



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-24***

***Indiana Railroad Company (INRD)
Newton, Illinois
March 31, 2005***

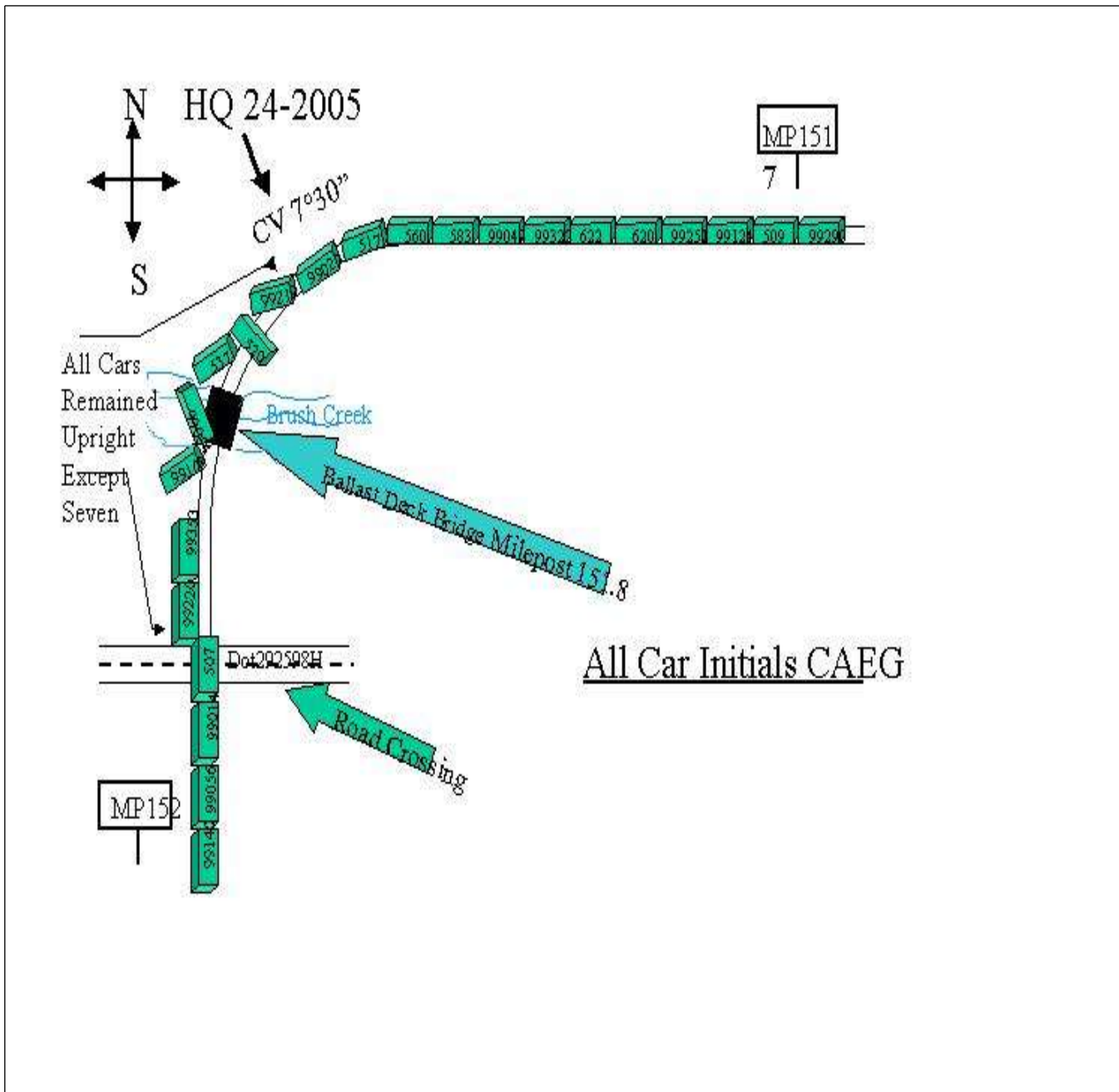
Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.

DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION		FRA FACTUAL RAILROAD ACCIDENT REPORT				FRA File # <u>HQ-2005-24</u>			
1. Name of Railroad Operating Train #1 INDIANA RAIL ROAD COMPANY			1a. Alphabetic Code INRD		1b. Railroad Accident/Incident No. 643024				
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: Indiana Rail Road Co. [INRD]			3a. Alphabetic Code INRD		3b. Railroad Accident/Incident No. 643024				
4. U.S. DOT_AAR Grade Crossing Identification Number			5. Date of Accident/Incident Month: 03 Day: 31 Year: 2005		6. Time of Accident/Incident 07:55: <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM				
7. Type of Accident/Incident (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) 01		
8. Cars Carrying HAZMAT 0		9. HAZMAT Cars Damaged/Derailed 0		10. Cars Releasing HAZMAT 0		11. People Evacuated 0		12. Division Indianapolis	
13. Nearest City/Town Newton			14. Milepost (to nearest tenth) 151.7		15. State Abbr Code N/A IL		16. County JASPER		
17. Temperature (F) (specify if minus) 52 F		18. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		19. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 1		20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1			
21. Track Name/Number Main			22. FRA Track Class (1-9, X) Code 2		23. Annual Track Density (gross tons in millions) 10.4		24. Time Table Direction Code 1. North 3. East 2		
OPERATING TRAIN #1									
25. Type of Equipment Consist (single entry)		1. Freight train 2. Passenger train 3. Commuter train		4. Work train 5. Single car 6. Cut of cars		7. Yard/switching 8. Light loco(s). 9. Maint./inspect.car		A. Spec. MoW Equip. Code 1	
						26. Was Equipment Attended? 1. Yes 2. No 1		27. Train Number/Symbol V52930	
28. Speed (recorded speed, if available) Code R - Recorded E - Estimated 11 MPH R		29. Trailing Tons (gross tonnage, excluding power units) 15402		30. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits j 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)		32. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box.	
(1) First involved (derailed, struck, etc)		N/A		48		yes		Alcohol Drugs N/A N/A	
(2) Causing (if mechanical cause reported)		0		0		N/A		33. Was this consist transporting passengers? (Y/N) N	
34. Locomotive Units		a. Head End		Mid Train		Rear End		35. Cars	
				b. Manual c. Remote		d. Manual c. Remote		a. Freight b. Pass. c. Freight d. Pass. e. Caboose	
(1) Total in Train		2		0 0		0 0		(1) Total in Equipment Consist 109 0 0 0 0	
(2) Total Derailed		0		0 0		0 0		(2) Total Derailed 23 0 0 0 0	
36. Equipment Damage This Consist 398750		37. Track, Signal, Way, & Structure Damage 600000		38. Primary Cause Code T199		39. Contributing Cause Code N/A			
Number of Crew Members				Length of Time on Duty					
40. Engineer/Operators N/A		41. Firemen 0		42. Conductors 1		43. Brakemen 0		44. Engineer/Operator Hrs 4 Mi 10	
								45. Conductor Hrs 7 Mi 15	
Casualties to:		46. Railroad Employees		47. Train Passengers		48. Other		49. EOT Device? 1. Yes 2. No 1	
Fatal		0		0		0		50. Was EOT Device Properly Armed? 1. Yes 2. No 1	
Nonfatal		N/A		0		0		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 N/A	
								53. Was Equipment Attended? 1. Yes 2. No N/A	
55. Speed (recorded speed, if available) Code R - Recorded E - Estimated 0 MPH N/A		57. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track				57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable			

DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION		FRA FACTUAL RAILROAD ACCIDENT REPORT				FRA File # <u>HQ-2005-24</u>	
56. Trailing Tons (gross tonnage, excluding power units) <div style="text-align: right;">0</div>		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) <div style="display: flex; justify-content: space-around;"><div>N/A</div><div>N/A</div><div>N/A</div><div>N/A</div><div>N/A</div></div>	
						2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter <div style="text-align: right;">N/A</div>	
58. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded(yes/no)	
(1) First involved (derailed, struck, etc)		0		0		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. <div style="display: flex; justify-content: space-around;"><div>Alcohol</div><div>Drugs</div></div> <div style="display: flex; justify-content: space-around;"><div>N/A</div><div>N/A</div></div>	
						60. Was this consist transporting passengers? (Y/N) <div style="text-align: right;">N/A</div>	
61. Locomotive Units		a. Head End		Mid Train b. Manual c. Remote		Rear End d. Manual c. Remote	
(1) Total in Train		0		0		0	
(2) Total Derailed		0		0		0	
63. Equipment Damage This Consist		0		64. Track, Signal, Way, & Structure Damage		0	
						65. Primary Cause Code <div style="text-align: right;">N/A</div>	
						66. Contributing Cause Code <div style="text-align: right;">N/A</div>	
						Length of Time on Duty	
67. Engineer/Operators 0		68. Firemen 0		69. Conductors 0		70. Brakemen 0	
						71. Engineer/Operator Hrs 0 Mi 0	
						72. Conductor 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? 1. Yes 2. No <div style="text-align: right;">N/A</div>	
						77. Was EOT Device Properly Armed? 1. Yes 2. No <div style="text-align: right;">N/A</div>	
						78. Caboose Occupied by Crew? 1. Yes 2. No <div style="text-align: right;">N/A</div>	
Highway User Involved				Rail Equipment 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 <div style="text-align: right;">N/A</div>				83. Equipment 3. Train (standing) 6. Light Loco(s) (moving) 1. Train(units pulling) 4. Car(s)(moving) 7. Light(s) (standing) 2. Train(units pushing) 5. Car(s)(standing) 8. Other (specify in narrative) Code <div style="text-align: right;">N/A</div>			
80. Vehicle Speed (est. MPH at impact) <div style="text-align: right;">N/A</div>				81. Direction geographical 1. North 2. South 3. East 4. West Code <div style="text-align: right;">N/A</div>			
82. Position 1. Stalled on Crossing 2. Stopped on Crossing 3. Moving Over Crossing 4. Trapped Code <div style="text-align: right;">N/A</div>				84. Position of Car Unit in Train <div style="text-align: right;">N/A</div>			
85. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User Code <div style="text-align: right;">N/A</div>				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 <div style="text-align: right;">N/A</div>			
86b. Was there a hazardous materials release by 1. Highway User 2. Rail Equipment 3. Both 4. Neither Code <div style="text-align: right;">N/A</div>							
86c. State here the name and quantity of the hazardous materials released, if any. <div style="text-align: center;">N/A</div>							
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	
						88. Signaled Crossing Warning (See instructions for codes) Code <div style="text-align: right;">N/A</div>	
						89. Whistle Ban 1. Yes 2. No 3. Unknown Code <div style="text-align: right;">N/A</div>	
90. Location of Warning 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach Code <div style="text-align: right;">N/A</div>				91. Crossing Warning Interconnected with Highway Signals 1. Yes 2. No 3. Unknown Code <div style="text-align: right;">N/A</div>		92. Crossing Illuminated by Street Lights or Special Lights 1. Yes 2. No 3. Unknown Code <div style="text-align: right;">N/A</div>	
93. Driver's Age <div style="text-align: right;">N/A</div>		94. Driver's Gender 1. Male 2. Female Code <div style="text-align: right;">N/A</div>		95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown Code <div style="text-align: right;">N/A</div>		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 <div style="text-align: right;">N/A</div>	
97. Driver Passed Standing Highway Vehicle 1. Yes 2. No 3. Unknown Code <div style="text-align: right;">N/A</div>				98. View of Track Obscured by (primary obstruction) 1. Permanent Structure 3. Passing Train 5. Vegetation 2. Standing Railroad Equipment 4. Topography 6. Highway Vehicle 7. Other (specify in narrative) Code <div style="text-align: right;">N/A</div>			
101. Casualties to Highway-Rail Crossing Users		Killed		Injured		99. Driver Was 1. Killed 2. Injured 3. Uninjured Code <div style="text-align: right;">N/A</div>	
		N/A		N/A		100. Was Driver in the Vehicle? 1. Yes 2. No Code <div style="text-align: right;">N/A</div>	
				102. Highway Vehicle Property Damage (est. dollar damage) Code <div style="text-align: right;">N/A</div>		103. Total Number of Highway-Rail Crossing Users (include driver) Code <div style="text-align: right;">N/A</div>	
104. Locomotive Auxiliary Lights? 1. Yes 2. No Code <div style="text-align: right;">N/A</div>				105. Locomotive Auxiliary Lights Operational? 1. Yes 2. No Code <div style="text-align: right;">N/A</div>			
106. Locomotive Headlight Illuminated? 1. Yes 2. No Code <div style="text-align: right;">N/A</div>				107. Locomotive Audible Warning Sounded? 1. Yes 2. No Code <div style="text-align: right;">N/A</div>			

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

HQ-25-
sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

At 7:55 a.m., March 31, 2005, southbound loaded unit coal Train Symbol V529 30 being operated over the Indiana Rail Road Company (INRD), derailed 23 loaded coal cars. These were numbered 48 through 70 (from the head end) of the 109-car train. The derailment occurred in Jasper County, Illinois, approximately 3 miles north of Newton, Illinois, at milepost (MP) 151.7. The derailment site is located on the INRD Indianapolis Division, Indianapolis Subdivision. At the time of the derailment, it was daylight and the weather was clear with an ambient temperature of 52 °F. There were no injuries nor any release of hazardous materials. Damages were as follows: Equipment \$398,750, Track and Structures \$600,000, with no signal damage.

