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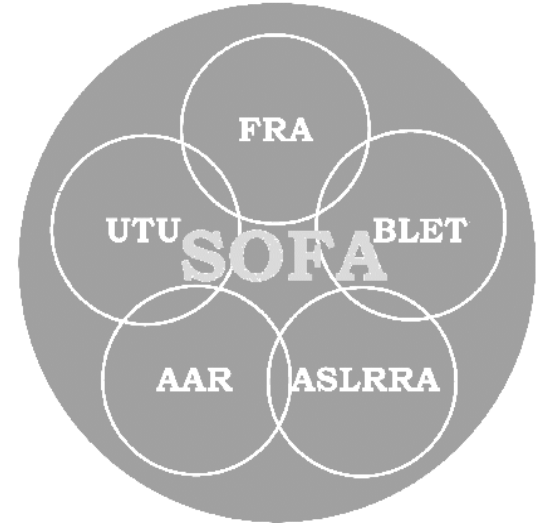
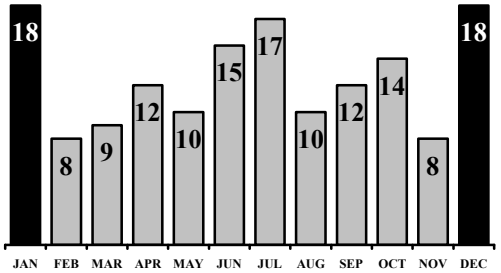
Apply SOFA Operating Recommendations – Recognize Special Switching Hazards

Amputations
an acute type of SOFA-defined Severe Injury, resulting in likelihood of permanent occupational and lifestyle limitations …*page 2 and 3*

Upcoming period of increased casualty risk…*page 4*



Since 1992, Switching Fatalities have increased in December and January



through November 3,
Five Switching Fatalities in 2006:

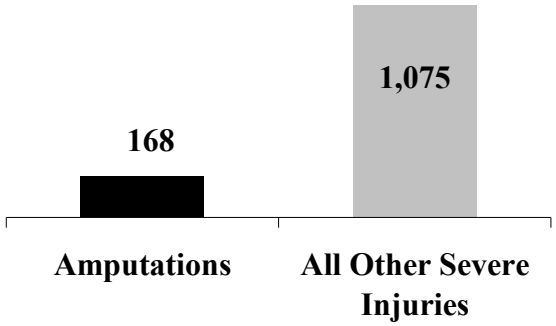
- ***April 2, at Palmer, MI***
- ***August 21, at Bonaventure, FL***
- ***August 25, at Chicago, IL***
- ***September 10, East St. Louis, IL***
- ***October 13, Pajaro, CA***

Switching Fatality and Severe Injury Update: 2006 Fourth Quarter

(Note: Update is now being published quarterly. Expect next Update in February 2007.)

Amputations, an acute type of SOFA-defined Severe Injury

January 1, 1997 through August 31, 2006



Job Code	Amputations	percent
yard conductor (614)	39	23.2
yard brakeman (615)	30	17.8
road freight conductor, freight local (609)	22	13.1
road freight conductor, freight through (608)	19	11.3
road freight brakemen, local (613)	14	8.3
road freight engineers, through (617)	13	7.7
remote control locomotive operator – not operating (631)	4	2.4
road freight brakemen, through (612)	4	2.4
road passenger engineers (616)	4	2.4
yard engineers (619)	4	2.4
road freight engineers, local (618)	3	1.8
road pass conductor (606)	3	1.8
remote control locomotive operator – not operating (630)	3	1.8
misc. (600)	2	1.2
switch tender (601)	2	1.2
asst. road passenger conductor (607)	1	0.6
lead passenger brakeman (611)	1	0.6
total	**168**	**100.0%**

Location	Amputations	percent
yard	108	64.3
main/branch	31	18.5
industry	21	12.5
siding	6	3.5
other	2	1.2
total	**168**	**100.0%**

Cause	Amputations	percent
human factors	70	41.6
undetermined	50	29.7
equipment procedures not followed	30	17.9
equipment	5	3.0
environment	3	1.8
other	10	6.0
total	**168**	**100.0%**

