



***Federal Railroad Administration
Office of Safety
Headquarters Assigned
Accident Investigation Report
HQ-2010-18***

***Dakota, Missouri Valley & Western Railroad, Inc.
Washburn, ND
March 25, 2010***

1. Name of Railroad Operating Train #1 Dakota, Missouri Valley & Western RR, Inc. [DMVW]		1a. Alphabetic Code DMVW		1b. Railroad Accident/Incident No. DE0325518		
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: Dakota, Missouri Valley & Western RR, Inc. [DMVW]		4a. Alphabetic Code DMVW		4b. Railroad Accident/Incident No. DE0325518		
5. U.S. DOT_AAR Grade Crossing Identification Number		6. Date of Accident/Incident Month 03 Day 25 Year 2010		7. Time of Accident/Incident 11:30: <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM		
8. Type of Accident/Incident (single entry in code box)						
1. Derailment		4. Side collision		7. Hwy-rail crossing		
2. Head on collision		5. Raking collision		10. Explosion-detonation		
3. Rear end collision		6. Broken Train collision		11. Fire/violent rupture		
		9. Obstruction		12. Other impacts		
				13. Other (describe in narrative) Code 01		
9. Cars Carrying HAZMAT 11		10. HAZMAT Cars Damaged/Derailed 0		11. Cars Releasing HAZMAT 0		
				12. People Evacuated 0		
				13. Division System		
14. Nearest City/Town Washburn		15. Milepost (to nearest tenth) 518.5		16. State Abbr Code N/A ND		
				17. County MCLEAN		
18. Temperature (F) (specify if minus) 25 F		19. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		20. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 2		
				21. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1		
22. Track Name/Number Single Main Track		23. FRA Track Code Class (1-9, X) 1		24. Annual Track Density (gross tons in millions) 8.7		
				25. Time Table Direction Code 1. North 3. East 2. South 4. West 1		
OPERATING TRAIN #1						
26. Type of Equipment Consist (single entry)		1. Freight train		4. Work train		
2. Passenger train		5. Single car		7. Yard/switching		
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code		
		9. Maint./inspect.car		27. Was Equipment Attended? Code 1. Yes 2. No 1		
29. Speed (recorded speed, if available) Code R - Recorded E - Estimated 13 MPH R		31. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track c. Auto train stop i. Time table/train orders o. Positive train control d. Cab j. Track warrant control p. Other (Specify in narrative) Code(s) e. Traffic k. Direct traffic control f. Interlocking l. Yard limits			31a. 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	
30. Trailing Tons (gross tonnage, excluding power units) 2380		p N/A N/A N/A N/A				
32. Principal Car/Unit		a. Initial and Number DMVW009504		b. Position in Train 1		
(1) First involved (derailed, struck, etc)		c. Loaded (yes/no) N/A		33. If railroad employee(s) tested for drug/alcohol use, enter the number that were positive in the appropriate box. Alcohol 0 Drugs 0		
(2) Causing (if mechanical cause reported)		0		34. Was this consist transporting passengers? (Y/N) N		
35. Locomotive Units		a. Head End		Mid Train		
		b. Manual		c. Remote		
		d. Manual		c. Remote		
(1) Total in Train		5		0 0 0 0		
(2) Total Derailed		3		0 0 0 0		
36. Cars		a. Freight		Loaded		
		b. Pass.		Empty		
		c. Freight		d. Pass.		
		e. Caboose				
(1) Total in Equipment Consist		31		0 13 0 0		
(2) Total Derailed		0		0 0 0 0		
37. Equipment Damage		38. Track, Signal, Way, & Structure Damage \$250,000.00		39. Primary Cause Code T002		
This Consist \$250,000.00				40. Contributing Cause Code T001		
Number of Crew Members				Length of Time on Duty		
41. Engineer/Operators 1		42. Firemen 0		43. Conductors 1		
		44. Brakemen 1		45. Engineer/Operator Hrs 6 Mi 30		
				46. Conductor Hrs 6 Mi 30		
Casualties to:		47. Railroad Employees		48. Train Passengers		
Fatal		1		0 0		
Nonfatal		0		0 0		
				49. Other 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		4. Work train		
2. Passenger train		5. Single car		7. Yard/switching		
3. Commuter train		6. Cut of cars		A. Spec. MoW Equip. Code		
		9. Maint./inspect.car		54. Was Equipment Attended? Code 1. Yes 2. No N/A		
56. Speed (recorded speed, if available) Code R - Recorded E - Estimated 0 MPH N/A		58. Method(s) of Operation (enter code(s) that apply) a. ATCS g. Automatic block m. Special instructions b. Auto train control h. Current of traffic n. Other than main track			58a. Remotely Controlled Locomotive? 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)	60. 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
(1) First involved (derailed, struck, etc)	0	0	N/A			
(2) Causing (if mechanical cause reported)	0	0	N/A	61. Was this consist transporting passengers? (Y/N)		N/A

