Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-19

Union Pacific
Higginson, AZ
April 5, 2006

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2006-19

1.Name of Railroad Operating Train #1 Union Pacific RR Co. [UP]	1a. Alphabetic Code UP	1b. Railroad Accident/Incident No. 0406LK012
2.Name of Railroad Operating Train #2 Union Pacific RR Co. [UP]	2a. Alphabetic Code UP	2b. Railroad Accident/Incident 0406LK012
3.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co. [UP]	3a. Alphabetic Code UP	3b. Railroad Accident/Incident No. 0406LK012
4. U.S. DOT_AAR Grade Crossing Identification Number 437974T	5. Date of Accident/Incident Month 04 / Day 05 / Year 2006	6. Time of Accident/Incident 01:40: ☐ 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	North Little Rock

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Higginson	300	N/A	AR	WHITE

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
64 F		2		2		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	89		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	4. Work train	7. Yard/switching					
2. Passenger train	5. Single car	8. Light loco(s).		1	1	1	ITIMN X01
3. Commuter train	6. Cut of cars	9. Maint./inspect.car					

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

29. Trailing Tons (gross tonnage, excluding power units): 5381

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		e	N/A N/A N/A N/A
f. Interlocking	l.Yard limits			

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	no
(2) Causing (if mechanical cause reported)	N/A	N/A	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	0
(2) Total Derailed	1	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	98	0	0	0	0
(2) Total Derailed	20	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
806013	220000	M308	N/A

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	N/A	1	N/A	Hrs 2 Mi 10	Hrs 2 Mi 10

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	1
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)				A. Spec. MoW Equip. Code	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
1. Freight train	4. Work train	7. Yard/switching					
2. Passenger train	5. Single car	8. Light loco(s).		1	1	1	CNAN W02
3. Commuter train	6. Cut of cars	9. Maint./inspect.car					

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

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

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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
19111			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)	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)	UP 7307	138	no		N/A	N/A
(2) Causing (if mechanical cause reported)	0	N/A	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	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	1	(1) Total in Equipment Consist	135	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	4	0	0	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
295321	0	M308	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
1	N/A	1	N/A	Hrs 4 Mi 45	Hrs 4 Mi 45

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)	C

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

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? (1. Highway User 2. Rail Equipment 3. Both 4. Neither)	Code
	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 (1. Highway User 2. Rail Equipment 3. Both 4. Neither)	Code
	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)	88. Signaled Crossing Warning (See instructions for codes) Code	89. Whistle Ban (1. Yes 2. No 3. Unknown) Code
Code(s): 01 03 06 07 N/A N/A N/A	01	2