45.0 is average age of 168 employees receiving amputations

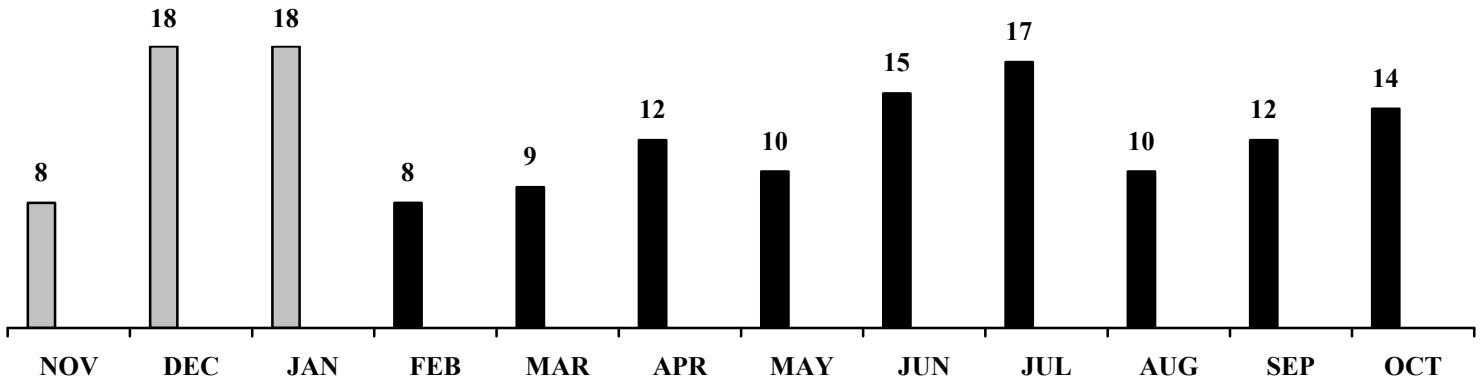
Events Causing Amputations,
January 1, 1997 through August 31, 2006

Event	Amputations	percent
struck by on-track equipment	52	30.9
caught, crushed, pinched, other	22	13.0
slipped, fell, stumbled, other	13	7.7
sudden unexpected movement of on track equipment	11	6.5
lost balance	10	5.9
caught in or crushed by materials	8	4.8
other (describe in narrative)	8	4.8
slack action, draft, compressive buff/coupling	6	3.6
collision between on-track equipment	4	2.4
missed handhold, grabiron, step, etc.	4	2.4
caught in or compressed by other machinery	3	1.8
struck by object	3	1.8
struck by own remote control locomotive controlled equipment	3	1.8
highway-rail collision/impact	2	1.2
ran into object/equipment	2	1.2
slipped, fell, stumbled, etc. due to climatic condition	2	1.2
sudden, unexpected movement, other	2	1.2
sudden/unexpected movement of material	2	1.2
struck by other remote control locomotive controlled equipment	1	0.6
caught between equipment	1	0.6
caught in or compressed by hand tools	1	0.6
caught in or compressed by power hand tools	1	0.6
derailments	1	0.6
pushed/shoved into/against	1	0.6
rubbed, abraded, etc.	1	0.6
slipped, fell, stumbled, etc. due to irregular surface	1	0.6
slipped, fell, stumbled, etc. due to object	1	0.6
struck against object	1	0.6
struck by falling object	1	0.6
total	**168**	**100.0%**

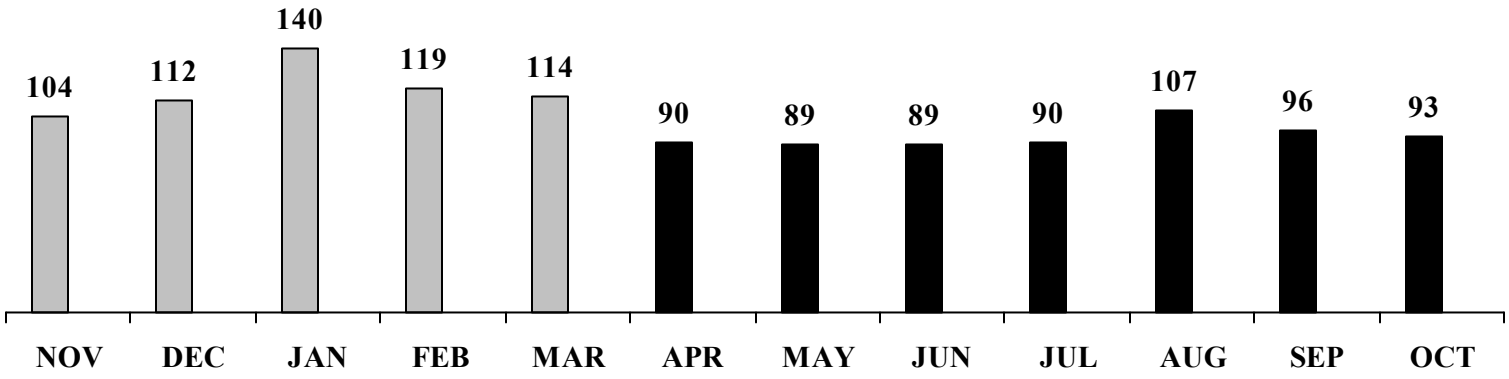
Approaching Period of Increased Casualty Risk

Casualty risk to employees always exists. In the upcoming months this risk increases.

