

Federal Railroad Administration Office of Safety Headquarters Assigned Accident Investigation Report HQ-2005-45

> Canadian National (CN) Mikoma, Mississippi May 30, 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 FRA FACTUAL RAILROAD ACCIDENT REPORT FRA File # HQ-2005-45 FEDERAL RAILROAD ADMINISTRATION FRA FACTUAL RAILROAD ACCIDENT REPORT FRA File # HQ-2005-45																		
1.Name of Railroad C Canadian National	1a.	1a. Alphabetic Code 1b CN				b. Railroad Accident/Incident No. 369614												
2.Name of Railroad Operating Train #2									Alphabetic	2b. R	ailroad A	ccident/	Incide	ent				
N/A	N/A]	N/A											
3.Name of Railroad R	3a. Alphabetic Code 3					Railroad A	Accident	/Incid	ent No.									
Canadian National			CN				369614											
4. U.S. DUI_AAR G	5. Ľ	Date of Acc Month	Dav	6. 1	Fime of Accident/Incident													
					300653E				05	30	5	06:25: 🖌 AM 🗌 PM						
7. Type of Accident/I		4. Side collision				Hwy-rail d	crossing 10	ion-deton	-detonation 13. Other									
(single entry in coo	de box)	2. Head of	on col	lision	sion 5. Raking collision				RR grade	crossing 11	olent rupt	pture (describe in narrative)						
		3. Rear e	nd col	llision	sion 6. Broken Train collision				9. Obstruction 12. Other in				ipacts 0					
8. Cars Carrying	rs Carrying 9. HAZMAT Cars				10. Cars Releasir				ig 11. People					12. Div	ision			
HAZMAT 80)	Damaged/I	Derail	ed	d 0 HAZMAT				0 Evacuated				0 U.S. Ce			S. Centr	al	
13 Nearest City/Tow	'n	I			14. Milepost					15. State	i State							
15. Nearest City/16w	n	We	bb		(to nearest te			enth)	88.6	Abb N/A	r Cod	e S		TALLAHATCHIE				
17. Temperature (F)		18. Visit	oility	(sin	(single entry) Code 19			Veath	er (single	e entry)	entry) Code			e of Track			Code	
(specify if minus) 64) F		Dawn Dav	1 3.L	3.Dusk 1 4.Dark 2				ar 3. Ra	ain 5.Sleet	5.Sleet			ain 3.	g trv	1		
21 Track Name/Num	ber	2.	Day	ч.	22 EPA Trook				Conto	23 Appual Tr	6.Snow			aid 4. Industry			Cala	
Single Ma			/lain T	rack	Clas	ss (1-9, X	s (1-9, X) (gross tons in millions)					1. North 3. East						
							OPER		NG TRA	IN #1								
UPEKATING TKAIN #1																		
Consist (single en	ntry) 2	. Passenger	· train	4. w	ngle car 8.	. Light loc	co(s).	A.	spec. Mo	w Equip. Cou	A	ttended?	intent (Joue	27.1		iibei/Syiiiboi	
3. Commuter train 6. Cut of cars 9. Maint/inspect.car 1 1. Yes 2. No 1 M32071											071							
28. Speed (recorded speed, if available) Code 30. Method(s) of Operation (enter code(s) that apply) 30a. Remotely Controlled Locomotive?																		
R - Recorded a. ATCS g. Automatic block m.Special instructions											0 = Not a 2 should y to Wiesled							