The probable cause of the derailment was gage spread due to a sharp curvature with no rail lubrication present. Code T-199 "Other Track Geometry defects". This condition combined with heavy coal cars and marginal tie conditions contributed to the rail rollover.

110. NARRATIVE

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

Circumstances Prior to the Accident

The crew of Train Symbol V529 30 included a CSX engineer, a CSX conductor, and an INRD engineer pilot. The CSX crew members were called for duty at 12:40 a.m., March 31, 2005, after receiving 11-hours 4-minutes rest to operate the train from Danville, Illinois to Sullivan, Indiana, on CSX trackage and then to Newton on INRD trackage. They departed Danville, milepost OZ123, at 1:15 a.m., EST, and arrived Sullivan, milepost 203.6, at 5:15 a.m., and picked up an INRD pilot because they were not qualified on INRD trackage to Newton. The INRD engineer pilot had went on duty at 3:45 a.m., at Linton, Indiana, on March 31, 2005, after receiving 9 ½ hours rest. After reporting for duty, he traveled via personal auto, to Sullivan, arriving at 4:30 a.m. Upon arrival of Train Symbol V529 30, he met the CSX crew, took control of the train, and they departed at 5:20 a.m.

This was a long haul loaded coal train and consisted of 2 locomotives (both located on head end), 109 loads, 0 empties, having a weight of 15,402 tons, and a length of 5,777 feet. As the southbound train approached the accident area, the INRD engineer was seated at the controls on the west side of lead Locomotive UP 6433. The CSX engineer was seated in the middle seat of the controlling locomotive and the CSX conductor was seated on the east side of the controlling locomotive. The area where the derailment occurred was located at a point just entering the north end of a 7-degree 30-minute curve with a descending grade reaching as much as .61 percent. They had made no pickups or set-outs on line and the trip to this point was without incident. The train operated over the Union Pacific Railroad Company (UP), then the CSX before ultimately being transferred to INRD for delivery. The air test slip indicates that this extended haul train received a Class 1 Air Brake test on March 28, 2005, on the UP at North Platte, Nebraska.

The Accident

At the time the accident occurred, the train was being operated at 11 mph as recorded by the event recorder on lead Locomotive UP 6433. Because of the curvature, the maximum operating speed at this location is 15 mph as designated in INRD Timetable No. 11, effective January 1, 2000.

The crew members stated they did not feel or hear anything as they approached MP 152 to stop for a Form B. After being stopped at MP 151.95 for approximately 10 minutes, they received permission to proceed through the area of the Form B and started pulling on south. They had traveled from MP 151.95 to MP 152.3 when they felt a tug, then experienced an undesired emergency brake application. Upon inspection of their train, it was discovered that 23 cars of their 109-car train had derailed. There were no personal injuries or hazardous materials spill as a result of this derailment, therefore, no evacuation was necessary.

Analysis

The track structure at this location is 115-pound continuous-welded rail (CWR) on wooden ties. There was a ballast deck bridge located in the middle of a 7-degree 30-minute curve, which has a permanent 15 mph speed restriction. The bridge was completely destroyed as a result of the derailment.

The last track inspection was made on March 30, 2005, the day prior to the derailment, with no exceptions taken.

The last internal rail defect inspection was conducted by Sperry Rand Corporation on September 2, 2004.

The last Geometry Car test was made by a Canadian Pacific GRMS car on July 22, 2003.

Rail Sciences, Inc. completed an investigation for INRD. Their conclusion is that the gage spread derailment was created by a lack of proper rail lubrication and insufficient rail restraint for loaded unit coal train operation resulting in rail rollover and subsequent loss of gage in the 7.5 degree curve. This caused the wheels to derail between the rails and then be pulled on the ground and in the web of the rail for a significant distance before the train went into emergency.

A FRA Region 6 Track Inspector made a post-accident walking inspection on both sides of the derailment area with no deviations noted to the Track Safety Standards for Class 2 speeds. The crew members on Train Symbol V529 30 were not drug or alcohol tested.

Conclusion

The INRD was in compliance with all applicable Federal requirements for Class 2 track standards at this location. The Rail Sciences, Inc. group from Scottsdale, Georgia, hired by the INRD to investigate this derailment, has concluded the cause to be Code T-199, "Other track Geometry defects", (low rail rollover).

Probable Cause & Contributing Factors

The probable cause of the derailment was gage spread due to a sharp curvature with no rail lubrication present. Code T-199 "Other Track Geometry defects". This condition combined with heavy coal cars and marginal tie conditions contributed to the rail rollover. The FRA concurs with the findings.