Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch

Accident Investigation Report
HQ-2015-1084

Union Pacific Railroad Company (UP)
Texarkana, TX
September 8, 2015

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

Synopsis

On September 8, 2015, at 12:34 a.m., CDT, westbound Union Pacific Railroad (UP) Train AMNML-07 (striking train) collided with northbound UP Train ALDAS-06 (struck train) near Texarkana, Texas. At the time of the accident, it was dark, the sky was clear, and the temperature was 82° F. The striking train was traveling west on the main track of the Pine Bluff Subdivision, and the struck train was traveling north on the Little Rock Subdivision. As the struck train approached the interlocking at Control Point CB418, the striking train passed the wayside signal at Milepost 417.31 displaying a yellow signal aspect indicating “proceed prepared to stop.” With the struck train now occupying the limits of the interlocking at CB418, the striking train passed the home signal at CB418 displaying a red signal aspect indicating “stop” and collided into the side of the northbound train. Two locomotives of the striking train and seven cars (sequence 13–19) of the struck train derailed. The striking train’s lead locomotive derailed and overturned with the engineer’s side of the locomotive on the ground. The trailing locomotive of the striking train derailed and remained upright. The cause of the accident was the failure of the striking train to stop for the red signal due to the train crew’s loss of situational awareness.
The striking train’s speed was 19 mph when the Engineer initiated an emergency brake application. The striking train was ascending a 0.515-percent grade and traversing a 6-degree right-hand curve as it approached the interlocking. The train had also been in dynamic braking for the 7 minutes prior to the Engineer initiating an emergency brake application. These factors allowed the striking train to slow to a speed of 6 mph when the collision occurred. The struck train was traveling at 26 mph at the time of the collision.

There were no fatalities and only minor injuries to the striking train’s Engineer and Conductor, and no injuries to the struck train’s crew. There were no hazardous materials released and no local evacuations initiated but the lead locomotive of the striking train released about 4,000 gallons of diesel fuel. The estimated monetary damage to mechanical equipment, signal system, and track structure was $4,664,073.00.

U.S. Department of Transportation
Federal Railroad Administration

FRA FACTUAL RAILROAD ACCIDENT REPORT

FRA File #HQ-2015-1084

TRAIN SUMMARY

1. Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
Union Pacific Railroad Company	UP	0915LK010
2. Name of Railroad Operating Train #2	**2a. Alphabetic Code**	**2b. Railroad Accident/Incident No.**
Union Pacific Railroad Company	UP	0915LK010

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	0915LK010
2. U.S. DOT Grade Crossing Identification Number	**3. Date of Accident/Incident**	**4. Time of Accident/Incident**
	9/8/2015	12:34 AM

5. Type of Accident/Incident
Side Collision

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

11. Nearest City/Town	12. Milepost *(to nearest tenth)*	13. State Abbr.	14. County
Texarkana	419.1	TX	BOWIE

15. Temperature (F)	16. Visibility	17. Weather	18. Type of Track
82 ˚F	Dark	Clear	Main

19. Track Name/Number	20. FRA Track Class	21. Annual Track Density *(gross tons in millions)*	22. Time Table Direction
Mainline	Freight Trains-40, Passenger Trains-60	71.7	West

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OPERATING TRAIN #1

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	Yes	AMNML-07

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
19 MPH	R	5167		0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
G

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.)*	UP 2542	1	no		0	0
(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	1	(1) Total in Equipment Consist	67	0	0	0	0
(2) Total Derailed	2	0	0	0	0	(2) Total Derailed	0	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
2639858	1572511

14. Primary Cause Code
H401 - Failure to stop train in clear

15. Contributing Cause Code

Number of Crew Members

16. Engineers/Operators	17. Firemen	18. Conductors	19. Brakemen
1	0	1	0

Length of Time on Duty

20. Engineer/Operator	21. Conductor
Hrs: 5 Mins: 44	Hrs: 5 Mins: 44

Casualties to:	22. Railroad Employees	23. Train Passengers	24. Others
Fatal	0	0	0
Nonfatal	2	0	0

