Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2005-15

Montana Rail Link (MRL)
Trident, Montana
February 13, 2005

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-2005-15

1.Name of Railroad Operating Train #1	1a. Alphabetic Code	1b. Railroad Accident/Incident No.
MONTANA RAIL LINK	MRL	2005023
2.Name of Railroad Operating Train #2	2a. Alphabetic Code	2b. Railroad Accident/Incident
MONTANA RAIL LINK	MRL	2005023
3.Name of Railroad Responsible for Track Maintenance:	3a. Alphabetic Code	3b. Railroad Accident/Incident No.
Montana Rail Link [MRL]	MRL	2005023

4. U.S. DOT_AAR Grade Crossing Identification Number	5. Date of Accident/Incident			6. Time of Accident/Incident
	Month	Day	Year	
	02	13	2005	09:50: ☐ 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)

8. Cars Carrying HAZMAT	9. HAZMAT Cars Damaged/Derailed	10. Cars Releasing HAZMAT	11. People Evacuated	12. Division	7. Type of Accident/Indicent
48	3	0	0	System	03

13. Nearest City/Town	14. Milepost (to nearest tenth)	15. State Abbr	15. State Code	16. County
Trident	169.72	N/A	MT	GALLATIN

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
35 F		4		2		1

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
Single Main Track		2	26.80		4

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	26. Was Equipment Attended? 1. Yes 2. No	Code	27. Train Number/Symbol
		1	1	1	VKCM PTL 810

28. Speed (recorded speed, if available) R - Recorded E - Estimated			Code	30. Method(s) of Operation (enter code(s) that apply)			30a. Remotely Controlled Locomotive?
	23	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

29. Trailing Tons (gross tonnage, excluding power units)	Code(s)					30a. Remotely Controlled Locomotive?
3947	e	N/A	N/A	N/A	N/A	0

31. Principal Car/Unit	a. Initial and Number	b. Position in Train	c. Loaded (yes/no)	32. 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	1	N/A		N/A	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A	33. Was this consist transporting passengers? (Y/N)	N	

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) Total in Train	2	0	0	0	0	(1) Total in Equipment Consist	66	0	6	0	0
(2) Total Derailed	2	0	0	0	0	(2) Total Derailed	0	0	0	0	0

36. Equipment Damage This Consist	37. Track, Signal, Way, & Structure Damage	38. Primary Cause Code	39. Contributing Cause Code
49000	50000	H605	N/A

Number of Crew Members				Length of Time on Duty	
40. Engineer/ Operators	41. Firemen	42. Conductors	43. Brakemen	44. Engineer/Operator	45. Conductor
N/A	0	1	0	Hrs 5 Mi 20	Hrs 5 Mi 20

Casualties to:	46. Railroad Employees	47. Train Passengers	48. Other	49. EOT Device? 1. Yes 2. No	50. Was EOT Device Properly Armed? 1. Yes 2. No
Fatal	0	0	0	1	1
Nonfatal	N/A	0	0	51. Caboose Occupied by Crew? 1. Yes 2. No	2

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	53. Was Equipment Attended? 1. Yes 2. No	Code	54. Train Number/Symbol
		1	1	1	MLAU MIS113

55. Speed (recorded speed, if available) R - Recorded E - Estimated			Code	57. Method(s) of Operation (enter code(s) that apply)			57a. Remotely Controlled Locomotive?
	0	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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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
4052			e 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)	MRL 042053	96	no		N/A	N/A
(2) Causing (if mechanical cause reported)	0	0	N/A	60. Was this consist transporting passengers? (Y/N)	N	

61. Locomotive Units	a. Head End	Mid Train b. Manual	Mid Train c. Remote	Rear End d. Manual	Rear End c. Remote	62. Cars	Loade a. Freight	Loade b. Pass.	Empty c. Freight	Empty d. Pass.	e. Caboose
(1) Total in Train	3	0	0	0	0	(1) Total in Equipment Consist	12	0	81	0	0
(2) Total Derailed	2	0	0	0	0	(2) Total Derailed	0	0	3	0	0

