

Federal Railroad Administration Office of Safety Headquarters Assigned Accident Investigation Report HQ-2008-68

Missouri & Valley Park Railroad (MVPR) Fenton, MO July 31, 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 FEDERAL RAILF	OF TRA ROAD A	ANSPORT DMINIST	CATIO RATI	ON ON	FRA F.	ACTI	JAL	RAILI	ROAD A	CCII	DENT I	REPO	RT]	FRA F	ile #	<u>HQ-200</u>	<u>)8-68</u>
1.Name of Railroad Operating Train #1 Missouri & Valley Park RR Corp [MVP]									1a. Alphabetic Code MVP					b. Railroad Accident/Incident No. 73108				
2.Name of Railroad C N/A	22	2a. Alphabetic Code 2 N/A					o. Railroad Accident/Incident No. N/A											
3.Name of Railroad O	Operating	g Train #3						38	3a. Alphabetic Code 3 N/A). Railroad Accident/Incident No.				
4.Name of Railroad H	48	4a. Alphabetic Code					b. Railroad Accident/Incident No.											
5. U.S. DOT_AAR C	Grade Cro	ssing Ident	ificatio	on Nu	nber			6. M	Date of Acc	ident/	Incident	ear 20	7.7	Time of Ac	ccident/	/Incid	lent	У РМ
0 T CA 11 / T	1	1 Derail	nent		4 0.1	11			7 Unu roil c	roccin	2 10	Evelos	ion dator	ostion 13	Other	L		Codo
(single entry in code box) 2. Head on collision 5. Raking collision								8	8. RR grade crossing 11. Fire/violent ru					ture (describe in narrative) 01				
0.0	nd coll	ision	6. Broke	n Trair	collis	sion 9	 Obstructio 	n	1 12. Other impact					,		01		
HAZMAT	0	10. HAZ Damaged	N/A	1 I	1. Ca IAZM	rs Releasi IAT	ng N/A		12. People Evacuated			0		vision System				
14 Newset City/Terr	<u> </u>					15. N	Ailepo	ost		16 St	ata		15	County	I		~,~~~	
14. Nearest City/10w	'n	Fenton				(to nearest to)	Abbr Code N/A MO		e 1' D	ST LOUI			JIS		
18. Temperature (F)		19. Visib	ility	(sing	gle entry)	Coc	e	20. Weat	her (single	entrv	entry)		, de	21. Type of Track				Code
(specify if minus)) 7 F	1.1	Dawn Day	3.D 4.I	ousk Dark	1 2		1. Cl	lear 3. Rain		5.Sleet		1	1. Main 2. Yard		 Siding Industry 		4
22. Treat Name/Nu	mahan		2			22 5	DAT	2. Cr	2. Cloudy 4. Fog		; 0.310w		-	25 Tim	Eine Table Disection		otion	Cada
22. Hack Ivalle/Ivu	iniber		I	R6		23. FRA Track Class (1-9, 2			N/	24. A (2	gross tons	in	N/A	1. North 3. East				
							-								2. 500	un 4.	west	5
							0	PERAT	TNG TRA	.IN #1								
26. Type of Equipme	ent 1.	. Freight tra	un	4. W	ork train 7	. Yard/	switch	hing A	A. Spec. Mo	W Equ	ip. Code	27. V	Vas Equip	oment (Code	28.7	Train Nu	nber/Symbol
Consist (single en	ntry) 2. 3.	. Passenger . Commute	train r train	5. Sii 6. Cu	ngle car 8 it of cars 9	. Light . Maint	loco(s ./insp	s). ect.car			7	A	1. Yes	s 2. No 2 4-12				
29. Speed (recorded	speed, if	available)	Code	31	. Method(s)	of Ope	ation	(ent	er code(s)	that a	pply)			31a. Rem	notely C	Contro	olled Loco	omotive?
R - Recorded	1 , 2	,		a	ATCS	1	g. A	Automatic	block	m.Spe	cial instru	ctions		0 = Not a	a remot	ely co	ontrolled	
