Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2008-94

Canadian Pacific (CP)
River JCT, MN
December 17, 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-2008-94

1.Name of Railroad Operating Train #1: SOO Line RR Co. [SOO]	1a. Alphabetic Code: SOO	1b. Railroad Accident/Incident No.: 209549
2.Name of Railroad Operating Train #2: SOO Line RR Co. [SOO]	2a. Alphabetic Code: SOO	2b. Railroad Accident/Incident No.: 209549
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: SOO Line RR Co. [SOO]	4a. Alphabetic Code: SOO	4b. Railroad Accident/Incident No.: 209549
5. U.S. DOT_AAR Grade Crossing Identification Number:	6. Date of Accident/Incident: Month 12 | Day 17 | Year 2008	7. Time of Accident/Incident: 04:48:00 ☑ 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: 04

9. Cars Carrying HAZMAT	10. HAZMAT Cars Damaged/Derailed	11. Cars Releasing HAZMAT	12. People Evacuated	13. Division
0	N/A	N/A	28	CHICAGO

14. Nearest City/Town	15. Milepost *(to nearest tenth)*	16. State Abbr	16. State Code	17. County
DRESBACH	288.0	N/A	MN	WINONA

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
10 F	4	6	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 TRACK	4	55.00	4

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	G80

29. Speed *(recorded speed, if available)* R - Recorded E - Estimated	Code	30. Trailing Tons *(gross tonnage, excluding power units)*	31. Method(s) of Operation *(enter code(s) that apply)*	31a. Remotely Controlled Locomotive?
47 MPH	R	1954	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

Code(s): e | N/A | N/A | N/A | N/A — 31a. Code: 0

32. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*
(1) First involved *(derailed, struck, etc)*	CP 4520	1	N/A
(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: 00 | Drugs: 00

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

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	2	0	0	0	0
(2) Total Derailed	2	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	15	0	0	0	0
(2) Total Derailed	13	0	0	0	0

37. Equipment Damage This Consist	38. Track, Signal, Way, & Structure Damage	39. Primary Cause Code	40. Contributing Cause Code
$717,593.00	$598,828.00	H221	H222

Number of Crew Members

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

Length of Time on Duty

45. Engineer/Operator	46. Conductor
Hrs 9 Mi 48	Hrs 9 Mi 48

Casualties to:	47. Railroad Employees	48. Train Passengers	49. Other
Fatal	0	0	0
Nonfatal	1	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 — 2

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
	1	1	487

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?
20 MPH	R	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

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57. 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
3460			e N/A N/A N/A N/A	0

59. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*	60. 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)*	SDPX 97035	50	no		00	00
(2) Causing *(if mechanical cause reported)*	0	0	N/A	61. Was this consist transporting passengers? (Y/N)		N

62. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	63. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	3	0	0	0	0	(1) Total in Equipment Consist	4	0	95	0	0
(2) Total Derailed	0	0	0	0	0	(2) Total Derailed	0	0	13	0	0

64. Equipment Damage This Consist	65. Track, Signal, Way, & Structure Damage	66. Primary Cause Code	67. Contributing Cause Code
$223,413.00	$0.00	H221	H222

Number of Crew Members

68. Engineer/ Operators	69. Firemen	70. Conductors	71. Brakemen
1	0	1	0

Length of Time on Duty

72. Engineer/Operator	73. Conductor
Hrs 10 Mi 33	Hrs 10 Mi 33

Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other
Fatal	0	0	0
Nonfatal	0	0	0

77. EOT Device? 1. Yes 2. No	78. Was EOT Device Properly Armed? 1. Yes 2. No
1	1

79. Caboose Occupied by Crew? 1. Yes 2. No — 2

OPERATING TRAIN #3

80. Type of Equipment Consist *(single entry)*	81. Was Equipment Attended?	Code	82. Train Number/Symbol
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	1. Yes 2. No	N/A	N/A

83. Speed *(recorded speed, if available)* Code R - Recorded E - Estimated N/A MPH 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
84. Trailing Tons *(gross tonnage, excluding power units)* N/A		

86. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded *(yes/no)*	87. 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)*	N/A	N/A	N/A		N/A	N/A
(2) Causing *(if mechanical cause reported)*	N/A	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	90. Cars	Loaded a. Freight	Loaded b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	N/A	N/A	N/A	N/A	N/A	(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	(2) Total Derailed	N/A	N/A	N/A	N/A	N/A

91. Equipment Damage This Consist	92. Track, Signal, Way, & Structure Damage	93. Primary Cause Code	94. Contributing Cause Code
N/A	N/A	N/A	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	100. Conductor
Hrs N/A Mi N/A	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	105. Was EOT Device Properly 1. Yes 2. No
N/A	N/A

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

Highway User Involved

107. 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)* — Code N/A

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

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

Rail Equipment Involved

111. Equipment 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)* — Code N/A

112. Position of Car Unit in N/A

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110. Position 1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 4. Trapped	Code N/A	113. Circumstance 1. Rail Equipment Struck Highway User 2. Rail Equipment Struck by Highway User	Code 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	Code N/A	114b. Was there a hazardous materials release 1. Highway User 2. Rail Equipment 3. Both 4. Neither	Code 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	116. Signaled Crossing *(See instructions for codes)*	Code	117. Whistle Ban 1. Yes 2. No 3. Unknown	Code
Code(s) N/A N/A N/A N/A N/A N/A N/A		N/A		N/A

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

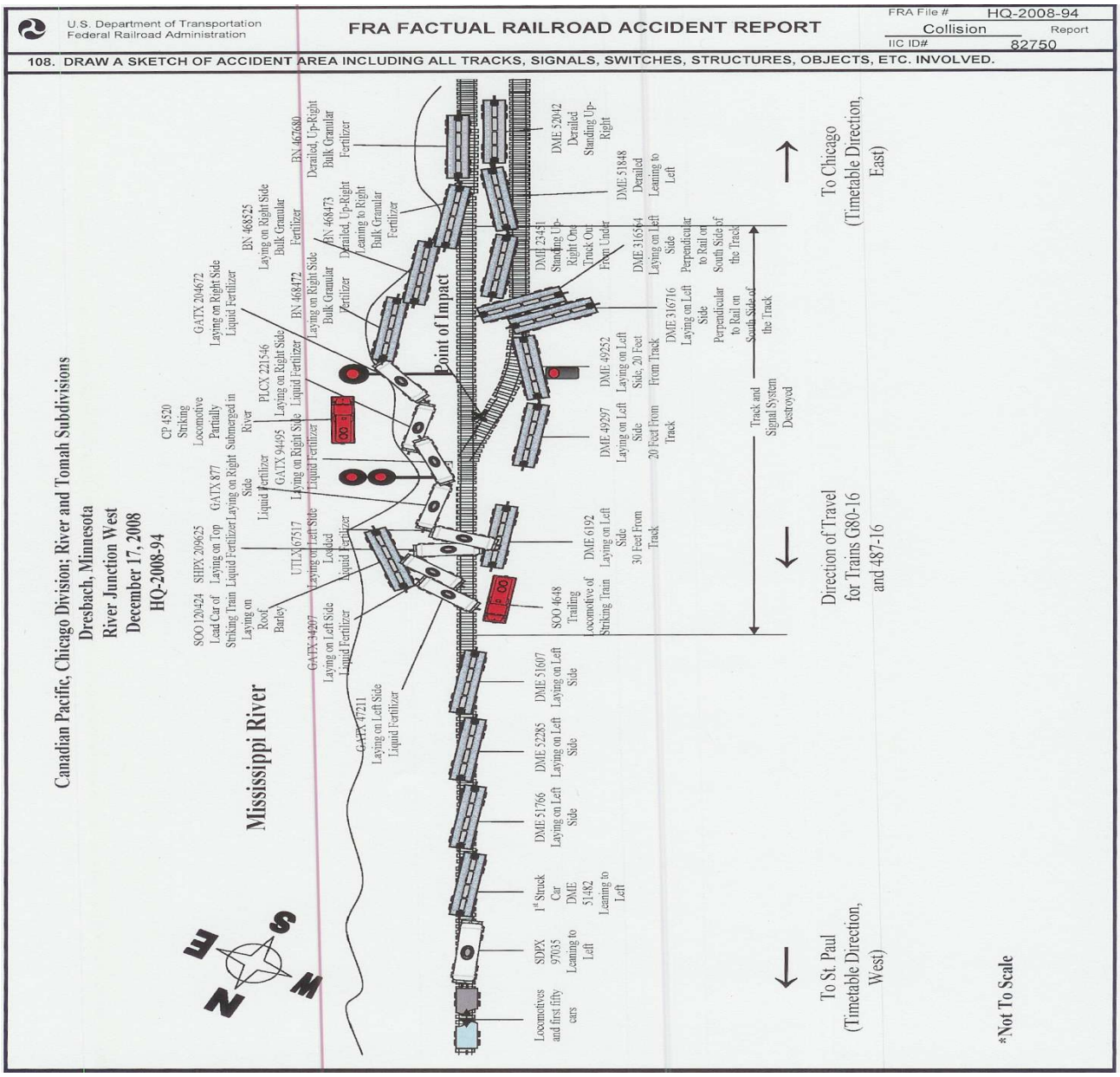
121. Age N/A	122. Driver's Gender 1. Male 2. Female	Code N/A	123. Driver Drove Behind or in Front of and Struck or was Struck by Second Train 1. Yes 2. No 3. Unknown	Code N/A	124. Driver 1. Drove around or thru the Gate 2. Stopped and then Proceeded 3. Did not Stop 4. Stopped on Crossing 5. Other *(specify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

