Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2007-77

Union Pacific
Spring, TX
December 6, 2007

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File # HQ-2007-77

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: E

108. Vehicle Speed *(est. MPH at impact)*: 5

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

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: 1

112. Position of Car Unit in: 1

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110. Position	Code	113. Circumstance	Code
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	3	1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	1
114a. 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	2	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	4

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

115. Type 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	116. Signaled Crossing Code *(See instructions for codes)*	117. Whistle Code 1. Yes 2. No 3. Unknown
Code(s)	01	03	06	07	01	2

118. Location of Warning Code 1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach	119. Crossing Warning with Highway Signals Code 1. Yes 2. No 3. Unknown	120. Crossing Illuminated by Street Lights or Special Lights Code 1. Yes 2. No 3. Unknown
1	N/A	1

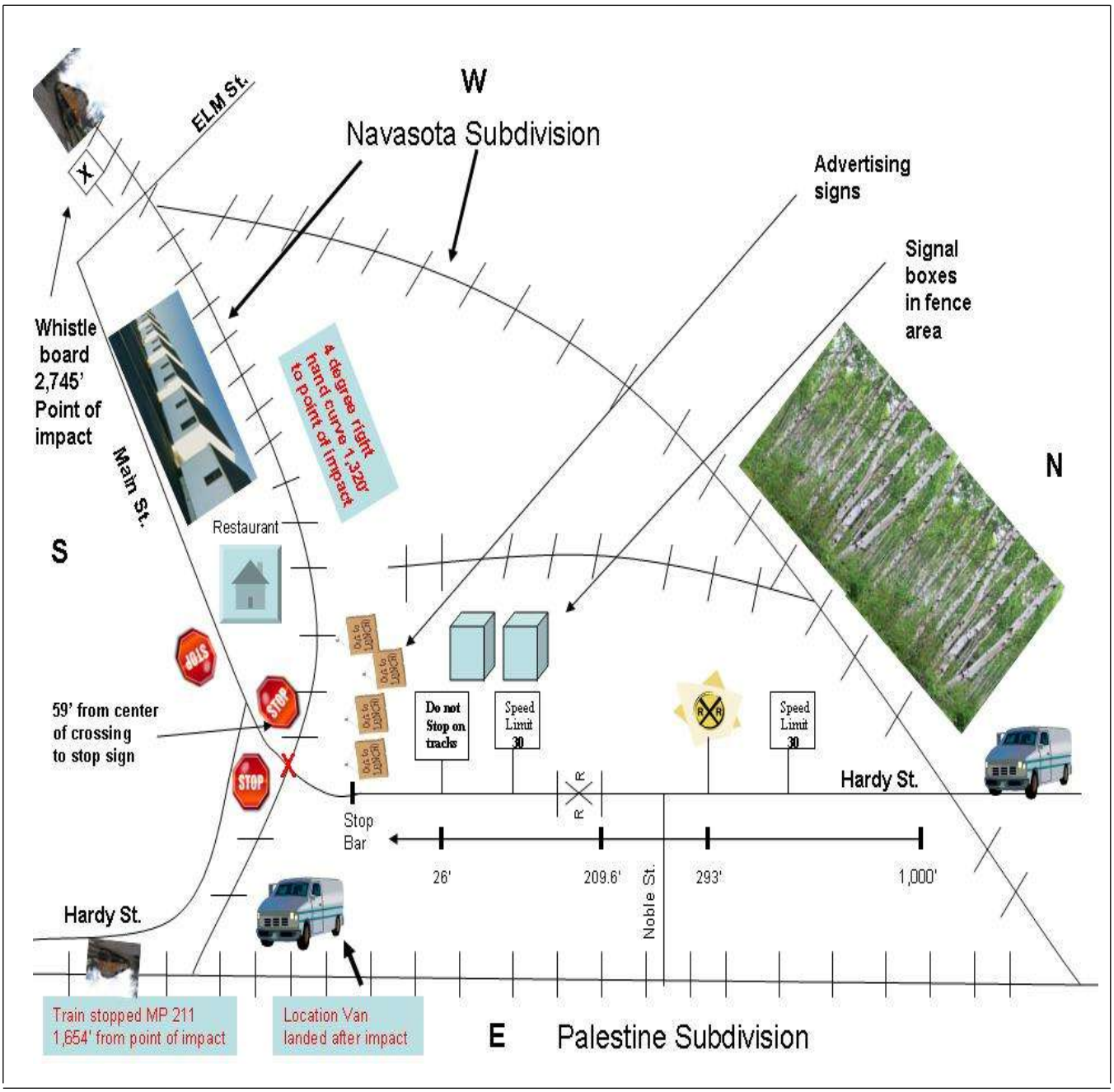
121. Age	122. Driver's Gender Code 1. Male 2. Female	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train Code 1. Yes 2. No 3. Unknown	124. Driver Code 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*
25	1	2	1