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

64. Equipment Damage This Consist	\$0.00	65. Track, Signal, Way, & Structure Damage	\$0.00	66. Primary Cause Code	N/A	67. Contributing Cause Code	N/A
Number of Crew Members				Length of Time on Duty			

68. Engineer/Operators	69. Firemen	70. Conductors	71. Brakemen	72. Engineer/Operator	73. Conductor
0	0	0	0	Hrs 0 Mi 0	Hrs 0 Mi 0
Casualties to:	74. Railroad Employees	75. Train Passengers	76. Other	77. EOT Device?	78. Was EOT Device Properly Armed?
Fatal	0	0	0	1. Yes 2. No N/A	1. Yes 2. No N/A
Nonfatal	0	0	0	79. Caboose Occupied by Crew?	
				1. Yes 2. No	N/A

OPERATING TRAIN #3

80. Type of Equipment Consist (single entry)	1. Freight train	4. Work train	7. Yard/switching	A. Spec. MoW Equip.	Code	81. Was Equipment Attended?	Code	82. Train Number/Symbol
	2. Passenger train	5. Single car	8. Light loco(s).		N/A	1. Yes 2. No	N/A	N/A
	3. Commuter train	6. Cut of cars	9. Maint./inspect.car					

83. Speed (recorded speed, if available)	Code	85. Method(s) of Operation (enter code(s) that apply)	85a. Remotely Controlled Locomotive?
R - Recorded E - Estimated	N/A MPH 0	a. ATCS b. Auto train control c. Auto train stop d. Cab e. Traffic f. Interlocking	0 = Not a remotely controlled 1 = Remote control portable 2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter
84. Trailing Tons (gross tonnage, excluding power units)	N/A	g. Automatic block h. Current of traffic i. Time table/train orders j. Track warrant control k. Direct traffic control l. Yard limits	N/A
		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 N/A	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 N/A	Drugs N/A
(1) First involved (derailed, struck, etc)	0	0	N/A			
(2) Causing (if mechanical cause reported)	0	0	N/A	88. Was this consist transporting passengers? (Y/N)		N/A

89. Locomotive Units	a. Head End	Mid Train b. Manual c. Remote	Rear End d. Manual c. Remote	90. Cars	Loaded a. Freight b. Pass.	Empty c. Freight d. Pass.	e. Caboose
(1) Total in Train	0	0 0	0 0	(1) Total in Equipment Consist	0 0	0 0	0
(2) Total Derailed	0	0 0	0 0	(2) Total Derailed	0 0	0 0	0

