Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-54

Canadian National (CN)
Anding, Mississippi
July 10, 2005

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2005-54

1.Name of Railroad Operating Train #1: Canadian National	1a. Alphabetic Code: CN	1b. Railroad Accident/Incident No.: 374423
2.Name of Railroad Operating Train #2: Canadian National	2a. Alphabetic Code: CN	2b. Railroad Accident/Incident: 374423
3.Name of Railroad Responsible for Track Maintenance: Canadian National	3a. Alphabetic Code: CN	3b. Railroad Accident/Incident No.: 374423
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 07 / Day 10 / Year 2005	6. Time of Accident/Incident: 04:15: ☑ 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): 02

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
30	7	2	50	Central

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Anding	189.6	N/A	MS	YAZOO

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
72 F		4		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		3	45.9		N/A

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	G86971 09

28. Speed (recorded speed, if available) R - Recorded E - Estimated		Code
E - Estimated	51 MPH	E

29. Trailing Tons (gross tonnage, excluding power units): 5697

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/A

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	4	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	11	0	126	0	0
(2) Total Derailed	2	0	6	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
6297000	65000	H220	N/A

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	45. Conductor
Hrs 3 Mi 45	Hrs 3 Mi 45

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	2	0	0
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No		50. Was EOT Device Properly Armed? 1. Yes 2. No	
	1		1

51. Caboose Occupied by Crew? 1. Yes 2. No: 2

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	1	1	1	M33491 08

55. Speed (recorded speed, if available) R - Recorded E - Estimated		Code
E - Estimated	23 MPH	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
8234			e 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)
(1) First involved (derailed, struck, etc)	IC1023	1	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A

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

Alcohol	Drugs
0	0

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	2	0	0	0	0
(2) Total Derailed	2	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	53	0	54	0	0
(2) Total Derailed	9	0	0	0	0

63. Equipment Damage This Consist: 3270800

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

65. Primary Cause Code: H220

66. Contributing Cause Code: N/A

Number of Crew Members

67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen
1	0	1	0

Length of Time on Duty

71. Engineer/Operator: Hrs 9 Mi 30

72. Conductor: Hrs 9 Mi 30

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

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

77. Was EOT Device Properly Armed? 1. Yes 2. No: 1

78. Caboose Occupied by Crew? 1. Yes 2. No: 2

Highway User Involved

79. Type: C. Truck-Trailer. F. Bus J. Other Motor Vehicle; A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian; B. Truck E. Van H. Motorcycle M. Other (spec. in narrative) — Code: N/A

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

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

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

84. Position of Car Unit in Train: 0

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

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

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

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

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

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

93. Driver's Age: 0

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

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

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

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

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

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

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

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.

109. SYNOPSIS OF THE ACCIDENT

On July 10, 2005, at 4:15 a.m. Central Standard Time (CST) a head on collision occurred on the Canadian National Railway (CN), U.S. Central Division, Memphis Zone, Yazoo Subdivision, milepost (MP) 189.6 at Anding, Mississippi (MS). Anding is located about 30 miles north of Jackson, MS. The Yazoo Subdivision begins at West Junction (Memphis, TN) and extends to Jackson. The timetable direction for this segment of track is north and south. The method of operation for the Yazoo Subdivision is traffic control (TC).

CN freight Train G86971 09 consisted of four locomotives, 11 loads, 118 empties, and eight residue cars for a total of 137 cars. The train was 8,461 feet in length with 5,697 trailing tons. The train crew consisted of a locomotive engineer and a conductor. Train G86971 09 was operating northbound on the single main track at an estimated speed of 45 miles per hour (mph) approaching the accident area.

CN freight Train M33491 08 consisted of two locomotives, 53 loads, 52 empties, and two residue cars for a total of 107 cars. The train was 6,495 feet in length with 8,234 trailing tons. The train crew consisted of a locomotive engineer and a conductor. Train M33491 08 was operating southbound on the single main track at an estimated speed of 23 mph approaching the accident area.

The collision resulted in the derailment and destruction of two locomotives and eight cars on Train G86971 09, and destruction of two locomotives and nine cars on Train M33491 08. The three lead locomotives on Train G86971 09 remained coupled and came to rest on their side, west of the track. The trailing locomotive remained upright on the roadbed. The two locomotives of Train M33491 08 remained coupled and came to rest leaning toward the east side of the track.

