



***Federal Railroad Administration  
Office of Safety  
Headquarters Assigned  
Accident Investigation Report  
HQ-2005-57***

***Dakota, Minnesota & Eastern (DME)  
Pierre, South Dakota  
July 31, 2005***

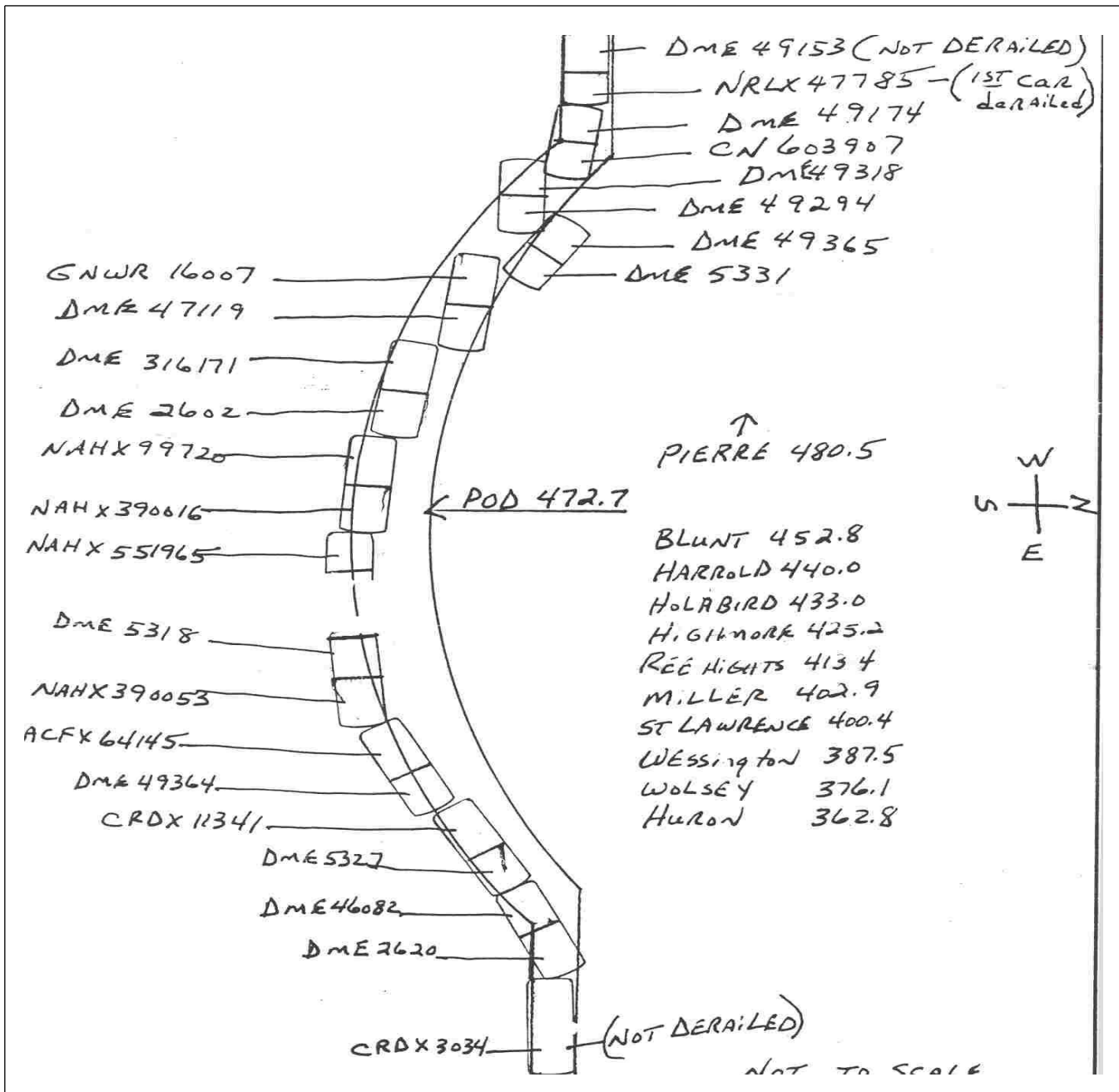
***Note that 49 U.S.C. §20903 provides that no part of an accident or incident report made by the Secretary of Transportation/Federal Railroad Administration under 49 U.S.C. §20902 may be used in a civil action for damages resulting from a matter mentioned in the report.***

