Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-78

Kansas City Southern (KCS)
Wiggins, MS
October 21, 2008

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-2008-78

1.Name of Railroad Operating Train #1: Kansas City Southern Rwy Co. [KCS]	1a. Alphabetic Code: KCS	1b. Railroad Accident/Incident No.: 08102101
2.Name of Railroad Operating Train #2: N/A	2a. Alphabetic Code: N/A	2b. Railroad Accident/Incident No.: N/A
3.Name of Railroad Operating Train #3: N/A	3a. Alphabetic Code: N/A	3b. Railroad Accident/Incident No.: N/A
4.Name of Railroad Responsible for Track Maintenance: Kansas City Southern Rwy Co. [KCS]	4a. Alphabetic Code: KCS	4b. Railroad Accident/Incident No.: 08102101
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 10 | Day 21 | Year 2008	7. Time of Accident/Incident: 05:30: ☑ AM ☐ PM

8. 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)* — Code: 01

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
33	7	0	16	southeast

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
McHenry	26.3	N/A	MS	STONE

18. Temperature (F) *(specify if minus)*	19. Visibility *(single entry)* 1. Dawn 2. Day 3.Dusk 4.Dark — Code	20. Weather (single entry) 1. Clear 2. Cloudy 3. Rain 4. Fog 5.Sleet 6.Snow — Code	21. Type of Track 1. Main 2. Yard 3. Siding 4. Industry — Code
45 F	4	1	1

22. Track Name/Number	23. FRA Track Class (1-9, X) — Code	24. Annual Track Density *(gross tons in millions)*	25. Time Table Direction 1. North 2. South 3. East 4. West — Code
single main	2	3.16	2

OPERATING TRAIN #1

26. 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	27. Was Equipment Attended? 1. Yes 2. No — Code	28. Train Number/Symbol
1	1	LGP10121

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
15 MPH — R	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)*	0 = Not a remotely controlled; 1 = Remote control portable; 2 = Remote control tower; 3 = Remote control transmitter - more than one remote control transmitter — 0
30. Trailing Tons *(gross tonnage, excluding power units)*: 6418	Code(s): j | N/A | N/A | N/A | N/A	

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	UTLX920187	30	yes
(2) Causing *(if mechanical cause reported)*	0	0	N/A

33. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol: N/A; Drugs: N/A

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

35. 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	4	0	0	0	0
(2) Total Derailed	0	0	0	0	0

36. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	49	0	13	0	0
(2) Total Derailed	7	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$206,681.00	$51,521.00	T207	N/A

Number of Crew Members

41. Engineer/ Operators	42. Firemen	43. Conductors	44. Brakemen
1	0	1	1

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 6 Mi 45	Hrs 6 Mi 45

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	0	0	0

50. EOT Device? 1. Yes 2. No — 1

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

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

OPERATING TRAIN #2

53. 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	54. Was Equipment Attended? 1. Yes 2. No — Code	55. Train Number/Symbol
N/A	N/A	N/A

56. Speed *(recorded speed, if available)* R - Recorded E - Estimated — Code	58. Method(s) of Operation *(enter code(s) that apply)*	58a. Remotely Controlled Locomotive?
N/A MPH — N/A	a. ATCS; b. Auto train control; g. Automatic block; h. Current of traffic; m.Special instructions; n. Other than main track	0 = Not a remotely controlled; 1 = Remote control portable

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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

64. Equipment Damage This Consist N/A

65. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

72. Engineer/Operator Hrs N/A Mi N/A

73. Conductor Hrs N/A Mi N/A

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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 N/A

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)*	N/A	N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	N/A	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	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Equipment Consist	N/A	N/A	N/A	N/A	N/A
(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

