

Federal Railroad Administration Office of Safety Headquarters Assigned Accident Investigation Report HQ-2005-19

> Union Pacific Meachum, Oregon March 5, 2005

DEPARTMENT C FEDERAL RAILR	OF TRA OAD A	ANSPORT DMINIST	FATI( FRATI	ON ION	FRA FA	ACTUA	L RAI	ILR	OAD A	CC.	IDENT I	REPO	RT	]	FRA Fi	le #	<u>HQ-200</u>	<u>)5-19</u>	<u>)</u>	
1.Name of Railroad O	1a. Alphabetic Code					1b.	b. Railroad Accident/Incident No.													
UNION PACIFIC F 2.Name of Railroad Op	2a.	UP 2a. Alphabetic Code					0305PD009 2b. Railroad Accident/Incident													
N/A		-	N/A					N/A												
3.Name of Railroad Re	3a.	3a. Alphabetic Code					Railroad A	Acciden	/Inci	dent No.										
N/A 4. U.S. DOT AAR Gr	5 T	Date of Acc	N/A	6 1	Time of Ac	N/A	[ncide	ent												
	J. L	Month Day Year																		
7 Type of Accident/Ir	ndicent	1 Derail	ment					7	03 05 20			200:	5	11:20: AM					PM	
(single entry in cod	e box)	2. Head of	on colli	4. Side collision sion 5. Raking collision				7. 8.	7. Hwy-rail crossing     10. Explo       8. RR grade crossing     11. Fire/v					lent rupture (describe in						
		3. Rear e	nd coll	ision	sion 6. Broken Train collision				9. Obstruction 12. Ot				mpacts	narrative)				01		
8. Cars Carrying	urs Carrying 9. HAZMAT Cars					3 10. Cars Releasin				g 11. People					12. Division					
13	HAZMAT 13 Damaged/Derailed					5 HAZMAI				0 Evacuated				0			Portland	1		
13. Nearest City/Town	n				14. Milepost (to nearest to					15. 5	5. State Abbr Code			16. County						
		Meac	ham						72.10		N/A OR			U 1			N			
17. Temperature (F) (specify if minus)		18. Visit	oility Dawn	(sing) 3 D	(single entry) Code			Weather (single e			ntry) Code			20. Type of Tra					Code	
28	28 F 2. Day					4.Dark 4			udy 4. For	og	6.Snow			1. Main 3. 2. Yard 4.			stry		1	
21. Track Name/Number						22. FRA	2	Code	23.	Annual Track Density			24. Time Table			ction	Code			
	ack N	o. 1	$\begin{array}{c c} Class (1-9, X) \\ 1 \\ 2 \\ \end{array} \begin{array}{c} (gross tons in \\ millions) \\ 27 \\ \end{array}$						27.25		1. NOIL	11 3	. East		3					
							OPER	ATI	NG TRA	AIN i	#1			-						
25. Type of Equipment 1. Freight train 4. Work train 7. Yard/switching A. Spec. MoW Equip. Code 26. Was Equipment Code 27. Train Number													/Symbol							
Consist (single entry) 2. Passenger train 5. Single car 8. Light loco(s). 3. Commuter train 6. Cut of cars 9. Maint /inspect car														Yes 2. No 1 MHKP						
28. Speed (recorded speed, if available)     Code     30. Method(s) of Operation     (enter code(s) that apply)     30a. Remotely Controlled Locomotive'													ive?							
R - Recorded a. ATCS g. Automat										traffic n. Other than main track					0 = Not a 4 chirottely to With ed					
