Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2006-26

Alabama & Gulf Coast Railway LLC (AGR)
Linden, Alabama
April 28, 2006

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-2006-26

1.Name of Railroad Operating Train #1: Alabama & Gulf Coast Rwy LLC [AGR]	1a. Alphabetic Code: AGR	1b. Railroad Accident/Incident No.: ID06253
2.Name of Railroad Operating Train #2: Alabama & Gulf Coast Rwy LLC [AGR]	2a. Alphabetic Code: AGR	2b. Railroad Accident/Incident: ID06253
3.Name of Railroad Responsible for Track Maintenance: Alabama & Gulf Coast Rwy LLC [AGR]	3a. Alphabetic Code: AGR	3b. Railroad Accident/Incident No.: ID06253
4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident: Month 04 / Day 28 / Year 2006	6. Time of Accident/Incident: 04:28: ☐ AM ☑ PM

7. Type of Accident/Indicent (single entry in code box): 1. Derailment; 2. Head on collision; 3. Rear end collision; 4. Side collision; 5. Raking collision; 6. Broken Train collision; 7. Hwy-rail crossing; 8. RR grade crossing; 9. Obstruction; 10. Explosion-detonation; 11. Fire/violent rupture; 12. Other impacts; 13. Other (describe in narrative): 02

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division
23	1	1	0	System

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Linden	749.4	N/A	AL	MARENGO

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

21. Track Name/Number	22. FRA Track Class (1-9, X)	Code	23. Annual Track Density (gross tons in millions)	24. Time Table Direction 1. North 3. East	Code
Linden Siding		1	0		2

OPERATING TRAIN #1

25. 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: 1

26. Was Equipment Attended? 1. Yes 2. No — Code: 1

27. Train Number/Symbol: 211

28. Speed (recorded speed, if available) — R - Recorded; E - Estimated: 29 MPH — Code: R

29. Trailing Tons (gross tonnage, excluding power units): 2700

30. 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): j N/A N/A N/A N/A

30a. 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: 0

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

32. 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

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

34. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	35. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1)	2	0	0	0	0	(1) Total in Equipment Consist	13	0	41	0	0
(2)	0	0	0	0	0	(2) Total Derailed	0	0	0	0	0

36. Equipment Damage — This Consist: 1000

37. Track, Signal, Way, & Structure Damage: 0

38. Primary Cause Code: H702

39. Contributing Cause Code: N/A

Number of Crew Members

40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen
N/A	N/A	1	N/A

Length of Time on Duty

44. Engineer/Operator: Hrs 4 Mi 38

45. Conductor: Hrs 4 Mi 38

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other
Fatal	0	0	0
Nonfatal	N/A	0	0

49. EOT Device? 1. Yes 2. No — 1

50. Was EOT Device Properly Armed? 1. Yes 2. No — 1

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

OPERATING TRAIN #2

52. 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: 6

53. Was Equipment Attended? 1. Yes 2. No — Code: 2

54. Train Number/Symbol: N/A

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

57. 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

57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled; 1 = Remote control portable

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56. Trailing Tons (gross tonnage, excluding power units)	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)	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter
N/A			j N/A N/A N/A N/A	0

58. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	59. 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)	MB524 8	1	no		N/A	N/A
(2) Causing (if mechanical cause reported)	0	N/A	N/A	60. Was this consist transporting passengers? (Y/N)	N/A	

61. 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

62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	77	0	28	0	0
(2) Total Derailed	1	0	1	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
89000	16534	H702	N/A

Number of Crew Members				Length of Time on Duty	
67. Engineer/ Operators	68. Firemen	69. Conductors	70. Brakemen	71. Engineer/Operator	72. Conductor
N/A	N/A	N/A	N/A	Hrs 0 Mi 0	Hrs 0 Mi 0

Casualties to:	73. Railroad Employees	74. Train Passengers	75. Other
Fatal	0	0	0
Nonfatal	0	0	0