63. Equipment Damage This Consist	64. Track, Signal, Way, & Structure Damage	65. Primary Cause Code	66. Contributing Cause Code
54000	50000	H605	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
1	0	1	0	Hrs 9 Mi 49	Hrs 9 Mi 49

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)	77. Was EOT Device Properly Armed? (1. Yes 2. No)	78. Caboose Occupied by Crew? (1. Yes 2. No)
1	1	2

Highway User Involved

79. Type	Code
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)	N/A

80. Vehicle Speed (est. MPH at impact)	81. Direction geographical) 1.North 2.South 3.East 4.West	Code
0		N/A

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

86a. 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

Rail Equipment Involved

83. Equipment	Code
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)	N/A

84. Position of Car Unit in Train
0

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

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

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

87. Type of Crossing Warning	88. Signaled Crossing Warning (See instructions for codes)	Code	89. Whistle Ban (1. Yes 2. No 3. Unknown)	Code
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

90. Location of Warning (1. Both Sides 2. Side of Vehicle Approach 3. Opposite Side of Vehicle Approach)	Code	91. Crossing Warning Interconnected with Highway Signals (1. Yes 2. No 3. Unknown)	Code	92. Crossing Illuminated by Street Lights or Special Lights (1. Yes 2. No 3. Unknown)	Code
	N/A		N/A		N/A

93. Driver's Age	94. Driver's Gender (1. Male 2. Female)	Code	95. Driver Drove Behind or in Front of Train and Struck or was Struck by Second Train (1. Yes 2. No 3. Unknown)	Code	96. 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
0		N/A		N/A		N/A

97. Driver Passed Standing Highway Vehicle (1. Yes 2. No 3. Unknown)	Code	98. 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

101. Casulties to Highway-Rail Crossing Users	Killed	Injured
	0	0

99. Driver Was (1. Killed 2.Injured 3. Uninjured)	Code
	N/A

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

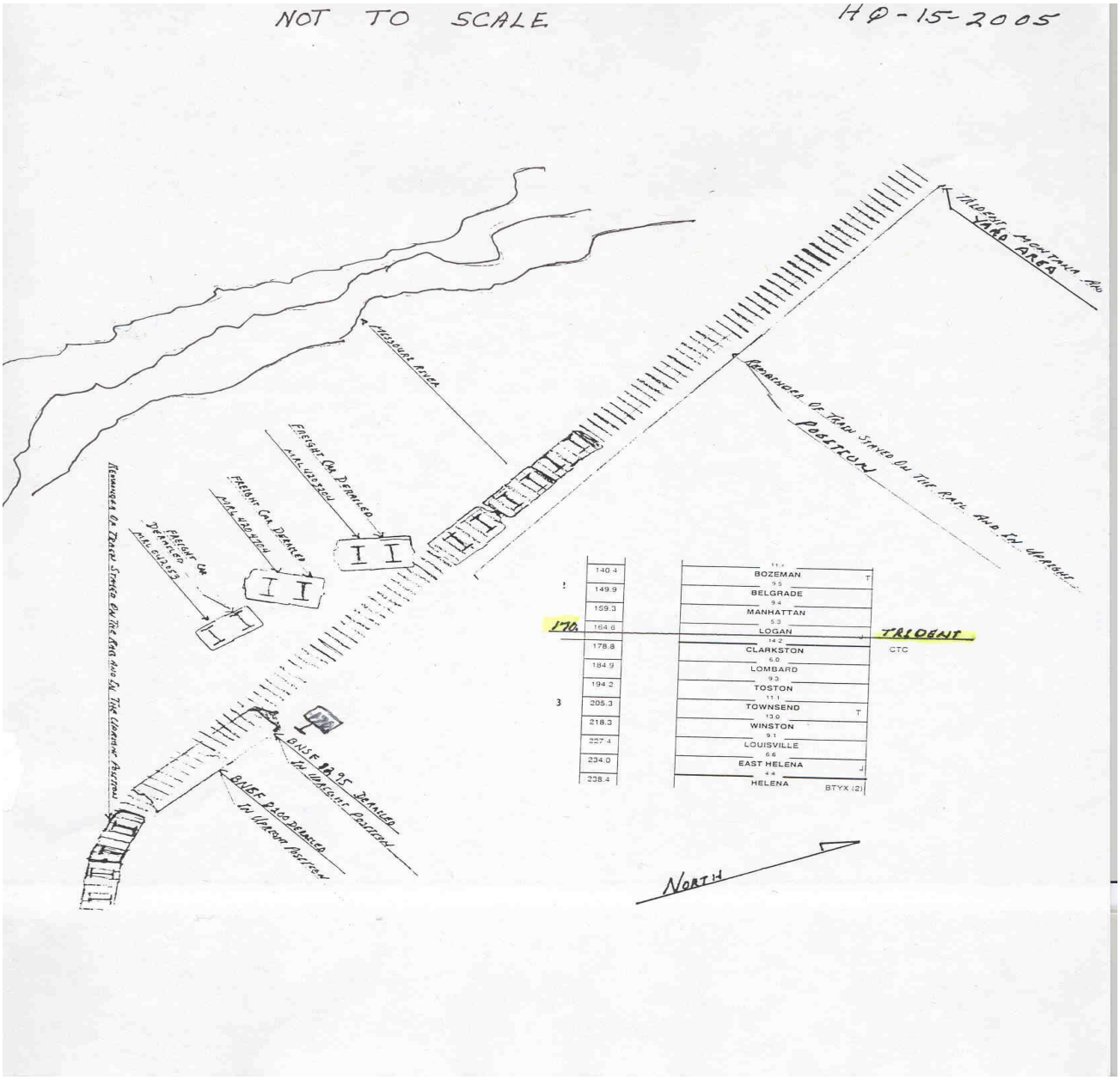
102. Highway Vehicle Property Damage (est. dollar damage)	103. Total Number of Highway-Rail Crossing Users (include driver)
0	0