151 Switching Fatalities, January 1, 1992 through November 3, 2006

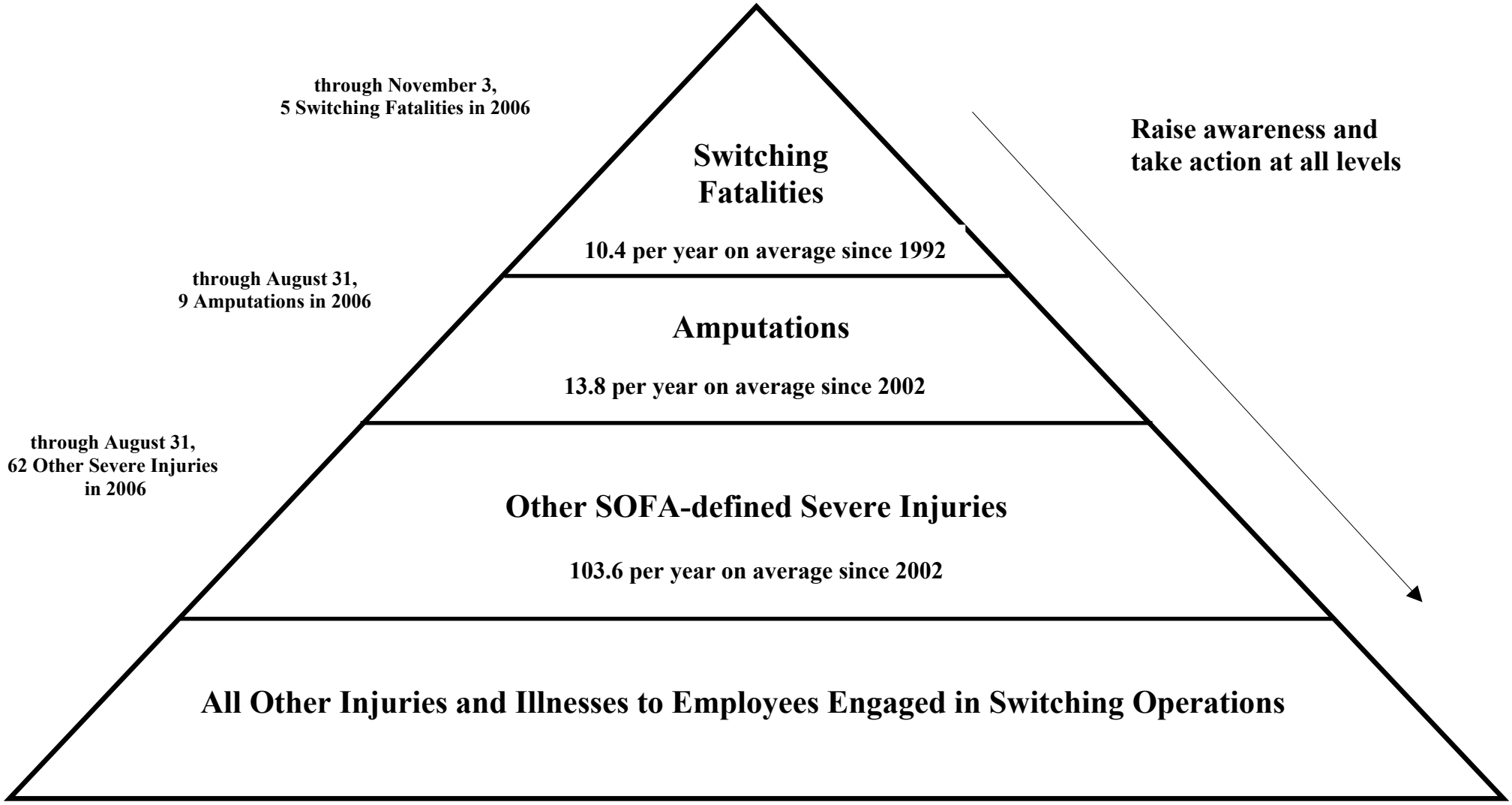


1,243 SOFA-defined Severe Injuries, January 1, 1997 through August 31, 2006



Switching Casualty Pyramid

Engaged in switching operations, employees are exposed <u>daily</u> to risk of fatality, life-long disability, and injury and illness.



SOFA-defined Severe Injuries

January 1992 through August 2006

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	140	14.0
FEB	17	15	9	9	9	13	17	14	10	6	119	11.9
MAR	14	12	17	11	10	10	13	10	9	8	114	11.4
APR	8	10	6	10	12	6	9	13	10	6	90	9.0
MAY	6	12	8	8	12	14	9	6	6	8	89	8.9
JUN	9	10	8	11	8	5	10	9	7	12	89	8.9
JUL	9	14	10	8	10	7	6	10	5	11	90	9.0
AUG	13	10	11	14	8	10	7	14	10	10	107	10.7
to-date	**87**	**96**	**85**	**86**	**90**	**77**	**82**	**87**	**77**	**71**		**83.8**
SEP	10	11	15	10	20	12	5	4	9		96	10.7
OCT	12	12	16	10	5	11	9	7	11		93	10.3
NOV	12	9	12	11	13	14	10	10	13		104	11.6
DEC	18	9	7	22	12	9	8	15	12		112	12.4
totals	**139**	**137**	**135**	**139**	**140**	**123**	**114**	**123**	**122**		**1,243**	

138.0 Severe Injuries occurred on average per year from 1997 through 2001

120.5 Severe Injuries occurred on average per year from 2002 through 2005

Severe Injuries are defined by the SOFA Working Group as (1) potentially life threatening; (2) high likelihood of permanent loss of function, permanent occupational limitation, or other permanent disability; (3) likely to result in significant work restrictions; and (4) result from a high-energy impact to the human body. 'Severe Injuries' include amputation, dislocation of the neck, loss of eye, electric shock or burn, and fracture to any bone except the lower arm, fingers, foot, and toes, See *Severe Injuries to Train and Engine Service Employees: Data Description and Injury Characteristics*. July 2001. Available at: http://www.fra.dot.gov/us/content/102

Amputations
A type of SOFA-defined Severe Injury

Amputations are shown separately because of the extreme trauma to employees engaged in switching, and the likelihood of permanent occupational and lifestyle limitations.

