Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2017-1209

Union Pacific Railroad Company (UP)
Ohlman, IL
June 14, 2017

Note that 49 U.S.C. §20903 provides that no part of an accident or incident report, including this one, 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.

SYNOPSIS

On June 14, 2017, at approximately 6:30 p.m., CDT, a Union Pacific Railroad (UP) freight train, MYCAS-14, operating southwest from Villa Grove, Illinois, to St. Louis, Missouri, struck an occupied van on the N 80 Road public highway-rail grade crossing (also known as County Road 1800 East). The U.S. DOT National Highway-Rail Grade Crossing Inventory number is 542135C; the crossing was equipped with yield signs and cross-bucks. The accident occurred in the Township of Rosamond, in Christian County, near Ohlman, Illinois, at Milepost 211.73 on UP's Pana Subdivision of the St. Louis Service Unit. The driver and the four passengers were fatally injured. There were no injuries to the train crew.

The estimated track and signal damage was $66. The estimated equipment damage was $500.

At the time of the accident, it was cloudy and the temperature was 73 °F.

FRA determined the probable cause of this accident was cause code M303 – Highway user misjudgment under normal weather and traffic conditions. No contributing cause codes were identified.

U.S. Department of Transportation
Federal Railroad Administration

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2017-1209

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Union Pacific Railroad Company	UP	0617SL011

GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Union Pacific Railroad Company	UP	0617SL011

2. U.S. DOT Grade Crossing Identification Number	3. Date of Accident/Incident	4. Time of Accident/Incident
542135C	6/14/2017	6:30 PM

5. Type of Accident/Incident: Hwy-Rail Crossing

6. Cars Carrying HAZMAT	7. HAZMAT Cars Damaged/Derailed	8. Cars Releasing HAZMAT	9. People Evacuated	10. Subdivision
6	0	0	0	Pana Subdivision

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Ohlman	211.73	IL	CHRISTIAN

15. Temperature (F)	16. Visibility	17. Weather	18. Type of Track
73 ˚F	Day	Cloudy	Main

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
Single Main Track	Freight Trains-60, Passenger Trains-80	15.2	South

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	Yes	MYCAS-14

4. Speed (recorded speed, if available) R - Recorded E - Estimated	Code	5. Trailing Tons (gross exluding power units)	6a. Remotely Controlled Locomotive? 0 = Not a remotely controlled operation 1 = Remote control portable transmitter 2 = Remote control tower operation 3 = Remote control portable transmitter - more than one remote control transmitter	Code
48.0 MPH	E	5121		0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
Q

7. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	8. 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.)*	UP4790	1	no			
(2) Causing *(if mechanical, cause reported)*	N/A	0	no	9. Was this consist transporting passengers?		No

10. Locomotive Units (Exclude EMU, DMU, and Cab Car Locomotives.)	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End e. Remote	11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	28	0	56	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
500	66

14. Primary Cause Code
M303 - Highway user misjudgment under normal weather and traffic conditions

15. Contributing Cause Code

Number of Crew Members				Length of Time on Duty	
16. Engineers/Operators	17. Firemen	18. Conductors	19. Brakemen	20. Engineer/Operator	21. Conductor
1	0	1	0	Hrs: 4 Mins: 15	Hrs: 4 Mins: 15

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	5
Nonfatal	0	0	0

25. EOT Device?	26. Was EOT Device Properly Armed?
Yes	Yes

27. Caboose Occupied by Crew? N/A

28. Latitude	29. Longitude
39.360181000	-89.196640000

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CROSSING INFORMATION

Highway User Involved		Rail Equipment Involved
1. Type: Van		5. Equipment: Train (Units Pulling)
2. Vehicle Speed *(est. mph at impact)*: 5	3. Direction *(geographical)*: South	6. Position of Car Unit in Train: 1
4. Position of Involved Highway User: Moved over Crossing		7. Circumstance: Rail Equipment Struck Highway User
8a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials?: Rail Equipment		8b. Was there a hazardous materials release by: Neither

8c. State here the name and quantity of the hazardous material released, if any.
N/A

9. Type of Crossing	10. Signaled Crossing Warning	11. Roadway Conditions
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 7, 11		Wet

12. Location of Warning	13. Crossing Warning Interconnected with Highway Signals	14. Crossing Illuminated by Street Lights or Special Lights
Both Sides	N/A	No