125. Driver Passed Highway Vehicle 1. Yes 2. No 3. Unknown	Code N/A	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

Casualties to:	Killed	Injured	127. Driver 1. Killed 2.Injured 3. Uninjured	Code N/A	128. Was Driver in the Vehicle? 1. Yes 2. No	Code 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 N/A	133. Locomotive Auxiliary Lights Operational? 1. Yes 2. No	Code N/A
134. Locomotive Headlight Illuminated? 1. Yes 2. No	Code N/A	135. Locomotive Audible Warning Sounded? 1. Yes 2. No	Code N/A

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



137. SYNOPSIS OF THE ACCIDENT

On December 17, 2008, at 4:48 a.m., CST westbound Canadian Pacific SOO Line Railroad Company (CP) local freight train, G80-16 collided with westbound CP Manifest Train, 487-16 resulting in the derailment of 26 cars and two locomotives. The incident occurred near Dresbach, Minnesota, on the CP River Subdivision at Control Point (CP) River Junction West at milepost (MP) 288.0.

CP 4520, the leading locomotive of CP Train G80-16 struck DME 51482, the 51st car of CP Train 487. As a result of the collision locomotive CP 4520 came to rest upright and partially submerged in the Mississippi River. The trailing locomotive of Train CP G80-16 was destroyed and the lead 13 cars of Train CP G80-16 were derailed. Thirteen cars of Train CP 487-16 were also derailed, the 50th through the 62nd car. There was no fire and no release of hazardous materials from either train. The collision pushed a ground mounted liquefied petroleum gas (LPG) tank, that was used for the switch heater for the power switch at River Junction West, from its mounting causing it to vent LPG to the atmosphere. This release of LPG required an evacuation of 28 people from a nearby retirement home. Two crew members of Train CP G80-16 were transported by ambulance to a local hospital; one crew member received medical treatment.

The total estimated damage was $1,539,834. Estimated equipment damage was $941,006. The estimated track and signal damage was $598,828.

At the time of the incident it was cloudy with light snow and dark. The temperature was 10 ºF. The wind was calm.

The probable cause of the accident was failure of the crew of Train CP G80-16 to stop the train before passing the signal at River Junction West resulting in the collision with Train CP 487-16 which was occupying the single Main Track at that point.