January 1992 through August 2006

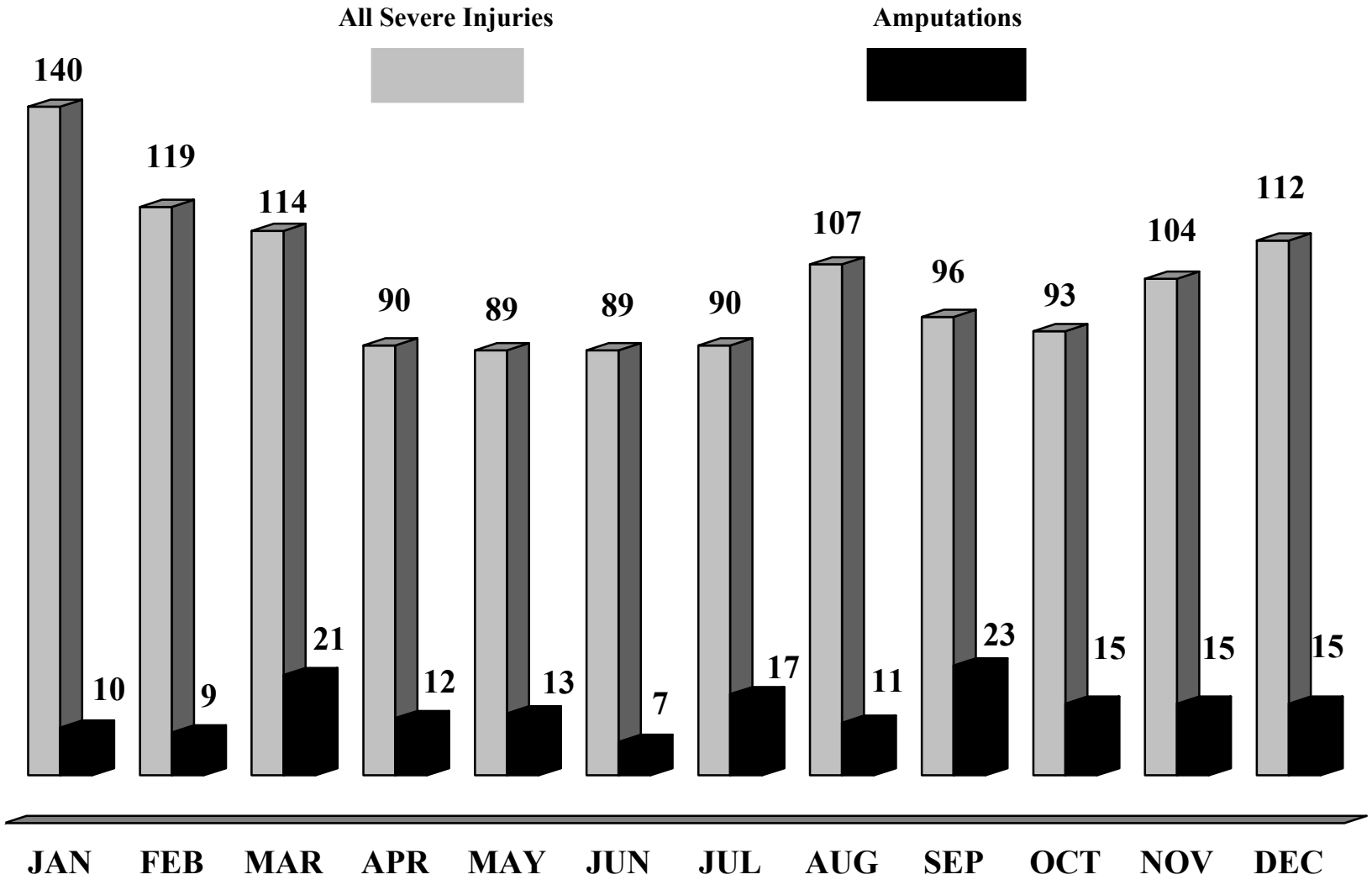
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	10	1.0
FEB	0	1	0	1	0	2	1	2	0	2	9	0.9
MAR	3	4	3	2	1	1	3	1	2	1	21	2.1
APR	1	2	0	1	2	0	1	1	2	2	12	1.2
MAY	1	2	3	0	2	2	2	0	0	1	13	1.3
JUN	2	1	1	0	1	0	0	1	0	1	7	0.7
JUL	1	5	1	0	4	0	1	2	1	2	17	1.7
AUG	1	0	1	4	0	1	0	2	2	0	11	1.1
to-date	**10**	**15**	**11**	**9**	**10**	**6**	**10**	**11**	**9**	**9**		**10.0**
SEP	2	4	3	2	5	4	0	0	3		23	2.6
OCT	2	5	2	2	0	0	2	2	0		15	1.7
NOV	2	2	2	2	3	0	1	1	2		15	1.7
DEC	4	1	0	4	1	1	2	1	1		15	1.7
totals	**20**	**27**	**18**	**19**	**19**	**11**	**15**	**15**	**15**		**168**	