76. EOT Device? 1. Yes 2. No | 2

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

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

Highway User Involved

79. Type — Code: N/A
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)

80. Vehicle Speed (est. MPH at impact): N/A

81. Direction geographical) — Code: N/A
1.North 2.South 3.East 4.West

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

86a. Was the highway user and/or rail equipment involved in the impact transporting hazardous materials? — Code: N/A
1. Highway User 2. Rail Equipment 3. Both 4. Neither

Rail Equipment Involved

83. Equipment — Code: N/A
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)

84. Position of Car Unit in Train: N/A

85. Circumstance — Code: N/A
1. Rail Equipment Struck Highway User
2. Rail Equipment Struck by Highway User

86b. Was there a hazardous materials release by — Code: N/A
1. Highway User 2. Rail Equipment 3. Both 4. Neither

86c. State here the name and quantity of the hazardous materials released, if any.
N/A

87. Type of 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

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

88. Signaled Crossing Warning (See instructions for codes) — Code: N/A

89. Whistle Ban — Code: N/A
1. Yes
2. No
3. Unknown

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

91. Crossing Warning Interconnected with Highway Signals — Code: N/A
1. Yes
2. No
3. Unknown

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

93. Driver's Age: N/A

94. Driver's Gender — Code: N/A
1. Male
2. Female

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

96. Driver — Code: N/A
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)

97. Driver Passed Standing Highway Vehicle — Code: N/A
1. Yes 2. No 3. Unknown

98. View of Track Obscured by (primary obstruction) — Code: N/A
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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	N/A	N/A

99. Driver Was — Code: N/A
1. Killed 2.Injured 3. Uninjured

100. Was Driver in the Vehicle? — Code: N/A
1. Yes 2. No

102. Highway Vehicle Property Damage (est. dollar damage): N/A

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

104. Locomotive Auxiliary Lights? — Code: N/A
1. Yes 2. No

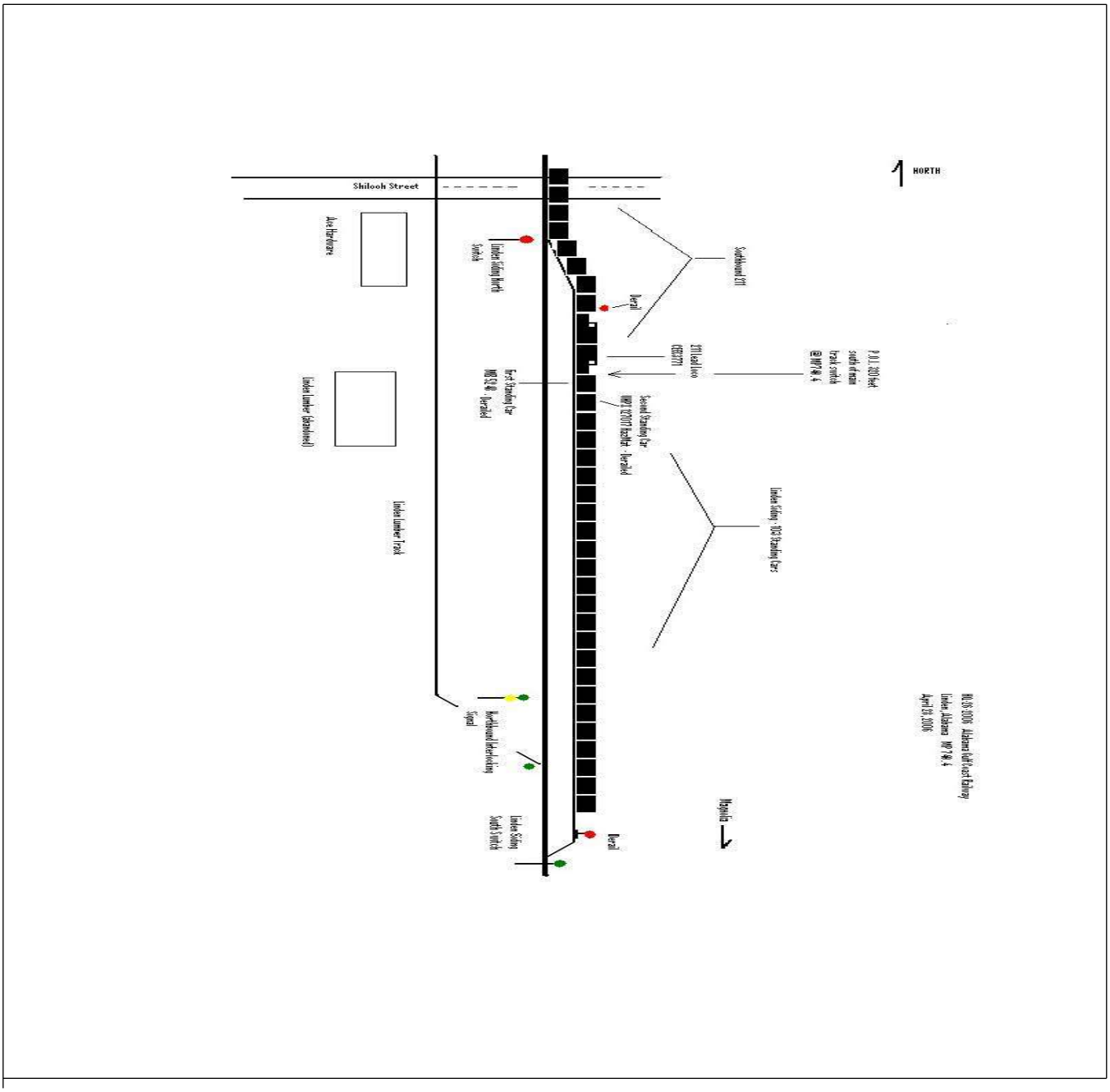
105. Locomotive Auxiliary Lights Operational? — Code: N/A
1. Yes 2. No