The fatigued state of the crew members of Train CP G80-16 may have been a contributing factor. Both the engineer and the conductor's readings in the fatigue model indicate fatigue may have contributed to the accident. While neither crew member admitted to being asleep approaching the accident site, the low readings for both in the fatigue model indicated a possible degradation in alertness and reaction times.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

FREIGHT TRAIN CP 487

The crew of Train CP 487 consisted of a locomotive engineer and a conductor. The crew reported for duty at their away-from-home terminal at Portage, Wisconsin at 6:15 p.m. on December 16, 2008. The crew had 8 hours and 15 minutes off duty rest since their last duty assignment which had lasted for 9 hours and 30 minutes. The crew held a job briefing before departing the terminal and discussed their general track bulletins for the trip. The train departed westward from Portage at 8:20 p.m. on the CP Tomah Subdivision. Freight Train CP 487 consisted of lead locomotive CP 5729, three trailing locomotives and ten loaded rail cars and 106 empty rail cars. The train weighed 4,811 tons and was 7,205 feet long. The trip was uneventful until arriving at La Crosse Yard in La Crosse, Wisconsin, at 1:55 a.m., December 17, 2008 to make a set-out and pick-up. The crew set out 22 rail cars and picked up 6 rail cars and made the required brake test before departing. Freight Train CP 487 departed La Crosse at 3:25 a.m. with 4 loads and 96 empties. The train weighed 3,657 tons and was 6,140 feet in length.

Freight Train CP 487 entered River Junction Yard at the Mississippi River Drawbridge. The rear locomotive was then set out. After a brake test, Train CP 487 departed River Junction Yard at 4:05 a.m.

Freight Train CP 487 departed River Junction Yard and entered the New Siding on authority of a restricting signal indication. As Train CP 487 entered the New Siding on the Tomah Subdivision, the dispatcher informed them they would follow Train CP-183 from River Junction West.

The train operated up to a point about 400 feet from the signal which displayed stop indication on the New

Siding at River Junction West. Train CP 487 stopped at 4:15 a.m. and the crew waited for a more favorable signal indication. The crew reported the signal on the single main track for westbound movements was also displaying a stop indication at that time, but changed to a clear indication just before Train CP 183 arrived and departed.

The conductor of Train CP 487 dismounted his locomotive and gave Train CP 183 a roll by inspection and reported to the crew by radio that no defects were observed. At 4:45 a.m. Train CP 487 departed the siding at River Junction West on an approach signal indication. Train CP 487 was operated at a recorded speed of 20 mph through the authorized 25 mph switch at River Junction West.
FREIGHT TRAIN CP G80:

On December 16, 2008, the crew of Train CP G80 consisted of a locomotive engineer and conductor. They reported for duty at 7:00 p.m. at their home reporting location in Winona, Minnesota. The crew of Train CP G80 had 10 hours and 15 minutes off duty rest prior to this assignment. The crew's last tour of duty lasted for 13 hours and 45 minutes.

Eastbound Freight Train CP G80 departed Winona, MN with 60 cars destined for River Junction Yard. The trip was uneventful and the train was set out in River Junction Yard without incident. The crew waited at La Crosse for about three hours for the La Crosse road-switch assignment to build their out-bound train of 15 cars. The engineer waited in the locomotive and the conductor waited in the yard office. When their train was completed by the road-switch crew, the crew of Train CP G80 installed and armed an End of Train Device (EOTD) on the east end of the outbound train. Train CP G80 made a required brake test after they had pulled the train up to the West Wye Switch. The conductor discovered the list of his train was inaccurate so he made a hand written list while he completed the brake test.

At 4:24 a.m. Train CP G80 called the Tomah Subdivision dispatcher and reported that they were ready to depart La Crosse with locomotive CP 4520 leading and 15 loads and 4 empties. The train was 1,975 tons and 1,000 feet long. The dispatcher asked the crew of Train CP G80 what their plans at Winona were upon arrival. Freight Train CP G80's engineer answered the dispatcher that they would like to clear the single main track at milepost 306. The dispatcher stated that would be alright and they should look for the signal.