E - Estimated 50 MPH R c. Auto train control i. Current of train control i. Other train main track 1 = Ren 2 = Ren											2 = Rem	note control tower								
29. Trailing Tons     (gross tonnage, excluding power units)     d. Cab     j.T								traffic control p. Other (Specify in narr Code(s)					rrative)	ative) 3 = Remote control transmitter - more than one						
e. Trattic k. 5003 f. Interlocking 1.									c control	e				remote	remote control transmitter 0					
31. Principal Car/Unit		a. Initial	and Nu	ımber	b. Positio	on in Trair	n c. I	Loade	ed(ves/no)	32	. If railroad	employ	ee(s) test	ed for drug	2/alcoho	l use		_	-	
(1) First involved		34				yes ente			number	that were	e positive in			Alcohol		Drugs				
(derailed, struck, et						22 Was this			priate b	OX.	ting passangars? (V			0		0				
(2) Causing (11 mech cause reported)		0			N	J/A	3	55. Was this consist train			ing passen	igers? (	Emates 1			Ν				
34. Locomotive Units	ive Units a. Head End b. M		b. Ma	Mid Train Ianual c. Remote		Re d. Manua	ual c. Remote		35. Cars				Lo a. Freight	b. Pass.	c. Fre	Emp ight	oty d. Pass.	e. (	Caboose	
(1) Total in Train		3		0	0	0	0		(1) Total	l in Eo	quipment C	onsist	26	0	51	l	0		0	
(2) Total Derailed	1	0		0	0	0	0		(2) Total	l Dera	uled		11	0	1	8	0		0	
36. Equipment Damag	ge			37. Tra	ick, Signal, V	Way,	-		38. Prim	ary C	ause	Į		39. Cont	ributing	g Cau	se			
This Consist		1206085		& \$	& Structure Damage 107546				Code H104					Code H604						
40 Engineer/	ew Members 42. Conductors   43. Brakemen					La La				ength of	th of Time on Duty 45. Conductor									
Operators N/A		0 0			1		0		Hrs		s 7 Mi		20	Н		rs	7	Mi	20	
Casualties to:	46. Railr	road Emplo	oyees 4	7. Tra	in Passenger	s 48. 0	48. Other		49. EOT Devic		vice?			50. Was E		EOT Device Properly		Arn	ned?	
Fatal		0	+		0		0	_	1. Yes 2. No				1 1. Yes				2. No		1	
Nonfatal		N/A	$\rightarrow$		0 0			51. Caboose Occupied by Ca 1. Yes			y Crew?	2. No					N/A			
						O	PERAT	INC	G TRAIN	N #2										
52. Type of Equipment	52. Type of Equipment 1. Freight train 4. Work train 7. Yard/switching A. Spec. MoW Equip. Code 53. Was Equipment Code 54. Train Number/Symbol																			
Consist (single ent	5. Sin	Single car 8. Light loco(s).				Atte				ttended?	led?			N/	4					
55. Speed (recorded s	speed if	available	Code	6. Cut	Method(s)	Maint./in	on (	ente	r code(s)	that	applv)		1. Yes	2. No 1 57a. Rem	notely C	ontro	olled Loco	mot	ive?	
R - Recorded pred, if a tallable / code / a. ATCS g. Aut								atic block m.Special instructions						0 = Not a remotely controlled						
E - Estimated 0 MPH $ $ N/A $ $ b. Auto train control b. Current of traffic $ $ n. Other than main track $ $ 1 = Remote control portable																				