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
	1		2		2

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
66	1	2	1

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
	2		8

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	1	0

99. Driver Was (1. Killed 2.Injured 3. Uninjured)	Code	100. Was Driver in the Vehicle? (1. Yes 2. No)	Code
	1		1

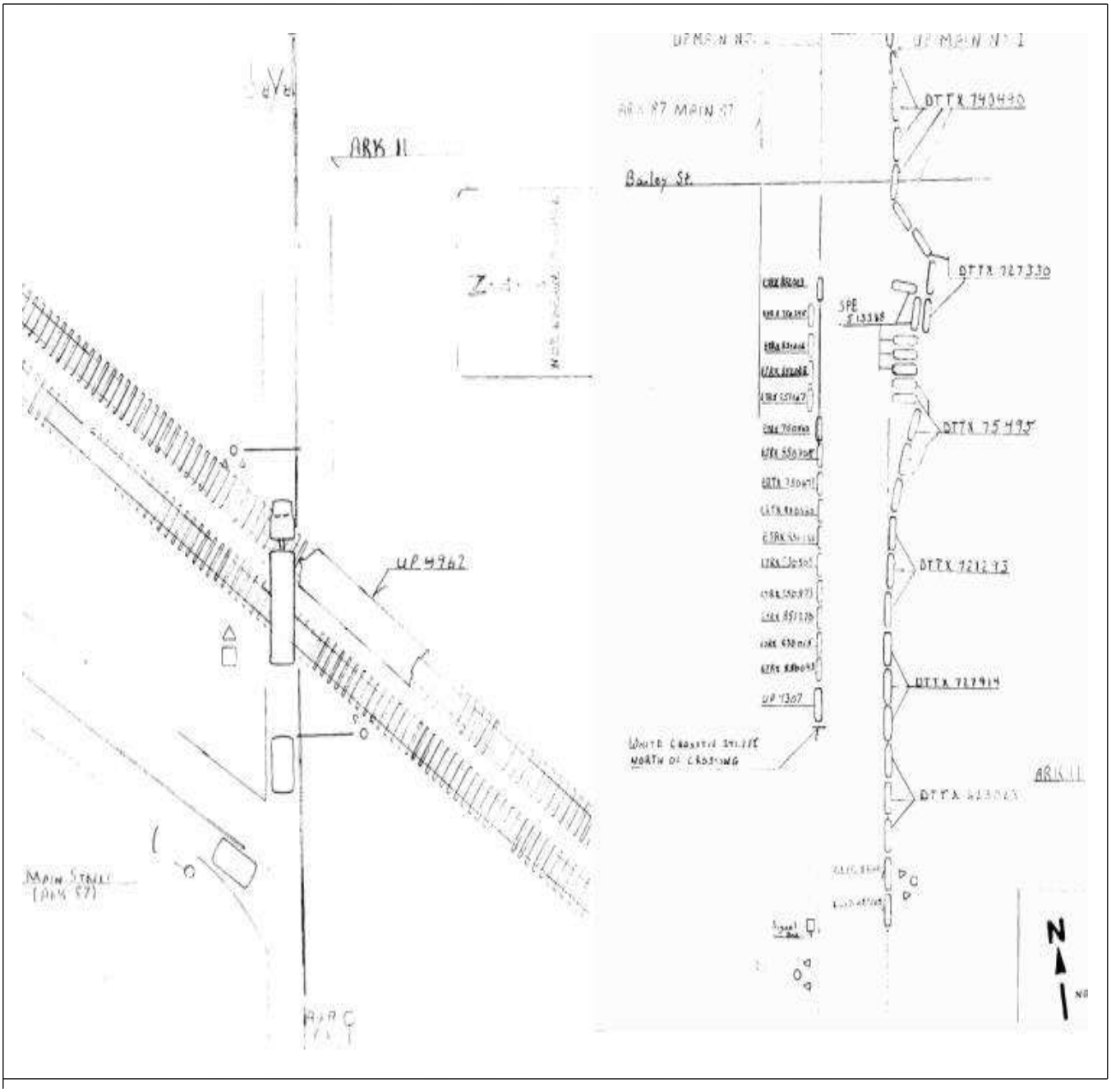
102. Highway Vehicle Property Damage (est. dollar damage)	103. Total Number of Highway-Rail Crossing Users (include driver)
1000 00	1

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

106. Locomotive Headlight Illuminated? (1. Yes 2. No)	Code	107. Locomotive Audible Warning Sounded? (1. Yes 2. No)	Code
	1		1

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

HQ19-2006.JPG



109. SYNOPSIS OF THE ACCIDENT

A northbound Union Pacific (UP) train, ITIMNX 01, collided with a eastbound tractor/trailer on Arkansas State Highway 11 at a highway-rail grade crossing, on April 5, 2006 at 1:40 p.m. The accident occurred in Higginson, AR on the UP Number 2 main track at Milepost 300 on the Hoxie Subdivision. After the collision the vehicle was dragged down the track and hit a coal train, CNANW 02, standing on the number one main. The impact caused the vehicle to separate. The tractor was thrown clear of the track into a ditch. The trailer came to rest on the No. 1 main track after impacting UP 7307.

The crew of the ITIMNX 01, consisting of an engineer and conductor, were injured. The driver of the tractor/trailer was killed.

Equipment damage to the ITIMNX 01 was $869,878. Equipment damage to the CNANW 02 was $295,321. Track and signal damage was $220,000.

The tractor was completely destroyed and the trailer received heavy damage. A track hoe transported on the trailer was also damaged. Total estimates were about $100,000.

The probable cause of the accident is due to the driver of the tractor/trailer driving around the crossing gates and into the path of the approaching train.

At the time of the accident the weather was clear and dry with a temperature of 64°F.

110. NARRATIVE

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

Circumstances prior to the Accident

ITIMNX 01

The crew of train ITIMNX 01 included a locomotive engineer and a conductor. They went on duty at 11:30 a.m., CDT, on April 5, 2006 at the UP North Little Rock yard in North Little Rock, AR. The crew of the CNANW 02 included a locomotive engineer and a conductor. They went on duty at 7:55 a.m., CDT on April 5, 2006 at the UP North Little Rock yard in North Little Rock, AR. This was the home terminal for all crew members and all received more than a statutory off duty period, prior to reporting for duty.