Train CP G80 departed La Cross at 4:29 a.m. The next signal, known as Bridge Switch, was located at milepost 283.6. As they approached this location they observed an approach signal aspect indication but it changed to a clear signal indication before they arrived. Both crew members reported that they called the signal to each other as "clear." At 4:36 a.m. Train CP G80 cleared a 10 mph permanent speed restriction at Bridge Switch and the engineer increased the speed of the train to about 15 mph. The train passed a clear signal indication at control point River Junction East located at milepost 284.7 at 4:41 a.m. Neither crew member of Train CP G80 recalled calling this signal in the cab of the locomotive.

THE ACCIDENT

At 4:46 a.m. Freight Train CP G80 passed an intermediate signal located at milepost 286.3 that displayed an approach indication. At 4:47 a.m. near milepost 287, Train CP G80 passed the rear car of Train CP 487 that was operating on the controlled siding, to their left, in the same direction as Train CP G80's movement. At 4:48 a.m. Train CP G80 passed the stop indication at CP River Junction West, as Train CP 487 was moving from the controlled siding onto the single main track. Train CP G80 struck the 51st car of Train CP 487 at 47 mph.

The collision caused Train G80's lead locomotive (CP 4520) to completely turn around, face to the east, then fall over the Mississippi River bank coming to rest upright and 20 feet below the track grade in the shallow water of the river. The trailing locomotive of CP G80 separated from the lead locomotive and rolled over near the point of impact and was completely destroyed. The lead 13 cars of Train CP G80 derailed as well as 13 cars from Train CP 487.

The accident was reported to the CP Tomah Desk Dispatcher by radio from the crew of Train CP G80. The dispatcher called the La Crescent Fire Department who responded to the scene. The fire department prepared for a water rescue en route, but discovered that the crew had exited the locomotive prior to their arrival. The fire department evaluated the accident scene and discovered a tank containing Liquid Petroleum Gas (LPG) which was being vented in the area. As a precaution officials ordered an evacuation of a nearby

retirement home. The evacuation affected 24 residents and 4 retirement home staff employees. The fire department then denied access to the scene until the flow of LPG was stopped by turning off the supply valve on the LPG tank. There was a release of nitrogen solution fertilizer from a breached tank car in Train CP G80.

ANALYSIS AND CONCLUSIONS

ANALYSIS - TOXICOLOGICAL TESTING:

The accident met the criteria for 49 CFR Part 219 Subpart C Post Accident Toxicological testing. The conductor and locomotive engineer of both trains were tested under this authority. The results were negative for both crews tested.

CONCLUSION:

Drug or alcohol use was not a factor in the collision.

ANALYSIS - LOCOMOTIVE ENGINEER PERFORMANCE, FREIGHT TRAIN CP G80:

The engineer of Train CP G80 was a certified locomotive engineer. He possessed a train service locomotive engineer certificate that was valid until January 13, 2009. He had worked continually as a locomotive engineer for the past 11 years. On May 5, 2008, he received and successfully completed training for both situational awareness and signal rules. His last biennial rules training was completed successfully on May 6, 2008. FRA reviewed the engineer's operational testing records and noted no exception. The Winona road switch assignment, Job CP G80, has been his regular assignment since October 2008. The locomotive engineer of Train CP G80 stated that he was not sleeping at the time of the accident. He stated that he lost situational awareness while operating the train and lost his concentration while thinking of what he needed to get done later that day at home. He said he did not remember what the last two signal indications displayed that governed his train's movement or remember if these signal indications were called out by anyone in the cab of the locomotive.

Analysis of the event recorder data indicated that the engineer of Train CP G80 steadily increased the throttle until reaching the location of signal 286-3. From that point Train CP G80 was operated in throttle position 5 for about one minute and its speed increased from 40 to 44 mph. Train CP G80's throttle remained in position 5 for another 80 seconds for a distance of one mile. At 4:47 a.m. 1,890 feet before the signal at River Junction West, a manual reset of the alerter was shown on the download data. At the time the train passed the signal at River Junction West the engineer reduced the throttle from position 5 to position 2. Download data indicated that the engineer made an emergency application of the train air brakes immediately before impact.

