

MEMORANDUM

February 4, 2004

To: Docket TR-021465

From: Mike Rowswell

Re: Accident Statistics from Federal Railroad Administration

The Federal Railroad Administration maintains a web site from which accident statistics, including causes can be obtained. I attached the following printouts from that site for train accidents occurring between January 1, 2002 and October 31, 2003:

1. Accidents with a human factors cause for all tracks and all states.
2. Accidents with a human factors cause for all tracks and Washington State.

Failure to protect the point (Cause code H306) is the second leading human factors related accident cause nationally. The leading cause is "improperly lined switch." (H702) In Washington State, there is one more accident listed with a cause of failure to protect the point than a cause of improperly lined switch.

The available data lists only the primary cause. I note that failure to protect the point is likely to have been a secondary cause in many accidents where the primary cause was an improperly lined switch.

TRAIN ACCIDENTS BY CAUSE FROM FORM FRA F 6180.54

Selections: Railroad - ALL
 State - ALL, County - ALL
 ALL ACCIDENT TYPES / ALL TRACK TYPES / H-ALL-Train Operation - Human Factor
 Time Frame: Jan 2002 To Oct 2003

MAJOR CAUSE= Highway-rail

Specific causes:	Total Cnt	Total %	Type of Accident	Reportable Damage Amount	Reportable Damage %	Casualty	Kid	Nonf
M399- Other causes (highway-rail collisions)	1	0.0	1	10,000	0.0	0	0	1
-- Total	1	0.0	1	10,000	0.0	0	0	1

MAJOR CAUSE= Human

Specific causes:	Total Cnt	Total %	Type of Accident			Reportable Damage Amount	Reportable Damage %	Casualty	
			Coll	Der	Othr			Amount	%
H008- Bottling the Air	4	0.2	1	1	2	131,942	0.1	0	1
H017- Failure to secure engine- rr empl	15	0.7	3	2	10	1,048,913	0.8	0	4
H018- Fail to secure car hnd brk -rr emp	67	3.3	4	26	37	3,137,534	2.4	0	0
H019- Fail to release hand brk - rr emp	13	0.6	-	10	3	1,084,788	0.8	0	0
H020- Fail to apply suff. hand brakes -rr emp	85	4.2	13	24	48	2,379,202	1.8	0	1
H021- Fail to apply car hnd brks -rr emp	32	1.6	9	8	15	861,073	0.7	0	1
H022- Fail to secure equip - not rr emp	7	0.3	1	4	2	115,756	0.1	0	0
H025- Fail to ctrl car spd use hnd brk-r emp	9	0.4	-	4	5	295,630	0.2	0	0
H099- Use of brakes, other	8	0.4	-	6	2	299,698	0.2	0	1
H101- Impairment because of drugs or alcohol	2	0.1	2	-	-	29,372	0.0	0	1
H104- Employee asleep	7	0.3	1	1	5	828,423	0.6	0	0
H201- Absence of fixed signal (Blue Signal)	3	0.1	-	2	1	56,190	0.0	0	0
H204- Fixed signal, failure to comply	3	0.1	1	2	-	2,921,416	2.3	0	13

H205- Flagging, improper or failure to flag	1	0.0	-	-	1	25,100	0.0	0	0
H206- Flagging signal, failure to comply	2	0.1	-	2	-	60,702	0.0	0	0
H207- Hand signal, failure to comply	1	0.0	1	-	-	7,083	0.0	0	0
H209- Hand signal, failure to give/receive	1	0.0	-	1	-	47,498	0.0	0	0
H210- Radio communication, failure to comply	19	0.9	6	8	5	742,272	0.6	1	2
H211- Radio communication, improper	7	0.3	4	1	2	539,380	0.4	0	2
H212- Radio comm., failure to give/receive	11	0.5	3	1	7	359,618	0.3	0	2
H215- Block signal, failure to comply	12	0.6	9	1	2	10,654,587	8.2	3	22
H216- Interlocking signal, failure to comply	5	0.2	3	2	-	1,229,296	0.9	0	8
H217- Fail to obs hand sig at wayside insp	2	0.1	1	-	1	33,973	0.0	0	0
H218- Failure to comply with failed equipment d	1	0.0	-	1	-	457,811	0.4	0	0
H220- Fixed signal (other than automatic block	2	0.1	-	-	2	33,990	0.0	0	0
H221- Automatic block or interlocking signal di	5	0.2	3	1	1	5,446,764	4.2	0	3
H299- Other signal causes	3	0.1	1	1	1	123,677	0.1	0	0
H301- Car(s) shoved out & left out of clear	21	1.0	2	4	15	703,062	0.5	0	0
H302- Cars left foul	86	4.3	19	9	58	2,577,633	2.0	0	2
H303- Derail, failure to apply or remove	62	3.1	1	59	2	2,704,358	2.1	0	0
H304- Hazmat regs, failure to comply	1	0.0	1	-	-	20,000	0.0	0	0
H305- Instruction to trn/lyd crew improper	27	1.3	8	5	14	1,107,957	0.9	0	0
H306- Shoving movement, absence of man	198	9.8	55	85	58	6,979,213	5.4	0	5
H307- Shoving movement, failure to control	83	4.1	25	24	34	2,702,029	2.1	1	3
H308- Skate, failure to remove or place	5	0.2	-	3	2	130,933	0.1	0	0
H309- Failure to stretch cars before shoving	10	0.5	4	3	3	692,837	0.5	0	2
H310- Failure to couple	25	1.2	3	5	17	516,812	0.4	0	0
H311- Moving cars-load ramp,etc, not in pos	5	0.2	1	-	4	47,155	0.0	0	0
H312- Passed couplers	53	2.6	-	41	12	1,146,195	0.9	0	0
H313- Retarder, improper manual operation	19	0.9	4	2	13	367,108	0.3	0	0
H314- Retarder yard skate improperly applied	1	0.0	-	-	1	35,473	0.0	0	0
H315- Portable derail, improperly applied	1	0.0	-	1	-	20,000	0.0	0	0