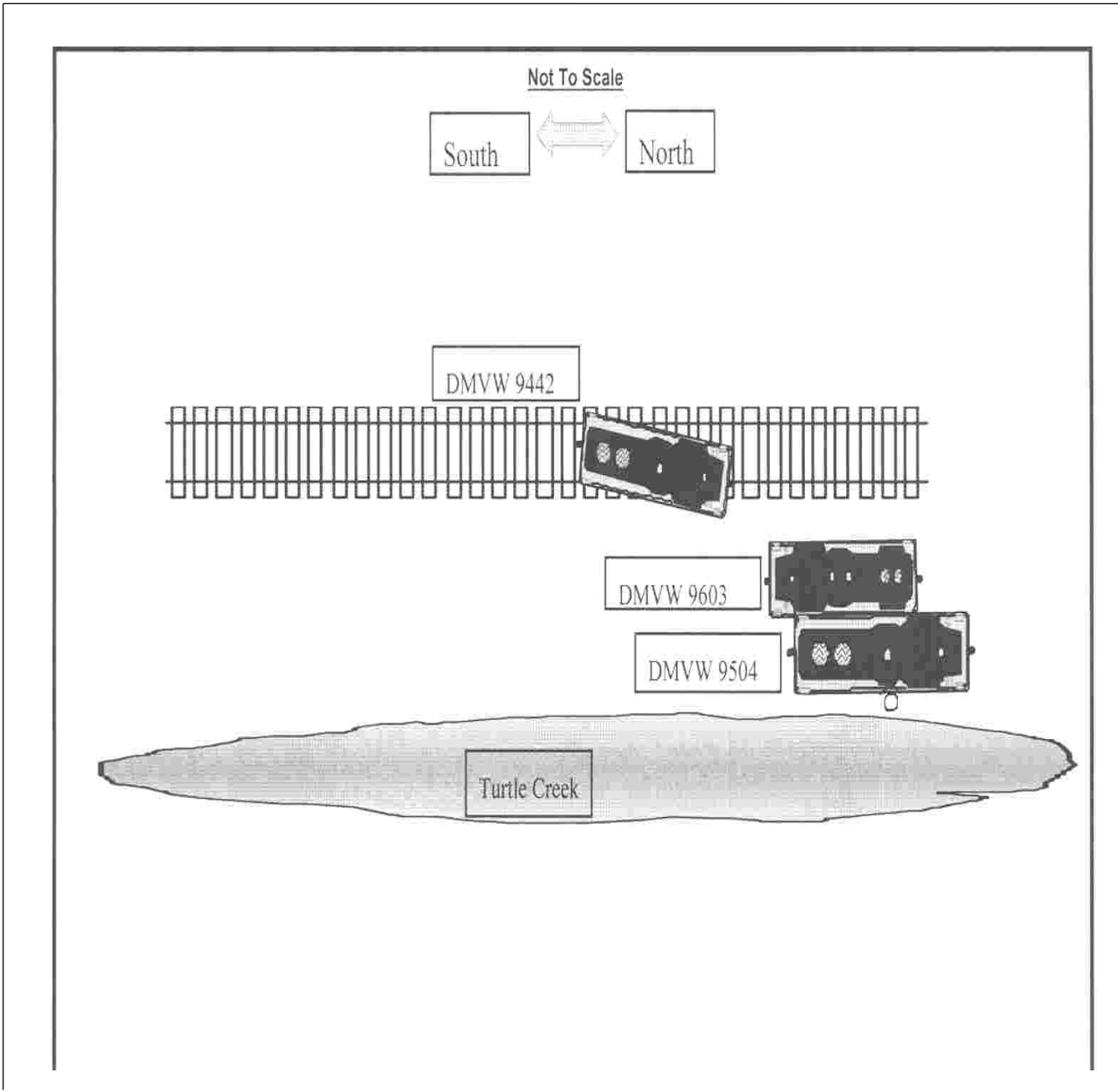
91. Equipment Damage This Consist	\$0.00	92. Track, Signal, Way, & Structure Damage	\$0.00	93. Primary Cause Code	N/A	94. Contributing Cause Code	N/A
Number of Crew Members				Length of Time on Duty			

95. Engineer/Operators	96. Firemen	97. Conductors	98. Brakemen	99. Engineer/Operator	100. Conductor
0	0	0	0	Hrs 0 Mi 0	Hrs 0 Mi 0
Casualties to:	101. Railroad Employees	102. Train	103. Other	104. EOT	105. Was EOT Device Properly
Fatal	0	0	0	1. Yes 2. No N/A	1. Yes 2. No N/A
Nonfatal	0	0	0	106. Caboose Occupied by Crew?	
				1. Yes 2. No	N/A

Highway User Involved				Rail Equipment Involved			
107. C. Truck-Trailer. F. Bus J. Other Motor Vehicle A. Auto D. Pick-Up Truck G. School Bus K. Pedestrian B. Truck E. Van H. Motorcycle M. Other (spec. in narrative)	Code	N/A		111. Equipment	3. Train (standing)	6. Light Loco(s) (moving)	Code
				1. Train(units pulling)	4. Car(s) (moving)	7. Light(s) (standing)	N/A
				2. Train(units pushing)	5. Car(s) (standing)	8. Other (specify in narrative)	
108. Vehicle Speed (est. MPH at impact)	N/A	109. geographical	Code	112. Position of Car Unit in	0		
		1. North 2. South 3. East 4. West	N/A				

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 1. Gates 2. Cantilever FLS 3. Standard FLS 4. Wig Wags 5. Hwy. traffic signals 6. Audible Warning 7. Crossbucks 8. Stop signs 9. Watchman 10. Flagged by crew 11. Other (spec. in narr.) 12. None				Code N/A	116. Signaled Crossing (See instructions for codes)				Code N/A	117. Whistle Ban 1. Yes 2. No 3. Unknown	
Code(s)				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	
121. Age 0		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	
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 0	Injured 0	127. Driver 1. Killed 2. Injured 3. Uninjured				Code N/A	128. Was Driver in the Vehicle? 1. Yes 2. No		
129. Highway-Rail Crossing Users		0	0	130. Highway Vehicle Property Damage (est. dollar damage)				0	131. Total Number of Highway-Rail Crossing Users (include driver)		
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

A northward Dakota, Missouri Valley & Western Railroad (DMVW) Freight Train #136 derailed on March 25, 2010, at 11:30 a.m., CDT. The accident occurred near Washburn, North Dakota (approximately 42 miles north of Bismarck) on single main track, at milepost 518.5, of the Missouri Valley Subdivision.