15. Highway User's Age	16. Highway User's Gender	17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train	18. Highway User
79	Male	No	Did not stop

19. Driver Passed Standing Highway Vehicle	20. View of Track Obscured by *(primary obstruction)*
No	Not Obstructed

Casualties to:	Killed	Injured	21. Driver was	22. Was Driver in the Vehicle?
			Killed	Yes
23. Highway-Rail Crossing Users	5	0	24. Highway Vehicle Property Damage *(est. dollar damage)*: 5000	25. Total Number of Vehicle Occupants *(including driver)*: 5

26. Locomotive Auxiliary Lights?	27. Locomotive Auxiliary Lights Operational?
Yes	Yes
28. Locomotive Headlight Illuminated?	29. Locomotive Audible Warning Sounded?
Yes	Yes

10. Signaled Crossing Warning

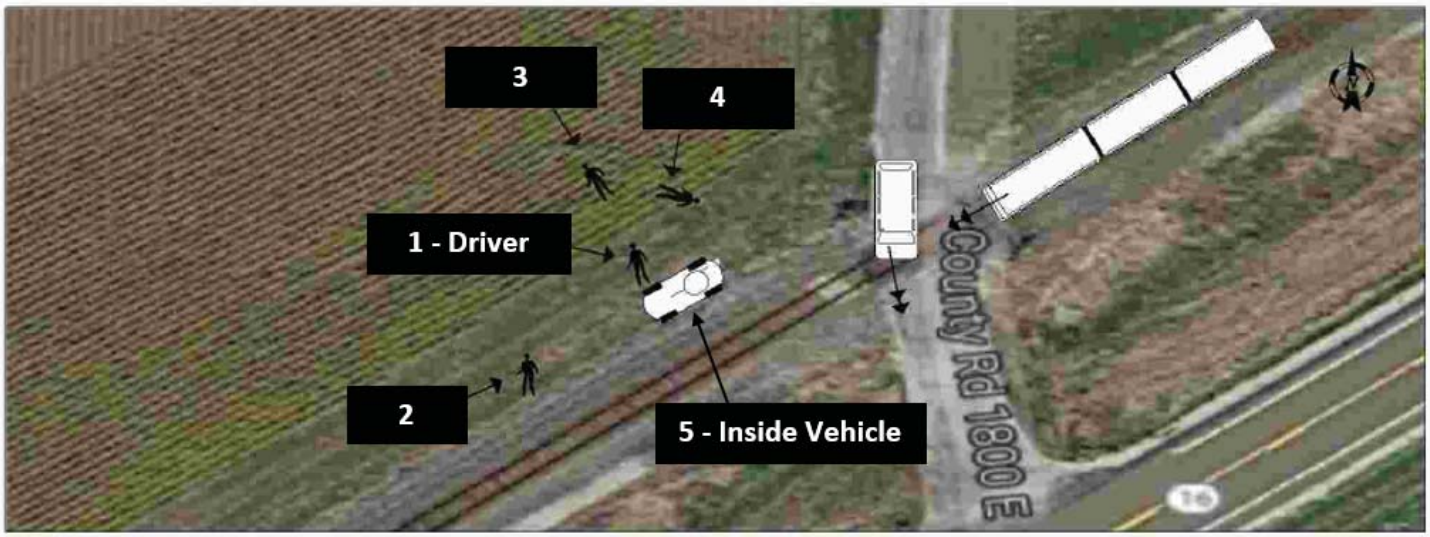
1 - Provided minimum 20-second warning
2 - Alleged warning time greater than 60 seconds
3 - Alleged warning time less than 20 seconds
4 - Alleged no warning
5 - Confirmed warning time greater than 60 seconds
6 - Confirmed warning time less than 20 seconds
7 - Confirmed no warning
N/A - N/A