DEPARTMENT OF TRANSPORTATION FEDERAL RAILROAD ADMINISTRATION		FRA FACTUAL RAILROAD ACCIDENT REPORT				FRA File # <u>HQ-2005-57</u>		
1. Name of Railroad Operating Train #1 Dakota, Minnesota & Eastern RR [DME ]			1a. Alphabetic Code DME		1b. Railroad Accident/Incident No. 2005132			
2. Name of Railroad Operating Train #2 N/A			2a. Alphabetic Code N/A		2b. Railroad Accident/Incident N/A			
3. Name of Railroad Responsible for Track Maintenance: Dakota, Minnesota & Eastern RR [DME ]			3a. Alphabetic Code DME		3b. Railroad Accident/Incident No. 2005132			
4. U.S. DOT_AAR Grade Crossing Identification Number			5. Date of Accident/Incident Month Day Year 07 31 2005		6. Time of Accident/Incident 02:52: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM			
7. Type of Accident/Incident (single entry in code box)								
1. Derailment		4. Side collision		7. Hwy-rail crossing		10. Explosion-detonation		
2. Head on collision		5. Raking collision		8. RR grade crossing		11. Fire/violent rupture		
3. Rear end collision		6. Broken Train collision		9. Obstruction		12. Other impacts		
						13. Other (describe in narrative) 01		
8. Cars Carrying HAZMAT 0		9. HAZMAT Cars Damaged/Derailed 0		10. Cars Releasing HAZMAT 0		11. People Evacuated 0		
						12. Division System		
13. Nearest City/Town Pierre			14. Milepost (to nearest tenth) 472.7		15. State Abbr Code N/A SD		16. County HUGHES	
17. Temperature (F) (specify if minus) 96 F		18. Visibility (single entry) Code 1. Dawn 3. Dusk 2. Day 4. Dark 2		19. Weather (single entry) Code 1. Clear 3. Rain 5. Sleet 2. Cloudy 4. Fog 6. Snow 1		20. Type of Track Code 1. Main 3. Siding 2. Yard 4. Industry 1		
21. Track Name/Number Main			22. FRA Track Code Class (1-9, X) 3		23. Annual Track Density (gross tons in millions) 3.23		24. Time Table Direction Code 1. North 3. East 4	
OPERATING TRAIN #1								
25. Type of Equipment Consist (single entry)		1. Freight train 4. Work train 7. Yard/switching		A. Spec. MoW Equip. Code 1		26. Was Equipment Attended? Code 1. Yes 2. No 1		
2. Passenger train 5. Single car 8. Light loco(s).		3. Commuter train 6. Cut of cars 9. Maint./inspect.car				27. Train Number/Symbol MHUR C31		
28. Speed (recorded speed, if available) Code R - Recorded 38 MPH R E - Estimated		30. 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				30a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable 2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter 0		
29. Trailing Tons (gross tonnage, excluding power units) 1834								
31. Principal Car/Unit		a. Initial and Number		b. Position in Train		c. Loaded (yes/no)		
(1) First involved (derailed, struck, etc)		N/A		32		no		
(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		Rear End		
		b. Manual		c. Remote		d. Manual c. Remote		
(1) Total in Train		3		0		0		
(2) Total Derailed		0		0		0		
35. Cars		a. Freight		b. Pass.		c. Freight d. Pass. e. Caboose		
(1) Total in Equipment Consist		3		0		48 0 0		
(2) Total Derailed		1		0		21 0 0		
36. Equipment Damage This Consist 167560		37. Track, Signal, Way, & Structure Damage 167212		38. Primary Cause Code T109		39. Contributing Cause Code H606		
Number of Crew Members				Length of Time on Duty				
40. Engineer/Operators N/A		41. Firemen 0		42. Conductors 1		43. Brakemen 0		
44. Engineer/Operator Hrs 4 Mi 52		45. Conductor Hrs 4 Mi 52						
Casualties to:		46. Railroad Employees		47. Train Passengers		48. Other		
Fatal 0		0		0				
Nonfatal N/A		0		0				
OPERATING TRAIN #2								
52. Type of Equipment Consist (single entry)		1. Freight train 4. Work train 7. Yard/switching		A. Spec. MoW Equip. Code N/A		53. Was Equipment Attended? Code 1. Yes 2. No N/A		
2. Passenger train 5. Single car 8. Light loco(s).		3. Commuter train 6. Cut of cars 9. Maint./inspect.car				54. Train Number/Symbol N/A		
55. Speed (recorded speed, if available) Code R - Recorded 0 MPH N/A E - Estimated		57. 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				57a. Remotely Controlled Locomotive? 0 = Not a remotely controlled 1 = Remote control portable		



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

HQ-57-  
Sketch.jpg



#### 109. SYNOPSIS OF THE ACCIDENT

An eastbound Dakota Minnesota and Eastern Railroad Corporation (DME) freight train derailed on July 31, 2005, at 2:52 p.m., CDT. The accident occurred approximately 8 miles east of Pierre, South Dakota on a single main track, at milepost 472.7, on the System Division, Pierre Subdivision.