The crew of the ITIMNX 01 assigned train consisted of two locomotives and 97 loaded double stack and one loaded spine car. It was 6,720 feet long and weighed 5380 gross tons. The train was scheduled to travel to Marion, AR. The train received an initial terminal train air brake test in Oakland, Ca. It also received a 1000 mile air brake test in Longview, TX. The train departed the North Little Rock yard at 12:30 p.m. It was not scheduled to pick up or set out any cars en route to Marion, AR.

CNANW 02

The crew of the CNANW 02 assigned train consisted of two locomotives, 135 coal cars, and one remote locomotive (UP 7303) attached to the rear of the train. It was 7,344 feet long and weighed 19,279 gross tons. The train received an initial terminal train air brake test in North Platt, NE. It departed the North Little Rock yard at 10:49 a.m. en route to Independence, MO. The train was not scheduled to pick up or set out any cars en route to Independence. The train was placed on main track No. 1 in Higginson, AR at approximately 12:45 p.m.

As the northbound ITIMNX 01 train approached the accident area on main track No. 2, the locomotive engineer was seated at the controls on the east side of the leading locomotive. The conductor was seated on the west side of the locomotive.

The northbound CNANW 02 was standing on main track No. 1, north of Arkansas State Highway 11 waiting for the ITIMNX 02 to pass. The engineer was seated at the controls on the east side of the leading locomotive. The conductor was seated on the west side of the locomotive.

In this area of the railroad, on main track No. 2, beginning at Mack, CPY 307, Milepost 306.5 for a northward movement, there are no curves between Milepost 307 and the point of impact at Milepost 300 at Arkansas State Highway 11. The northbound train was on main track No. 2. Measurements taken from the whistle board for northbound trains on main track No. 2 to the approximated point of collision measured 2027 feet. Arkansas State Highway 11 is made of manufactured concrete panels, measuring eight feet in length, with five panels wide for a total of 40 feet. This crossing consisted of active warning devices, which included flashing lights, bells, gates, and crossbucks.

Continuing northward on main track No. 2 and measuring from the center of Arkansas State Highway 11 there is an S curve approximately 530 feet in length, with zero degrees and 10 minutes with ½ inch elevation.

There are no curves on main track No. 1 for over five miles north of the crossing. Grade in the accident area is virtually level. The railroad timetable direction of the train is north. The geographic direction is northwest. Timetable directions are used throughout this report.

The public crossing, DOT # 437974T, (Arkansas State Highway 11) is located on the Hoxie subdivision at Milepost 300.05, in Higginson, AR. The crossing warning system consists of flashing L.E.D. lights, gates and bells. The crossing controller is a Harmon Industries PMD, normal and stand-by back up units for both main tracks 1 and 2.

The crossing location is supplemented by pavement markings and passive “RR crossing” warning signs and crossbuck signs. There is a sign on each flasher mast which indicates “2 tracks”. The highway surface is two lane asphalt. The angle of the roadway approaching and over the crossing is not perpendicular.

The posted highway speed limit is 45 miles per hour. The method of signal operation over the crossing is Traffic Control System (TCS). The State of Arkansas has governing authority concerning the highway crossing, and is responsible for the maintenance of pavement on each side of the crossing. There are no traffic light preemption circuits involved at this location.

The railroad tracks have “stop” marking on both approaches of main tracks number 1 and 2 at a distance of approximately 300 feet from the highway crossing in order to aid the visibility of highway users to oncoming train traffic. The markings indicate where a standing train is required to stop in order to keep the lights and gates deactivated if or when a through train move is not accomplished.

This crossing controller was not equipped with any type of crossing data download system.

The vehicle was a 1984 Peterbilt tractor and a lowboy trailer hauling a track hoe. It was eastbound on State Highway 11. According to witnesses at the scene, the vehicle had attempted to make a left turn on to State Highway 11 from Main Street. The driver cut the corner to short and had to back up and make the turn again. While maneuvering his vehicle onto highway 11, the vehicle had the road and traffic blocked. After the vehicle completed the left turn, it proceeded eastbound toward the crossing. The vehicle crossed over into the westbound land of the roadway and stopped momentarily before proceeding around the crossing gates into the path of the oncoming train.