104. Locomotive Auxiliary Lights? (1. Yes 2. No)	Code	105. Locomotive Auxiliary Lights Operational? (1. Yes 2. No)	Code
	N/A		N/A

106. Locomotive Headlight Illuminated? (1. Yes 2. No)	Code	107. Locomotive Audible Warning Sounded? (1. Yes 2. No)	Code
	N/A		N/A

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

HQ-15-
2005
Sketch.jpg



109. SYNOPSIS OF THE ACCIDENT

On February 13, 2005, at approximately 9:50 p.m., Mountain Standard Time (MST), a westbound Montana Rail Link, Inc.(MRL) freight train (symbol V-KCMPTL8-10A) collided with the rear of a standing MRL freight train. The standing train (symbol M-LAUMIS1-13A) was a westbound MRL freight train, which had stopped to perform switching operations. The collision occurred in a curve, at milepost 170.0, on the MRL's 2nd Subdivision, just east of the town of Trident, Montana. Trident, Montana is approximately 30 rail miles west of the city of Bozeman, Montana.

As a result of the collision two locomotives and the leading car of the striking train, and the three rear cars of the standing train were derailed. There was no release of hazardous material, no spillage of locomotive diesel fuel, and no evacuation. The railroad reported total damages of $153,000.($103,000. for equipment damages and $50,000. for track structures).

The engineer of the striking train complained of a sore neck. Both the engineer and conductor were transported, by a MRL officer, to the hospital, at Bozeman, Montana. At the hospital both crew members received post-accident toxicological tests. The engineer was x-rayed and released without treatment.

At the time of the collision it was dark, and cloudy. The temperature was 35 F.

The probable cause of the accident was the crew of train V-KCMPTL8-10A failed to comply with the signal indication of a restricted proceed signal (dark aspect). General Code of Operating Rule (GCOR) 6.27 reads: "When a train or engine is required to move at restricted speed, movement must be made at a speed that allows stopping within half the range of vision short of train, engine, railroad car, men or equipment fouling the track, stop signal, or derail or switch improperly lined." The crew of Train V-KCMPTL8-10A, failed to stop their train short of Train M-LAUMIS1-13A.