E - Estimated 10 MPH E b Auto train control b Current									traffic	n. Oth	er than m	ain tracl	¢.	1 = Rem	ote con	trol p	ortable	
c. Auto train stop i. Time table/train orders o. Positive tra										sitive train	control		2 = Rem	ote con	trol to	ower		
30. Trailing Tons (gross tonnage, d. Cab j.Track									ant control	p. Otł	ner (Speci	ify in na	rrative)	3 = Rem	ote con	ntrol		
excluding power units) e. Traffic k. Direc									fic control		Code	(s)		transmi	itter - m	iore tl	han one	
		100		f	. Interlockin	g	1.Ya	ard limits		n	N/A N	I/A N/	A N/A	remote	control	trans	mitter	0
Principal Car/Uni	t	a. Initial	and Nu	mber	b. Positi	on in T	rain	c. Loa	ded(yes/no)	33. I	f railroad	employ	ee(s) test	ed for drug	g/alcoho	ol use	,	
(1) First involved		CR	23827	2		9			no		enter the	number	that were	e positive i	n	F	Alcohol	Drugs
(derailed, struck, e	etc)		20021								the appro	priate b	ox.				0	0
(2) Causing (if mea cause reported	chanicai)	l NS-	186748			8			no	34.	Was this	consist	transport	ing passen	igers? (Y/N)		N
35. Locomotive Uni	ts	a. Head	h Mo	Mid 7	Frain a Romoto	d Ma	Rear End d. Manual c. Ren		36. Cars	;			Lo Freight	b Pass	c Fre	Emp ight	pty d Pass	e Caboose
(1) Total in Train	n	2	0. Ivia	0	0	0	Iuui	0	(1) Total	in Equ	ipment C	onsist	0	0		9	0	0
(2) Total Deraile	d	0		0	0	0		0	(2) Total	Derail	ed		0	0		1	0	0
37. Equipment Dama	age																	
This Consist	1	\$7.000.00		68. Tra	ick, Signal,	Way,	\$2	2,500.00	39. Prima	ary Cau	ise	1101	0	40. Cont	ributing	g Cau	ise	2000
		Numbe	I cof Cr	a Sui	mbers	nage			Couc			H01	8 ength of	Code E08C				108C
41 Engineer/	42 Ein	i vuinoe.		43 Conductors 14			44 Brakemen		45 Engi	LC		cingui oi	1 46 Con	ductor				
Operators 1	41. Engineer/ 42. Firemen Operators				45. Conductors				Hrs Mi			20	10.00	H	Irs	1	Mi 20	
Casualties to:	47. Railı	road Emplo	vees 4	8 Tra	in Passenge	1 rs 49 Other			0 113 0 101 20 50. EOT Device?			20	51. Was	EOT D	Device	e Properly	Armed?	
Estal 0					0			0	1. Yes 2.			2. No 2			1. Yes 2. No N/A			
			0		0		52. Caboose Occupied by Crew?								1			
Nonfatal		0			0			0	1. Yes 2. No					N/A				
							OPE	ERATIN	IG TRAIN	#2								
53. Type of Equipme	ent 1.	Freight tra	in	4. Wo	ork train 7	. Yard/	witch	ning A	. Spec. MoV	V Equi	p. Code	54. W	as Equip	oment C	Code	55.1	Frain Nur	nber/Symbol
Consist (single en	ntry) 2.	Passenger	train	5. Sir	igle car 8	. Light	loco(s	s).		-	1	A	ttended?	?				/ •
	3.	Commuter	train	6. Cu	t of cars 9	. Maint	/inspe	ect.car			N/A		1. Yes	2. No	N/A		N	A
56. Speed (recorded	speed, if	available)	Code	58	. Method(s)	of Ope	ration	(ent	er code(s)	that a	pply)			58a. Rem	notely C	Contro	olled Loco	omotive?
R - Recorded	NI/A	MDIT	N/A	a.	ATCS	control	g. A h C	Automatic	block traffic	m.Spe	cial instru	ctions	r.	0 = Not a remotely controlled				
E - Estimated	IN/A	MPH	1N/A		· · · · · · · · · · · · · · · · · · ·	-011101	п. с	Janent 01	aune	n. Oth	er man m	um uaci			oue con	norp	onable	