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

27. Caboose Occupied by Crew?
N/A

28. Latitude	29. Longitude
33.415589000	-94.051147000

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OPERATING TRAIN #2

1. Type of Equipment Consist:	2. Was Equipment Attended?	3. Train Number/Symbol
Freight Train	Yes	ALDAS-06

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
26 MPH	R	5609		0

6. Type of Territory

Signalization:
Signaled

Method of Operation/Authority for Movement:
Signal Indication

Supplemental/Adjunct Codes:
G

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.)*	TTGX992694	52	yes		0	0
(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	70	0	0	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	7	0	0	0	0

12. Equipment Damage This Consist	13. Track, Signal, Way & Structure Damage
451704	0

14. Primary Cause Code
H401 - Failure to stop train in clear

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: 3 Mins: 49	Hrs: 3 Mins: 49

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

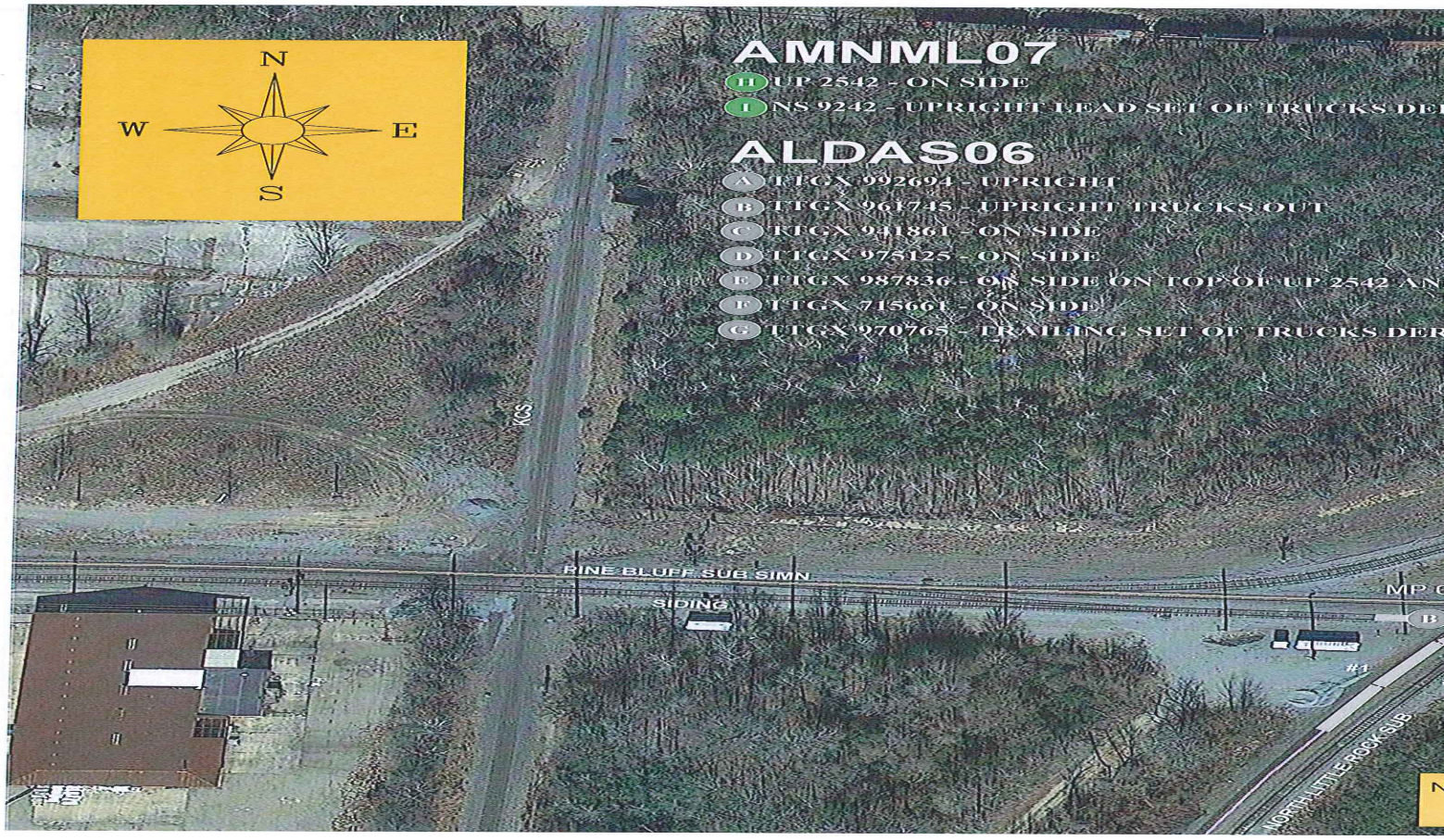
25. EOT Device?	26. Was EOT Device Properly Armed?
Yes	Yes

