Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-81

Union Pacific (UP)
Caney, OK
October 23, 2008

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-2008-81

1.Name of Railroad Operating Train #1: Union Pacific RR Co. [UP]	1a. Alphabetic Code: UP	1b. Railroad Accident/Incident No.: 1008FW018
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident No.: N/A
3.Name of Railroad Operating Train #3: N/A	3a. Alphabetic Code: N/A	3b. Railroad Accident/Incident No.: N/A
4.Name of Railroad Responsible for Track Maintenance: Union Pacific RR Co.	4a. Alphabetic Code: UP	4b. Railroad Accident/Incident No.: 1008FW018
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 10 | Day 23 | Year 2008	7. Time of Accident/Incident: 08:47:00 ☐ AM ☑ PM

8. Type of Accident/Indicent (single entry in code box)						Code
	1. Derailment	4. Side collision	7. Hwy-rail crossing	10. Explosion-detonation	13. Other (describe in narrative)	01
	2. Head on collision	5. Raking collision	8. RR grade crossing	11. Fire/violent rupture		
	3. Rear end collision	6. Broken Train collision	9. Obstruction	12. Other impacts		

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
29	7	3	80	FORT WORTH SU

14. Nearest City/Town	15. Milepost (to nearest tenth)	16. State Abbr	16. State Code	17. County
CANEY	621.4	N/A	OK	ATOKA

18. Temperature (F) (specify if minus)	19. Visibility (single entry) 1. Dawn 2. Day 3.Dusk 4.Dark	Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow	Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry	Code
55 F		4		1		1

22. Track Name/Number	23. FRA Track Class (1-9, X)	Code	24. Annual Track Density (gross tons in millions)	25. Time Table Direction 1. North 2. South 3. East 4. West	Code
SINGLE MAIN		4	57.5		1

OPERATING TRAIN #1

26. Type of Equipment Consist (single entry)					A. Spec. MoW Equip.	Code	27. Was Equipment Attended? 1. Yes 2. No	Code	28. Train Number/Symbol
	1. Freight train	4. Work train	7. Yard/switching	A. Spec. MoW Equip.					
	2. Passenger train	5. Single car	8. Light loco(s).						
	3. Commuter train	6. Cut of cars	9. Maint./inspect.car			1		1	MHONP22

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

30. Trailing Tons (gross tonnage, excluding power units): 6758

31. 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

31a. 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
Code: 0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)
(1) First involved (derailed, struck, etc)	UP 7554	2	N/A
(2) Causing (if mechanical cause reported)	UP 7554	2	N/A

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

Alcohol	Drugs
0	0

34. Was this consist transporting passengers? (Y/N): N

35. 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	2	0	0	0	0

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	34	0	70	0	0
(2) Total Derailed	10	0	6	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$853,436.00	$263,490.00	E71L	E66L

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	0

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 7 Mi 47	Hrs 7 Mi 47

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	0	0	0

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

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

52. Caboose Occupied by Crew? 1. Yes 2. No: N/A

OPERATING TRAIN #2

53. Type of Equipment Consist (single entry)					A. Spec. MoW Equip.	Code	54. Was Equipment Attended? 1. Yes 2. No	Code	55. Train Number/Symbol
	1. Freight train	4. Work train	7. Yard/switching	A. Spec. MoW Equip.					
	2. Passenger train	5. Single car	8. Light loco(s).						
	3. Commuter train	6. Cut of cars	9. Maint./inspect.car			N/A		N/A	N/A

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

58. 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

58a. 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 # HQ-2008-81

57. Trailing Tons *(gross tonnage, excluding power units)* N/A

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): N/A N/A N/A N/A N/A

2 = Remote control tower
3 = Remote control transmitter - more than one remote control transmitter: N/A

59. 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

60. 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

61. Was this consist transporting passengers? (Y/N) N/A

62. 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	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

