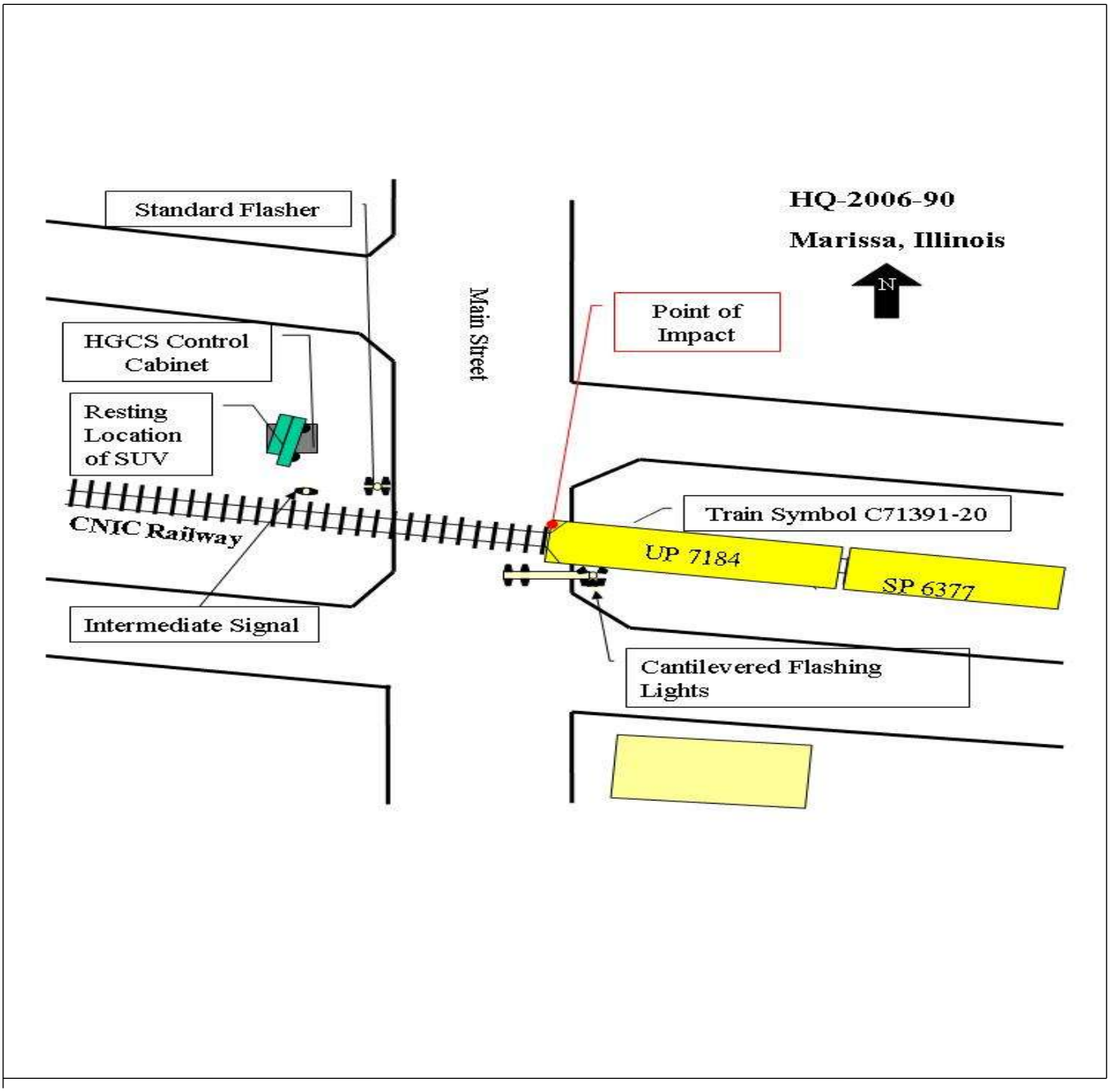
105. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	1

106. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	1

107. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	1

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

HQ-90
sketch_b.
jpg



109. SYNOPSIS OF THE ACCIDENT

On November 20, 2006, at approximately 7:45 a.m. CST, northbound Union Pacific Railroad Company's (UP) Train Symbol C-71391-20 struck a highway motor vehicle at the Main Street highway-rail grade crossing (HGCS) located on the Illinois Central Railroad (IC), identified in this area as the Canadian National Railway (CN), Central Division, St. Louis Subdivision, milepost (MP) 37.40 in Marissa, St. Clair County, Illinois.

The driver of the sport utility vehicle (SUV) and two other occupants were fatally injured due to the collision, and the fourth occupant survived with serious injuries. The SUV was struck near the center of the passenger side and was totally destroyed, with an estimated damage of $25,000. There were no injuries to the train crew. The leading locomotive sustained minor damage of about $383, and there was no derailment.

At the time of the accident, it was daylight, clear, and the temperature was approximately 30 degrees Fahrenheit.

The accident was caused by failure of the SUV operator to yield to the train. The local chief of police stated that no traffic citations were issued to the deceased driver.

110. NARRATIVE

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

Circumstances Prior to the Accident

The crew on Train Symbol C-71391-20 North included a locomotive engineer and conductor. They went on duty at 9:10 p.m., CST, November 19, 2006, at the Paducah and Louisville (P&L)Yard in Paducah, Kentucky. This was the away-from-home terminal for both crew members, and both received more than the statutory off-duty period prior to reporting for duty.

This was an empty coal train and consisted of 2 head-end locomotives, Nos. UP7184 and SP6377, and105 empty coal cars. It was 5,803 feet long, and weighed 3,327 tons. The train was scheduled to travel to Dupo, Illinois, with no cars to be added or removed en route. The train crew performed the Class 1initial terminal air brake test prior to departing the P&L Yard at 2 a.m.