The train consisted of five locomotives, 31 loaded and 13 empty freight cars. The first three locomotives derailed as train #136 was operating on a 0.271 percent descending grade and entering a 1 degree 40 minute left-hand curve. The train traveled approximately 355 feet after the engineer induced an emergency application of the train air brakes.

The two leading locomotives derailed and rolled down an embankment as the track's sub-grade suddenly collapsed (slipped out) from beneath the locomotives. The third locomotive derailed upright and was hovering over approximately 20 feet of skeleton track with its lead truck derailed. The two leading locomotives landed on the bank of Turtle Creek and began leaking approximately 2,000 gallons of diesel fuel; however the diesel fuel was contained before it entered Turtle Creek.

The conductor was fatally injured and the engineer received non-life threatening injuries as a result of this accident. The brakeman who was shadowing the train's movements in a motor vehicle was not injured. The railroad reported total monetary damages of \$500,000; with track damages of \$250,000 and equipment damages of \$250,000.

At the time of the derailment it was daylight with cloudy skies and a temperature of 25 degrees Fahrenheit.

A contributing factor to this accident was the failure of the track's drainage facilities, due to obstruction of its key components. At the point-of-derailment (POD), at milepost 518.5 the drainage ditch was obstructed by debris, vegetation, and silting which prevented run-off water from draining to the culverts located at mileposts 518.43, 518.42, 518.41, 518.40, and 518.39. The outlets of the five culverts were also obstructed by silting and vegetation. The combined obstructions of the drainage ditch and culverts caused the drainage and water-carrying facilities to deteriorate to the point that it allowed the track's sub-grade to become saturated. (FRA Accident/Incident code T001)

The probable cause of the accident was roadbed saturation. (FRA Accident/Incident code T002)

138. NARRATIVE

Circumstances Prior to the Accident:

The crew of DMVW Freight Train #136 consisted of a locomotive engineer, a conductor, and a brakeman. They first went on duty at 5 a.m., CST, on March 25, 2010, at Bismarck, North Dakota. This was the home terminal for this crew. Each of the crewmembers had received the required statutory off-duty period prior to reporting for duty.

The assigned freight train consisted of five locomotives, 5 loaded cars and 5 empty cars (10 total cars), 800 trailing tons, and was 600 feet in length. It was a freight train scheduled to travel from Bismarck to Max, North Dakota, a distance of approximately 99.3 miles.

The Class I (initial terminal) air brake test was performed at Bismarck at 6:30 a.m. The train departed Bismarck at approximately 6:40 a.m.

The crew had a work order to pick up 8 empty cars at Arnold, North Dakota. They arrived at Arnold at 7:40 a.m., and added the 8 empty cars to their consist. Upon completion of the work and their Class I air brake test, they departed Arnold at 7:55 a.m. The crew also had a work order to pick up 26 loaded cars at Wilton, North Dakota. They performed the work at Wilton, made a Class I air brake test, and departed Wilton at 10:40 a.m. Departing Wilton, their train consisted of five locomotives, 31 loaded cars and 13 empty cars (44 total cars), 4,420 trailing tons, and was 2,420 feet in length.

As the train approached the derailment area, the locomotive engineer was seated at the controls on the right (east) side of the leading locomotive. The conductor was seated on the left (west) side of the cab of the

leading locomotive.

Interviews conducted by the Federal Railroad Administration (FRA) determined the trip was uneventful prior to the derailment.

Approaching the derailment site from the south, traversing northward, there is tangent track from milepost 519.5 to milepost 518.56, followed by a 1 degree 40 minute curve to the left on single main track. The derailment occurred in the 1 degree 40 minute curve to the left. The track has a 0.15 percent descending grade from milepost 519.5 to milepost 519.25, a 0.8 percent descending grade from milepost 519.25 to milepost 518.93, and a 0.271 percent descending grade from milepost 518.93 to milepost 518.12. There is one public road crossing located at milepost 519.6.

The method of operations on the DMVW's Missouri Valley Subdivision is by General Code Of Operating Rules (GCOR) Rule 6.14 (Restricted Limits). The train was traveling timetable and geographical north on single main track at a recorded speed of 13 mph while approaching the POD. The speed was recorded by the event recorder of the controlling locomotive. The maximum authorized speed for this segment of track on the Missouri Valley Subdivision is 10 mph, as designated by the current DMVW Timetable No. 107 Effective: February 12:01 a.m., Sunday, February 17, 2008.