DEPARTMENT FEDERAL RAILR	OF TRAI	NSPORT DMINIST	TATIO RATI	ON ION	FRA FA	CTUAI	RAILR	OAD AC	CCIDENT REP	ORT	F	RA File	# <u>HQ-200</u>	8-68		
57. Trailing Tons (gra excluding power		с. d. е.	c. Auto train stop i. Time table/tr d. Cab j.Track warran e. Traffic k. Direct traffic				o. Positive train contr p. Other <i>(Specify in t</i> Code(s)	ol narrative)	2 = Remo 3 = Remo transmit							
		IN/A		f.	Interlocking	1.Y	ard limits	N/A N/A N/A N/A N/A			remote c	N/A				
59. Principal Car/Un	it	a. Initial	and N	umber	b. Positio	n in Train	c. Load	led(yes/no)	60. If railroad emp	oloyee(s) tes	ted for dru					
(1) First involved (derailed, struck, etc) N/A				N/2	4	N	N/A	the appropriate box.			N/A					
(2) Causing (if mechanical cause reported) N/A				N/2	4]	N/A 61. Was this consist transp			rting passengers? (Y/N)						
62. Locomotive Units a. Head End b. Mar			Mid T anual	Train c. Remote	Rea 1. Manual	r End c. Remote	63. Cars L a. Freight			b. Pass. c. Freight d. Pass.			e. Caboose			
(1) Total in Train		N/A	1	N/A	N/A	N/A N/A		(1) Total in Equipment Consist N			N/A	N/A	N/A	N/A		
(2) Total Deraile	d	N/A	N	//A	'A N/A		N/A	(2) Total D	2) Total Derailed N/A			N/A	N/A	N/A		
64. Equipment Dama This Consist	nge	N/A		65. Tra	ick, Signal, W	'ay,	N/A	66. Primary Cause Code			67. Cont Code	ributing C	ause	N/A		
		Numbe	r of Ci	rew Me	mbers	age				Length of	Time on D	uty		IN/A		
68. Engineer/	69. Fire	men		70. Co	onductors	71. Bra	kemen	72. Engin	eer/Operator		73. Con	ductor				
Operators N/	1	N/A			N/A		N/A		Hrs N/A M	i N/A		Hrs	N/A	Mi N/A		
Casualties to:	74. Railro	oad Emplo	oyees ′	75. Tra	in Passengers	76. Oth	er	77. EOT I	Device?	78. Was	Armed?					
Fatal		N/A			N/A		N/A		and a compared by Cray	N/A	1.	IN/A				
Nonfatal		N/A			N/A				1. Yes	2. No		N/A				
						0	PERATIN	G TRAIN	1 #3					1		
80. Type of Equipme Consist <i>(single en</i>	nt 1. H try) 2. H	Freight tra Passenger	in train	4. Wo 5. Sing	rk train 7. Y gle car 8. I	ard/swite	ching A. (s).	Spec. MoW	Equip. Code 81.	Was Equipr Attended?	nent Co	ode 82 I/A	. Train Nun N/A	nber/Symbol		
5. Commuter train 6. Cut of cars 9. Maint./inspect.car 83. Speed (recorded speed, if available) Code 85. Method(s) of Operation (enter code(hat apply)	1. 103	85a. Rem	otely Cont	rolled Loco	motive?		
R - Recorded				a.	ATCS	g.	Automatic b	olock n	n.Special instruction	S ock	0 = Not a	remotely	controlled			