27. Caboose Occupied by Crew?
N/A

28. Latitude	29. Longitude
33.415589000	-94.051147000

SKETCHES

Sketch



NARRATIVE

Circumstances Prior to the Accident

Striking Train

The crew of the striking train, comprised of one Locomotive Engineer and one Conductor, went on duty at 6:50 p.m., CDT, on September 7, 2015, at UP's Pine Bluff yard in Pine Bluff, Arkansas. Prior to reporting for duty, each crew member received more than the statutory off-duty rest period. The consist of their freight train included two locomotives in the lead position and one distributed power locomotive at the rear of the train, with 67 loads and no empties. The train was 6,520 feet in length and weighed 5,167 tons. The striking train originated at Marion, Arkansas. Prior to departure the train received the required equipment inspections and testing. When the train arrived in Pine Bluff, it was re-crewed prior to departing at approximately 8:00 p.m.

Prior to the accident, the striking train was operating on the Pine Bluff Subdivision's main track which is governed by General Code of Operating Rules (GCOR), timetable instructions, general orders, and signal indications of a traffic control system (TCS). The signal system consists of color-light type signals displaying signal aspects that are controlled by electronic track circuits, with power-operated switches and movements that are directed by a dispatcher located in Omaha, Nebraska. The maximum authorized speed on the Pine Bluff Subdivision is 70 mph for freight trains. It is important to note the allowable speed through the Texarkana Interlocking is 20 mph until the lead locomotive passes the interlocking. The Pine Bluff Subdivision is not an Amtrak route.

The Engineer of the striking train was seated at the controls of the lead locomotive on the right-side of the crew compartment, as facing the direction of movement, and the Conductor was seated on the left side of the compartment. According to the crew's statements, shortly before the collision, the Engineer heard his Conductor say, "red, red, plug it." The Engineer saw a train crossing ahead of his movement and immediately initiated an emergency brake application. He then moved behind the control stand and braced himself for impact while the Conductor positioned himself on the floor of the locomotive.

Struck Train

The crew of the struck train, comprised of one locomotive Engineer and one Conductor, went on duty at 8:45 p.m., on September 7, 2015, in Longview, Texas. Prior to reporting for duty, each crew member received more than the statutory off-duty rest period. The consist of their freight train included two locomotives, 70 loads and no empties. The train was 6,302 feet in length and weighed 5,609 tons. Prior to leaving the Longview Yard at 9:45 p.m., the struck train received the required equipment inspections and testing.

Prior to the accident, the northbound struck train was operating on the Little Rock Subdivision's main tracks which is governed by operating rules, timetable instructions, general orders, and TCS signal indication. The signal system consists of color-light type signals displaying signal aspects that are controlled by electronic track circuits, with power-operated switches, and movements directed by a dispatcher located in Omaha, Nebraska. The maximum authorized speed on the Little Rock Subdivision

is 70 mph for freight trains and 75 mph for passenger trains. It is important to note the allowable speed through the Texarkana Interlocking is 30 mph until the entire train clears the interlocking. The Little Rock Subdivision is an Amtrak route.

The Engineer of the struck train was seated at the controls of the lead locomotive on the right side of the crew compartment, as facing the direction of movement, and the Conductor was seated on the left-side of the compartment. According to interview statements, as the train crew of the struck train passed through the interlocking of the two subdivisions, they observed the headlights of the approaching striking train and observed the controlling signal for the striking train's movement displaying a red signal aspect. Shortly afterwards, the collision occurred.