DEPARTMEN FEDERAL RAI	T OF TF LROAD	RANS ADM	PORTA	ATION RATIO	I N	FRA FA	ACTUA	L RAILR	OAD AC	CIE	DENT I	REPO	ORT	F	RA File #	<u>HQ-200</u>	5-19		
56. Trailing Tons (gross tonnage, excluding power units)					c. d. e. 7	Auto train Cab Traffic	n stop i. j.: k.	Time table/t Frack warrar Direct traffi	rain orders of at control I c control	n orders o. Positive train contro ontrol p. Other (Specify in p Code(s)			ol arrative) N/A N/A	2 = Remote control tower 3 = Remote control transmitter - more than one remote control transmitter			N/A		
58. Principal Car/Unit a Initial and Nu					mber b. Position in Trai				led(vec/po)	50 I	f railros	empl	vee(s) test	d for drug					
(1) First involved			0	0				(yCS/110)	- 59.1	enter the	numb	er that were	positive i	Drugs					
(derailed, struck, etc)									N/A		the appr	opriate	box.		N/A				
(2) Causing (if mechanical cause reported) 0				0	0				N/A	60. Was this consist transporting passenger					gers? (Y/N	[)	N/A		
61. Locomotive Un	nits	a. Head End b. Man			Mid Train anual c. Remote		Rea d. Manual	ar End	62. Cars				Lo a. Freight	ade b. Pass.	Err c. Freight	npty 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 Dera	(2) Total Derailed 0		0	) 0		0	0	(2) Total Derailed				0	0	0	0	0			
63. Equipment Damage 0					4. Track, Signal, Way, & Structure Damage			0	65. Primar Code	15. Primary Cause 66. Contributing Cause Code				luse	N/A				
	1 10 1	1	Number	of Crew	/ Mer	nbers	1 = 0 = 0						Length of	Time on D	uty				
67. Engineer/ Operators 0	68. I	Fireme 0	en	69	. Con	ductors 0	70. Bra	akemen 0	/1. Engineer/Operator /2. Conduc Hrs 0 Mi 0						ductor Hrs	0	Mi 0		
Casualties to:	73. Ra	ailroad	l Employ	vees 74.	Traiı	n Passenge	rs 75. Oth	ner	76. EOT Device? 77. Was						EOT Devic	Armed?			
Fatal		(	0			0		0		1. Yes 2. No N/A 1. Yes 2. No									
Nonfatal	_	0	)			0		0	/8. Caboo	ose Oc 1. `	rcupied b Yes	y Crew	2. No				N/A		
		H	Highwa	y User	Invo	lved						Rail I	Equipment	Involved	1		1		
79. Type C. Truch A. Auto D. Pick-	icle	Code	Code         83. Equipment         6.Light Loco(s) (moving)           1.Train(units pulling)         4.Car(s) (moving)         7.Light(s) (standing)																
B. Truck E. Van	(spec. in i	narrative)	N/A	N/A 2.Train(units pushing) 5.Car(s) (standing) 8.Other (specify in narrative)								N/A							
80. Vehicle Speed (art MDL at impact) 0 1 North 2 South 2 Fort AW-									84. Position of Car Unit in Train 0										
82. Position	uui 5.East	4. WEST	Code	85. Circun	85. Circumstance														
1.Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossi								N/A	1. Rail Ed	luipm	ent Struc	k High	way User						
4. 1rapped 86a. Was the highway user and/or rail equipment involved								Code	2. Rall Ed	here a	hazardo	us mat	erials releas	e by					
in the impact transporting hazardous materials?								Code	1 17:1			D 11 D	• .	2.0.4	4 . 11 . 1				
1. Highway Use	er 2. Ra	il Equi	ipment	3. Bot	th 4	4. Neither	lagged if a	N/A	I. High	way t	Jser 2.	Rail E	quipment	3. Both	4. Neithe	r	N/A		
soc. State here the	name and	quant	ity of th	e nazaro	ious i	materials re	eleased, II a	niy. N/A											
87. Type of 1.0 Crossing 2.0	7.Cross ls 8.Stop	bucks 10 signs 11	.Flagged by .Other (spec	crew . in narr.)	88. S (S	ignaled C ee instru	Crossin ctions	g Warning for codes)	Code	89. Whis 1. Ye	tle Ban s	Code							
Warning 3.Standard FLS 6.Audible				ble		9.Watel	nman 12	2.None						1	2. No 3. Un	) Iknown			
Code(s) N	N/A	N/A	A	N/A		N/A Code	N/A 91 Crossi	N/A ng Warning	N/A Interconnect	ed	Code	92 (	Trossing Illi	 uminated b	v Street		N/A		
2. Side of Vehicle Approach     2. Side of Vehicle Approach								Highway Si Yes	gnals	cu	Lights or			pecial Lig	Code				
3. Opposite Side of Vehicle Approach						N/A	2	. No Unknown		N/A			2. No 3. Unkn		N/A				
93. Driver's 94. Driver's Gender Code					5. Driver Drove Behind or in Front of				ain Code 96. Driver							Code			
Age 1. Male 0 2. Female N/A					and Struck or was Struck by Second T1. Yes2. No3. Unknown				'rain     1. Drove around or thru the Gate     4. Stopped on Crossing       2. Stopped and then Proceeded     5. Other (specify in narrative)							lg N∕∆			
97. Driver Passed Standing Code 98. View of Th						Track Obs	struction)								Code				
Highway Vehic	1.	Perm	anent Stru	cture	3. Passi	ng Train 5.	Veget	ation	7	. Other (s	pecify in n	arrative)							
1. res 2. No 3. Unknown     1975     2. Standing Kailroad Equi       101. Casulties to Highway-Rail     99 Dri								ent 4. Topo	tt 4. Topography 6. Highway Vehicle					8. Not obstructed					
Crossing Users Killed				Killed	Injured 1. Killed			2.Injured 3.	Uninjured	ninjured N/A 1.					Yes 2. No				
0						0	102. High	way Vehicle	Property Da	Property Damage 0 103. Total Number of Highway-Rail Crossi (include driver) 0									
104. Locomotive A	Auxiliary I	Lights?	?		_		(050. 0	Code	105. Locoi	notive	e Auxilia	ry Ligł	nts Operatio	nal?		U	Code		
1. Yes			2. No					N/A	N/A 1. Yes 2. No							N/A			
106. Locomotive Headlight Illuminated?							1	Code N/A	107. Locomotive Audible Warning Sounded?						Code				
1. res			11/17	1.	1. Yes 2. No							N/A							