Explanation Code

A - Insulated rail vehicle
B - Storm/lightning damage
C - Vandalism
D - No power/batteries dead
E - Devices down for repair
F - Devices out of service
G - Warning time greater than 60 seconds attributed to accident-involved train stopping short of the crossing, but within track circuit limits, while warning devices remain continuously active with no other in-motion train present
H - Warning time greater than 60 seconds attributed to track circuit failure (e.g., insulated rail joint or rail bonding failure, track or ballast fouled)
J - Warning time greater than 60 seconds attributed to other train/equipment within track circuit limits
K - Warning time less than 20 seconds attributed to signals timing out before train's arrival at the crossing/island circuit
L - Warning time less than 20 seconds attributed to train operating counter to track circuit design direction
M - Warning time less than 20 seconds attributed to train speed in excess of track circuit's design speed
N - Warning time less than 20 seconds attributed to signal system's failure to detect train approach
O - Warning time less than 20 seconds attributed to violation of special train operating instructions
P - No warning attributed to signal systems failure to detect the train
R - Other cause(s). Explain in Narrative Description

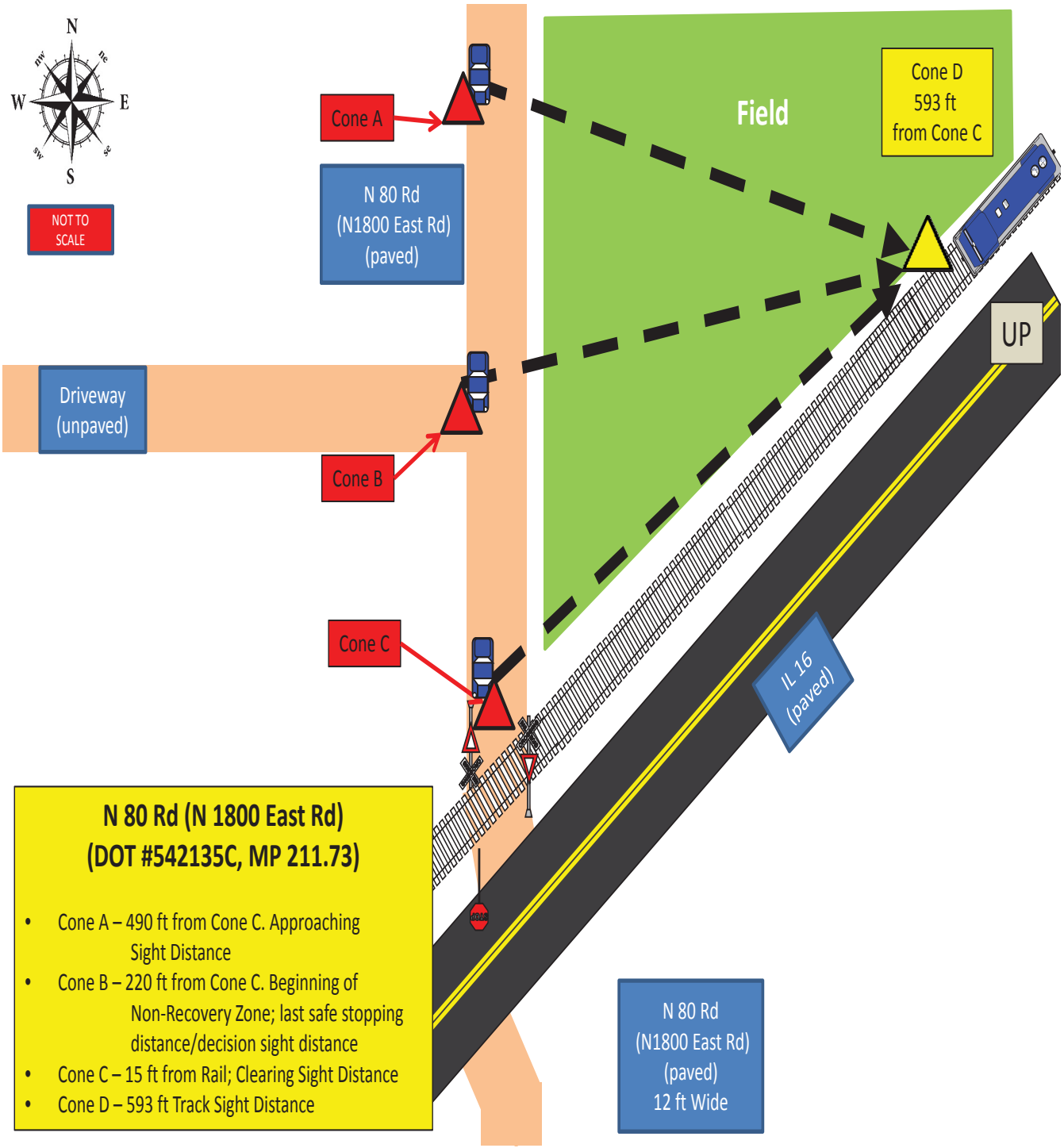
SKETCHES

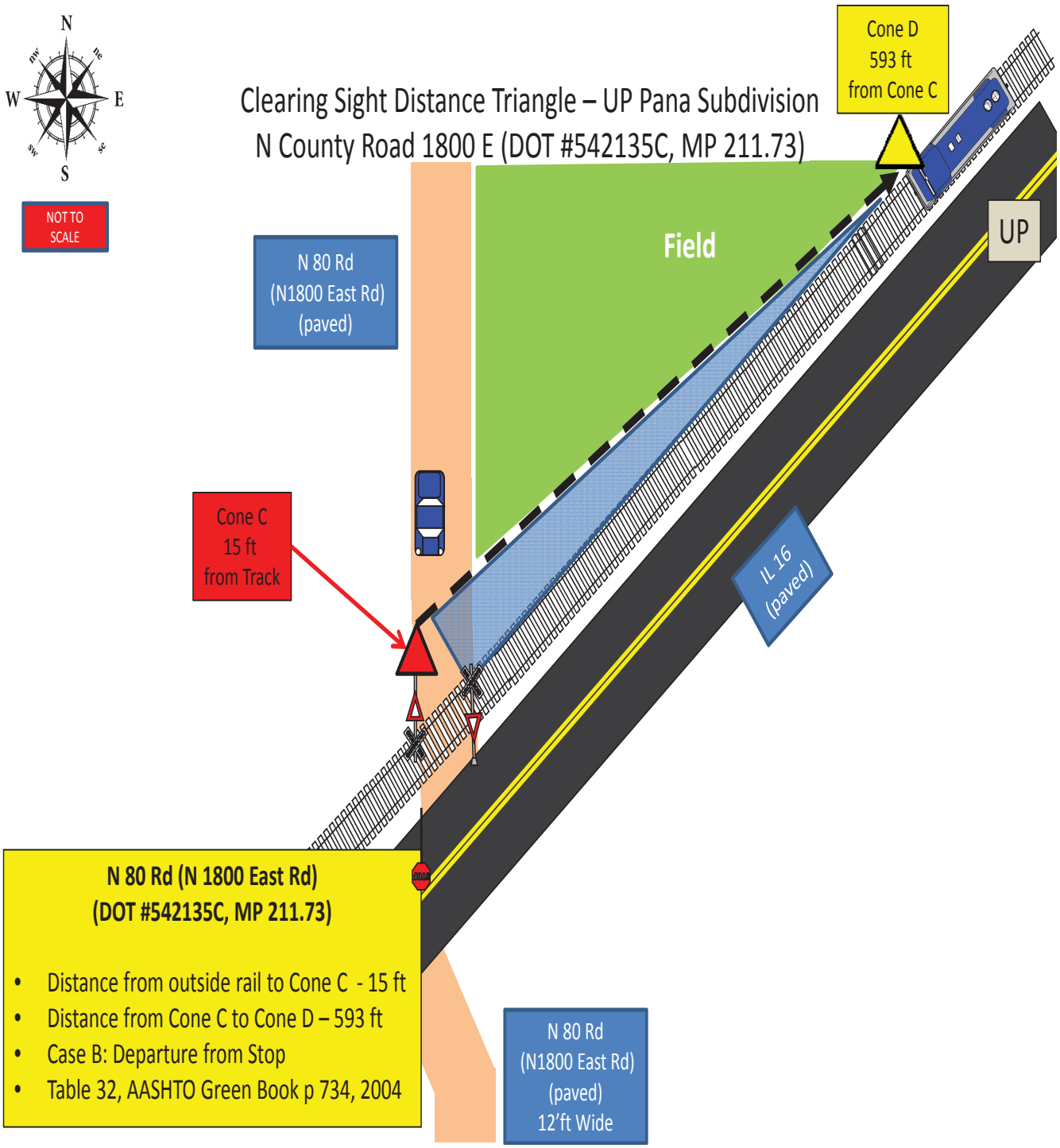
Accident Sketch (Derived From IL State Police Sketch)