106. Locomotive Headlight Illuminated? — Code: N/A
1. Yes 2. No

107. Locomotive Audible Warning Sounded? — Code: N/A
1. Yes 2. No

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

HQ-26-
2006
sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

On April 28, 2006, at 4:28 p.m. Central Daylight Time (CDT), southbound Alabama Gulf Coast Railway (AGR) freight Train 211 was diverged from the main track into a siding and collided with a cut of 103 standing cars. The accident occurred on the AGR Magnolia Subdivision at milepost (MP) 749.4, in Linden, Alabama (AL). The method of operation is Track Warrant Control.

The collision derailed the first and second head cars standing in the siding. The second car, UNPX 127017, contained Sodium Chlorate, a hazardous material. The car broke in half on impact releasing the product and producing a small fire. No cars or locomotives in Train 211 derailed and damage to the locomotives was $1,000. The two standing cars located in the siding were destroyed at an estimated cost of $89,000. The estimated track damage was $16,534. There were no evacuations or injuries to the train crew or residents of the town.

At the time of the accident the weather was clear with a temperature of 74°F.

The accident occurred because the conductor of Train 121 failed to return the main track switch to the normal position and to visually observe the switch to assure that the switch was lined for the main track.

110. NARRATIVE

Circumstances Prior to the Accident

Train 121

On April 28, 2006, the crew of Train 121, consisting of an engineer and conductor, reported for duty at 6 a.m., at Magnolia Yard in Magnolia, AL. Prior to this tour of duty the conductor and engineer had received more than the required statutory off duty time. The conductor and engineer had a job briefing in the yard office, made up their train and performed a Class I air brake test and inspection. At 7 a.m. Train 121 departed north from Magnolia Yard, MP 764.2, with the engineer seated at the controls on the east side of lead and controlling Locomotive CBNS 5000. The train was 1,999 feet in length, weighed 3,379 tons, and was comprised of two locomotives, 32 loaded cars of mixed freight and four empty cars.