CONCLUSION:

The locomotive engineer of Train CP G80 failed to insure the train was operated safely and rules were observed as required by General Code of Operating Rules (GCOR) Rule1.47.C.1. The engineer of Train CP G80 was not alert for signals and failed to communicate clearly the indication displayed on signals affecting their train as required by GCOR Rule 1.47.C.2. The engineer of Train CP G80 did not take proper action to comply with signals that governed the movement of the train. After passing an approach signal indication, he did not slow his train to less than 40 mph and proceed prepared to stop before passing the next signal as required by CP Timetable Special Instruction Rule 9.1.4 and GCOR Rule 9.5. The locomotive engineer did not have Train CP G80 under control as he approached the stop indication that was protecting the movement of Train CP 487 at CP River Junction West as required by CP Timetable Special Instruction Rule 9.1.1. The failure to safely control the operation of his train contributed to the cause and severity of the collision.

ANALYSIS - CONDUCTOR PERFORMANCE FREIGHT TRAIN CP G80:

The conductor of Train CP G80 was a promoted conductor. He had been working on the CP River Extra Board as a conductor since May, 2008. He had worked continually as a conductor since July 31, 2006. He

worked the Winona road switch assignment for the first time as a promoted conductor on December 15, 2008. He had worked the job as a student conductor a couple of times in 2006. On June 25, 2008, he received and successfully completed training for both situational awareness and signal rules. His last biennial rules training was also completed successfully on June 25, 2008. FRA reviewed his efficiency testing data for the last 13 months, which included one failure for failing to stop at a stop signal. The Winona road switch assignment Train CP G80, was his regular assignment. He was forced to work the assignment on December 15, 2008. The conductor of Train CP G80 stated he was not sleeping at the time of the accident. He stated he was not closely watching for signals displayed for their train's movement. He said he had his head down as he filled out paper work and only picked up his head occasionally to look ahead. He said as they operated on the Main Track, between River Junction and signal 286-3, he noticed Train CP 487 moving west on the siding next to them, but did not mention this to the engineer. He said he did not remember not calling the signal indication of signal 286-3 as they approached. He said he did not remember what the signal was or if the engineer called that signal. He said he took no action and continued with his paper work until about ten car lengths before reaching the stop indication at CP River Junction West. At that point, he said he looked up and saw they were going to collide with another train. He said he stood up immediately and heard air being exhausted from the engineers control stand. He said he did not know if the engineer had made an emergency air brake application. He said he did not apply the emergency brake from his side of the locomotive cab.

CONCLUSION:

The conductor of Train CP G80 failed to insure the train was operated safely and rules were observed as required by GCOR, Rule 1.47.C.1. The conductor of Train CP G80 was not alert for signals and failed to communicate clearly the name of signals affecting their train as required by GCOR Rule 1.47.C.2. The conductor of Train CP G80 did not take proper action to comply with signal indications that governed the movement of their train. After passing an approach signal indication the conductor took no action to slow the train to less than 40 mph and proceed prepared to stop before passing the next signal as required by CP Timetable Special Instruction Rule 9.1.4. The conductor took no action after the locomotive engineer failed to bring the train under control as they approached the stop indication thereby protecting the movement of Train CP 487 at CP River Junction West as required by CP signal rule 9.1.1. The failure to take action to insure safe operational control of the train contributed to the cause and severity of the collision.

ANALYSIS - LOCOMOTIVE ENGINEER PERFORMANCE FREIGHT TRAIN CP 487:

The engineer of Train CP 487 was a certified locomotive engineer. He possessed a train service locomotive engineer certificate that was valid until January 31, 2010. He had worked continually as a locomotive engineer for the past 10 years. On June 13, 2008, he received and successfully completed training for both situational awareness and signal rules. His last biennial rules training was completed successfully on June 13, 2008. FRA reviewed operational tests involving the engineer for the past 22 months with no exceptions. The locomotive engineer of Train CP 487 stated he was not sleeping at the time of the accident.