64. Equipment Damage This Consist: $0.00

65. Track, Signal, Way, & Structure Damage: $0.00

66. Primary Cause Code: N/A

67. Contributing Cause Code: N/A

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
0	0	0	0

Length of Time on Duty

72. Engineer/Operator: Hrs 0 Mi 0

73. Conductor: Hrs 0 Mi 0

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No N/A

78. Was EOT Device Properly Armed? 1. Yes 2. No N/A

79. Caboose Occupied by Crew? 1. Yes 2. No N/A

OPERATING TRAIN #3

80. 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

81. Was Equipment Attended? 1. Yes 2. No Code: N/A

82. Train Number/Symbol: N/A

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

84. Trailing Tons *(gross tonnage, excluding power units)* N/A

85. 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): N/A N/A N/A N/A N/A

85a. 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: N/A

86. 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

87. 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

88. Was this consist transporting passengers? (Y/N) N/A

89. 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	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	0	0	0	0	0
(2) Total Derailed	0	0	0	0	0

91. Equipment Damage This Consist: $0.00

92. Track, Signal, Way, & Structure Damage: $0.00

93. Primary Cause Code: N/A

94. Contributing Cause Code: N/A

Number of Crew Members

95. Engineer/ Operators	96. Firemen	97. Conductors	98. Brakemen
0	0	0	0

Length of Time on Duty

99. Engineer/Operator: Hrs 0 Mi 0

100. Conductor: Hrs 0 Mi 0

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	0	0	0
Nonfatal	0	0	0

104. EOT 1. Yes 2. No N/A

105. Was EOT Device Properly 1. Yes 2. No N/A

106. Caboose Occupied by Crew? 1. Yes 2. No N/A

Highway User Involved

107. 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)* Code: N/A

108. Vehicle Speed *(est. MPH at impact)* N/A

109. *geographical)* 1.North 2.South 3.East 4.West Code: N/A

Rail Equipment Involved

111. 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

112. Position of Car Unit in N/A

110. Position	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	N/A

113. Circumstance	Code
1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	N/A

114a. 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	N/A

114b. Was there a hazardous materials release	Code
1. Highway User 2. Rail Equipment 3. Both 4. Neither	N/A

114c. State here the name and quantity of the hazardous materials released, if any.
N/A

115. Type Crossing Warning	1.Gates	4.Wig Wags	7.Crossbucks	10.Flagged by crew
	2.Cantilever FLS	5.Hwy. traffic signals	8.Stop signs	11.Other *(spec. in narr.)*
	3.Standard FLS	6.Audible	9.Watchman	12.None