E - Estimated	N/A	MPH	N/A	b.	Auto train co	ontrol h.	Current of the Time table/to	raffic	 Outer than main train or Positive train contr 	ol	1 = Remo 2 = Remo	ote control te control	tower			
84. Trailing Tons (34. Trailing Tons (gross tonnage, d. Cab j.Track warran								p. Other (Specify in a	narrative)	3 = Remo	ote control				
N/A					Traffic Interlocking	k. 1 X	Direct traffi ard limits	c control	$\frac{\text{Code}(s)}{ \mathbf{N}/\mathbf{A} \mathbf{N}/\mathbf{A} }$		transmit remote c	ter - more ontrol trai	than one nsmitter	N/A		
96 Principal Car/Unit a Initial and Nu					h Positio	n in Train	c Load	ed(97 If solution down		ad for dear	-/alaahala				
(1) First involved					0. I Ositio		C. LOad	(yes/no)	enter the numb	per that were	e positive i	n	Alcohol	Drugs		
(derailed, struck,	etc)		N/A		N/	A		N/A	the appropriate	e box.			N/A	N/A		
(2) Causing (if me cause reported	chanical !)		N/A		N/	A		N/A 88. Was this consist transporting passengers? (Y/N)						N/A		
89. Locomotive Uni	ts	a. Head End	h M	Mid T	Train	Rea 1. Manual	r End	90. Cars		a. Freight	aded b. Pass.	E: c. Freigh	mpty t d. Pass.	e. Caboose		
(1) Total in Train	n	N/A	N N	J/A	N/A	N/A	N/A	(1) Total in	n Equipment Consist	N/A	N/A	N/A	N/A	N/A		
(2) Total Deraile	d	N/A	N	/A	N/A	N/A	N/A	(2) Total E	Derailed	N/A	N/A	N/A	N/A	N/A		
91. Equipment Damage 9 This Consist N/A					2. Track, Signal, Way, & Structure Damage N/.			93. Primary Cause Code 94. Contributing Cause Code N/A						N/A		
05.5	0.5	Numbe	r of Ci	rew Me	embers	00 0	komen	Length of Time on Duty								
95. Engineer/ Operators N/A	95. Engineer/ 96. Firemen Operators N/A N/A				N/A	98. Bla	N/A	Hrs N/A Mi N/A Hrs N/A Mi N/A								
Casualties to:	101. Rail	road Emp	loyees	102.	Train	103. Ot	103. Other				105. Wa	s EOT De	vice Proper	ly		
Fatal		N/A			N/A	1	N/A		1. Yes 2. No N/A 1. Yes 2. No N/A 106. Caboose Occupied by Crew? 106. Caboose Occupied by Crew?							
Nonfatal N/A					N/A		N/A		1. Yes 2. No					N/A		
		Highw	ay Us	er Inv	olved				Rail	Equipmen	t Involve	d				
107. C. Truck-T	Trailer. F	. Bus	J	. Other	Motor Vehic	le	Code	111. Equipment 3.Train (standing) 6.Light Loco(s) (moving) Code								
A. Auto D. Pick-Uj B. Truck E. Van	p Truck C	3. School 1 I. Motores	Bus H	K. Pede M. Othe	Pedestrian				1.Train(units pulling) 4.Car(s) (moving) 7.Light(s) (standing) 2.Train(units puehing) 5.Car(s) (standing) 8.Other (standing) N/A							
108. Vehicle Speed	1	N/A	109.		geographic	al)	Code	112. Position of Car Unit in								
(est. MPH at impact) N/A 1.North 2.South 3.East 4.West N/A									N/A							