20.6 Amputations occurred on average per year from 1997 through 2001

14.0 Amputations occurred on average per year from 2002 through 2005

Severe Injuries and Amputations by Month, January 1997 through August 2006

Amputations are a type of Severe Injuries and are contained in the Severe Injuries counts

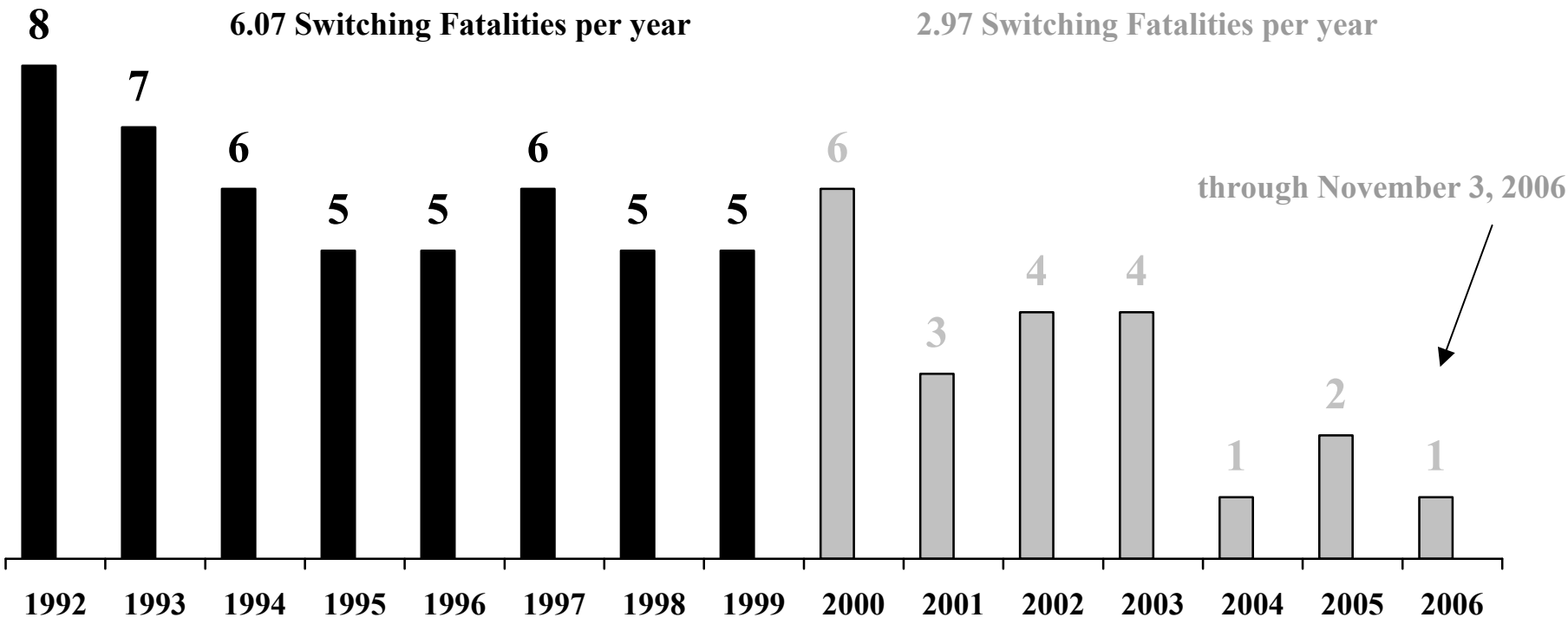


Reduction in Switching Fatalities involving the Five SOFA Operating Recommendations

51.1 percent decline in yearly rate – 6.07 vs. 2.97 deaths per year

The original *SOFA Report*[1] was released in October 1999. Prior to the release, there were 47 Switching Fatalities related to the Five Operating Recommendations in the 7.75-year period January 1992 through September 1999. Expressed as a rate, there were 6.07 Switching Fatalities per year related to Operating Recommendations.

In the post-SOFA Report period of 7.08 years, October 1, 1999 through November 3, 2006, there were 21 Switching Fatalities related to the Five Operating Recommendations. Expressed as a rate, there were 2.97 Switching Fatalities per year related to Operating Recommendations.



[1] *Findings and Recommendations of the SOFA Working Group*. October 1999. Available at http://www.fra.dot.gov/us/content/102

Five Switching Fatalities in 2006

(Information contained in these Fatality summaries is preliminary pending investigation.)