CONCLUSION:

The actions of the locomotive engineer of Train CP 487 played no role in the cause or severity of the collision.

ANALYSIS - CONDUCTOR PERFORMANCE FREIGHT TRAIN 487:

The conductor of Train CP 487 had been a promoted conductor for 32 years. He had been working on the CP River Subdivision as a conductor since 1976 in freight service between St. Paul, Minnesota, and Portage, Wisconsin. This was his regular assignment and he was working with his regular engineer on Train CP 487. On February 27, 2008, he received and successfully completed training for both situational awareness and signal rules. His last biennial rules training was also completed successfully on February 27, 2008. FRA reviewed operational tests involving the conductor over the past 17 months with no exceptions noted.

CONCLUSION:

The conductor's actions played no role in the cause or severity of the accident.

ANALYSIS - MECHANICAL SAFETY DEVICES:

No FRA exceptions were noted during the on-site mechanical inspection of the trains and equipment involved.

CONCLUSION:

The mechanical conditions did not contribute to the cause or severity of the accident.

ANALYSIS - TRACK CONDITIONS:

CP track inspection records for the area in which the accident occurred were obtained and analyzed by FRA Inspectors. No exceptions were noted to the records inspection.

CONCLUSION:

Track conditions did not contribute to the cause or severity of the accident.

ANALYSIS - SIGNAL AND TRAIN CONTROL:

The collision destroyed the signal case at River Junction West eliminating all signal related information that may have been acquired from the site. A post accident on site signal inspection of River Junction West control point was not performed. The CP Train dispatcher signal control and indication data logs were obtained from the dispatching office and analyzed.

River Junction West control point is part of a Traffic Control System that utilizes a General Railway Signal (GRS) Vital Processor Interlocking (VPI) for signal and power operated switch control and GRS Genera-code electronic coded track circuits. The control point has D.C. track circuits of the absolute signals and a single GRS model SF power operated switch machine. The train signals are multiple aspect Safetran color light signals. River Junction West control point is a single switch location with two tracks, the main track and the siding track that merge at a power operated switch to a single track. The control point has controlled signals that allow only one train movement into the control point at any time. The method of operation for train movement is the signal indications of the Traffic Control System (TCS). The signal system in place at River Junction West at the time of the collision provided an approach aspect at the intermediate signal at milepost 286.3 when River Junction West displayed a stop indication for westward movements.

The regular testing and inspection requirements per the Code of Federal Regulations 49 CFR 236, Rules, Standards, and Instructions Governing the Installation Inspection, Maintenance and Repair of Signal and Train Control Systems, Devices and Appliances for River Junction West control point were determined to be in compliance. Records of tests inspected indicated all appropriate tests for this control point had been performed within the required time frame.

CONCLUSION:

Prior to the collision, the impacted train in the collision was located in the siding. The striking train moved in a westward direction on the Main Track between River Junction CP and River Junction West CP as the lead train in the collision moved from the siding onto the Main Track at River Junction West.

ANALYSIS - FATIGUE:

FRA used a fatigue analysis software program to create an analysis model for each crew member's overall effectiveness rate at the time of the accident. This model was produced through calculations made using the collected work/rest data from each of the crew members.

FRA uses an overall effectiveness rate of 77.5 percent as the baseline for fatigue analysis, which is equivalent to blood alcohol content (BAC) of 0.05. At or above this baseline, FRA does 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 four employees involved in this accident.

CONCLUSION:

Although fatigue may have been present regarding the crew of the struck train, it did not contribute to the collision. However, the engineer and conductor of the striking train had readings in the fatigue model to indicate fatigue may have contributed to their actions prior to the collision.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

The probable cause of the collision was the failure of Train CP G80's crew to stop before passing the stop signal indication at River Junction West, thereby colliding with Train CP 487 which was occupying the single Main Track at that point.

Both the engineer and conductor's readings in the fatigue model indicate fatigue may have contributed to the accident. While neither crew member admitted to being asleep approaching the accident site, the low readings for both in the fatigue model indicate a possible degradation in alertness and reaction time that may have contributed to the cause of the accident.
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