H316- Manual intervention of classification year	1	0.0	-	1	-	26,832	0.0	0	0
H317- Humming or cutting off in motion equipmen	1	0.0	-	1	-	8,021	0.0	0	0
H318- Kicking or dropping cars, inadequate prec	4	0.2	1	1	2	110,914	0.1	0	0
H399- Other general switching rules	42	2.1	10	9	23	897,668	0.7	0	5
H401- Failure to stop train in clear	17	0.8	7	2	8	1,550,884	1.2	0	2
H402- Motor car/on-trk rules, fail to comply	12	0.6	4	-	8	1,058,160	0.8	0	7
H403- Movement without authority - rr emp	6	0.3	1	4	1	663,566	0.5	0	65
H404- Fail to comply with trn order, etc.	3	0.1	-	1	2	301,706	0.2	0	1
H405- Trn orders, trk warrants, radio error	3	0.1	1	1	1	356,757	0.3	0	0
H406- Trn orders, trk warrants, written err	1	0.0	1	-	-	16,250	0.0	0	0
H499- Other main track authority causes	18	0.9	6	3	9	7,538,971	5.8	1	25
H501- Improper train make-up at init term	4	0.2	-	4	-	318,074	0.2	0	0
H502- Improper placement of cars in train	2	0.1	-	1	1	225,188	0.2	0	0
H503- Buff/slack action excess, trn handling	99	4.9	-	92	7	5,234,127	4.0	0	0
H504- Buff/slack action excess, trn make-up	24	1.2	-	24	-	1,383,639	1.1	0	0
H505- Lat DB force on curve excess, trn hnding	19	0.9	-	18	1	941,637	0.7	0	0
H506- Lat DB force on curve excess, make-up	12	0.6	-	12	-	1,035,960	0.8	0	0
H507- Lat drawbar force-short/long car combo	13	0.6	-	13	-	378,879	0.3	0	0
H508- Improper train make-up	14	0.7	2	12	-	1,895,960	1.5	0	0
H509- Improper train inspection	6	0.3	1	4	1	1,185,948	0.9	0	0
H510- Automatic brake, insufficient	1	0.0	-	1	-	17,281	0.0	0	0
H511- Automatic brake, excessive	5	0.2	-	5	-	120,172	0.1	0	0
H513- Automatic brake, other improper use	4	0.2	-	4	-	115,795	0.1	0	0
H514- Fail to allow air brks to release	5	0.2	-	5	-	259,512	0.2	0	0
H516- Fail to cut-in brake valves-loco	2	0.1	1	1	-	47,994	0.0	0	2
H518- Dynamic brake, excessive	3	0.1	-	3	-	704,808	0.5	0	0
H519- Dynamic brake, too rapid adjustment	7	0.3	-	7	-	382,661	0.3	0	0
H520- Dynamic brake, excessive axles	2	0.1	-	2	-	1,132,531	0.9	0	2
H521- Dynamic brake, other improper use	3	0.1	-	3	-	522,810	0.4	0	0