E - Estimated 50 MPH R b. Auto train control h. Current									rain ordere	n. Otner than n	nain traci	6	1 = Remo	ote cont	rol po	rtable		
29. Trailing Tons (gross tonnage, d. Cab i. Track w									ant control p. Other (Specify in narrative) 3 = Remote control									
excluding power	e. Traffic k. Direct tr				affic control Code(s)			manve)	transmitter - more than one									
6065 f. Interlocking 1. Yard limits e N/A N/A N/A remote control transmitter 0										0								
31. Principal Car/Unit a. Initial and Number b. Position in Train c. Loaded/ves/no) 32. If railroad employee(s) tested for drug/alcohol use																		
(1) First involved									(903/110)	enter the	number	that were	positive i	n	1 use,	Alcohol	Drugs	
(derailed, struck, etc) N/A 1 N/A the appropriate box. N/A								N/A										
(2) Causing (if mechanical 0					0				N/A 33. Was this consist			transporti	ansporting passengers? (Y/N)				N	
34 Locomotive Units	,	a Head		Mid '	Train	Re	ar End		25 Cor			Lo	ade		Empt	y		
	, 	End	b. M	anual	c. Remote	d. Manua	l c. Rei	mote	55. Cars	\$ 	e	. Freight	b. Pass.	c. Frei	ght c	l. Pass.	e. Caboose	
(1) Total in Train	1	2		0	0	0	0		(1) Total	in Equipment C	Consist	18	0	10	5	0	0	
(2) Total Derailed	d	0		0	0	0	0		(2) Total	Derailed		0	0	0		0	0	
36. Equipment Dama	ige			37. Tr	ack, Signal, V	Way,			38. Prima	ary Cause			39. Cont	ributing	Caus	e		
This Consist		200		&	Structure Da	mage	0		Code	1	308	, Code N/A						
	rew M	w Members				Leng				1 of Time on Duty								
40. Engineer/ Operators	41. Firemen 42. Conductors 43. Brakemen					44. Engi	neer/Operator		45. Conductor									
N/A	0 1 0						10		Н	rs	4	MI 10						
Casualties to:	46. Rail	road Emplo	oyees	47. Tra	. Train Passengers 48. Other				49. EOT	Device?		50. Was EOT Device Properly Armed?						
Fatal		0			0 0				1. Yes 2. No 1					1. Yes 2. No 1				
Nonfatal		N/A			0 0				1. Yes 2. No								2	
OPERATING TRAIN #2																		
52 Type of Equipme	nt 1	. Freight tra	uin	4. W	ork train 7.	Yard/swi	tching	Δ	Spec Mol	V Fauin Code	53. W	as Equip	ment C	ode	54 T	rain Nur	her/Symbol	
Consist (single en	try) 2	. Passenger	train	5. Sii	ngle car 8.	Light loc	o(s).	11.	Spee. 1010	. zquip. Cour	A	ttended?		Suc	J-1. 11	an i tull		
	3	. Commuter	r train	6. Cu	t of cars 9.	Maint./in	spect.ca	r		N/A		1. Yes	2. No N	J/A		N/#	4	
55. Speed (recorded	speed, if	favailable)	Cod	le 57	. Method(s)	of Operati	on (enter	r code(s)	that apply)			57a. Rem	otely C	ontrol	led Loco	omotive?	
R - Recorded	0		NI/A	a	. ATCS	£	g. Autom	natic b	olock	m.Special instr	0 = Not a remotely controlled							
E - Estimated 0 MPH N/A b. Auto train control h. Current of traffic n. Other than main track $1 = $ Remote control portable																		

