



***Federal Railroad Administration
Office of Railroad Safety
Accident and Analysis Branch***

***Accident Investigation Report
HQ-2016-1127***

***Norfolk Southern Railway Company (NS)
Birmingham, AL
May 3, 2016***

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 May 3, 2016, at approximately 10:15 p.m., CDT, northbound Norfolk Southern (NS) Train A38A7-03 collided with an eastbound vehicle (pickup truck) at the 15th Place SW public highway-rail grade crossing (DOT Crossing Number 728030G) in Birmingham, Alabama. 15th Place SW is located on NS' AGS South District at Milepost 146.31 in traffic control system. The vehicle included three occupants, including a driver and two passengers. Both passengers were fatally injured and the driver sustained injuries.

Train A38A7-03 consisted of three locomotives (NS 3332, NS 6082, and NS 3298) and 14 empty freight cars. The train was traveling northward at a recorded speed of 42 mph upon impact.

Conditions at the time of the accident were 62 degrees Fahrenheit and clear. Train A38A7-03 sustained damage to its lead locomotive ditch lights and snowplow. No rail equipment derailed. The highway-rail grade crossing warning system sustained damage and was subsequently repaired/replaced. There were no injuries to the train crew. There were no hazardous materials involved. This was not PTC-preventable. Train A38A7-03 was delayed approximately 3 hours.

The driver of the subject vehicle disregarded the highway-rail grade crossing warning devices.

TRAIN SUMMARY

1. Name of Railroad Operating Train #1 Norfolk Southern Railway Company	1a. Alphabetic Code NS	1b. Railroad Accident/Incident No. 120363
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GENERAL INFORMATION

1. Name of Railroad or Other Entity Responsible for Track Maintenance Norfolk Southern Railway Company	1a. Alphabetic Code NS	1b. Railroad Accident/Incident No. 120363
2. U.S. DOT Grade Crossing Identification Number 728030G	3. Date of Accident/Incident 5/3/2016	4. Time of Accident/Incident 10:15 PM
5. Type of Accident/Incident Hwy-Rail Crossing		
6. Cars Carrying HAZMAT 0	7. HAZMAT Cars Damaged/Derailed 0	8. Cars Releasing HAZMAT 0
	9. People Evacuated 0	10. Subdivision AGS South
11. Nearest City/Town Birmingham	12. Milepost (to nearest tenth) 146.31	13. State Abbr. AL
		14. County JEFFERSON
15. Temperature (F) 62 °F	16. Visibility Dark	17. Weather Clear
		18. Type of Track Main
19. Track Name/Number Northbound Main	20. FRA Track Class Freight Trains-60, Passenger Trains-80	21. Annual Track Density (gross tons in millions) 33
		22. Time Table Direction North

OPERATING TRAIN #1

1. Type of Equipment Consist: Freight Train					2. Was Equipment Attended? Yes			3. Train Number/Symbol A38A7-03				
4. Speed (recorded speed, if available) R - Recorded 42 MPH E - Estimated		Code R	5. Trailing Tons (gross excluding power units) 814		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 0		
6. Type of Territory Signalization: <u>Signaled</u> Method of Operation/Authority for Movement: <u>Direct Train Control</u> Supplemental/Adjunct Codes: <u>Q</u>												
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.)		NS 3332		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		Rear End		11. Cars (Include EMU, DMU, and Cab Car Locomotives.)	Loaded		Empty		e. Caboose	
		b. Manual	c. Remote	d. Manual	e. Remote		a. Freight	b. Pass.	c. Freight	d. Pass.		
		(1) Total in Train	3	0	0		0	0	(1) Total in Equipment Consist	0		0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0	
12. Equipment Damage This Consist 1010				13. Track, Signal, Way & Structure Damage 105552								
14. Primary Cause Code M308 - Highway user deliberately disregarded crossing warning devices												
15. Contributing Cause Code M302 - Highway user inattentiveness												
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		2		0		Hrs: 3 Mins: 15		Hrs: 3 Mins: 15		
Casualties to:		22. Railroad Employees		23. Train Passengers		24. Others		25. EOT Device?		26. Was EOT Device Properly Armed?		
Fatal		0		0		2		Yes		Yes		
Nonfatal		0		0		1		27. Caboose Occupied by Crew?				N/A
28. Latitude 33.486908000				29. Longitude -86.855613000								