110. NARRATIVE

The following information was obtained from an investigation that was conducted by the Federal Railroad Administration.

Circumstances Prior to the Accident

MRL Train V-KCMPTL8-10A

On February 13, 2005, after completing a statutory, off-duty period, a train crew consisting of an engineer and an assistant engineer went on duty in Laurel, Montana, at 4:30 p.m., (MST). They were assigned to operate westbound intermodel vehicle train, Symbol # V-KCMPTL8-10A, from Laurel, Montana (their home terminal) to Helena, (their away from home terminal), a distance of 238.4 miles.

Train V-KCMPTL8-10A consisted of two locomotives, 66 loaded cars, six empties, 3,947 trailing tons and was 6,794 feet in length. All the railcars were Bi-level Auto Carriers. The train had originated in Kansas City, Kansas, and was scheduled to travel from Kansas City, Kansas, to Portland, Oregon, a distance of 2,215 miles. On February 13, 2005, at Laurel, Montana MRL mechanical forces conducted a class 1(initial terminal) air brake test, and the crew preformed a locomotive daily inspection, prior to the train departing Laurel, Montana, at 5:30 p.m.

As the train approached the accident area, the locomotive engineer was seated at the controls, on the right (geographic northwest and timetable north) side of the locomotive. The assistant locomotive engineer was seated, in the conductor's seat, on the left (timetable south)side of the locomotive. Train V-KCMPTL8-10A received an approach (yellow) signal indication at milepost 164.6 (Logan West). The assistant engineer who was having trouble staying alert, suddenly heard the engineer called out that the intermediate signal at milepost 167.5 was dark. He then looked up acknowledged the dark signal, and stated to the engineer "you know we have to take this as a red signal." The engineer replied "restricted speed." The assistant engineer replied "yes." Train V-KCMPTL8-10A proceeded past the restricted proceed signal indication (dark aspect) at 36 mph. The train was traveling at a recorded speed of 40 mph, at milepost 168.02, when the engineer made a brake pipe reduction to slow his train. At milepost 169.03 the engineer released his train's brakes. The train was traveling at a recorded speed of 30 mph. Per the locomotive event recorder the train had slowed to 23 mph, at milepost 169.25.

Approaching the accident site from the east to the west, from milepost 168, there are in succession a tangent track 6,420 feet in length, a 8-degree 33-minute curve to the right 1,134 feet in length, a tangent 243 feet in length, and a 5-degree 07-minute curve to the right 713 feet to the point of collision and 610 feet beyond, followed by section of tangent track 5,830 feet in length. The grade is descending to the west at 0.27 to 0.10 percent.

MRL Train M-LAUMIS1-13A

On February 13, 2005, after completing a statutory, off-duty period, a train crew consisting of a locomotive engineer and an assistant locomotive engineer went on duty in Laurel, Montana, at 12:01 a.m. The crew was assigned to operate westbound MRL freight train, symbol M-LAUMIS1-13A, from Laurel, Montana (home terminal) to Helena, Montana, (away from home terminal), a distance of approximately 238.4 miles.

Train M-LAUMIS1-13A consisted of four locomotives, 32 loads, 81 empties, 6,650 trailing tons, and was 6,764 feet in length. A class 1 (initial terminal) air brake test was conducted by MRL mechanical forces and the train crew performed a daily locomotive inspection.

Train M-LAUMIS1-13A departed Laurel Yard, at 2:55 p.m. Train M-LAUMIS1-13A stopped en route to set out two locomotives and pick up one at Livingston, Montana.

After departing Livingston, Train M-LAUMIS1-13A, stopped at Trident, Montana (milepost 170.53), to set out 20 cars. A MRL trainmaster had arrived on scene to assist the crew of Train M-LAUMIS1-13A. The crew completed the 20 car set out, returned to their standing train and was preparing to depart Trident. The engineer was seated at the controls, on the right (north) side, of the locomotive. The assistant locomotive engineer was seated in the conductor's seat ,on the left (south) side, of the locomotive. The trainmaster was positioned ahead of the locomotives, in preparation for a roll-by inspection of Train M-LAYMIS1-13A as it departed Trident.