108. DRAW A SKETCH OF ACCIDENT AREA INCLUDING ALL TRACKS, SIGNALS, SWITCHES, STRUCTURES, OBJECTS, ETC., INVOLVED. HQ-19-2005



## 109. SYNOPSIS OF THE ACCIDENT

An eastbound Union Pacific Railroad Company (UP) freight train derailed on March 5, 2005, at 11:20 p.m., PST. The derailment occurred approximately nine miles southeast of Meacham, Oregon, at Nordeen, UP Milepost 272.1, on the La Grande Subdivision of the Portland Area Service Unit.

The train consisted of 3 locomotives, 26 loaded cars and 51 empty cars. The 34th car in the consist derailed as it traversed a curve and a general derailment of the following 28 cars ensued. There were no injuries. Approximately 300 gallons of diesel fuel was released from the fuel tank of a refrigerated car. There was no evacuation.

The railroad estimated there was track damage of \$107,546 and equipment damage of \$1,206,085, with no damage to signal systems or structures.

At the time of the accident it was dark and cloudy with a temperature of 28° F.

The probable cause of the derailment was an employee who fell asleep and allowed his train to travel at excessive speed.

# 110. NARRATIVE

#### Circumstances Prior to the Accident

The crew of Train Symbol MHKPC-05 included a locomotive engineer and a conductor. They first went on duty at 4 p.m., PST, March 5, 2005, at the UP Hinkle Yard, near Hermiston, Oregon. This was the away from home terminal for both crew members. Prior to reporting for duty, both received an off duty period of 13 hours 5 minutes, which exceeded the statutory requirement.

Their assigned freight train consisted of 3 locomotives, 26 loaded cars, 51 empty cars, 5,003 trailing tons, 4,737 feet in length. It was a mixed freight train scheduled to travel from Hinkle to La Grande, Oregon, a distance of 104.8 miles. The initial terminal train air brake test and the daily locomotive inspection were conducted on March 5, 2005, both by UP mechanical personnel at Hinkle. The train departed Hinkle Yard at 5:30 p.m.

At milepost 226.2 the crew traded the rear locomotive with a westbound train because it had failed en route. The crew then began to ascend an approximately 40-mile grade that extends from milepost 230.9 to 270.9. At milepost 244, the engineer placed the locomotive throttle in the No. 8 Run position, where it remained until just before the derailment. Due to the increasingly steep grade, the train slowed to an average speed of 17 mph to milepost 270.9.

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

Approaching the accident site from the west there are, in succession, a tangent approximately 2,100 feet in length, followed by a 2-degree 35-minute curve to the right approximately 300 feet in length, and a tangent approximately 700 feet in length, followed by an 8-degree 36-minute curve to the right approximately 300 feet in length, and a tangent approximately 700 feet in length, followed by an 8-degree 36-minute curve to the right approximately 1,250 feet in length to the point of the derailment and 300 feet beyond. A 2.21 percent descending grade begins at milepost 270.9 and continues to the point of the derailment.