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56. Trailing Tons (gross tonnage, excluding power units)				с. d. е.	Auto trair Cab Traffic	i stop i. 1 j.T k. 1	'ime table/train orders rack warrant control Direct traffic control		 Positive train control Other (Specify in narrative) Code(s) 				2 = Remo 3 = Remo transmit				
N/A			f.	Interlocking	g 1.Y	ard limits		N/A	N/A N/A N/A N/A N/A			remote c	N/A				
58. Principal Car/Unit a. Initial and Nu			Jumber	b. Positi	on in Train	c. Load	led(yes/no)	59.1	If railroad	emplo	oyee(s) teste	ed for drug	/alcohol us	e,			
(1) First involved (derailed_struck_etc) 0			N/A				N/A		the appro	opriate	box.	positive	Drugs N/A				
(2) Causing (if mechanical								60	. Was this	s consi	st transporti	ing passen	gers? (Y/N)	10/1		
cause reported) 0			0			N/A		N/A					81	N/A			
61. Locomotive Unit	s	a. Head End b. Ma		Mid Train Ianual c. Remote		Rea d. Manual	r End c. Remote	62. Cars	62. Cars Lo a. Freight					b. Pass. c. Freight d. Pass.			
(1) Total in Tra	(1) Total in Train 0		0	0	0 0		(1) Total in Equipment Con			onsist	0	0	0	0	0		
(2) Total Derail	(2) Total Derailed 0		0	0	0	0	(2) Total D	eraile	ed		0	0	0	0	0		
63. Equipment Dama This Consist	i3. Equipment Damage 6 This Consist 0				ack, Signal, Structure Da	Way, mage	0	65. Primar Code	i5. Primary Cause 66. Contributing Cause Code N/A				use	N/A			
		Numbe	er of C	rew Me	embers			Length of Time on Duty									
67. Engineer/ Operators N/	68. Fire	58. Firemen 69 N/A 69			nductors N/A	70. Bra	kemen N/A	71. Engineer/Operator 72. Conc Hrs 0 Mi 0					ductor Hrs	0	Mi 0		
A Casualties to:	73. Railr	oad Empl	oyees	74. Tra	in Passenger	s 75. Oth	er	76. EOT Device? 77. Was EOT D						EOT Devic	e Properly	Armed?	
Fatal		0			0		1. Y	1. Yes 2. No N/A 1. Yes 2. No									
Nonfatal		0 0					0	/8. Caboo	se Od 1.	ccupied by Yes	y Crew	2. No				N/A	
		Highw	ay Us	ser Inv	olved				Rail Equipment Involved								
79. Type C. Truck-	Trailer. F	7 Bue		I Other	Motor Veh	cle	Code	83. Equipment									
A. Auto D. Pick-U B. Truck E. Van	arrative)	D	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)														
80. Vehicle Speed	cal)	Code	84. Position of Car Unit in Train														
(est. MPH at in 82 Position	4.West	Code	85. Circumstance								Code						
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossin								1. Rail Ec	luipm	nent Struck	k High	way User					
4. 1rapped 86a. Was the highway user and/or rail equipment involved							Code	2. Kall EQ 86b. Was t	here a	a hazardo	us mat	erials releas	e by			Coda	
in the impact transporting hazardous materials?								1 High		U.a.m. 2	DailE	minnent	2 Dath	4 Naitha			
1. Highway User 2. Rail Equipment 3. Both 4. Neither 2 1. Highway User 2. Rail Equipment 3. Both 4. Neither											4						
soc. State here the ha	une and qu	lantity of	uie na	zaiuous	materials re	icaseu, ii ai	N/A										
87. Type of 1.Ga Crossing 2.Ca	bucks 10. igns 11.	Flagged by Other (spec	crew . in narr.)	88. S (S	Signaled C See instruc	Crossin ctions t	g Warning for codes)	Code	89. Whis 1. Ye	tle Ban s	Code						
Warning 3.Sta	Warning 3.Standard FLS 6.Audible 9.Watchman					man 12.	None						1	2. No 3. Un	known		
Code(s) 0	3	06	07	'	N/A	N/A	N/A	N/A						2			
90. Location of Warning Code 91. Cross 1. Both Sides wi							ig warning Tighway Sig	gnals	nals			Lights or Sp	pecial Lig	hts		Code	
2. Side of Vehicle Approach							Yes No				1. Yes 2. No						
3. Opposite Side	pposite Side of Vehicle Approach					3.	Unknown	2 3. Uni					nown				
93. Driver's 94. Age	93. Driver's 94. Driver's Gender Code 95. Driver Drove Be Age 1. Male and Struck or w					Behind or in was Struck	Front of Tr	ain Code Train	ain 1. Drove around or thru the Gate 4. Stopped on Crossing						Code g		
51	2. Female 1. Yes 2. No 3. Unknown					2	2 3. Did not Stop narrative) 3										
97. Driver Passed Standing Code 98. View of Track Obscured b					cured by ((primary obstruction) 3 Passing Train 5 Vegetation 7 Other (specify in pertodius)								Code			
1. Yes 2. Standing Railroad Equi							ent 4. Topography 6. Highway Vehicle 8. Not obstructed								8		
101. Casulties to Highway-Rail Crossing Users Killed			d I	Injured	Was			Code		100. Was D	Priver in th	e Vehicle?		Code			
					-	1. Killed 2 102. Highv	2.Injured 3. vay Vehicle	Uninjured Property Da	1 1. Yes 2. No mage 103. Total Number of Highway-Rail Crossing						ing Users		
			4		00	(est. d	ollar damag	ge)		7500)	(includ	le driver)		4	-	
104. Locomotive Au	xıliary Lig	hts?	0			I.	Code	105. Locor	notiv	e Auxilia	ry Ligł	ts Operatio	nal?			Code	
106. Locomotive He	adlight Illu	minated?	-				Code	107. Locomotive Audible Warning Sounded?						Code			
1. Yes 2. No							1	1.	1. Yes 2. No							1	