Code(s)							
	N/A	N/A	N/A	N/A	N/A	N/A	N/A

116. Signaled Crossing *(See instructions for codes)*	Code
	N/A

117. Whistle Ban	Code
1. Yes 2. No 3. Unknown	N/A

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

119. Crossing Warning with Highway Signals	Code
1. Yes 2. No 3. Unknown	N/A

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

121. Age	122. Driver's Gender	Code
N/A	1. Male 2. Female	N/A

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

124. 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)*	N/A

125. Driver Passed Highway Vehicle	Code
1. Yes 2. No 3. Unknown	N/A

126. 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	N/A

Casualties to:	Killed	Injured
129. Highway-Rail Crossing Users	N/A	N/A

127. Driver	Code
1. Killed 2.Injured 3. Uninjured	N/A

128. Was Driver in the Vehicle?	Code
1. Yes 2. No	N/A

130. Highway Vehicle Property Damage *(est. dollar damage)*
N/A

131. Total Number of Highway-Rail Crossing Users *(include driver)*
N/A

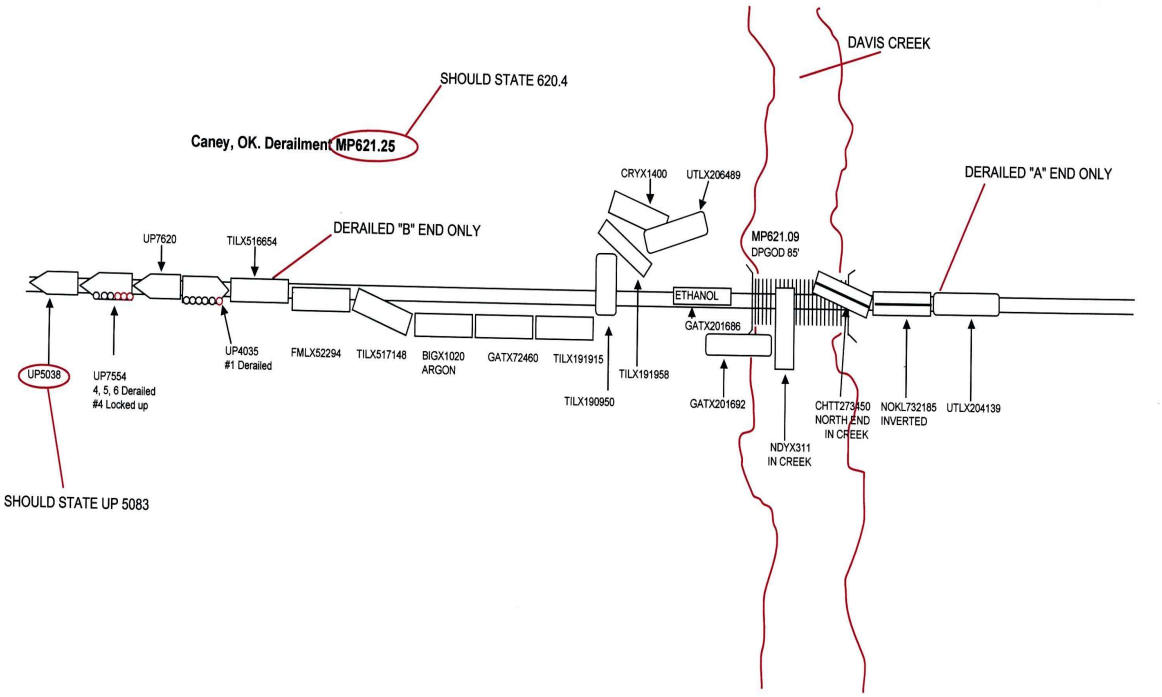
132. Locomotive Auxiliary Lights?	Code
1. Yes 2. No	N/A

133. Locomotive Auxiliary Lights Operational?	Code
1. Yes 2. No	N/A

134. Locomotive Headlight Illuminated?	Code
1. Yes 2. No	N/A

135. Locomotive Audible Warning Sounded?	Code
1. Yes 2. No	N/A

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



137. SYNOPSIS OF THE ACCIDENT

On October 23, 2008 at 8:47 p.m. CST northbound Union Pacific Railroad Company (UPRR) freight train MHONP-22 consisting of various hazardous materials and general freight rail cars derailed 16 rail cars approximately 1 mile northeast of Caney, Oklahoma. The incident occurred on the Fort Worth service unit, Choctaw Subdivision, and the Point of Derailment (POD) was at milepost 621.4. The track is owned and maintained by the Union Pacific Railroad.

Among the sixteen derailed rail cars were nine tank cars. Of the nine tank cars, four were loaded with lube oil, argon and glycol. Of the nine derailed tank cars, the pressure vessels of two, TILX 190950 and TILX 191958, were compromised allowing approximately 6000 gallons of fuel oil per car to spill. A third tank car loaded with argon spilled approximately 10 percent of the product through the vent valve apparatus. There were no reported injuries or fatalities to the train crew or general public. An evacuation of 80 people was ordered by local first responders at approximately 8:59 p.m. The evacuation order was rescinded at 3:00 a.m. on October 24.

Union Pacific Railroad reports equipment damage at $853,436 and track, signal, and structure damage at $263,490.

At the time of the accident it was dark with clear skies and a temperature of 55° F.

The probable cause of the derailment was traction motor failure of the number 4 wheel located on locomotive UP 7554, the second locomotive in a 4 unit consist.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of UP train MHONP-22 consisted of a locomotive engineer and a conductor. They first went on duty at 1:00 p.m. CST on October 23, 2008 at Union Pacific Railroad Ney Yard in Fort Worth, Texas. This is the home terminal for the train crew. Both members had a 48 hour rest period prior to reporting for duty at 1:00 p.m. on October 23, 2008.

UP freight train MHONP-22 consisted of four locomotives, 34 loaded freight cars and 70 empty freight cars. It was 6249 feet long and weighed 6758 tons. The train received a Class I train air brake test on October 22, 2008 at Settegast Rail Yard in Houston, Texas. Of the four locomotives, the second unit (UP 7554) was set up dead in train for an eventual destination to Washington State for a complete rebuild.
UP Train MHONP-22 arrived at Denison, Texas after an uneventful trip from Fort Worth. The three operating locomotives were refueled at Denison and the train continued northward, passing a defect detector at milepost 633.8 near Caddo, Oklahoma with no defects reported.