As the northbound train approached the accident area, the locomotive engineer was seated at the controls on the right side of the leading locomotive, with the short end forward. The conductor was seated on the left side of the leading locomotive.

This is tangent track over 3,000 feet in advance to the accident location. There is a .5-percent descending grade starting at MP 38.1, and ending at MP 36.05. Main Street is a paved 2-lane residential city street. It is tangent for a considerable distance approaching the crossing, and the grade is practically level, with a slight incline to meet grade of the railroad for northbound traffic.

The railroad timetable direction of the train was north. The geographical direction was northwest. Timetable directions are used throughout this report.

The Accident

Train Symbol C-71391-20
The train was being operated at a recorded speed of 55 mph approaching the accident area. The maximum authorized speed for this train was 60 mph, as designated in the current CN Timetable No. 2. The train crew's view of the highway crossing was unobstructed. Since the vehicle approached the crossing from the conductor's side of the locomotive, the engineer was not aware of the impending collision until the vehicle was approximately 40 feet from the train. At that time, he initiated an emergency train air brake application. The train had little time to slow prior to the collision. The impact is estimated to have occurred at approximately 55 mph, as recorded by the event recorder in the controlling locomotive.

Highway Vehicle
The automobile was traveling north on Main Street. According to the train crew and three witnesses at the scene, the driver of the SUV never attempted to stop or slow down prior to the impact, and it appeared that the occupants of the vehicle were unaware of the approaching train. One witness stated that near the last moment, the driver may have stepped on the brakes, then decided they could not stop in time and proceeded onto the crossing. Witnesses estimated the speed of the SUV to be approximately 5 mph when the collision occurred in an area with a posted highway speed limit of 20 mph.

The train struck the passenger side of the automobile about midpoint of the vehicle. The automobile was propelled northwest, where it knocked over the standard flasher mast and demolished the highway-rail grade crossing control bungalow when the vehicle came to a stop on top of it. The train came to a stop about 1,768

feet north of this point.

After the train stopped, the locomotive engineer stayed on the locomotive to establish radio communications with the dispatcher. The conductor walked back to the automobile, where there was a paramedic on site covering the bodies that were ejected form the automobile. The CN trainmaster arrived prior to the engineer making it back to the scene. He had both train crew members return to the locomotive and, shortly thereafter, relieved them from duty.

A Marissa Police Officer and the Marissa Chief of Police arrived on scene about 7:45 a.m. Medstar Emergency Medical services arrived about 5 minutes later. The Chief of Police had already found the one survivor of this incident and instructed Medstar personnel to immediately care for this individual. The Chief then moved to the vehicle, where he located three more individuals but was unable to secure any life signs, and noted that the injuries sustained to the bodies indicated all were deceased.

A CN risk mitigation officer, trainmaster, and signal personnel were dispatched to the scene. They ascertained the condition of the train and track structure. There were no hazardous materials involved and only minor structural damage to the lead locomotive. Railroad personnel discussed the situation with the Marissa Police Department. The trainmaster requested a relief crew, which arrived at about 8:50 a.m., and the train crew operating at the time of incident were released from duty due to emotional trauma and departed about 10 a.m. The train was released to proceed at 10:30 a.m. and continued the trip to Dupo, which is about 40 miles north of Marissa.

The driver and two passengers of the SUV were pronounced dead at the scene of the accident. The fourth passenger was transported to Cardinal Glennon Hospital by Arch Life Flight, where her condition was stabilized and injuries treated.

Analysis

The driver was a 43-year-old female. The other three passengers of the SUV were young females, two being 13 years of age and one being 12. The St. Clair County, Illinois, Coroner performed toxicological testing on the remains of the driver.

The HGCS is equipped with warning lights and bell. There is an advanced warning sign posted about 151 feet from the crossing. There are also pavement markings within 96 feet of the crossing.

Both train crew members said the locomotive engineer began sounding the whistle when approaching the St. Clair Avenue grade crossing at MP 37.8 and continued blowing through the crossing at Main Street MP 37.4. This was validated by a download of the event recorder on Locomotive No. UP7184.

The leading locomotive, No. UP7184, was equipped with a headlight, the auxiliary lights, and the audible warning device required by Federal regulations. The trainmaster tested these devices at the accident site, and they functioned as intended. It was also equipped with a speed indicator and an event recorder, as required. The event recorder data was downloaded by UP personnel after the train arrived at the Dupo, Illinois, facilities and analyzed there. The analysis disclosed that the locomotive engineer was in compliance with all applicable railroad operating and train handling requirements. The FRA reviewed the results of this analysis and concurred with the conclusions.

The HGCS active warning device's control bungalow and the standard flasher mast were destroyed by the accident, and no tests were conducted immediately following the accident because the system was not operational. The HGCS micro processor memory was also destroyed when the memory chip was smashed during the accident. On the day of the incident, at approximately 12:30 p.m., replacement materials were delivered and repairs were commenced. Repairs were completed and the HGCS was tested and placed back in service at 7:07 p.m. Train Symbol L 546 operated over the crossing at 7:43 p.m., and all equipment operated as intended. The test and first train operation were conducted in the presence of an FRA Signal and Train Control Inspector.

Conclusions

The railroad was in full compliance with their own and all applicable Federal standards. The train crew and other witnesses to the accident had no information that could be used to determine why the SUV failed to stop at the crossing.

Probable Cause & Contributing Factors

A contributing factor, as determined by a FRA investigation, was the highway users unawareness due to enviornmental factors.

The FRA determined that the probable cause of the accident was the automobile driver's failure to stop at the HGCS, as required by Illinois State Law.