The Accident

ITIMNX 01 North

The train was being operated on main track No. 2 at a recorded speed of 51 mph as it approached the accident area. The maximum authorized speed for this train was 70 mph, as designated in the current UP Timetable No. 3. The engineer said he had the locomotive in position eight to build up speed after passing over a crossover. The train crews view approaching the crossing was unobstructed. The engineer said he became aware of the impending collision after they had passed by the whistle post. He said he initiated an emergency train air brake application just before the collision occurred. After the collision the lead locomotive dragged the vehicle down the track until it hit the remote locomotive on the CNANW 02 standing on main track No. 1. After impact, the lead locomotive was uncoupled from the second locomotive and traveled approximately 300 yards down track No. 2. The second locomotive and 20 cars derailed after the impact. The engineer said his shoulder was injured and the conductor said he injured his knee after the impact .

CNANW 02 North

The train was standing on Main track No. 1 north of Arkansas State Highway 11 waiting for the ITIMNX 01 to pass. The engineer said the air brakes were set and the train was loaded. The rear car of the train, UP locomotive 7303, was approximately 341 feet north of the crossing. After the derailment, the 11th through the 14th cars from the rear of the train were pushed off to the west side of the track onto their sides. The engineer was not aware the train had been hit until he heard the crew of the ITIMNX 01 notify the dispatcher of the accident.

Highway Vehicle

The tractor/trailer was traveling eastbound on State Highway 11. According to the engineer and conductor, the driver drove the vehicle around the crossing gates in the path of the train. The ITIMNX 01 struck the vehicle on the right side between the tractor and the trailer. At impact, the track hoe was knocked off of the trailer onto Main No. 1. The tractor/trailer was pushed northward, along main track No. 2, for about 300 feet before striking the remote locomotive on the CNANW 02. The tractor/trailer separated after striking the remote locomotive of the CNANW 02. The rear tandem wheels of the tractor were dragged between the two trains causing a derailment. The front part of the tractor was thrown east of main track No. 2 approximately 30 feet and came to rest on its top in a ditch. The trailer hit the remote UP locomotive 7303 on the CNANW 02 and came to rest on main number one. The driver was pronounced dead at the scene.

Agencies responding to the accident were the Arkansas State Police, Arkansas Department of Pollution Control, White County Sheriffs Office, White County Constable, White County Coroner, Higginson Police Department, Higginson Fire Department, and White County EMS.

Equipment damage to the ITIMNX 01 was $806,013. Equipment damage to the CNANW 02 was $295,321.00. Track damage was $200,000. Damage to the highway rail grade crossing system was $20,000.00

Analysis and Conclusion

The driver was a 66 year old male. The White County, Arkansas coroner performed toxicological testing on the remains of the driver and the results are pending.

The highway-rail grade crossing was inspected by Signal & Train Controls Inspector W. M. McCracken from Region 5. He found upgrades on the L.E.D. lights and gates and Harmon Industries PMD. He also found the warning signs and crossbuck signs were in good condition. All TCS signal systems were tested and verified to be working as intended at the time of the accident.
Tests were performed to simulate a train at each of the stop bars. He found the crossing system correctly recovered with a shunt applied at each of the stop bar markings on both tracks on each approach.

Mr. McCracken observed UP signal forces perform all functional and complete operational tests of all controllers on all tracks. He noted no defective conditions and took no exception to any tests performed. All track circuits were shunted and found to be correct on all crossing approach tracks both normal and standby. The warning bells were tested and verified to be correct on both AC and DC operation. The approach distances on both tracks were measured and verified to be of sufficient length for adequate warning time at maximum track speed.

Crossing controller power AC and DC and flashing light and gate power AC and DC was tested and found to be within prescribed limits. All circuits were tested for insulation resistance as well as grounds tested. No exceptions were noted on any tests performed.

The railroad has a whistle post in place 2,027 feet south of the crossing. The train crew members said the locomotive engineer began sounding the whistle when the train neared this post. This was later validated by analysis of the event recorder data.

The leading locomotive was equipped with a headlight, auxiliary lights and audible warning devices required by Federal regulations. Mr. Cody Fowler, MOP for the Union Pacific, tested the devices at the accident scene. The headlights and audible warning devices were in working order.

The locomotive was also equipped with a speed indicator and an event recorder as required. The event recorder data was downloaded by the MOP and analyzed by the UP locomotive facility in North Little Rock. The analysis disclosed the locomotive engineer was in compliance with all applicable railroad operating and train handling requirements. The data showed the speed indicator was working until the derailment. Investigation discovered the axle alternator and its bracket were damaged causing the recorded speed on the event recorder to drop to zero.

Conclusion

The railroad was in full compliance with their own, and all applicable Federal standards. Neither the train crew members nor witness present at the time of the incident could determine why the driver of the vehicle drove around the crossing gates.

The Federal Railroad Administration determined that the cause of the accident was because the driver of the vehicle disregarded traffic signals.