DEPARTMENT OF TRANSPORTATION FRA FACTUAL RAILROAD ACCIDENT REPORT FRA File # HQ-2008-68 FEDERAL RAILROAD ADMINISTRATION FRA FACTUAL RAILROAD ACCIDENT REPORT FRA File # HQ-2008-68												<u>·68</u>	
110. Position	110. Position Code 113. Circumstance												
1. Stalled on Crossing 2.Stopped on Crossing 3.Moving Over Crossing 1. Rail Equipment Struck Highway User 4. Trapped N/A													N/A
114a. Was the	e highway user	and/or ra	uil equi	pment	involved		Code	114b. Wa	s there a haza	rdous materia	ls release		Code
in the impact transporting hazardous materials? 1 Highway User 2 Pail Equipment 3 Both 4 Neither N/A 1. Highway User 2. Rail Equipment 3. Both 4. Neither												N/A	
1. Highway User 2. Kail Equipment 3. Both 4. Neither 1977 1. Highway Oser 2. Kail Equipment 5. Doil 4. Neither													
114c. State here the name and quantity of the hazardous materials released, if any. N/A													
115. Type 1.Gates 4 Wig Wags 7. Crossbucks 10. Flagged by crew 116. Signaled Crossing Code 117. Whistle Ban													Code
Crossing 2.Cantilever FLS 5.Hwy. traffic signals 8.Stop signs 10.Other (spec. in narr.) (See instructions for codes) 11. Yes Warning 3.Standard FLS 6.Audible 9.Watchman 12.None 2. No													
Code(s)	N/A	N/A	N	/A	N/A	N/A	N/A	N/A	N/A 3. Unknown				
118. Location of Warning Code 119. Crossing Warning Code 120. Crossing Illuminated by Street 1 Both Sides with Highway Signals Lights or Special Lights											d by Street ghts	Code	
2. Side of					1. Yes	1. Yes							
3. Opposit	e Side of Vehic	ele Appro	bach		N/A		2. No 3. Unknown N/A 2. No 3. Unknown				N/A		
121.	122. Driver's	Gender	Code	123.	Driver Drov	ve Behind o	or in Front of	Code	124. Driv	er			Code
Age	1. Male				and Struck o	r was Struc	k by Second	Frain	1. Drov	e around or the	ru the Gate	4. Stopped on Crossing	
N/A	2. Female	e	N/A		1. Yes	2. No	3. Unknow	n N/A	2. Stop] 3. Did 1	ot Stop	roceeded	5. Other (specify in narrative)	N/A
125. Driver Pa	ssed	Cod	e 12	6. Viev	w of Track C	bscured by	(primary ob	struction)					Code
Highway V	ehicle			1. Pe	ermanent Str	ucture	Passi	ng Train 5. '	Vegetation	7. Other	: (specify in	narrative)	
1. Yes 2. No	3. Unknown	N/.	A	2. St	tanding Railı	oad Equipi	ment 4. Topo	graphy 6. l	Highway Veh	cle 8. Not o	bstructed		N/A
Casualties to: Killed Injured							ver d 2.Injured 3.	Uninjured		e 128. V A	Vas Driver in t 1. Yes	the Vehicle? 2. No	N/A
129. Highway-Rail Crossing Users N/A N/A						130. Hig (est.	130. Highway Vehicle Property Damage 131. Total Number of Highway-R (est. dollar damage) N/A					of Highway-Rail Crossin) N/A	g Users
132. Locomotive Auxiliary Lights? Code 133. Locomotive Auxiliary Lights Operational?												Code	
1. Yes 2. No							N/A 1. Yes 2. No				N/A		
134. Locomot	ive Headlight I	lluminat	ed?				Code	135. Locor	notive Audibl	e Warning So	unded?		Code
1. Y	es	2.	No				N/A	1.	Yes	2. N)		N/A