125. Driver Passed Highway Vehicle Code 1. Yes 2. No 3. Unknown	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
2	8

Casualties to:	Killed	Injured	127. Driver Code 1. Killed 2.Injured 3. Uninjured	128. Was Driver in the Vehicle? Code 1. Yes 2. No
			2	1
129. Highway-Rail Crossing Users	3	1	130. Highway Vehicle Property Damage *(est. dollar damage)* 15000	131. Total Number of Highway-Rail Crossing Users *(include driver)* 4

132. Locomotive Auxiliary Lights? Code 1. Yes 2. No	133. Locomotive Auxiliary Lights Operational? Code 1. Yes 2. No
1	1
134. Locomotive Headlight Illuminated? Code 1. Yes 2. No	135. Locomotive Audible Warning Sounded? Code 1. Yes 2. No
1	1

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



137. SYNOPSIS OF THE ACCIDENT

Southward Union Pacific Railroad (UP) Freight Train MSAHO-05 struck an SUV van traveling westbound on Hardy Street at a highway-rail grade crossing, DOT 430 064 X on December 6, 2007, at 5:20 p.m. The accident occurred in Spring, Texas at UP Milepost (MP) 0.10, on the UP Navasota Subdivision.

The motor vehicle driver was critically injured and all three passengers were killed. The van was completely destroyed, approximately $15,000 in value. There were no injuries to the train crew, no rail cars derailed, and no hazard materials released. The leading locomotive sustained minor handrail damage of about $400.

At the time of the accident it was dark and cloudy, and the temperature was 71° F.

The accident was caused by the failure of the motor vehicle driver to yield the right of way to the oncoming UP freight train. The train crew and three eye witnesses at the scene of the accident stated that the driver of the van drove around the lowered gates. According to the Harris County Sheriff's Office, the driver was charged with three counts of manslaughter.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT:

The crew of UP Freight Train MSAHO-05, included a road freight engineer and a road freight conductor. The crew went on duty at 12:01 p.m., CST, December 6, 2007, at the UP Hearne Yard in Hearne, Texas. This is the away-from-home terminal for all crew members and they received more than the required statutory off duty rest period prior to reporting for duty. The train crew complied with the statutory Hours of Service requirements reflected in 49CFR USC Chapter 211. After reporting for duty at Hearne Yard, the crew was taxied to Tatsie on the Navasota Subdivision to board the train.

The assigned freight train consisted of three locomotives, 70 loaded rail cars and 37 empty rail cars of several varieties. It was 7,147 feet long and weighed 7,239 tons. The scheduled train trip was to travel to Lloyd Yard on the Palestine Subdivision with no stops en route. The train received an initial terminal air brake test at San Antonio, Texas, as indicated by the air test slip and consist information. The series of events concerning the initial terminal air brake test conducted at San Antonio on December 5, 2007 are the following:

4:30 p.m., starting air test
5:10 p.m., Air Power EOT was armed and working
5:30 p.m., Air test completed with a brake pipe leakage of 2 PSI
Rear end device was UP 62421 with an inspection date of November 9, 2007
Rear car on train was FXE 912395
Train was not an extended haul train

The train crew complied with the requirements of 49 CFR 232, Class I brake test-initial terminal inspection. The train consist did not change from the origin to the accident location. The crew on duty at Hearne relieved the original crew that operated the train from San Antonio to Tatsie.

Once the crew boarded the train at Tatsie, the engineer reviewed the inspection dates, monitored the train line air pressure, and checked the end of train device for a communication link. The engineer did not take any

exceptions to the condition of the train before departing Tatsie.