The Accident:

The train was traveling northward at 13 mph when the engineer observed two railroad crossties hanging near a clump of grass or debris which was next to the track. The engineer initiated an emergency application of the train air brakes approximately 263 feet ahead of the two hanging crossties and a total of 350 feet ahead of milepost 518.5 which was the POD. The leading locomotive rolled to the west and slid down the bank. The second locomotive derailed and rolled on top of the lead locomotive. The third locomotive was hovering over approximately 20 feet of skeleton track with its lead truck derailed. The conductor, just prior to the derailment, went out the back door on the engineers side of the locomotive to jump. The engineer was going to follow the conductor out the back door but did not make it and was thrown to the conductor's side of the locomotive. The engineer ended up on the control stand at the bottom of the embankment when the track collapsed beneath the locomotive.

Emergency Response:

The North Dakota Highway patrol was at the scene first arriving at 12:38 p.m and was the lead state agency in-charge of the accident site. The Washburn Fire Department, Wilton Fire Department, and McLean County Sheriff's Department responded and aided in conducting the rescue operations. The conductor was fatally injured and the engineer was transported to St. Alexius hospital in Bismarck by ambulance where he was treated and released with non-life threatening injuries. The brakeman who was shadowing the train's movements in a motor vehicle along the highway, was not injured. The two locomotives that rolled and slid down the embankment landed next to Turtle Creek which drains into the near-by Missouri River. The two locomotives leaked approximately 2,000 gallons of diesel fuel; however the diesel fuel was contained and did not enter Turtle Creek. There was no evacuation ordered and no release of hazardous materials.

Post-Accident Investigation:

On March 25, 2010 the FRA began an investigation of this accident. FRA's Region 8 management assigned a Track Safety Inspector as Investigator/Inspector-in-Charge (IIC) of this investigation. The IIC was assisted by an Operating Practices Supervisory Railroad Safety Specialist, a Rail Integrity Safety Specialist, and a Operating Practices Safety Inspector. FRA has completed its investigation and the following analysis and conclusions as well as any possible contributing factors and the probable cause represent the findings of the FRA's investigation.

Analysis and Conclusions:

Analysis-Point-of-Derailment (POD): FRA conducted an on-site investigation to determine the exact point-of-derailment.

Conclusion: FRA's investigation of the derailment site determined that the initial POD was at milepost 518.5, on a descending grade track. The maximum authorized speed for this segment of track on the Missouri

Valley Subdivision is 10 mph, as designated by the current DMVW Timetable NO. 107 Effective: 12:01 a.m., Sunday, February 17, 2008. The train traveled approximately 355 feet after the engineer induced an emergency train air brake application.

Analysis-Locomotive event recorder from DMVW train 136: The event recorder from the leading (controlling) locomotive of DMVW Train #136 was downloaded and analyzed.

Conclusion: An inspection of the data printout from the lead locomotive event recorder indicated that the train was being operated at 13 mph at the location of the POD. The maximum authorized track speed at this location is 10 mph. DMVW train 136 was operating 3 mph over maximum authorized track speed at this location. The event recorder also indicated no unusual events related to train handling.

Analysis-Fatigue: FRA obtained fatigue related information, for the 10-day period preceding this incident including the 10-day work history (on duty/off duty cycles) for all of the employees involved.

Conclusion: Upon analysis of that information FRA concluded fatigue was not probable for any of the employees.

Analysis-FRA Post-Accident Toxicology Testing

This accident met the criteria for FRA Post Toxicology Testing, as required under Title 49 CFR, Part 219, Subpart C. The crew provided blood and urine samples at an Occupational Health Services Collection Facility.

Conclusion: Tests were negative for all three employees tested.

Possible Contributing Factors:

A contributing factor to this accident was the failure of the track's drainage facilities, due to obstruction of its key components. At the point-of-derailment (milepost 518.5) the drainage ditch was obstructed by debris, vegetation, and silting which prevented run-off water from draining to the culverts located at mileposts 518.43, 518.42, 518.41, 518.40, and 518.39. The five culverts were also obstructed by silting and vegetation. The combined obstructions of the drainage ditch and culverts caused the drainage and water-carrying facilities to deteriorate to the point that it allowed the track's sub-grade to become saturated. (FRA Accident/Incident code T001)

Probable Cause:

The probable cause of this accident was roadbed saturation (FRA Accident/Incident code T002).