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



137. SYNOPSIS OF THE ACCIDENT

On July 31, 2008 at 5:20 p.m. two high cube boxcars rolled free from the West Lead Track of the Missouri & Valley Park Railroad Corporation (MVP) North Yard into the Chrysler truck assembly plant Track # R6 at Fenton, Missouri. The lead Car # CR 238272 of a shoving move ran into the bumper post at the end of the track and derailed the B-end of the car. The car continued over the bumper post and struck the loading dock and part of the plant assembly line causing damage to both. This resulted in approximately \$7,000 damage to the car and approximately \$2,500 to the bumper post and track. The damage to the assembly line equipment caused a total shut down to the plant. There were no injuries to the train crew members or plant employees.

At the time of the accident it was daylight with cloudy conditions. The temperature was 87 °F.

The accident was caused by failure of the crew to properly secure the two railcars while setting out a bad order car in the North Yard. This is in violation of Title 49 Code of Federal Regulations (CFR) Section 232.103(n) (1). This is also in violation of the railroad's General Code of Operating Rule (GCOR) 7.5 and Air Brake and Train-handling Rule 102.1. A contributing cause factor was an ineffective hand brake on rail Car # NS 486748.

138. NARRATIVE

CIRCUMSTANCES PRIOR TO THE ACCIDENT

The crew of MVP Train 4-12 included a locomotive engineer, conductor, and a brakeman. The conductor and brakeman went on duty at 4:00 p.m. and the engineer went on duty at 5:00 p.m. All three crewmembers reported for duty at their home terminal at the Fenton Yard Office and received more than the required statutory off-duty rest period prior to reporting for duty.

The crew was assigned to switch the Chrysler truck assembly plant. The conductor and brakeman talked to the plant supervisor and received proper clearance to enter and switch Track # R6. Track No. R6 is an industry stub track which extends approximately 300 feet into the plant where it is protected by a bumper post at the end of the track. It is used to unload boxcars from a concrete dock. Approximately 150 feet west of the plant door is a traditional lever-operated derail. When this derail is in the open position it activates warning lights and bells inside the plant. Approximately 150 feet west of the traditional derail is a split point derail.

The two locomotives involved were attached to six empty boxcars on the lead of the North Yard when the crew boarded their train. The engineer was seated at the controls of the lead locomotive and facing west. The brakeman and conductor had previously established the route by hand operating the switches and derails. They mounted the ladders on each side of the east end of the sixth car from the locomotives. They then instructed the engineer to shove east the desired car lengths to a coupling inside the plant on Track # R6. This shove move started on the lead and then proceeded down Track # 12 into Track # R6. The entire shove was approximately 2,700 feet. The conductor made the coupling between the sixth and seventh head cars, connected the air hoses, and cut in the air. The brakeman walked the dock and released the hand brakes on the three boxcars they were pulling from Track # R6. He found an open plug door on the seventh head car and requested assistance from the conductor. They could not close the door and decided to set the bad order car out for repair into the west end of Track # 5 which was a clear track. The engineer was then instructed to pull ahead and proceed west to the lead track where they had started. No air brake tests were required or performed at this time. The train consist now had nine cars and Track # R6 was left clear. Both derails remained unlocked and lined for movement because the crew planned to re-spot the track with three

loads in the near future.

As the train proceeded west on the west lead track of the North Yard the engineer was instructed to stop where the eighth head car was clear of the Track # 5 switch. The brakeman walked toward the Track # 5 switch while the conductor applied the hand brake to the eighth head car (Car # NS 486748) and turned the angle cock on the rear of the seventh head car. The conductor did not ensure the hand brake would hold the two cars on the grade without air prior to uncoupling the cars from the train. The conductor then instructed the engineer to pull ahead leaving the rear two cars on the lead track. As the seven cars moved ahead the conductor said he heard the air exhaust from the two remaining cars. The conductor then walked over to Track # 5 to assist in setting out the bad order. The entire traveled route eastward, including the lead, is on a descending grade to the entrance of the plant.

THE ACCIDENT

At approximately 5:20 p.m. the conductor noticed the 2-car cut consisting of west Car # NS 486748 and east Car # CR 238272 rolling freely toward the Chrysler plant in an eastward direction. The conductor ran after the moving cars but could not catch them before they struck the bumper post at the end of the track inside the plant. While the conductor was chasing the cars he dropped his radio. After realizing he could not catch the run-a-way cars he went back to where he dropped his radio and reported the incident to the yardmaster.

Estimated speed of the cars at impact was 10 mph. The eastward, B-end of Car # CR 238272 struck the bumper post, the concrete loading platform, and the truck plant assembly line. The B-end of the car was derailed as a result of the collision with the bumper post. The plant's assembly line was damaged enough to shut the plant down. Damage costs were approximated \$7,000 to the car, and \$2,500 to the bumper post and track structure. No injuries were incurred by the crew or plant employees.