CROSSING INFORMATION

Highway User Involved			Rail Equipment Involved		
1. Type Pick-Up Truck			5. Equipment Train (Units Pulling)		
2. Vehicle Speed (<i>est. mph at impact</i>) 4	3. Direction (<i>geographical</i>) West		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? Neither			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 1. Gates 4. Wig wags 7. Crossbucks 10. Flagged by crew 2. Cantilever FLS 5. Hwy. traffic signals 8. Stop signs 11. Other (<i>spec. in narr.</i>) 3. Standard FLS 6. Audible 9. Watchman 12. None 1, 3, 6, 7			10. Signaled Crossing Warning 1, 1, 1		11. Roadway Conditions Dry
12. Location of Warning Both Sides		13. Crossing Warning Interconnected with Highway Signals No		14. Crossing Illuminated by Street Lights or Special Lights No	
15. Highway User's Age 42	16. Highway User's Gender Male	17. Highway User Went Behind or in Front of Train and Struck or was Struck by Second Train No		18. Highway User Went around the gate	
19. Driver Passed Standing Highway Vehicle No		20. View of Track Obscured by (<i>primary obstruction</i>) Not Obstructed			
Casualties to:		Killed	Injured	21. Driver was Injured	22. Was Driver in the Vehicle? Yes
23. Highway-Rail Crossing Users	2	1	24. Highway Vehicle Property Damage (<i>est. dollar damage</i>)	1000	25. Total Number of Vehicle Occupants (<i>including driver</i>) 3
26. Locomotive Auxiliary Lights? Yes			27. Locomotive Auxiliary Lights Operational? Yes		
28. Locomotive Headlight Illuminated? Yes			29. Locomotive Audible Warning Sounded? Yes		