After departing Tatsie, the train crew operated the train governed by signals on the Navasota Subdivision during the entire trip. There were no operating authorities issued by the train dispatcher while en route. When the southbound train approached Milepost 2.9 on the Navasota Subdivision, the signal indicated approach/diverging, Rule 9.2.5, and the dispatcher contacted the crew of UP Train MSAHO-05 to instruct them to operate the train on Main Track # 1 on the Palestine Subdivision. The instructions were to set out the auto racks on their train at Westville and then take the remainder of the train to Houston. As the southbound train approached the accident area, the engineer was seated at the controls on the west side of the leading locomotive. The conductor was seated on the east side of the cab of the leading locomotive. No exceptions were noted on the train crew's location in the cab of the locomotive en route to the accident location.

In this area of the railroad on the Navasota Subdivision there are, in succession, tangent track for several miles, followed by a 4° right hand curve 1,200 feet from the point of impact of the accident and 528 feet beyond. Prior to the right hand curve, the train would have proceeded over Elm Street which is located 1,241 feet from the point of impact at the Hardy Street crossing. This territory is flat and does not have a descending or ascending grade. There is some sight obstruction for the train crew to see the crossing coming into the right hand curve by a series of houses and buildings; however, visibility for the train crew to the crossing is unimpaired between approximately 1,000 feet – 750 feet to the crossing. The train crew could see the vehicle's path to the crossing across the field toward Hardy Street from 1,000 feet from the crossing. The photo section of this document will reflect the line of sight and angles that the crew would have encountered while looking toward the crossing or Hardy Street.

In the vehicle's path to the crossing on Hardy Street, there is tangent highway for over 1,000 feet, followed by a right hand curve of about 100 feet to the crossing, and then 59 feet of tangent to the stop sign on the west side of the crossing. The vehicle had a clear line of sight to the crossing and across the field toward the train on the Navasota Subdivision from 1,000 feet as depicted in the photo section of the document. Once the van cleared the tree line, just over 1,000 feet, its line of sight was unimpaired until the van reached the area of the signal boxes and advertisement signs located less than 220 feet from the crossing. This obstruction was located between Hardy Street and the railroad tracks; less than 220 feet on Hardy Street from the stop bar. The height of the train would have protruded above these obstructions which would have allowed the driver of the van to see the train.

The railroad timetable direction of the train was south. The geographic direction was southeast. The timetable directions are used throughout this report.

The vehicle was a 2002 White Ford E250 Van and was carrying three passengers. The vehicle was traveling west on Hardy Street where the posted highway speed was 30 MPH. The vehicle was traveling approximately 5 MPH when it attempted to go around the gates prior to the accident according to the crew and the eye witnesses.

THE ACCIDENT:

UP TRAIN MSAHO-05:

The UP southbound freight train MSAHO-05 was being operated at 40 MPH approaching the accident area in compliance with the speed restriction at that location. The train crew's view of the crossing was obstructed by houses and buildings adjacent to the southwest side of the track up to a distance between 1,000 and 750 feet, as they came around the 4° right hand curve (see photo section of document). The engineer said he became aware of the impending collision just prior to impact. He also stated that when the conductor reached for the emergency application brake handle within the cab of the locomotive, he placed the train into emergency. The event recorder reflects the train was placed into emergency at 39 MPH and the train slowed to 38 MPH just prior to impact. Both speeds are recorded by the event recorder of the controlling locomotive, UP 1872. The maximum authorized speed for the train at this location is 40 MPH, as designated in the current UP Timetable # 4, effective July 30, 2007.

The conductor stated he saw the flashers and gates operating at the crossing and he reached down to get his conductor's log. After securing his conductor's log, and as he was becoming upright he noticed a white vehicle out of the corner of his eye and notice the van was going around the gates and as he reached for the

emergency brake valve the engineer had placed the train into emergency.

HIGHWAY VEHICLE:

The van was traveling south to west on Hardy Street in Spring Texas. According to the engineer, conductor, and eye witnesses, the driver attempted to drive around the lowered gates while they were activated and the train was approaching. A report, filed by the Harris County Sheriff's Office, estimated the driver was operating the vehicle at about 5 MPH when the collision occurred. The posted speed limit on Hardy Street approaching the crossing is 30 MPH.