108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED. HQ-45-2005 sketch.jpg

109. SYNOPSIS OF THE ACCIDENT

A southbound Canadian National (CN) mix freight train collided with a Tallahatchie County Road Department extended cab pickup truck at a highway-rail grade crossing on May 30, 2005, at 6:25 a.m Central Standard Time (CST). The accident occurred at Mikoma, Mississippi (MS), at Canadian National Milepost (mp) 88.61 on the CN Yazoo Subdivision. Mikoma is near the town of Webb, MS.

The motor vehicle driver and all three passengers were fatally injured. The crew members of the southbound train did not sustain any injuries. The pickup truck was completely destroyed. The leading locomotive sustained minor damages of \$200. As a result of the collision there was no derailment or hazardous material spill.

At the time of the accident it was daylight and overcast. The temperature was 64 °F.

The accident was caused by the failure of the motor vehicle driver to stop at the highway-rail grade crossing as required by Mississippi Code/Title 63 Motor Vehicles and Traffic Regulations/Chapter 3 Traffic Regulations and Rules of the Road/Article 21. Required Stops/ 63-3-1007.

110. NARRATIVE

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

Circumstances Prior To The Accident

On May 30, 2005, at 6:25 a.m. CST a southbound Canadian National (CN) freight train M3207130 consisted of two locomotives, Nos. IC 2702 and IC 2697, with 18 loads and 106 empties. Two loads contained chlorine and 78 empties contained hazardous materials residue. On May 30, 2005, the crew members, a locomotive engineer and a conductor, went on duty at 2:15 a.m. CST at CN Johnston Yard Memphis, Tennessee (TN). Both crew members had 12 hours and 30 minutes of rest prior reporting to duty, as required under the Federal Hours of Service Law.

At 2:15 a.m. the crew members of Train M3207130 had a job briefing without any exceptions concerning their assignment. The CN carmen performed the prescribed initial terminal air brake test at 2:17 a.m. CN Johnston Yard. Train M3207130 departed at 3:20 a.m. southward on single main track of the Yazoo Subdivision en route to Jackson, MS. On this subdivision CN has a Traffic Control System in effect extending from Memphis to Jackson. The trip was uneventful as the train proceeded towards Brazil Siding where Train M3207130 entered the siding at 6 a.m., to meet a northbound train. After the trains met, Train M3207130 departed Brazil Siding (milepost 83.3) at approximately 6:13 a.m., and proceeded southward. The train gradually increased speed approaching mp 88.6 and reached a recorded speed of 50 miles per hour (mph). The engineer was seated on the west side of the locomotive and the conductor was seated on the east side. The locomotive was positioned with the short hood to the south. The main track approaching State Highway 32 is 0.0 percent grade and tangent.

The motor vehicle carrying the four occupants was traveling west to east on State Highway 32. Motor vehicles traveling from west to east on State Highway 32 would observe a railroad advance warning sign located 873 feet from the highway-rail grade crossing. At 658 feet from the track there are also pavement markings clearly marked, warning drivers of an approaching highway-rail grade crossing. The road is level and straight for 1,000 feet approaching the grade crossing and the road grade is practically level at this point.

The railroad timetable direction and geographic direction are both south in the accident area.

The Accident

The freight train was operating at a recorded speed of 50 mph approaching State Highway 32 at mp 88.6. The conductor said the engineer was sounding the locomotive horn and ringing the bell. The engineer had a clear view of the grade crossing, but could not see motor vehicles approaching the grade crossing because of trees parallel with the railroad right-of-way until arriving at a point about 300 feet north of the crossing. Upon reaching this point the engineer observed a vehicle approaching the grade crossing from west to east at a high rate of speed. The conductor saw the engineer looking out his window and the conductor stood up to see what the engineer was looking at. The conductor then also observed the motor vehicle approaching the grade crossing at a high rate of speed. The conductor sat back down and estimated the speed of the approaching motor vehicle to be somewhere between 50 to 55 mph. The engineer put the train in emergency north of the crossing about 50 to 100 feet. The engineer said the motor vehicle driver side dow. At that time, he immediately veered the motor vehicle to the right. The train struck the motor vehicle at the rear of the driver's side dow. The motor vehicle was forced southward in front of the locomotive before coming to rest 120 feet south of the grade crossing. The train came to a stop 1,800 feet south of the grade crossing.

After the train came to a stop, the engineer immediately notified the CN dispatcher on the radio to report the accident. The engineer and conductor walked back to the grade crossing to provide assistance and to flag highway traffic. The engineer observed the flashing light signals operating at that time.

The CN police notified the Tallahatchie County Sheriff Department at 6:25 a.m. The Tallahatchie County Sheriff Department called the Deputy Sheriff at 6:26 a.m., the Tallahatchie County Emergency Medical Services (EMS) at 6:26 a.m., and the Mississippi Highway Safety Patrol at 6:47 a.m. The Mississippi Highway Safety

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Patrol arrived at 7:11 a.m. The Tallahatchie County Coroner was called at 7:30 a.m. The occupants were pronounced dead at the scene by the county coroner and transported directly to Mississippi Mortuary Services in Pearl, MS for autopsy.