ANALYSIS AND CONCLUSION:

ANALYSIS - TOXICOLOGICAL TESTING:

The crew was taken for drug and alcohol testing per railroad authority at 8:00 p.m. that day. FRA does not require such testing for this type incident.

CONCLUSION:

The drug and alcohol tests were negative; intoxication was not a causal factor.

ANALYSIS - RULES COMPLIANCE:

The crewmembers were interviewed by railroad officers and an FRA chief inspector. None of the crewmembers said they checked the hand brake on Car # NS 486748 to ensure it would hold the two cars on the grade without air as required by Title 49 CFR Section 232.103(n). The railroad was asked for a copy of their securement policy and provided a copy of GCOR 7.5 and BNSF Air Brake and Train-handling Rule 102.1. The securement policy is in compliance with Title 49 CFR Section 232.103(n) however it was not implemented in this case.

CONCLUSION:

The crew was not in compliance with Federal requirements or applicable railroad operating and train-handling rules and failed to comply these rules and requirements.

ANALYSIS - EQUIPMENT TESTING:

Two re-enactments were performed using the two rail cars involved at the same track location they had rolled free from. The first test was performed that evening by the railroad and the second test was re-enacted the following morning with two FRA inspectors present. Both tests had the same results. When the cars were placed on the grade without air and the hand brake set tight on Car # NS 486748 the cars rolled free. When the cars were placed on the grade with air brakes applied the air brakes held the cars stationary.

The initial inspection and testing of this equipment was conducted by one FRA inspector and a more in-depth investigation completed by another. The initial inspector evaluated the defective hand brake and thought the slack adjuster on the B-end of Car # NS 486748 was defective. The initial inspector disclosed this information to the railroad on August 1, during the second re-enactment. The railroad took this initial analysis as the final conclusion and cause of the accident.

Further inspection and evaluation by the second inspector revealed the hand brake rod was too long and fouled with the sheave wheel bracket on the B-end of the car. This allowed the hand brake chain to be tightened without applying the brake shoes to the wheels. This rendered the hand brake ineffective. The slack adjusters on both ends of Car # NS 486748 were tested on August 22, and worked as intended.

CONCLUSION:

The hand brake on Car # NS 486748 was not in compliance with Federal regulations.

ANALYSIS - FATIGUE:

FRA obtained fatigue related information including a 10-day work history for the three crewmembers involved in the derailment.

CONCLUSION:

Based upon the analysis data there is no potential for fatigue being considered as a contributing factor in the accident. Crew fatigue was not considered a causal or contributing factor.

OVERALL CONCLUSIONS:

The railroad was not in compliance with Federal regulations or the railroad Air Brake and Train-handling Rules. If the crew had tested the effectiveness of the hand brake without the use of the train air brake system per the railroad securement policy, the defective hand brake would have been detected prior to uncoupling the cars. The crew would have then taken further action to properly secure the cars from rolling. The crewmembers stated that they were operating the cars with air. The conductor said he left the angle cock open on Car # NS 486478 and heard the cars exhaust into an emergency brake application when the cars were separated on the lead track. The west-end angle cock of Car # NS 486478 was observed open by the responding FRA chief inspector several hours after the accident occurred while the cars were still inside the plant. After the accident the same two cars were tested twice in the same manner as the accident occurred and the investigators observed and concluded that the air brakes held however the hand brakes failed to secure the rail car. The reason the air brakes bled off the cars when the accident occurred is non-conclusive. The air brakes bleeding off is not a factor in this accident because air brakes are not to be relied upon to secure equipment per Federal regulation and the railroad securement policy.

PROBABLE CAUSE AND CONTRIBUTING FACTORS

PROBABLE CAUSE:

The established probable cause is FRA Code H018 - Failure to properly secure hand brake on rail car(s).

CONTRIBUTING CAUSE:

The contributing causal factor is FRA Code E08C - Hand brake (including gear) broken or defective.