SKETCHES

Pana, IL FRA Sight Distance Sketch




N
W
E
S
NOT TO SCALE
Clearing Sight Distance Triangle – UP Pana Subdivision
N County Road 1800 E (DOT #542135C, MP 211.73)
Cone D
593 ft
from Cone C
Field
UP
N 80 Rd
(N1800 East Rd)
(paved)
Cone C
15 ft
from Track
IL 16
(paved)
N 80 Rd (N 1800 East Rd)
(DOT #542135C, MP 211.73)
• Distance from outside rail to Cone C - 15 ft
• Distance from Cone C to Cone D – 593 ft
• Case B: Departure from Stop
• Table 32, AASHTO Green Book p 734, 2004
N 80 Rd
(N1800 East Rd)
(paved)
12'ft Wide

NARRATIVE

Circumstances Prior to the Accident

The crew of Union Pacific Railroad (UP) freight Train MYCAS-14 (striking train) consisted of a locomotive engineer and conductor. The crew reported for duty at 2:14 p.m., CDT, on June 14, 2017, at UP's Villa Grove Yard, located in Villa Grove, Illinois. This was the home terminal for both crew members. Both crew members received the statutory rest period prior to reporting for duty. The crew was scheduled to operate their train from Villa Grove to Alton Southern (ALS) Yard, in St. Louis, Missouri. The crew added nine cars to the train at Villa Grove Yard and had no other scheduled pick-ups or set-outs between Villa Grove and ALS.

The striking train consisted of 2 locomotives, 28 loaded cars, and 56 empty cars of mixed freight. The total length of the train was 5,704 feet and the train weighed 5,521 tons. The train received a Class I air brake test conducted by mechanical employees at UP's Yard Center, in Dolton, Illinois. The crew at Villa Grove performed an air brake test on the nine cars they added prior to departing at 4:25 p.m. The crew tested the locomotive bell and headlights at Villa Grove Yard prior to departing and no exceptions were noted. The locomotive horn was sounded at the first grade crossing with no exceptions noted. All locomotive safety devices were working as intended.

The accident occurred in the township of Rosamond, Illinois on UP's Pana Subdivision of the St. Louis Service Unit. In the area where the accident occurred, the track is a single main track with a timetable maximum speed limit of 60 mph. DOT Crossing 542135C (the crossing) is a public highway-rail grade crossing at milepost (MP) 211.73, and is equipped with passive warning devices (yield sign and crossbucks). The striking train was traveling geographically southwest on the St. Louis Service Unit's Pana Subdivision. The timetable direction is south (timetable direction will be used throughout this report).

As the striking train approached the accident area, the Locomotive Engineer was seated at the controls on the right (west) side of the cab facing forward. The Conductor was seated in the conductor's seat on the left (east) side of the locomotive cab, also facing forward.

The Accident

The Striking Train

The train was being operated at a recorded speed of 48 mph as it approached the crossing. The maximum authorized speed for this train was 60 mph. The Engineer and Conductor observed a van that appeared to be slowing to a stop as it approached the crossing. The crew then observed the brake lights go off, and the van proceeded into the crossing. At that time, the Engineer initiated an emergency application of the brakes and the locomotive collided with the van as it entered the crossing.

Once the train came to a stop, the Locomotive Engineer contacted the Dispatcher via the radio to report the accident. The crew conducted a job briefing and the Conductor walked back to separate the rail cars at the crossing so emergency personnel could access the injured passengers from the IL-16 roadway. The Conductor observed three of the passengers from the vehicle, lying on the ground, that appeared to be deceased. The Train Dispatcher contacted local authorities and two fire departments were dispatched to the scene, Witt Volunteer Fire Department and Pana Fire Department. Records indicate that the fire

departments were dispatched at 6:31 p.m. The first fire unit arrived on-scene at 6:46 p.m. The Illinois State Police also responded to the accident scene.
There was no derailment of the train, no hazardous material involved, and this was not a passenger train rout. There was no toxicological testing performed on the train crew. The Federal Railroad Administration (FRA) does not require such testing for this type of accident.