The Accident

MRL Train V-KCMPTL8-10A

Train V-KCMPTL8-10A was being operated at a recorded speed of 23 mph approaching the accident site. The crew stated that as their train was exiting the body of a right-hand curve at milepost 169.65, immediately in front of their train was the rear cars of Train M-LAUMIS1-13A. The assistant engineer spotted the standing train a second or two before the engineer and shouted "plug it". The engineer made an engineer induced emergency (EIE) application of the train's air brake system, then sat on the floor of the locomotive cab. The assistant engineer remained in the conductor's seat. The locomotive event recorder for Train V-KCMPTL8-10A recorded that the train traveled 353 feet after the emergency application of the air brakes and struck standing Train M-LAUMIS1-13A, at milepost 169.72. Recorded impact speed was 20 mph.

MRL Train MLAUM1S1-13A

Train M-LAUMIS1-13A was standing on the main track as the crew was making preparations to continue underway, when suddenly the crew felt a sudden forward lunge of their train. The engineer noticed that the train had experienced an undesired emergency brake application. The train crew then overheard a radio conversation between another train crew and the MRL dispatcher discussing a rear end collision near Trident, Montana. The MRL trainmaster at the scene instructed the crew of Train M-LAUMIS1-13A to walk both sides of their train to look for damages. When the crew neared the rear of the train they noticed that the three rear cars of their train, were derailed. Upon further investigation the crew noticed that the two leading locomotives and the first rail car of Train V-KCMPTL8-10 were also derailed.

Analysis

In the accident area, freight and passenger trains are operated on a single main track and authorized movement by authority of a Traffic Control System (TCS) operated by a dispatcher located in Missoula, Montana. MRL System Timetable Number 12, effective at 0001 Continental Mountain Time, Sunday, July 11, 2004, authorizes a maximum timetable speed of 25 miles per hour for freight trains from milepost 169.2 to milepost 169.8.

Factors determined during a fact finding investigation conducted by the MRL on February 25, 2005 are as follow:

- Per the testimony of the assistant engineer, of Train V-KCMPTL8-10A, due to the burnt out lamp of the red aspect at intermediate signal 167.5, the crew was unable to distinguish the aspect of the signal until they were five car lengths from the signal.
- Also per the testimony of the assistant engineer it was difficult for him to stay awake, and he had nodded off after instructing the engineer that "we have to take this (dark aspect) as a red signal" and replying "yes" when the engineer replied "restricted speed."
- Per the testimony of the engineer, of Train V-KCMPTL8-10A, he had not slept well after his previous trip, even though he had received an off-duty-period of 15 hours and 45 minutes. He further stated that he had considered marking up (laying off), but he was afraid he would get a black mark on his record, so he took the call.
- The engineer further stated that when he saw the dark signal he surmised that the burnt out lamp was the reason his train had received an approach indication at milepost 164.6 (Logan West).

This accident did meet the criteria for 49 CFR Part 219 Subpart C Post Accident Toxicological Testing. The engineer and assistant engineer, of the striking train (Train V-KCMPTL8-10A), were tested under this authority. The test results were negative.

Conclusion

As a result of the rear end collision at Trident, Montana, the MRL is conducting a safety blitz that will emphasizes signal aspects and the meaning of each. During this blitz special emphasizes will be placed on the action to be taken by train crews upon encountering a dark signal aspect.

The engineer of Train V-KCMPTL8-10A was permanently dismissed by the MRL. The assistant engineer was dismissed for 45 days.

Probable Cause & Contributing Factors

The FRA determined that the probable cause of the accident was the failure of the crew of Train V-KCMPTL8-10A to comply with the restricted speed indications (dark aspect) of the intermediate signal, at milepost 167.5. General Code of Operating Rule (GCOR) 6.27 reads: "When a train or engine is required to move at restricted speed, movement must be made at a speed that allows stopping within half the range of vision short of train, engine, railroad car, men or equipment fouling the track, stop signal, or derail or switch improperly lined." The crew of Train V-KCMPTL8-10A, failed to stop their train short of Train M-LAUMIS1-13A.