April 02, 2006…Lake Superior & Ishpeming Railroad…Palmer, Michigan
A 51-year-old conductor was apparently riding the point of a 60 ore-car (empties) shove move, and may have fallen off, and was run over.

August 21, 2006…Florida East Coast Railroad…Bonaventure, Florida
A three-person crew (and a locomotive engineer learning the territory) was shoving a cut of cars over a highway rail grade crossing equipped with passive warning devices. The conductor was riding the leading end of the movement when he suddenly told the locomotive engineer to dump the train line air. Subsequent investigation revealed that the leading end of the movement had struck a truck at the crossing, and as a result of the collision, the conductor was killed.

August 25, 2006…Norfolk Southern Railroad…Chicago, Illinois
A three-person crew was flat switching when it became necessary to couple a cut of cars into a standing two-car cut. As the conductor directed the cut of cars into the two-car cut, radio communication with the conductor ended, the movement stopped, and the conductor was found run over by one of the cars being coupled to.

September 10, 2006…Alton & Southern Railroad…East St. Louis, Illinois
A two-person crew was in the process of making up a locomotive consist using two adjacent tracks. After having set over one of the locomotives, the conductor was riding the leading end of the two locomotives into the adjacent track when his hand signals went out of sight, the movement was stopped and the engineer went back to discover the conductor had been crushed between the locomotive he had just set out and the locomotive he was riding.

October 13, 2006…Union Pacific Railroad…Pajaro, California
A two-person crew, performing switching operations with a remote control locomotive, were in the process of shoving three cars with the intent of cutting them off and letting them free roll into a track at Watsonville Junction. The two men were working on opposite sides of the on-track movement. The cars were cut off, the conductor noticed something under the cars and, upon further investigation determined that his helper had been run over.

Apply SOFA Operating Recommendations – Recognize Special Switching Hazards

8 November Switching Fatalities

#	Date	RR	Location	Age	Service (yrs)	Employee's Job	Employee Act	Employee Location	Fatal Event	SOFA Recommendations	Special Switching Hazard
1	11/16/92	TTIS	Maysville, KY	35	13	road conductor	standing	between cars/loc	collision between on-track equipment		Miscellaneous
2	11/12/93	ATSF	Farewell, TX	41	21	road conductor	riding	on side of car	struck by on-track equipment		Unsecured Cars and Drugs and Alcohol
3	11/13/93	GC	Macon, GA	47	1	yard conductor		on track	struck by on-track equipment	**3, 5**	
4	11/10/94	PTRA	Houston, TX	31	0.5	yard brakeman	activity not witnessed	industrial chipper	caught in or compressed by other machinery	**5**	
5	11/15/94	CR	Painted Post, NY	57	38	road brakemen	standing	on track	struck by on-track equipment	**3, 4**	
6	11/17/99	UP	Lincoln, NE	57	35	road brakemen	walking	on track	struck by on-track equipment		Unexpected Movement of Railcars
7	11/01/04	BNSF	Bowdoin, MT	47							Special Switching Hazard
8	11/16/05	CSX	Lugoff, SC	47							Special Switching Hazard

Fatalities occurring within a few days

Apply SOFA Operating Recommendations – Recognize Special Switching Hazards

No. 1 of 8: November 16, 1992 – TTIS – Maysville, KY

A two-person train crew was taking a coal train down a 3 percent grade and through an eight-degree curve when the train separated at the 17th head car. The cause of the separation was a broken knuckle. To remove the partially broken knuckle, the conductor decided that he had to impact the standing cars with the 17 head cars. On his third attempt, the couplers by-passed and the corners of the 18th and 17th head cars came together at the push pole pads crushing the conductor between them.

Special Switching Hazard(s):	**Miscellaneous**
Possible Contributing Factor:	Employee on or fouling track
External Circumstances:	Jammed knuckle pin
Day of Week:	Monday
Time of Fatal Event:	6:05 PM
Time on Duty (hours: minutes):	4:05
Temperature (Fahrenheit):	45
Direction of Movement:	shoved
Crew's Next Move:	replace knuckle
Death Result of Train Movement?	yes
Track Type:	main
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	1
Deceased Regular Job?	yes
Crew Size:	2
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 2 of 8: November 12, 1993 – ATSF – Farewell, TX

A three-person industrial switching crew had been working together to get the switches lined and the derail off in preparation for a shove move into the plant. The conductor was on the leading end of the lead car and the brakeman was on the trailing end of the same car. The conductor was crushed by a car he had set out without setting a hand brake. The car rolled into a car he and his brakeman were riding and impairment (drugs) contributed to the fatality.

Special Switching Hazard(s):	**Unsecured Cars and Drugs and Alcohol**
Possible Contributing Factor:	Failure to apply handbrakes on car(s)
Possible Contributing Factor:	Failure to couple
External Circumstances:	Impairment of efficiency or judgment because of drugs or alcohol
Day of Week:	Friday
Time of Fatal Event:	6:40 AM
Time on Duty (hours: minutes):	5:55
Direction of Movement:	shoved
Crew's Next Move:	spot car
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	4
Crew Size:	3
Drugs Present?	yes
Drugs a Factor?	yes

No. 3 of 8: November 13, 1993 – GC – Macon, GA

Trainmaster became involved with crew performing switching in class yard without knowledge of the conductor who was coupling air hoses on a cut of cars. Cars were shoved without his knowledge while he was in the foul of the movement. Movement ran over conductor and killed him.