The train struck the passenger side of the van about center of passenger door. The van was projected about 200 feet between the east side of the Navasota Main Line and the west side of the Palestine Main Track clear of the right away on both subdivisions. The train came to a stop about 1,654 feet from point of impact on the Palestine Subdivision as indicated by the event recorder data and the report of interview of the train crew.

Before the train came to stop, the conductor called on the locomotive radio, "Emergency, Emergency, Emergency, we just struck a vehicle at Spring Junction". He also tried to contact the UP Spring Dispatch Center by dialing "911". He stated that he walked the train in accordance to the guidelines of the railroad operating rules to determine if any of the train had derailed. The engineer stayed on the lead locomotive when the train came to stop and while the conductor was inspecting the train.

A Harris County, Texas, deputy sheriff arrived on the scene at 6:02 p.m. Life Flight was notified at 5:43 p.m. and arrived at 5:58 p.m. to take the driver to Memorial Hermann Hospital via a helicopter. The Medical Examiner's Office was notified at 6:17 p.m. and arrived at 7:31 p.m.

The UP Manager of Train Operations (MTO) responded to the scene after hearing the emergency call over the radio and arrived within minutes as the crossing is only a couple of miles north of the yard office where she was working. She ascertained that the crew members did not need any medical attention and the conductor would give her the status of the train and track structure after he made his inspection. The MTO was approached by one of the witnesses who indicated that she was a nurse and could help. There was no hazardous materials involved and only minor structural damage to the lead locomotive. The UP Manager of Operating Practices, MOP, responded to the scene to download and review the event recorder data. The UP MTO and MOP discussed the situation with the deputy sheriff and the deputy interviewed the crew. The train crew was relieved and the main line was restored to normal service at 9:10 p.m.

The driver of the vehicle was taken by helicopter to Memorial Hermann Hospital and the passengers were pronounced dead at the scene of the accident.

ANALYSIS AND CONCLUSIONS:

ANALYSIS: - FATIGUE

FRA obtained fatigue related information, for the 10-day period preceding this incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

CONCLUSION:

Upon analysis of that information FRA concluded fatigue was not probable for any of the employees.

The driver of the vehicle was 25 year old male. The other three passengers of the van were young men between the ages of 22 – 39. The Harris County Medical Examiner did not perform any toxicological testing on the remains of the passengers. The driver was airlifted by a Life Flight helicopter to Memorial Hermann Hospital.

The highway-rail crossing at grade is quipped with gates, warning lights and bells. There is an advance warning sign posted 293 feet from the stop bar prior to crossing. There are also pavement markings 209.6 feet from stop bar prior to the crossing. The pavement markings are clearly distinguishable as indicated in the photo section of this document. At 1,000 feet prior to the crossing, the van would have been clear of the dense tree line on the west side of Hardy Street. The area of the accident is maintained by Harris County.

The railroad has a whistle post in place 2,745 feet north of the crossing. The crew members indicated that the engineer sounded the whistle prior to crossing. The event recorder analysis validates that the horn was being sounded for 3,320 feet or 58 seconds prior to impact. Some of this is attributed to Elm Street which is located 1,241 feet north of the point of impact.

The active warning devices were tested by UP Maintenance Foreman, at 5:31 p.m. on the day of the accident, and determined that they performed as intended. The tests were performed again on January 23, 2008 at 10:00 a.m., this time in the presence of an FRA signal and train control and operating practices inspectors. The warning devices functioned as intended.

The lead locomotive was equipped with a headlight, auxiliary lights, and audible warning device as required by the Federal regulations. The locomotive was inspected and the devices were tested on December 8, 2007 and they functioned as intended.

The locomotive was also equipped with a speed indicator and an event recorder as required. The relevant event recorder data was downloaded by the MOP at the accident site, and he conducted an analysis on site. The MOP sent the data to the UP database for review by other UP entities. The MOP's analysis disclosed that the engineer was in compliance with all applicable railroad operating and train handling requirements. FRA reviewed the results of this analysis, and concurred with the conclusions.

The railroad was in full compliance with carrier operating rules, and all applicable Federal Standards. The crew members stated that the van drove around the gates and the UP claims department indicated that the three witnesses to the accident support that statement. No one had information that could be used to determine why the vehicle failed to stop at the crossing.

PROBABLE CAUSE:

The primary cause of the accident was because the driver of the vehicle failed to stop at the highway-rail crossing at grade and drove around the gates in front of an oncoming train.