10. Signaled Crossing Warning

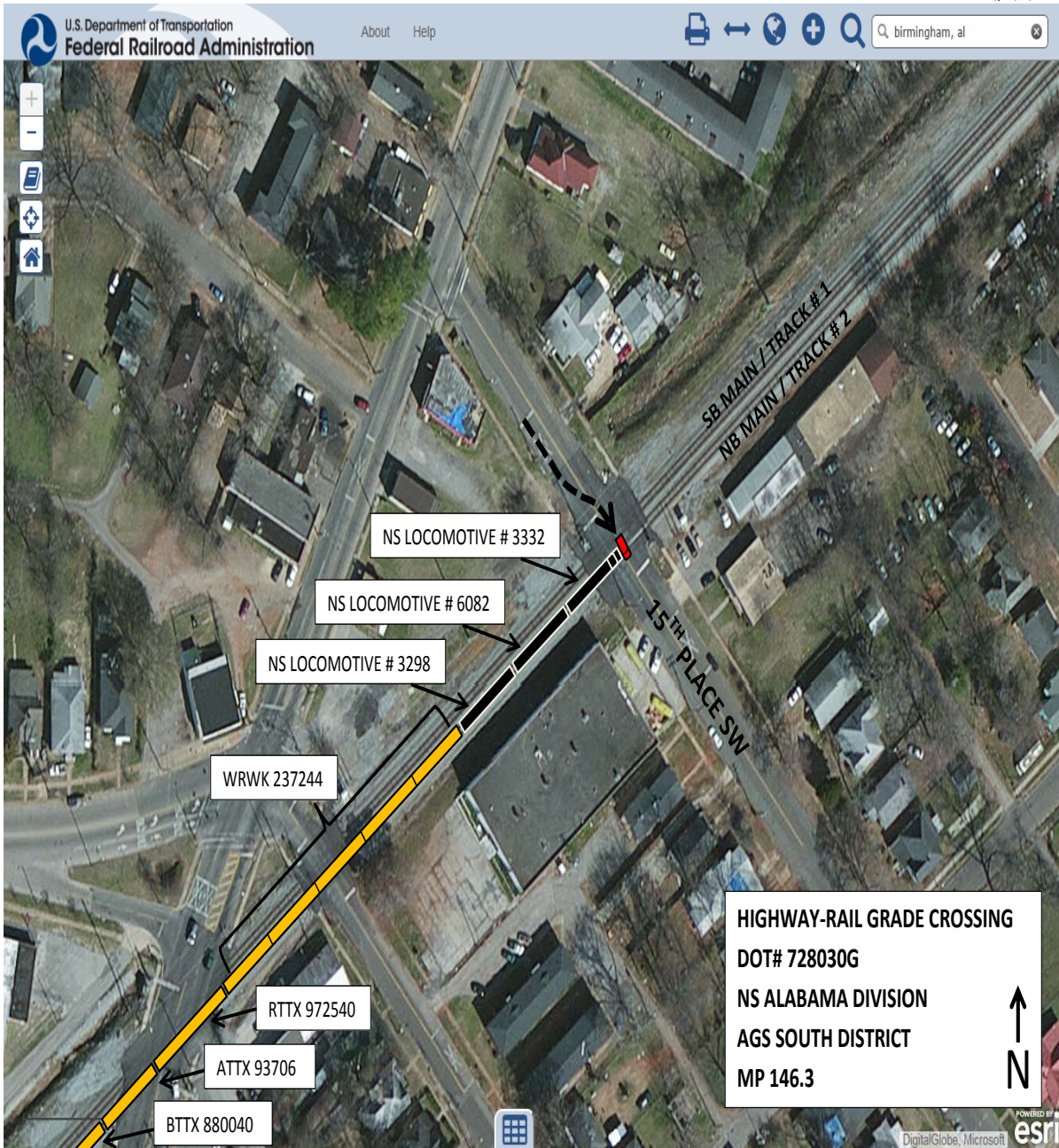
Explanation Code

- | | |
|--|--|
| 1 - Provided minimum 20-second warning | A - Insulated rail vehicle |
| 2 - Alleged warning time greater than 60 seconds | B - Storm/lightning damage |
| 3 - Alleged warning time less than 20 seconds | C - Vandalism |
| 4 - Alleged no warning | D - No power/batteries dead |
| 5 - Confirmed warning time greater than 60 seconds | E - Devices down for repair |
| 6 - Confirmed warning time less than 20 seconds | F - Devices out of service |
| 7 - Confirmed no warning | 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 |
| N/A - N/A | 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

Sketch

HQ-2016-1127



NARRATIVE

On May 3, 2016, at approximately 10:15 p.m., CDT, northbound Norfolk Southern (NS) Train A38A7-03 collided with an eastbound vehicle (pickup truck) at the 15th Place SW public highway-rail grade crossing (DOT Crossing Number 728030G) in Birmingham, Alabama. 15th Place SW is located on NS' AGS South District at MP 146.31 in traffic control system. The vehicle included three occupants including a driver and two passengers. Both passengers were fatally injured and the driver sustained injuries.

All directions are based on timetable direction. Train A38A7-03 was operating timetable north (geographically northeast). The subject vehicle was operating east (geographically southeast).

CIRCUMSTANCES PRIOR TO ACCIDENT

NS Train A38A7-03 consisted of three locomotives (NS 3332, NS 6082, and NS 3298) and 14 empty freight cars. Each locomotive received the required calendar day inspection at 8:30 p.m. in Birmingham. There were no defective conditions noted on the reports. According to carrier records, a Class 1 brake test was completed on a six-car pick up at Woodstock and an additional eight cars were picked up at Bessemer, Alabama. All tests and inspections were performed by the train crew.

The crew of Train A38A7-03 included a locomotive engineer, a conductor, and a conductor trainee. They each went on duty at 7:00 p.m. at Birmingham after the required statutory off-duty period.

As Train A38A7-03 approached the accident site, the Engineer was seated at the locomotive controls on the east side of the locomotive. The conductors were seated on the west side of locomotive. The train was operating on the Northbound Main / AGS Track Number 2 with the locomotive throttle in number 2 notch at a recorded speed of 42 mph. NS maximum authorized speed approaching the accident site is 50 mph.

The Northbound Main / AGS Track Number 2 has an approximate .39 ascending grade approaching the accident site in a northbound direction. The track is tangent for about 1.7 miles approaching the accident site. The track is tangent for about 3,300 feet beyond the accident site.