Two Liquid Petroleum Gas (LPG) cars vented about 40 gallons of gas. No other hazardous materials were released. About 50 residents were evacuated from the town of Anding as a precautionary measure. The derailment resulted in about 24,000 gallons of diesel fuel spilling from the six locomotives. A fire ensued, fueled by the diesel fuel and spilled cotton seed meal, engulfing the locomotives. The fire caused some pressure relief venting and ignition of exhausted propane contained in two residue tank cars.

Damage to equipment is estimated at $9,567,800 and $65,000 for track and structure. The collision resulted in fatal injuries to the crew members on Trains G86971 09 and M33491 08. There were no injuries to emergency responders or residents.

At the time of the accident it was dark, visibility was clear with a northeast wind speed of three mph. The ambient temperature was 72 F.

The probable cause of the accident was the failure of the train crew members on Train G86971 09 to comply with a stop signal indication.

110. NARRATIVE

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

Circumstances Prior to the Accident

CN Train G86971 09

On July 10, 2005, at 12:30 a.m., a train crew consisting of a conductor and a locomotive engineer went on duty at their home terminal, CN Jackson Yard located at Jackson, MS, after completing their federal statutory off-duty period. The train crew was assigned to operate Train G86971 09. The crew was to operate north and meet a southbound train en route, swap trains with the southbound train crew, and return to Jackson with their train. The engineer took two locomotives for servicing and picked up two additional locomotives. The two BNSF Railway Company (BNSF) locomotives were fueled with 2,500 gallons of diesel fuel each and positioned to the rear of two Illinois Central (IC) locomotives. The lead locomotive was IC 1013, followed by IC 1006, BNSF 4563, and BNSF 4808.

After leaving the locomotive servicing track area, the engineer and conductor operated the locomotives to the main track, MP 731.5 on the McComb Subdivision, and coupled to their train, which was left south of McDowell road crossing. They operated their train to the Jackson Yard, set out a bad ordered car, and replaced a defective EOT. Train G86971 09 departed Jackson Yard at 3:38 a.m., northbound on the CN Central Division, Memphis Zone, Yazoo Subdivision with four locomotives, 11 loads, 118 empties and eight residue tank cars for a total of 137 cars. The train was 8,461 feet in length with 5,697 trailing tons.

Approaching the accident area from the south at MP 190.5 there is (in succession) a tangent for about 3,417 feet, a 3-degree left hand curve for about 1,050 feet, and a tangent for about 285 feet to the collision point.

CN Train M33491 08

On July 9, 2005, at 6:45 p.m., a train crew consisting of a conductor and locomotive engineer went on duty at their home terminal at CN Jackson Yard located at Jackson, after completing their statutory off-duty period. An engineer trainee also reported for duty on the same train. The trainee's home terminal is Memphis, Tennessee. The crew was assigned to operate Train M31971 09 northward from Jackson, meet a southbound train en route, swap trains with the southbound crew, and return to Jackson.

The train crew operated Train M31971 09 northward to Lambert MP 71.2 for a total of 147.4 miles. They swapped trains with the crew of southbound Train M33491 08 at Lambert, and departed at 11:30 p.m toward Jackson. The engineer trainee continued northward to Memphis on Train M31971 09. On their southbound trip, Train M33491 08 stopped at Greenwood, MS, MP 120 and conducted several switching movements. About 2:30 a.m., they departed Greenwood. The train consisted of two locomotives, 53 loads, 52 empties, and two residue cars for a total of 107 cars with 8,234 trailing tons and 6,495 feet in length.

Approaching the accident area from the north at MP 189, there is tangent track for 1,940 feet, a 2-degree 63 minute right-hand curve for 600 feet, and tangent for 628 feet to the collision point. The maximum authorized timetable speed at the accident area is 40 mph for freight trains and 50 mph for passenger trains.

CN System Timetable No. 1 dated Sunday, December 12, 2004, directions are north/south. The geographic directions are north/south. Timetable directions are used throughout this report.
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The Accident

Train G86971 09 operated at an estimated speed of 45 mph approaching the accident area. The maximum authorized timetable speed is 40 mph for freight trains between MP 185.0 and MP 189.8,
50 mph between MP 189.8 and MP 195.7. The short hood of the lead locomotive was forward. Train G86971 09 continued past North Anding Control Point, which displayed a stop signal indication, at an estimated speed of 51 mph. Train M33491 08 operated with the short hood of the lead locomotive forward at an estimated speed of 23 mph approaching Anding Control Point. About 4:15 a.m., the trains collided head-on at MP 189.6, 1,284 feet north of the switch points at North Anding. As a result of the collision, both train crews were fatality injured. Four locomotives and eight cars on Train G86971 09, and two locomotives and nine cars on Train M33491 08 were destroyed. A fire ensued, engulfing the six locomotives, and was not extinguished until 6 p.m. on July 10.