As the northbound train approached the accident area, the locomotive engineer was seated at the control stand on the east side of lead locomotive UP 5083 and the conductor was seated in the seat located on the west side of the cab on the leading locomotive.

In this area of the railroad the track has a descending grade of 0.42 percent and is tangent. The Main Track consists of 133 lb continuously welded rail (CWR).

The railroad timetable direction is north. Timetable directions are used throughout this report.

THE ACCIDENT:

UP Train MHONP-22 was being operated at a recorded speed of 40 mph as it approached the accident area. The train speed was 24 mph at the time of the derailment. The speed was recorded by the event recorder of

the controlling locomotive, UP 5083. The maximum authorized speed for mixed freight trains in this area is 60 mph as designated by the current Union Pacific Railroad Timetable # 3 and is designated FRA Class 4 track.

As UP Train HONP-22 approached the accident area it passed through a hot box detector (HBD) located at milepost 633. This occurred at 8:26 p.m. CST. There were no defects reported by the detector. As the train cleared the HBD the crew heard a Manager of Track Maintenance (MTM) speaking over the radio to the crew attached to UP train GB7GLS, which was standing in Caddo Siding located at milepost 632 and one mile north, and ahead of, UP Train MHONP-22. The MTM was heard to ask the train crew of UP Train GB7GLS about the location of a possible tie fire. The MTM had driven his vehicle along a dirt road that paralleled the west side of the Main Track very near the area where the hot box detector is located at milepost 633. According to the statements of interview, as UP Train MHONP-22 passed the MTM he observed sparks coming from underneath the second or third locomotive unit (UP 7554 and UP 7620, respectively). The MTM alerted the train dispatcher by radio of the event and then heard the train crew speaking with the dispatcher about the issue. The train dispatcher was heard to instruct UP Train MHONP-22 to proceed to Cook Siding located north of milepost 633 at milepost 617, a distance of 16 miles. As UP Train MHONP-22 passed UP Train GB7GLS standing in Caddo Siding the conductor assigned to the standing train observed the wheels "sparking underneath the second locomotive". The crewman called the conductor assigned to TP Train MHONP-22 on his cell phone and informed him of the event. The locomotive engineer assigned to UP Train GB7GLS was not in a position to observe this condition as he was walking over to a crew hauler van which had arrived to pick them up and transport them back to the terminal. Once seated in the crew hauler the engineer did hear a conversation over the radio between UP Train MHONP-22 and UP Train Management Desk. In the conversation the Train Management Desk Operator asked the crew of UP Train MHONP-22 if they were going to stop and inspect the train and the reply was in the negative and that they were reducing speed and proceeding to Cook Siding to perform the inspection.

Subsequent to this conversation the engineer of UP Train MHONP-22 noticed sporadic flashing on the ballast. According to the engineer statement of interview, the train at this time was being operated in throttle position 8 on a slight ascending grade. There was no wheel slip or slide alarms triggered at any time. Because of the reports of sparks, the engineer took it upon himself to reduce train speed to 24 mph for the duration of the run to Cook Siding.

As the train approached the HBD located at milepost 621.6, the engineer heard a loud clank and then got the entry message for the detector. Momentarily after the entry message ended the train went into emergency and came to a halt. The conductor stated that he heard "something" at that same time but could not identify what it might have been. Both crewmen exited the locomotive with their paperwork and proceeded to the north on foot until they came to a pathway that led to a signal located at milepost 620.10 where they saw a passing law enforcement officer and flagged him down. While walking to the pathway the engineer contacted the train dispatcher by cellular phone and reported the derailment.

The point of derailment (POD) occurred at a frog portion of the stub track switch located at milepost 621.24. The stub track is used by the railroad to store maintenance of way equipment but was empty at the time of the derailment. The point where the lead locomotive stopped was at milepost 620.4.

A total of sixteen freight cars and two locomotives derailed. Among the derailed freight cars were nine tank cars loaded with fuel oil, argon and glycol. Three were breached with a loss of product. There were no injuries or fatalities reported as a result of the release.

At 8:59 p.m. CST the Atoka County Fire Chief ordered a precautionary evacuation of approximately 80 persons included in a 2 square mile area. This order was rescinded at 3:00 a.m. CST on October 24, 2008.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL:

The Union Pacific Railroad performed toxicological tests on both the engineer and conductor. The results were negative.