Train 121 arrived at Linden, MP 750.0, about 7:40 a.m. and stopped on the main track, south of the north Linden siding switch. The conductor dismounted the east side of the lead locomotive and walked over to the siding where he removed the derail. He returned to the train and uncoupled the locomotives, then walked to and operated the foot pedal switch lock on the east rail of the turnout. He then crossed over to the switch on the west side of the main track as the engineer pulled north, clear of the switch.

The conductor lined the main track switch for the siding and instructed the engineer to back up to a coupling. The locomotive coupled to the north car and pulled 12 cars from the siding, then returned to the main track and coupled to their cars. They pulled the entire train clear of the switch and the conductor lined the switch for the siding. Train 121 shoved back into the siding, coupled to the standing cars, and began to shove clear of the main track. As they shoved into the siding the train went into an undesired emergency air brake application. The engineer told the conductor, via radio, he believed a knuckle had broken somewhere in the train. The cars were clear of the main track, so the conductor uncoupled the locomotives and instructed the engineer to return to the main track. When the locomotives were clear of the siding, the conductor placed the derail back on the siding, then walked over to the main track switch. He lined the switch for the main track and placed the lock in the latch but did not lock the switch lock. He boarded the west side of Locomotive RMPX 6411 and instructed the engineer to back up. The engineer and conductor proceeded south on the main track looking for the car with the broken knuckle.

They repaired the broken knuckle on the 92nd car and determined that it would be easier to do the remainder of the switching from the south end of the siding. The engineer operated the locomotives back to the north end of the siding so the conductor could lock the main track switch. The engineer said that while en route he and the conductor discussed their next switching moves. The engineer stopped the locomotives about 20 feet south of the switch and the conductor dismounted lead Locomotive CBNS 5000. As the conductor was getting off to lock the switch, the engineer changed operating ends from Locomotive CBNS 5000 to Locomotive RMPX 6411 that was facing south. The conductor said that he locked the switch, but he did not look at the switch points. The engineer said he was seated at the controls on the west side of Locomotive RMPX 6411 and watched the conductor, using the locomotive side mirror, walking toward the head end. He said the conductor was midway between the two locomotives when he first saw him, but he did not see the red switch target. The conductor radioed the engineer that the main track switch was lined and locked as he walked toward Locomotive RMPX 6411. Train 121 proceeded to the south end of Linden siding, completed their switching assignment and returned to Magnolia Yard.

AGR Train 211

The crew of AGR Train 211 consisted of an engineer and conductor. They reported for duty on April 28, at 11:50 a.m., in Aliceville Yard, Aliceville, AL. Both the

engineer and conductor had been off duty 12 hours prior to this assignment. The conductor and engineer boarded their train after obtaining their paperwork and conducting a job briefing at the yard office. They received a Class I air brake test and inspection by the train crew of AGR Train 210 at Aliceville. Train 211 consisted of two locomotives and 85 cars; 32 loads, 25 empties, was 5,369 feet in length, with 5,254 trailing tons. The train was scheduled to operate from Aliceville, MP 679.9, to Magnolia, MP 764.2, and return with scheduled stops in between.

Train 211 departed Aliceville with lead and controlling Locomotive CEFX 3771 at 12:10 p.m. The first scheduled stop was 1:45 p.m. at Boligee, AL, where the train crew set out 22 loads and 11 empties. Train 211 South proceeded south to Demopolis, AL, where the crew picked up four loads and set out one. At Demopolis, the engineer and conductor switched job assignment duties. The conductor became the engineer and operated the train from Demopolis to the point of the accident. Both train crew members were certified locomotive engineers. Train 211 South departed Demopolis at 3:45 p.m. The engineer was seated at the controls on the west side of lead and controlling Locomotive CEFX 3771. The conductor was seated on the east side.

Approaching the accident area from the north there is a 1,050 ft. left hand curve followed by a tangent of 1,850 ft. to the Linden siding switch. The track is tangent into the siding for about 790 feet followed by a
1-degree right hand curve 1,030 feet in length. There is a 0.30-percent ascending grade.