After cresting the grade at milepost 270.9, the speed of the train steadily increased from approximately 17 mph to 50 mph, as recorded by the event recorder on the controlling locomotive. UP Portland Area Timetable #2, effective at 00:01 a.m. on October 29, 2000, authorizes a maximum speed of 20 mph for freight trains between mileposts 257.2 and 282.

### The Accident

The locomotive engineer stated that he had fallen asleep, but was awakened by movement of the locomotive cab as it traveled through the successive right and left curves at milepost 271.85. He said that as he moved the locomotive throttle into idle, applied the train air brakes and tried to initiate dynamic braking, 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. The conductor found the derailment site but for safety reasons did not enter it. Further examination by local UP managers responding to the accident disclosed that 29 cars had derailed, fouling both main tracks. The initial point of derailment was at milepost 272.1 in the body of an 8-degree 36-minute curve with a 2.21 percent descending grade. The derailment occurred approximately, 300 feet west of the switch at Nordeen, where the two main tracks converge into single main track.

Union County fire and police departments as well as an Oregon State hazardous materials response team responded to the accident. Five of the 29 cars that derailed contained hazardous materials but none were compromised. There was, however, approximately 300 gallons of diesel fuel spilled from the fuel tank of a refrigerator car. The spill was contained by the emergency response personnel, and there was no injury or evacuation. The Railroad estimated there was track

## damage of \$107,546 and equipment damage of \$1,206,085.

# Analysis and Conclusion

The event recorder indicated the engineer began sounding the locomotive horn at milepost 247.25 for a private crossing located at milepost 247.4. It also indicated that sounding of the horn at milepost 247.43 was the last action taken by the engineer until just prior to the derailment at milepost 272.1. So the train traveled 24.67 miles without any recorded action by the train crew. In that 24.67 miles between milepost 247.43 and 272.1, the train crossed twelve private crossings and 3 public crossings. According to the recorder the crew may have been asleep for about an hour prior to the derailment. During interviews with FRA, each of the crew members admitted they had been asleep. The engineer stated that he woke up due to lateral movement in the locomotive as it traveled through a short 2 degree "S" curve located at milepost 271.85, one-quarter mile from the location of the derailment. He said he woke up, placed the locomotive throttle into idle, set air brakes, and started dynamic braking just seconds before the train line induced emergency braking occurred.

The train derailed on Main Track No. 1 while traveling at 50 mph through an 8-degree curve with a 2.21-percent descending grade where the maximum authorized speed was 20 mph. The event recorder confirmed the speed at the derailment location to be 50 mph, which is 30 mph above the maximum authorized speed.

The investigation disclosed that the lead locomotive, UP 9102, was not equipped with a crew alerter, although both the other locomotives in the power consist did have alerters. The UP 9102 was a Model Number GE C40-8 locomotive that was manufactured in 1989 without a crew alerter and is therefore not required by regulation to have one.

Prior to the work shift in which the accident occurred, both crew members were released from duty at 2:55 a.m. on March 05, 2005, and returned to duty at 4 p.m. on March 05, 2005, for an off duty period of 13 hours 5 minutes, which is more than the required statutory off duty period.

The track in the area of the derailment was constructed of concrete ties, with 136 lb. continuous welded rail (CWR), which exceeded FRA Track Safety Standard requirements for Class 2 track as outlined in CFR 49 Part 213.

The train was running under clear signal indication and the signal system was functioning properly. There were no other trains in the vicinity.

This accident met the criteria for 49 CFR Part 219 Subpart C Post-Accident Toxicological Testing. The crew was tested and the results were negative.

The Union Pacific held an investigation of both crew members on Thursday, March 10, 2005, in La Grande. Both crew members received level 5 disciplinary actions dismissing them from employment with Union Pacific Railroad. Probable Cause

The probable cause of the accident was the fact that the engineer fell asleep while operating the train. While he was asleep, and thus not attentive, the train developed excessive speed and derailed in a curve.