91. Equipment Damage This Consist N/A

92. Track, Signal, Way, & Structure Damage N/A

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
N/A	N/A	N/A	N/A

Length of Time on Duty

99. Engineer/Operator Hrs N/A Mi N/A

100. Conductor Hrs N/A Mi N/A

Casualties to:	101. Railroad Employees	102. Train	103. Other
Fatal	N/A	N/A	N/A
Nonfatal	N/A	N/A	N/A

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. 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)*

108. Vehicle Speed *(est. MPH at impact)* N/A

109. *geographical)* Code N/A
1.North 2.South 3.East 4.West

Rail Equipment Involved

111. 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)*

112. Position of Car Unit in N/A

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

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

116. Signaled Crossing *(See instructions for codes)*	Code	117. Whistle Ban 1. Yes 2. No 3. Unknown	Code
	N/A		N/A

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

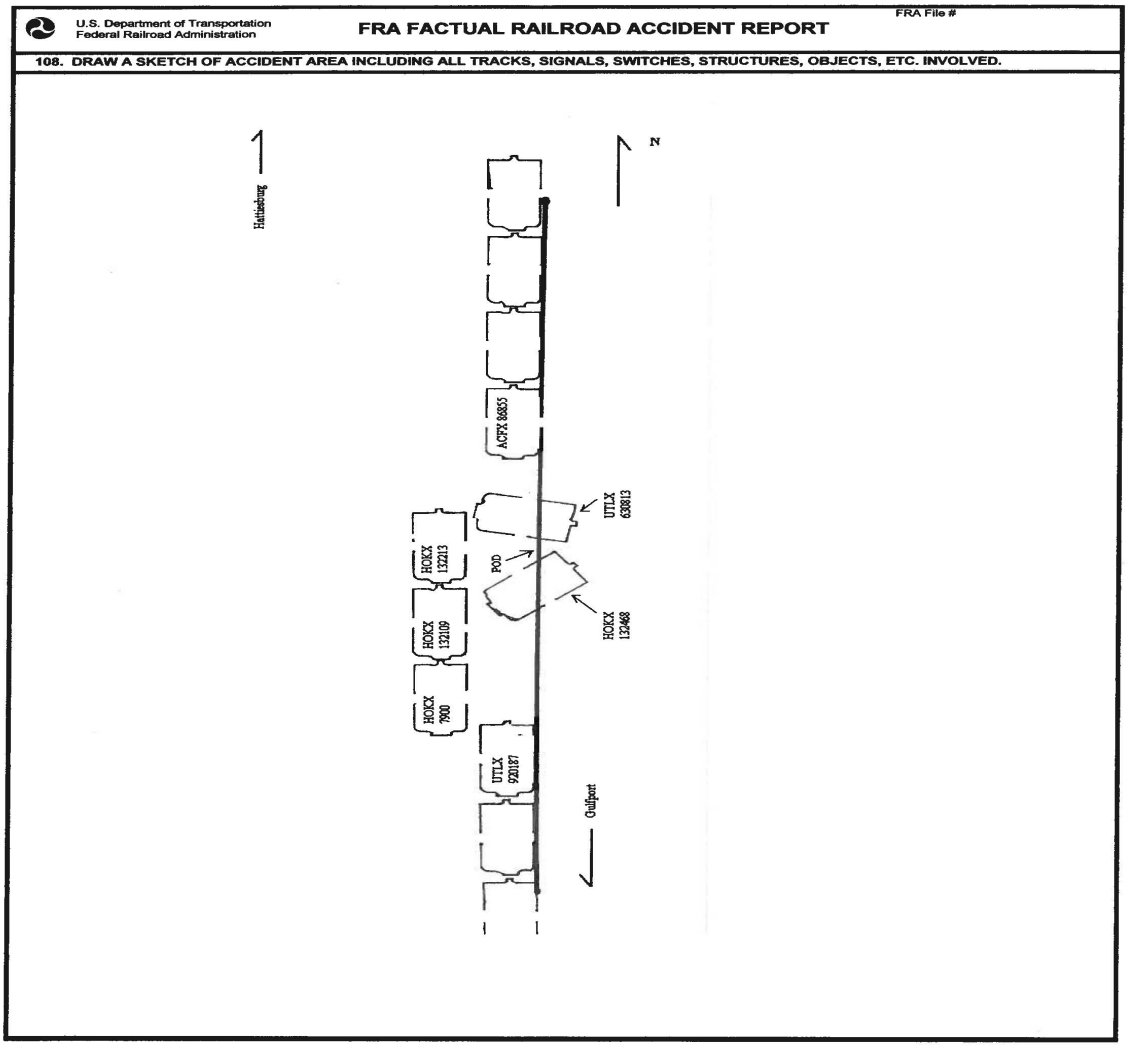
121. Age	122. Driver's Gender 1. Male 2. Female	Code	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify in narrative)*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