AGR timetable and geographic direction is north/south. Timetable direction is used throughout this report.

The Accident

Train 211 was operating at a recorded speed of 29 miles per hour (mph) approaching the accident area. The engineer was sounding the locomotive horn for the Shiloh Street crossing when he observed the switch at the north end of Linden siding was not in the normal position. The conductor saw the switch lined against their movement and jumped from his seat to the floor. The engineer put the train in emergency, dropped the throttle back and jumped on the floor next to the conductor. Train 211 diverged from the main track into the siding and collided with the standing cars at a speed of 17 mph. Both speeds were recorded by the event recorder on lead Locomotive CEFX 3771.
The collision derailed and destroyed the first and second north standing cars in the siding. The second car was a loaded hazardous material covered hopper, UNPX 127017, containing Sodium Chlorate. The car broke in half on impact releasing 98 tons of material and producing a small fire. After impact, the engineer and conductor immediately shut down the locomotives and evacuated the train. There was no derailment of locomotives or cars in Train 211 South.
The Linden Fire Department, Linden County Police, and the Alabama Department of Environmental Management responded to the accident. Linden firemen extinguished the fire and the Linden Police Chief investigated the accident, but did not file a report. The emergency responders determined the Sodium Chlorate spill posed no immediate threat to the area or public, thus, no air monitoring or evacuation was ordered. Hulcher Services, Inc. handled clean-up of the hazardous material and re-railing services.

Analysis and Conclusions

Analysis

AGR managers, first on the accident scene, observed that the main track switch at the north end of Linden siding was lined for movement into the siding and locked. The switch is a No. 36 H high stand switch equipped with a switch target that displays red when the switch is lined for the siding. There is no switch target display for normal position. The switch is equipped with a foot pedal lock on the east rail of the turnout that must be disengaged to operate the switch. The Federal Railroad Administration (FRA) and AGR inspection disclosed no evidence of vandalism and the switch operated as designed.

Inspection of both locomotives on Train 211 by AGR mechanical personnel disclosed no defects other than the minor damage that occurred as a result of the accident. The event recorder download from lead Locomotive CEFX 3771 recorded the operating speed of the train prior to the emergency air brake application at 29 mph and the impact speed at 17 mph. Maximum authorized track speed is 25 mph, as designated in the current AGR Timetable No. 2.

The conductor of Train 121 walked to the switch and locked the switch lock, but did not look at the switch points to assure that the switch was lined for the main track. The conductor radioed the engineer that the switch was lined and locked as he was walking on the west side of the locomotives to the south locomotive.

The engineer of Train 121 became occupied with changing operating ends and did not visually observe the conductor lock and/or line the main track switch. The engineer said that he was seated at the controls on the west side of the south locomotive, RMPX 6411, when he first observed the conductor walking toward him. He said this observation was through the locomotive side mirror and that the conductor was about midpoint between the two locomotives when he first saw him. The engineer said that he did not see the red target of the switch.

Inspection of AGR training records for the conductor and engineer of Train 121 disclosed they both received training on FRA Emergency Order 24 and were provided a copy of the Order. The Order requires all employees operating hand-operated switches in non-signaled territory to visually ensure that hand-operated main track switches are properly lined for the intended route. The Order also requires the employee to visually ensure the switch points fit properly and the switch target, if so equipped, corresponds with the switch's position.

No drug and alcohol tests were conducted on the engineer and conductor of either train.

Conclusions

The conductor dismounted the lead locomotive and lined and locked the switch as opposed to just locking it. By operating the switch when it was already in the normal position for the main track resulted in the switch being placed in the reverse position. The conductor failed to visually ensure that the switch was lined for the main track, that the switch points fit properly and the switch target corresponded with the switch's position.

Probable Cause

The Federal Railroad Adminstration found that the accident occurred because the conductor of Train 121 failed to return the main track switch to the normal position and to visually observe the switch to ensure that the switch was lined for the main track.