Hazardous Materials Information

Train M33491 08: Train G8697 09:
Locomotive No. IC 1023 Locomotive No. IC 1013
Manufacturer: Electric Motor Division Manufacturer: Electric Motor Division (EMD)
Model No: SD70 Model No. SD70
Fuel Capacity: 5,000 gallons Fuel Capacity: 5,000 gallons
Fuel Released: 3,750 gallons (Estimated) Fuel Released: 4,500 (estimated)
Locomotive No. IC 1014 Locomotive No. IC 1006
Manufacturer: Electric Motor Division Manufacturer: Electric Motor Division
Model No. SD70 Model No. SD70
Fuel Capacity: 5,000 gallons Fuel Capacity: 5,000 gallons
Fuel Released: 3,750 gallons (Estimated) Fuel Released: 4,500 gallons (estimated)
Locomotive No. BNSF 4563
Manufacturer: General Electric
Model No. C44-9W
Fuel Capacity: 5,000 gallons
Fuel Released: 3,750 (estimated)
Locomotive No BNSF 4808
Manufacturer: General Electric
Model No. C44-9W
Fuel Capacity: 5,000 gallons
Fuel Released: 3,750 gallons (estimated)

GATX 35456 Liquid Petroleum Gas (UN1075)-Residue (approximately 20 gallons vented)
TILX 302735 Liquid Petroleum Gas (UN1075)-Residue (approximately 20 gallons vented)

Responding to a 911 call by a local resident to the Yazoo County Sheriff Department, the following emergency agencies responded to the accident:

Yazoo County Sheriff Department, County Fire Department, County Civil Defense, County Coroner,
Tri Community Volunteer Fire Department, Benton Volunteer Fire Department, Police Department,
Vaugh Volunteer Fire Department, and Eaden Volunteer Fire Department.

About 4:50 a.m., the Yazoo County Civil Defense Manager initiated a two-mile radius evacuation of the collision area. About 50 people were affected by the evacuation order. They were allowed to return to their residences about 5 p.m. the day of the accident. There were no fatalities or injuries to any resident or emergency responder.

Shortly after the collision, CN signal personnel arrived and inspected the signal bungalows at both ends of Anding, the south end of Valley control points, and the switch machine at North Anding to ensure they were locked with a CN lock. The post accident inspection found all signal cases and the switch machine were secured with no indications of tampering or vandalism. Analysis and Conclusion
Analysis

The event recorder on the second locomotive of Train M33491 08 was recovered and shipped to the National Transportation Safety Board (NTSB) Vehicle Recorder Laboratory, Washington, D.C. where the data was analyzed. The event recorder of the lead locomotive of Train M33491 08 was not recovered due to the fire after the collision. The event recorders on Train G86971 09 were also destroyed.

The downloaded data disclosed that the locomotive engineer on Train M33491 08 was in compliance with all applicable railroad operating and train handling requirements. Federal Railroad Administration (FRA) reviewed the results of the analysis and concurred with the conclusions.

FRA Signal System Information

July 10-13, 2005, the signal system at the accident area was inspected by an FRA Signal & Train Control (S&TC) inspector. The inspector observed the power-operated switch at North Anding had been run through. There was damage to the power-operated switch operating rod, lock and point detector rods. Wheel marks indicated that Train G86971 09 had run through the power-operated switch. The CN private security lock was removed from the power-operated switch controller compartment and the inspector observed the power-operated switch machine internal locking mechanism was still in the locked position, and the switch controller contacts were opened in the centered position.

The traffic control system signals on the main track were tested to simulate the movements of the two freight trains. CN signal personnel performed route and time locking tests on the signal system. In addition, CN signal personnel performed extensive tests on the associated signal and circuitry, including meggering of the signal cables, testing relays, and shunting sensitivity of the track circuits.
After testing and inspecting the signal system, no defects were noted or contributed to the accident.

Radio Tests

On July 14, 2005, a radio reception test was performed to determine if Train G86971 09 could have heard the radio detector message that was broadcast when the southbound train passed the detector at MP 177.6 (Valley). The CN engineering department calculated Train G86971 09 would have been near MP 211.3 at the time Train M33491 08 went by the detector at Valley. The radio reception test revealed the radio transmission from the detector at Valley could not be received anywhere between MP 211.3 and MP 200.