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code	126. View of Track Obscured by *(primary obstruction)* 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	Code
	N/A		N/A

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

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

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



137. SYNOPSIS OF THE ACCIDENT

On October 21, 2008, at 5:30 a.m. (CDT), southbound Kansas City Southern (KCS) Freight Train LGP101-21 consisting of four locomotives and 62 cars derailed at milepost (MP) 26.3 on the Southeastern Division, Gulfport Subdivision, 2.3 miles north of McHenry, Mississippi (MS). The accident resulted in the derailment of seven hazardous material tank cars, four of which turned over.

There were no injuries sustained by the KCS train crew which consisted of an engineer, conductor and brakeman. The four overturned tank cars contained Chlorine, and the other three tank cars contained Sodium Hydroxide. There was no release of product but a half mile precautionary evacuation was ordered by emergency responders. Estimated damages are $206,681 for equipment and $51,521 for track.

The weather at the time of the accident was clear and dark with a temperature of 45°F.

The probable cause of the accident was a broken rail from a detail fracture.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

On October 20, 2008, the crew of KCS Train LGP101-21, consisting of an engineer, conductor and brakeman, reported for duty at the Canadian National (CN) Railroad Yard in Hattiesburg, Mississippi (MS), milepost (MP) 65.010:45 p.m. after their required statutory off-duty rest period. They obtained their train consist and track warrant at the CN yard office then drove by privately-owned-vehicle (POV) to their train located on the Main Track at MP 66.0. The engineer and brakeman boarded lead Locomotive KCS 2827, the conductor remained on the ground to give the train a roll-by inspection on departure. KCS Train LGP101-21 departed Bell Yard at 2:05 a.m. on October 21, 2008, with four locomotives, and 49 loaded and 11 empty freight cars. The conductor gave the train a roll-by inspection then returned to his POV and drove to their first switching assignment location. The method of operation between Hattiesburg and Gulfport is Track Warrant Control (TWC).

KCS Train LGP101-21 stopped at MP 65.3 where the train crew switched a number of cars and picked up two rail cars at Western Container Corporation. They tested the train air brakes on the pick-up then returned to their train where they re-coupled and departed after performing a Class III train brake test. KCS Train LGP101-21 continued operating southward toward Gulfport without incident to MP 26.3.

As KCS Train LGP101-21 approached the accident area, the engineer and brakeman felt a surge in the lead locomotive. The engineer was seated at the controls on the west side of lead and controlling Locomotive KCS 2827, the brakeman was seated on the east side. The conductor was following the train by highway in his POV. The engineer was operating the train at a speed of 15 miles per hour (mph) when he entered the curve at MP 26.3. KCS maximum authorized timetable speed on the Gulfport Subdivision is 25 mph but a 10 mph speed restriction was in effect from MP 65.0 to MP 2.2.

In this area of the railroad there is a 2-degree left-hand curve that is 2,288 feet in length with a 0.52 ascending grade. At this location, trains operate over 90 lb. jointed rail, with a mill date of 1925 and 1926.

Timetable and geographical direction is north and south. Timetable direction is used in this report.