H522- Throttle (power), improper use	21	1.0	-	20	1	2,790,850	2.2	0	0
H523- Throttle (power), too rapid adjustment	4	0.2	-	4	-	68,561	0.1	0	0
H524- Excessive horsepower	13	0.6	-	13	-	660,566	0.5	0	0
H525- Independent brake, improper use	28	1.4	-	28	-	1,537,861	1.2	0	0
H526- Failure to actuate off independent brk	1	0.0	-	1	-	60,000	0.0	0	0
H599- Other train handling/makeup	15	0.7	4	8	3	1,203,516	0.9	0	0
H601- Coupling speed excessive	49	2.4	4	23	22	1,756,450	1.4	0	3
H602- Switch movement, excessive speed	13	0.6	2	9	2	414,543	0.3	0	0
H603- Train inside yard limits, excess speed	5	0.2	-	5	-	425,840	0.3	0	0
H604- Train outside yd limits, excess speed	3	0.1	2	1	-	339,419	0.3	0	2
H605- Failure to comply with restricted speed	46	2.3	19	5	22	3,577,395	2.8	0	23
H606- Train outside yd limits(nonblk), exc spd	7	0.3	-	6	1	639,277	0.5	0	0
H607- Failure to comply with restricted speed o	12	0.6	7	2	3	915,728	0.7	0	13
H699- Speed, other	9	0.4	-	6	3	6,469,891	5.0	0	56
H701- Spring Switch not clear before reverse	7	0.3	-	6	1	195,989	0.2	0	0
H702- Switch improperly lined	342	17.0	37	242	63	16,296,472	12.6	1	22
H703- Switch not latched or locked	25	1.2	-	25	-	619,685	0.5	0	0
H704- Switch previously run through	72	3.6	-	70	2	1,961,165	1.5	0	0
H705- Moveable point trk frog improper lined	1	0.0	-	1	-	43,000	0.0	0	0
H799- Use of switches, other	8	0.4	-	6	2	295,966	0.2	0	0
H991- Tampering - safety/protective device	1	0.0	-	1	-	13,950	0.0	0	0
H992- Op. of loco by uncert/unqual person	1	0.0	-	-	1	7,792	0.0	0	0
H993- Human factors - track	8	0.4	3	5	-	1,508,182	1.2	0	75
H994- Human factors - signal	6	0.3	-	4	2	1,346,274	1.0	0	0
H995- Human factors -motive power & equipment	5	0.2	-	2	3	60,653	0.0	0	0
H996- Oversized loads or Excess Height/Width ca	1	0.0	1	-	-	23,100	0.0	0	0
H997- Motor car or other on-track equipment rul	5	0.2	1	1	3	172,279	0.1	0	2
H999- Other train operation/human factors	49	2.4	8	21	20	5,028,428	3.9	0	11
-- Total	2,014	100	312	1,099	603	129,567,990	100.0	7	389

H018- Fail to secure car hnd brk -rr emp	4	9.3	-	1	3	85,319	2.4	0	0
H020- Fail to apply suff. hand brakes -rr emp	1	2.3	-	-	1	30,000	0.8	0	0
H021- Fail to apply car hnd brks -rr emp	1	2.3	-	1	-	9,008	0.2	0	0
H212- Radio comm., failure to give/receive	1	2.3	-	-	1	16,761	0.5	0	0
H215- Block signal, failure to comply	2	4.7	2	-	-	1,412,509	38.9	0	0
H218- Failure to comply with failed equipment d	1	2.3	-	1	-	457,811	12.6	0	0
H221- Automatic block or interlocking signal di	1	2.3	1	-	-	52,642	1.5	0	1
H303- Derail, failure to apply or remove	1	2.3	-	1	-	18,520	0.5	0	0
H306- Shoving movement, absence of man	8	18.6	1	1	6	238,169	6.6	0	3
H307- Shoving movement, failure to control	1	2.3	1	-	-	4,000	0.1	0	0
H310- Failure to couple	1	2.3	-	1	-	24,865	0.7	0	0
H311- Moving cars-load ramp,etc, not in pos	1	2.3	1	-	-	7,999	0.2	0	0
H312- Passed couplers	1	2.3	-	-	1	164,291	4.5	0	0
H316- Manual intervention of classification yar	1	2.3	-	1	-	26,832	0.7	0	0
H399- Other general switching rules	3	7.0	1	1	1	45,744	1.3	0	0
H504- Buff/slack action excess, trn make-up	1	2.3	-	1	-	7,250	0.2	0	0
H508- Improper train make-up	1	2.3	-	1	-	63,300	1.7	0	0
H518- Dynamic brake, excessive	1	2.3	-	1	-	669,302	18.4	0	0
H524- Excessive horsepower	1	2.3	-	1	-	59,393	1.6	0	0
H599- Other train handling/makeup	1	2.3	-	1	-	28,781	0.8	0	0
H605- Failure to comply with restricted speed	1	2.3	-	-	1	15,000	0.4	0	0
H702- Switch improperly lined	7	16.3	1	4	2	144,494	4.0	0	1
H799- Use of switches, other	1	2.3	-	-	1	14,000	0.4	0	0
H997- Motor car or other on-track equipment rul	1	2.3	1	-	-	32,500	0.9	0	1
-- Total	43	100.9	17	17	17	3,628,490	100.0	0	6