SOFA Operating Recommendation(s):	**3, 5**
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Employee on or fouling track
External Circumstances:	Train master assisted crew
Day of Week:	Saturday
Time of Fatal Event:	8:30 AM
Time on Duty (hours: minutes):	0:30
Temperature (Fahrenheit):	50
Crew's Next Move:	pull another track
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Speed of Equipment (mph):	1
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no

No. 4 of 8: November 10, 1994 – PTRA – Houston, TX

Yard switch crew, engineer, conductor and brakeman, spotting paper mill. FE (brakeman) instructed by conductor to de-train and stay at road crossing while he spotted track. FE found in nearby wood chip auger/conveyer system after mill crew started up the system while crew searched for missing FE. Mill crew was instructed by conductor not to start equipment until FE was located. FE was not familiar with the dangers associated with this mill process. FE had 5 months experience.

SOFA Operating Recommendation(s):	**5**
Possible Contributing Factor:	Insufficient training
Possible Contributing Factor:	Failure to follow instructions
Day of Week:	Thursday
Time of Fatal Event:	4:15 AM
Time on Duty (hours: minutes):	4:16
Temperature (Fahrenheit):	70
Track Type:	industrial/spot(load/unload)/outside
Speed of Equipment (mph):	0
Deceased Regular Job?	no
Had Deceased Worked There Before?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 5 of 8: November 15, 1994 – CR – Painted Post, NY

Crew switching in class yard failed to establish and maintain effective communications. Subsequent changes in switching line-up by the conductor resulted in trainman who was in the foul of Track 7 being struck by unexpected movement of equipment.

SOFA Operating Recommendation(s):	**3, 4**
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Failure to comply with restricted speed
Day of Week:	Tuesday
Time of Fatal Event:	9:35 AM
Time on Duty (hours: minutes):	1:35
Temperature (Fahrenheit):	55
Direction of Movement:	shoved
Crew's Next Move:	couple track
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/classification/flat
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	6
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 6 of 8: November 17, 1999 – UP – Lincoln, NE

A three-person local switching crew had cut away from their train on the main track and proceeded to pull by the switch providing access to a clear track. The brakeman was at the switch and the conductor had removed the derail from the clear track and was awaiting the shove move at the point where the cut would be made. Meanwhile, the brakeman, who was to have gotten the switch from the main to the clear track, was walking between the gauge of the mainline track toward the remaining portion of his train. The conductor saw the cars being shoved toward the remaining portion of his train and shouted to the brakeman and then to the engineer to stop. The brakeman with his back to the move was hit and run over by the leading car of the shove.

Special Switching Hazard(s):	**Unexpected Movement of Railcars**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Switch improperly lined
Possible Contributing Factor:	Employee physical condition, other
External Circumstances:	Other extreme environmental condition
Day of Week:	Wednesday
Time of Fatal Event:	12:40 PM
Time on Duty (hours: minutes):	5:40
Temperature (Fahrenheit):	65
Direction of Movement:	shoved
Crew's Next Move:	make joint
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	7
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 7 of 8: November 01, 2004 – BNSF – Bowdoin, MT

(*Information preliminary pending review by SOFA Working Group*.)

A conductor stopped on a siding track to meet an opposing train. Conductor detrained to perform a roll-by inspection of a passing train. Conductor stepped off his train and was apparently struck by the opposing train.

No. 8 of 8: November 16, 2005 – CSX – Lugoff, SC

(*Information preliminary pending review by SOFA Working Group*.)

A 47-year-old conductor was killed during an industrial switching operation. The brakeman, who was uncoupling cars, requested more slack from the engineer, while the conductor was getting the numbers of cars previously switched. Shortly thereafter, the conductor was found crushed between the knuckles of those cars.