The train consisted of three locomotives, three loaded cars and 48 empty cars. The 29th car behind the locomotives derailed as it was passing over a compound curve (2-degree traversing to a 3.05-degree). The following 21 cars in the train derailed in the full body of the compound curve.

There were no injuries to the train crew and no hazardous materials involved.

The railroad estimated that there was track damage of \$167,212 and equipment damage of \$167,560, with no damage to signals or structures.

At the time of the derailment it was 96° F and clear.

The probable cause of the accident was "track alignment irregular (buckled/sunkink). A probable contributing cause was the engineer operating the train at excessive speed.

#### 110. NARRATIVE

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

##### Circumstances prior to the Accident

The crew of Train Symbol MHURC-31 consisted of a locomotive engineer and conductor. They first went on duty at 10 a.m., CDT, July 31, 2005, at Huron, South Dakota, the home terminal for the crew. Prior to reporting for duty, both received a statutory off duty period.

The assigned freight train consisted of three locomotives, three loaded cars, 48 empty cars, 1834 trailing tons, and was 3162 feet in length. It was a mixed freight train scheduled to travel from Huron to Pierre, South Dakota, a distance of 117.7 miles. On July 31, 2005, an initial terminal air brake test and daily locomotive inspection was conducted at Huron. The train departed Huron at 10:50 a.m. on July 31, 2005.

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

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

Approaching the derailment site from the east traversing westward, there is tangent track approximately 1.6 miles in length, followed by a 1-degree curve to the right approximately 1,050 feet in length, followed by tangent track approximately 300 feet in length, followed by a 1-degree curve to the right approximately 1,600 feet in length, followed by tangent track approximately 250 feet in length to the point of derailment. The derailment occurred in a compound curve (2-degree curve traversing to a 3.05-degree curve), approximately 1,470 feet in length, to the left. The track is tangent beyond the accident site for approximately 1.2 miles. The approach to this curve has a descending grade of 0.60-percent.

The transition point in the compound curve is the probable Point of Derailment (POD), milepost 472.7.

##### The Accident

Train MHURC-31 was traveling timetable and geographical direction west on single main track at a recorded speed of 38 mph while approaching the POD. The speed was recorded by the event recorder of the controlling locomotive. The maximum authorized speed for the Pierre Subdivision is 40 mph, as designated by the current DME Timetable No. 5, dated April 3, 2005.

DME's timetable page 56 also lists temperature restrictions for all subdivisions, which states between "90 to 100 degree - reduce speed by 10 mph, but not below 25 mph". At the time of derailment the temperature was 96° F. Prior to the derailment DME's dispatcher notified the train crew of the temperature. The crew failed to comply with this timetable restriction.

The head end of the train passed through the body of the curve, which would later be the POD. Both the engineer and the conductor stated they did not see or feel anything out of the ordinary while proceeding around the curve at MP 472.7. Soon after the head end of the train was out of the curve a train line induced emergency brake application occurred.

After coming to a stop, the engineer notified the train dispatcher of the emergency brake application and the conductor walked back to inspect the train. Further

examination of the scene noted that 22 cars had derailed, all of which remained upright.

Investigation of the derailment determined that the POD was at milepost 472.7 in the left hand compound curve.

The Pierre, South Dakota fire department responded to the derailment because of right of way fires started by the derailment. The fires were controlled in a short time, with only grass and weeds being burnt.

The two person train crew did not report any injuries. There were no hazardous materials involved, and no evacuations were required.

The railroad estimated track damage of \$167,212 and equipment damage of \$167,560.

#### Analysis and Conclusions

The accident did not meet the criteria for FRA Post Accident Toxicology Testing, as required under Title 49 CFR, Part 219, Subpart C. The railroad did test the crew under their authority. The results were negative.

An inspection of the data print out from the locomotives event recorders indicated that the train was being operated at 38 mph in a location where it should have been operated at 30 mph due to a temperature restriction.

Two different DME track inspectors inspected the location of the derailment, by hi-rail, on July 26 and July 30 and noted no defective conditions.

Interviews were conducted with both track inspectors, which revealed that the track in the derailment area had been surfaced approximately 30 days prior.

The DME states in their derailment investigation report that this area had tight steel, anchor and tie movement and inadequate ballast. None of these conditions were noted on track inspections reports for this area prior to derailment

Although the track at the POD was destroyed, the rail before and after the POD was inspected and found to be boxed anchored every other tie, which is in compliance with DME's continuous welded rail (CWR) procedures. New rail (115lb. CWR) and ties were installed in this area in 1996.

#### Probable Cause

The probable cause of the derailment was "track alignment irregular (buckled/sunkink). A probable contributing factor was the train operating at excessive speed. The FRA concurs with the findings.