Sight Distance & Accident Re-enactment Tests

On July 12, sight distance tests were conducted about the same time of the accident using locomotives similar to the locomotives on Trains G86971 09 and M33491

08. Approaching from the south, the intermediate signal at MP 194.4, which is the approach signal to the south end of Anding was observed at 6,054 feet. The color of the signal observed was green indicating a Clear Signal. The Home signal located at the south end of Anding MP 191.8 was observed from 6,900 feet. The signal aspect was a yellow over red indicating an Approach Signal. At the time of the observation, it was hazy with some ground fog around the signal.

The Home signal located at the north end of Anding MP 189.9 was observed from 5,822 feet from the conductor's seating position located on the west side of the locomotive cab, with the short hood forward. The signal was observed about 3,122 feet from the engineer's seating position located on the east side of the cab due to Maintenance of Way equipment on the Anding House track. The signal had one head and displayed a Stop signal indication.

During the sight distance test of an oncoming train, two locomotives were arranged to face each other at the point of impact (POI). Locomotive IC 1036 with the short hood heading south simulated the movement of Train M33491 08, and Locomotive IC 1022 with the short hood heading north simulated the movement of Train G86971 09. Locomotive IC 1022 was moved two feet for every one foot of distance for Locomotive IC 1036.

When Locomotive IC 1036 was 175 feet from the POI and Locomotive IC 1022 was 397 feet from the POI, observers on the IC 1022 noted from the conductor's position, no one could see the IC 1036. From the engineer's position, they were able to see the IC 1036. The sight distance between the two locomotives was 572 feet. When the locomotives were 652 feet apart, observers were not able to see the opposing locomotives, only the headlight glow from the opposing locomotive. The distance ratio was based upon the estimated speeds the trains were traveling at the time of the collision. Weather conditions at the time of the tests were haze with light to moderate fog. There were no other sources of illumination, i.e. streetlights, billboards, traffic lights.

Rail equipment inspection

The freight cars on both trains that had not derailed during the collision were separated from the derailed cars and moved from the accident area. The cars were inspected by an FRA Motor Power and Equipment (MP&E) inspector July 11 - 13. There were no defects found on the cars that would have contributed to the accident.

The CN train dispatcher is located at Homewood, Illinois. At the time of the accident, he planned for Train G86971 09 to hold the main track while Train M33491 08 was to diverge through the side track. The dispatcher lined the route for Train M33491 08 into the side track at North Anding at 3:52:55 a.m.

The CN train dispatcher and the remains of the conductor of Train M33491 08 were toxicologically tested as required after a train accident by 49 Code of Federal Regulations Part 219. The results for tested illegal substances were negative. The coroner was unable to obtain tissue samples from the locomotive engineer of Train M33491 08 and train crew members of Train G86971 09.

Conclusion

FRA partnered with all Federal, State, and local agencies, including CN personnel investigating this accident. FRA participated with the NTSB accident work groups, which investigated all aspects of the collision. FRA's report is based in part on the information developed with these work groups.

Analysis of locomotive event recorder data indicates that Train M33491 08 was in compliance with all applicable carrier rules and was operating within the required speed limitations. Signal and dispatch electronic data revealed that Train M33491 08 was occupying the track as authorized by the train dispatcher. The investigation and tests confirmed that Train G86971 09 operated beyond a Stop Signal, ran through the North Anding power switch, striking Train M33491 08.

Site distance tests that were conducted during the re-enactment, did not reveal any problems with the visibility of signal aspects.

The probable cause of the head-on collision was the failure of the train crew members on Train G86971 09 to comply with the Stop signal indication.

Applicable rules for Train 86971 09

* General Rule C. Alert and Attentive-Employees must take care to prevent injury to themselves or others. They must be alert and attentive when performing their duties, observing the conditions of equipment and tools they use to perform their duties. Defective equipment must be reported to the proper authority and must not be used.

* General Rule H. Rules Regulations and Instructions - Employees must be familiar with and obey all rules, regulations and instructions and must attend required classes. They must pass the required examinations. Employees must ask their supervisor for an explanation of any rule, regulation, or instruction they are unsure of. Employees must cooperate and assist in carrying out the rules and instructions. They must promptly report any violations to the proper supervisor. Before beginning each day's work or trip, employees whose duties require, must review Operating Bulletins and Bulletin Notices that apply to the territory on which they will work.

* Signal System Rule 805 - Approach- Proceed prepared to stop at next signal.
* Signal System Rule 816- Stop- Stop