Analysis and Conclusion

Analysis:

The motor vehicle driver was a 51 year old male employed by the Tallahatchie County Road Department. The other three occupants were inmates from the Sumner minimum security facility that houses 30 non-violent offenders. These inmates were being taken to a work site for a work detail. The inmates were all male passengers and their ages were 23, 31, and 38 years old. The motor vehicle was traveling west to east on State Highway 32. The vehicle driver did not stop and, according to the conductor and engineer, was traveling at an estimated speed of 50 to 55 mph.

The conductor said the engineer was sounding the locomotive horn and ringing the bell. The headlight, bell, horn, and auxiliary lights were all working, according to the conductor and engineer.

State Highway 32 Grade Crossing Inspection:

On approach to the State Highway 32 highway-rail grade crossing, the flashing light signals located in the southwest and northeast quadrants are clearly visible to a motorist 1,000 feet from the grade crossing when activated by the approach of a train. State Highway 32 and the railroad track intersect at a 60-degree angle. The stop line pavement marking at State Highway 32 is located 19 feet from the main track and at this point the view of the track is unobstructed. The highway-grade crossing warning devices are installed in the northeast and southwest quadrants of the highway-rail grade crossing intersection. The warning devices are back to back flashing light signals on both sides mounted on signal masts with an audible bell located on top of the mast in the northeast quadrant. The flashing light units are facing east and west for motor vehicular traffic.

The warning devices were tested and found to be working as intended with the exception of one blown bulb found in the flasher unit on the west side that was struck by a piece of the motor vehicle during the accident. It is believed that the bulb was blown when the motor vehicle struck the signal mast due to the fact that the bulb was white as if the bulb vacuum was suddenly lost. As evidence that the bulb was working prior to the accident, a CN signal inspector observed the flashing lights working properly for a northbound train at about 20 minutes prior to the accident. A CN signal inspector had been called at around 5:14 a.m. to investigate a track circuit problem between Brazil and Lambert control points. The track circuit problem was found to be an adjustment of an Electro Code unit located between Brazil and Lambert, which is located about 5 miles north of the accident area.

Further testing of the warning devices included a ground test, insulation resistance tests, shunts of both approaches and the island section for train detection with a 0.06 ohm resistance shunt with no exceptions noted. The south and north approach lengths are 3,480 feet. The grade crossing is equipped with a recorder, which indicated a 26 second warning time for Train M3207130. Lamp voltages were measured and found to be over 9.0 volts dc with the power on or off. The flashing light units flashed at 50 flashes per minute. The flashing light units were clean and maintained in good condition. The railroad cross buck signs located at the crossing are in good condition. The highway-rail grade crossing flashing light units are clearly visible to a motorist from the railroad advance warning sign.

The Highway-Rail Grade Crossing Technical Working Group (TWG) established by the Department of Transportation (DOT) published a Guidance On Traffic Control Devices at Highway-Rail Grade Crossings in November 2002. This report serves as a reference to aid in the decisions to install traffic control devices or otherwise improve such grade crossings. The TWG also relates the typical minimal clearing sight distance for an automobile that is stopped 15 feet from the nearest rail with track speeds ranging from 10 to 90 mph. According to the TWG, the clearing sight distance is the distance a driver must be able to see to determine if sufficient time exists for moving a vehicle safely across the track prior to the arrival of a train.

The clearing sight distances at State Highway 32 are as follows: See diagram from TWG guide (Attachment Guidance on Traffic Control Devises at Highway-Rail Grade Crossings, page 8 of 40).

Driver Distance From Nearest Rail Looking	Clearing Sight Distance					
50 feet	900 feet					
25 feet	3,480 feet					
15 feet	3,480 feet					

The State of Mississippi Uniform Crash Report lists the Contributing Circumstance as "Failed to Yield Right of Way".

A toxicological analysis was performed on the motor vehicle driver. At this time the toxicological test (Drugs) on the motor vehicle driver are not available and upon completion the report it will be forward as an attachment to this accident report. The driver's blood alcohol level was 0.02 percent.

Conclusion:

The train crew was in full compliance with their operating rules and all applicable Federal operating safety standards. All the highway-rail grade crossing warning devices were working properly at the time of the accident.

Probable Cause & Contributing Factors

The FRA determined that the probable cause of the accident was the failure of the motor vehicle driver to stop at the highway-rail grade crossing as required by Mississippi Code/Title 63 Motor Vehicles and Traffic Regulations/Chapter 3 Traffic Regulations and Rules of the Road/Article 21. Require Stops/ 63-3-1007.

A contributing factor may have been the visual acuity of the driver's left eye as he approached the highway-rail grade crossing. The Provisional Report of Autopsy revealed that the driver had loss of his left eye prior to the accident. This may have impeded the driver's peripheral field of vision of the southbound train at State Highway 32 highway-rail grade crossing.