THE ACCIDENT

At the time of the accident, both trains were located within the limits of the Texarkana Interlocking, located at MP 419.1 and governed by GCOR, timetable instructions, general orders, and signal indications of an interlocking. At MP 419.1, a single main track and a siding track of the Pine Bluff Subdivision crosses the two main tracks of the Little Rock Subdivision MP 0.5 at grade. The railroad timetable direction of the striking train was west and the railroad timetable direction of the struck train was north. Timetable directions are used throughout this report.

The locomotive of the striking train made impact with the thirteenth car of the struck train and derailed seven cars (cars 13-19 from the second locomotive in the consist) with one car, TTGX 987836, coming to rest on top of the striking train's lead locomotive. The struck train's speed at impact was 26 mph based on data from the event recorder of the lead locomotive. The struck train experienced an emergency braking application after the brake line connections were severed. The crew members of the struck train were not injured. Witnessing the collision, Texarkana's Yard Office located near the interlocking contacted the Conductor of the struck train immediately by radio and offered assistance. During this radio conversation with the Conductor, the Engineer of the struck train contacted UP's Dispatcher by cellular telephone to report the accident. Following their conversations, the crew members of the struck train secured their train by setting hand brakes on the locomotive and assisted in the emergency efforts.

The Engineer and Conductor of the striking train sustained minor injuries. Based on interview responses neither the Engineer nor the Conductor of the striking train recall specific details of extricating themselves from the derailed locomotive. They did recall that paramedics assisted them afterwards. Texarkana area emergency services, hazardous materials, and law enforcement personnel quickly responded. Railroad personnel were dispatched to the accident site to assist and investigate the cause of the incident.

The collision and point of derailment at MP 419.1 resulted in the derailment and damage of two locomotives of the striking train and seven cars of the struck train. While hazardous materials were transported by the struck train, they were not involved in the accident. The consist of the striking train did not contain hazardous materials. No local evacuations were initiated.

The lead locomotive of the striking train (UP 2542) was heavily damaged and released approximately 4,000 gallons of diesel fuel onto the ground which was remediated by railroad environmental contractors.

INVESTIGATION FINDINGS AND ANALYSIS

Federal Railroad Administration (FRA) investigators arrived on-scene at 5:00 a.m., on September 8, 2015, and the field investigation concluded on September 12, 2015. FRA's investigation team was comprised of a Chief Inspector, who functioned as the Inspector in Charge, and inspectors from the Motive Power and Equipment (MP&E), Operating Practices (OP) and Signal and Train Control (S&TC) disciplines.

Track

The track alignment to the accident site is a single main track and siding track on UP's Pine Bluff Subdivision and two main tracks on the Little Rock Subdivision. The track crosses at grade at MP 419.1. The track of the Pine Bluff Subdivision approaching the accident location from the east is relatively flat. However, prior to the interlocking there is a 0.515-percent ascending grade for 1/10 mile and a 6-degree right-hand curve approximately 1/2-mile in length approaching the interlocking. Investigators did not identify any track conditions that could have caused or contributed to the accident.

Motive, Power and Equipment (MP&E)

FRA's MP&E and UP's Mechanical Department personnel reviewed mechanical records and performed field inspections of the locomotives and cars for any contributing factors. Post-accident inspections did not disclose any defective condition that would have contributed to the accident.

Signal System

FRA's S&TC and UP's Signal Department personnel reviewed signal records and performed field inspections of the TCS for any contributing factors. The signal system was tested and inspected and found to be working as intended.

Operating Practices

The OP investigation included review of training and compliance records, crew interviews, fatigue analysis, sight distance evaluation, review of toxicology testing results, and review of event recorder data, personal cell phone records, Track Image Recorder (forward-facing camera) and Conductor's log book.

PROBABLE CAUSE

The probable cause for this accident is human error, Accident Cause Code H401, "Failure to stop train in the clear." The investigation determined there were five indicators the train crew of the striking train had lost their situational awareness just before the collision. The indicators include: 1) interview statements from the striking train's crew, 2) the results of the fatigue analysis study, 3) the lack of response to wayside signal indications requiring them to decelerate, prepare to stop and stop at the red signal, 4) not sounding the train horn for grade crossings prior to the accident as required, and 5) the Conductor's logbook did not show an entry noting the approach signal indication at MP 417.31, nor did it show the crew was under Cab Red Zone as required in UP's GCOR.