Highway Vehicle

A 2009 Chrysler Town & Country passenger van (struck vehicle) with a driver and four passengers was approaching the crossing from the north. Per statements given by the train crew, the vehicle appeared to be slowing to stop for the train, and then began to accelerate into the crossing, and into the path of the train, and was struck.
From the point of impact, the struck vehicle was thrown airborne and struck the top of the yield and cross-buck sign. The vehicle then overturned and came to rest on the passenger's side facing southwest. The driver and three passengers were ejected from the vehicle. The three passengers were pronounced deceased on the scene. The driver of the vehicle was transported by Pana Ambulance to Pana Community Hospital and then airlifted to St. Louis University Hospital and pronounced deceased at approximately 11:06 p.m. The other occupant of the vehicle was air-lifted to Barnes Jewish Hospital and later succumbed to injuries and pronounced deceased.
The Illinois State Police report stated the 79-year old male driver of the vehicle failed to yield at the crossing, and was struck by the train.

Analysis and Conclusions

Analysis - Toxicological Testing: There were no toxicological reports for the driver, or three of the four passengers. The Office of the Medical Examiner from the City of St. Louis performed toxicological testing on the remains of an 87-year old female passenger and the results were primarily negative. The results were positive for the presence of Etomidate, Ketamine, and Metoprolol. UP did not conduct drug and alcohol testing on the crew members nor was testing required by Federal regulations.
Conclusion: There was no evidence to indicate intoxication was a causal factor of the accident.
Analysis - Highway-Rail Grade Crossing: The highway-rail crossing at grade is equipped with yield signs and cross-buck signs. There is no advance warning sign posted at the crossing. There are no pavement markings within 100 feet of the crossing. A sight distance evaluation was conducted of the crossing in accordance with the method described in the Federal Highway Administration's Railroad-Highway Grade Crossing Handbook (revised Second Edition, 2007). Based on a highway speed limit of 30 mph, with a motor vehicle speed of 5 mph (on impact), and a 15-foot safe zone (Cone C) from the nearest rail, the beginning of the approach zone for this crossing was determined to be 490 feet (Cone A), with a point of nonrecovery beginning at 220 feet (Cone B). For a train speed of 48 mph, the distance along the railroad from crossing was determined to be 593 feet (Cone D). The actual sight visibility triangle was measured from the first point, at which the vehicle operator had an unobstructed line of sight from the vehicle to the front of the train. This point was determined to be 490 feet. There was no vegetation on the northeast side of the grade crossing, the direction from which the train was approaching.
Conclusion: The crossing, decision, approach, and clearing sight distances were clear and visible.
Analysis - Locomotive Safety Devices: The leading locomotive was equipped with a headlight, auxiliary

lights, and the audible warning device (horn and bell) required by Federal regulations. Records indicate these devices were tested prior to departing Villa Grove. The locomotive safety devices functioned as intended. The crew did not note any exceptions with the operation of the locomotive lights, bell, or horn during their trip.

Conclusion: The locomotive safety devices were in full compliance with Federal regulations.

Analysis - Locomotive Engineer Operating Performance: The locomotive was equipped with a speed indicator and an event recorder, as required. The relevant event recorder data was downloaded by UP's Manager of Operating Practices at the accident site. The downloaded data was analyzed by a qualified UP manager. The downloaded data was further analyzed independently by qualified FRA employees. Total duration of the horn sequence was approximately 16 seconds at 50 mph which began at Milepost (MP) 211.52 to MP 211.75, approximately ¼-mile. Documentation indicates that the road crossing where the incident took place was at MP 211.73. From the time the train was placed in emergency until complete stop, a total of 1,992 feet was traversed. The locomotive event recorder indicated the striking train was operating at an estimated speed of 48 mph when it struck the vehicle on the driver side as it entered the grade crossing.

Conclusion: The Locomotive Engineer was in compliance with all applicable railroad operating and train handling requirements.

Fatigue Analysis: FRA obtained fatigue-related information for the 10-day period preceding this accident/incident, including the 10-day work history (on-duty/off-duty cycles) for the Locomotive Engineer and Conductor.

Conclusion: Upon analysis of that information, FRA concluded fatigue was not probable for any of the employees nor was it a causal factor in the accident.

Overall Conclusion

The railroad was in full compliance with its own operating rules and all applicable Federal regulations. The train crewmembers were the only witnesses to the accident, and they had no information that could be used to determine why the automobile failed to yield to the train at the crossing.

Probable Cause and Contributing Factors

FRA determined the probable cause of this accident was cause code M303 – Highway user misjudgment under normal weather and traffic conditions. No contributing cause codes were identified.