THE ACCIDENT

The engineer was operating the lead locomotive in throttle position 7 at a speed of 15 mph. As KCS Train LGP101-21 negotiated the curve at MP 26.3, the lead locomotive suddenly surged forward resulting in the train experiencing an undesired emergency train brake application. After the train stopped, the brakeman walked the train back to where he discovered the 30th through 37th hazardous material tank cars behind the locomotives were derailed with several having turned over. The brakeman radioed the engineer with his findings, whereupon the engineer contacted the KCS Dispatcher via radio about 5:40 a.m. The dispatcher notified the KCS Critical Incident Desk who in turn called local emergency personnel as well as United States Environmental Services (USES) and Hulcher Derailment Services.

About 7:10 a.m. Stone County Emergency Management District arrived on the accident scene and set up a temporary command post near the accident site. They ordered a precautionary evacuation of about a one-quarter mile radius which affected about 16 households. USES responders arrived at the scene about 7:45 a.m. to evaluate the derailed and overturned hazardous material tank cars. They declared the accident site safe with no leaking of products about 8:10 a.m. The Center for Toxicological, Environmental and Health arrived on the scene about 2:00 p.m. to monitor any exposure concerns.

Hulcher Derailment Services arrived about 10:00 a.m. to re-rail and clear the accident site. After re-building the track bed, Hulcher assisted KCS track personnel with track panel installation. The Main Track was placed back in service at 9:55 p.m.

The train crew was post accident tox tested at the KCS Gulfport Yard Office by Alcohol, Drug Test Services.

ANALYSIS AND CONCLUSION

ANALYSIS - TRAIN HANDLING

The event recorder download from lead Locomotive KCS 2827 indicated the locomotive was in the number 7 throttle position, and operating at a recorded speed of 15 mph prior to the emergency brake application. At the time of the accident there was a 10 mph speed restriction on the entire Gulfport Subdivision. KCS management took no exceptions to the train handling other than the speed at which the train was being operated. All train crew toxicology test results were negative.

The Main Track had a maximum speed of 25 mph, FRA Class 2, which requires once weekly track inspections; however, at the time of the accident there was a 10 mph speed restriction on that section of the railroad. The accident area was last inspected by a KCS track inspector on October 20, 2008, with no exceptions noted in the derailment area.

CONCLUSION

KCS Officials took no exception to the method in which the crew handled the train. The KCS train crew did not contribute to the derailment.

ANALYSIS - TRACK

The 90 lb. rail was installed in 1926 by the Former Illinois Central Railroad (IC). In 2003, KCS made track upgrades in the accident area with a Tie and Surfacing production gang. On January 15, 2008, an Automated Track Inspection Program (ATIP) survey was conducted by the FRA DODX-216 (T-216) track geometry car on the Gulfport Subdivision with no exceptions noted in the derailment area. On October 1, 2008, Sperry Rail Services with car No. 814 tested this location for internal rail defects with no exceptions noted.

CONCLUSION:

The KCS track maintainance program was not out of FRA compliance.

Fatigue Analysis

FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to a blood alcohol content (BAC) of 0.05. At or above this baseline, we do not consider fatigue as probable for any employee. Software sleep settings vary according to information obtained from each employee. If an employee does not provide sleep information, FRA uses the default software settings.

FRA obtained fatigue related information, including a 10-day work history, for the employees involved in this accident.

CONCLUSION:

The KCS Engineering Department recovered a section of rail from the high side of the curve that was broken in two locations, 37-1/2 inches apart, due to internal defects. Both the rail head and gage side of the rail head had a 10 percent detail fracture, one-quarter inch in diameter.

The LGP101-21 engineer was charged with a violation of GCOR Rules 6.31, Maximum Authorized Speed, and 6.31.1, Permanent Speed Restrictions. He was dismissed from service for a period of 60 days.

The probable cause of the accident was a broken rail from a detail fracture.