CONCLUSION:

Crew Intoxication was not a causal factor.

ANALYSIS - LOCOMOTIVE SAFETY DEVICES:

The lead locomotive was equipped with headlights, auxiliary lights and the audible warning device required by Federal Regulations. A railroad manager tested these devices with a Foreman General and a FRA Motive Power and Equipment Inspector present.

CONCLUSION:

All locomotive devices were present and performed as intended. The locomotive safety devices were in full compliance of the Federal Regulations.

ANALYSIS - LOCOMOTIVE ENGINEER OPERATING PERFORMANCE:

The locomotive was equipped with a speed indicator and event recorder as required. The event recorder data was downloaded at the scene and analyzed by a UP Operations Manager.

CONCLUSION:

The locomotive engineer was in compliance with all applicable railroad operating and train handling requirements.

ANALYSIS - EVENT RECORDER:

FRA analyzed event recorder data provided by the Union Pacific Railroad. The data suggested that the emergency application of the train air brakes was induced by the train separation due to the derailment. The data indicated that train speed, amperage, throttle and air brake pressure was constant until the unintentional emergency train air brake application occurred. The data suggests that there were no exceptions revealed to the engineers handling characteristics prior to the derailment and subsequent emergency brake application.

CONCLUSION:

Train handling was not a casual factor in the derailment.

ANALYSIS - FATIGUE:

FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to blood alcohol content (BAC) of 0.05. At or above this baseline, we do not consider fatigue as probable for any employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings.

FRA obtained fatigue related information including a 10 day work history for both crew members of UPRR Train MHONP-22 involved in this accident.

CONCLUSION:

FRA determined that fatigue was not probable for the locomotive engineer or conductor of UP Train MHONP-22.

ANALYSIS - TRACK:

The point of derailment occurred at a frog located at the stub track switch at milepost 621.24. No exceptions were taken by the Union Pacific Railroad Manager of Track Maintenance at that location. Track inspection measurements were taken of the track in the location of the accident. UP inspection records were reviewed

CONCLUSION:

Track conditions did not contribute to the cause of the derailment.

OVERALL CONCLUSION:

Train handling, crew fatigue and track conditions did not contribute to the derailment.
The second locomotive in the train was not running and was dead in train with a non-complying tag present adhered. The number four traction motor over-heated and locked up causing the left and right side number four wheel to slide on top of the rail. The wheel eventually accumulated such large flat spots that the tread of the wheel "rolled over" the top of the rails creating an overhang of approximately 2 inches of surface material. When the wheel passed over the stub track switch frog located at milepost 621.24 the accumulated metal struck the frog resulting in the derail of the locomotive. The second locomotive and 16 freight cars also derailed as a result. The lead locomotive was an Electro-Motive unit and the second locomotive was a General Electric; due to the vagaries of the electrical systems on each of the units and the fact that the second locomotive was not running, the engineer did not receive a sliding wheel alarm in the cab of the lead locomotive.

During the clean up process of the derailment it was discovered that the number four traction motor of the affected locomotive was missing the bottom drain plug and the lubricating oil had leaked out causing the support bearing to overheat and seize. According to Union Pacific Railroad maintenance records this locomotive had undergone traction motor inspection work performed by a maintenance contractor in Houston, Texas prior to being added to UP Train MHONP-22. The bottom drain plug is equipped with a hole through the center of it for the purpose of physically locking the plug down to the traction motor; there was no broken portion of wire in evidence on the traction motor indicating that the wire was left off. In addition it was discovered that the number five traction motor had the same condition. The Union Pacific Railroad performed unannounced audits on the contractor at 2 separate locations in Texas, including Houston, and discovered that the contractor was not using the locking wire at all times and when wire was used it was an improper type. The recommended wire is made up of stranded milled steel and the wire being used by this contractor was made of single strand soft lead.

Due to the results of the railroad performed audits, the maintenance contractor is no longer being utilized by the Union Pacific Railroad.

PROBABLE CAUSE AND CONTRIBUTING FACTORS:

The primary cause as listed by the Union Pacific Railroad is FRA Code E71L, traction motor failure, with a contributing cause code of FRA Code E66L, damaged wheel flange or tread.