Eastbound 15th Place SW begins at Pearson Avenue SW with an approximate 260-foot perpendicular and tangent approach to the highway-rail grade crossing. The street encounters a minimal amount of grade at the crossing. The street is tangent for about 2,700 feet beyond the accident site. The posted street speed limit is 30 mph.

THE ACCIDENT

As Train A38A7-03 approached the accident site, it crossed over a series of three highway-rail grade crossings with 15th Place SW being the last crossing. The train began sounding its horn continuously for the three crossings; about 1,130 feet and about 19 seconds before reaching 15th Place SW. The vehicle was traveling east on 15th Place SW approaching the crossing at an unknown speed. The vehicle disregarded the crossing warning devices and drove around the gate. The Engineer initiated an emergency brake application.

At approximately 10:15 p.m., Train A38A7-03 collided with the highway vehicle. The train was traveling at a recorded speed of 42 mph upon impact. The train impacted the passenger side of the pickup truck between its cab and truck bed. The vehicle was projected in a geographically eastward direction causing damage to the crossing signal bungalow and the crossing gate on the east side of the crossing. The vehicle came to a stop at the crossing signal bungalow. The train proceeded about 1,265 feet before coming to a stop.

The Birmingham Fire Department and the Birmingham Police Department responded to the accident site. The Birmingham Fire Department transported the vehicle driver to the emergency room with injuries. The Birmingham Fire Department pronounced both passengers of the vehicle dead on-scene.

Conditions at the time of the accident were 62 degrees Fahrenheit and clear. Train A38A7-03 sustained damage to its lead locomotive ditch lights and snowplow. No rail equipment derailed. The highway-rail grade crossing warning system sustained damage and was subsequently replaced. There were no injuries to the train crew. There were no hazardous materials involved. This was not PTC-preventable. Train A38A7-03 was delayed approximately 3 hours.

POST ACCIDENT INVESTIGATION

Toxicology Testing - Analysis: The subject vehicle driver was a 42-year old male. The two passengers in the subject vehicle were a 27-year old male and a 25-year old male. The Jefferson County Coroner conducted toxicological testing on the two passengers with positive results including alcohol and cocaine. The toxicological results for the driver are unknown to the Federal Railroad Administration (FRA). However, NS Police informed FRA that the accident remains under investigation by the Birmingham Police Department and Jefferson County District Attorney.

Toxicological tests were not required and were not performed on the train crew.

Conclusion: It is unknown to FRA if intoxication or other impairment was a causal factor on the part of the subject vehicle driver. The accident remains under investigation by the Birmingham Police Department and the Jefferson County District Attorney.

Highway-Rail Grade Crossing Warning System – Analysis: 15th Place SW utilized a Safetran 3000 GCP (Grade Crossing Predictor) and a Safetran Model 91070-1 Crossing Controller II TC/20 amp, both of which were destroyed in the accident. The effective approach lengths are 3,484 feet in both directions. The maximum authorized timetable speed is 50 mph.

15th Place SW is a paved public street that crosses NS' double main tracks. The street encounters a minimal amount of grade at the crossing. The crossing in each direction includes advance warning signs and advance pavement markings.

The crossing at 15th Place SW is protected by a highway-rail grade crossing warning system that consists of four pairs of flashing lights, two gates with flashing lights, two electronic bells, two cross buck signs indicating "2 Tracks", and two emergency notification system signs, all of which are mounted on two separate signal masts.

All tests, downloads, photographs, and documentation revealed that the highway-rail grade crossing warning system functioned as intended at the time of the accident.

Conclusion: The highway-rail grade crossing warning system functioned as intended and was not a causal factor.

Locomotive Safety Devices – Analysis: The lead locomotive of Train A38A7-03 was equipped with a headlight, auxiliary lights, and the audible warning device (horn) required by Federal regulations. The locomotive event recorders were reviewed by NS managers and FRA with no exceptions noted. No safety items were noted as being defective during the crew's calendar day inspection.

Conclusion: The locomotive safety devices functioned as intended and were not a causal factor.

Overall Conclusions:

The highway-rail grade crossing warning systems and locomotive safety devices functioned as intended. There were no exceptions taken to the train's operation. The accident remains under investigation by the Birmingham Police Department and the Jefferson County District Attorney.

PROBABLE CAUSE

The driver of the subject vehicle disregarded the crossing warning devices.