18 December Switching Fatalities, January 1992 through September 2004

#	Date	RR	Location	Age	Service (yrs)	Employee's Job	Employee Act	Employee Location	Fatal Event	SOFA Recommendations	Special Switching Hazard
1	12/05/93	SOU	Atlanta, GA	59	29	road conductor	getting off	between tracks	struck by on-track equipment	**3**	
2	12/30/93	CR	Brook Park, OH	61	38	yard conductor	riding	on side of car	derailments		**Environment**
3	12/06/94	CR	Campbell Hall, NY	28	0.17	brakeman trainee	riding	in caboose	ran into on-track equipment	**2, 4, 5**	
4	12/13/94	UP	Thorton, CA	48	26	road brakemen	adjusting coupler	between cars/loc	sudden/unexpected movement of on-track equipment	**1**	
5	12/11/95	NS	Toledo, OH	53	32	yard brakeman	standing	on ground near on-track equip.	rolled between fixed		**Close Clearance**
6	12/14/95	CSXT	Monroe, NC	54	33	road conductor	riding	on side of car	struck against object		**Close Clearance**
7	12/16/96	UP	Clinton, IA	51	21	road brakemen	riding	between cars/loc	struck by on-track equipment		**Employee Tripping and Drugs and Alcohol**
8	12/18/96	IC	Chicago, IL	45	26	yard conductor	riding	on end of car	struck by on-track equipment		**Unsecured Cars**
9	12/02/97	BNSF	Emporia, KS	50	30	road conductor	standing	between tracks	struck by on-track equipment		**Struck by Mainline Trains**
10	12/26/97	UP	Boise, ID	55	32	road conductor	opening/closing angle cock	on track	sudden/unexpected movement of on-track equipment	**4**	
11	12/28/98	IC	Durrant, MS	55	26	road conductor	riding	other location	derailments	**4**	
12	12/28/00	UP	Dupo, IL	52	30	yard brakeman	standing	on track	struck by on-track equipment		**Struck by Mainline Trains**
13	12/29/00	BNSF	Gillette, WY	29	6	road conductor	walking	on track	struck by on-track equipment		**Struck by Mainline Trains**
14	12/22/01	NS	Eden, NC	50	29	road brakemen	riding	on side of car	collision/impact-auto, truck, bus, van, etc.		**Struck by Motor Vehicle**
15	12/24/01	NS	Lynchburg, VA	30	4.5	road conductor	walking	near on-track equip-on ground	struck by on-track equipment		**Close Clearance and Struck by Mainline Trains**
16	12/07/03	UP	San Antonio, TX	37	5.75	remote control operator (RCO)	operating	on track	struck by on-track equipment		**Unexp. Movement of Railcars**
17	12/17/04	BNSF	Radium, CO	**Being reviewed by SOFA Working Group**							
18	12/04/05	BNSF	Burlington, IA	**Being reviewed by SOFA Working Group**							

No. 1 of 18: December 05, 1993 – SOU – Atlanta, GA

Change in operating procedure between two crews swapping equipment resulted in conductor being struck by unexpected movement while he was in the foul of the track.

SOFA Operating Recommendation(s):	**3**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Dismounted moving equipment at 8 mph
External Circumstances:	Elevation difference between tracks and large ballast
Day of Week:	Sunday
Time of Fatal Event:	7:00 AM
Time on Duty (hours: minutes):	3:15
Temperature (Fahrenheit):	55
Direction of Movement:	pulled
Crew's Next Move:	line switch
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main/siding
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	2
Deceased Regular Job?	no
Crew Size:	2
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 2 of 18: December 30, 1993 – CR – Brook Park, OH

A three-person industrial switching crew was shoving over an industrial crossing within the confines of a plant. The conductor was riding the leading end of the lead car when it rode up on ice, built up within the flange-ways, and derailed the car into the side of the building. The conductor was crushed between the car he was riding and the building.

Special Switching Hazard(s):	**Environment**
Possible Contributing Factor:	Other roadbed defects
Possible Contributing Factor:	Snow, ice, mud, gravel, coal etc. on the track
Possible Contributing Factor:	Switching movement, excessive speed
External Circumstances:	Others assisted crew
Day of Week:	Thursday
Time of Fatal Event:	9:20 AM
Time on Duty (hours: minutes):	1:21
Direction of Movement:	shoved
Crew's Next Move:	spot car
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	industrial/outside/stub track
Hit by Own Equipment?	yes
Speed of Equipment (mph):	8
Had Deceased Worked There Before?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 3 of 18: December 06, 1994 – CR – Campbell Hall, NY

First local had left the immediate location of the work area to be used by the second local without notifying the second local of the position of the switches, derails or returning the switches to a non-conflicting position. Second local shoving three cars and a caboose with a two-month trainee directing the move, struck standing equipment after traversing switches that were unexpectedly lined for the equipment.

SOFA Operating Recommendation(s):	**2, 4, 5**
Possible Contributing Factor:	Poor crew utilization
Possible Contributing Factor:	Radio communication, improper
Possible Contributing Factor:	Shoving movement, man on or at leading end of movement, failure to control
Possible Contributing Factor:	Failure to comply with restricted speed
Possible Contributing Factor:	Radio communication, failure to give/receive
Possible Contributing Factor:	Derail, failure to apply or remove
Possible Contributing Factor:	Speed, other
Day of Week:	Tuesday
Time of Fatal Event:	2:52 AM
Time on Duty (hours: minutes):	6:52
Temperature (Fahrenheit):	51
Direction of Movement:	shoved
Crew's Next Move:	set out cars
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/storage
Hit by Own Equipment?	no
Striking Train Within Rules?	no
Speed of Equipment (mph):	19
Deceased Regular Job?	no
Had Deceased Worked There Before?	yes
Crew Size:	3
Emergency Response Procedures Followed?	yes

No. 4 of 18: December 13, 1994 – UP – Thorton, CA

Crew coupling up cars in an industry track, brakeman attempted to couple air between cars when unexpected movement of railcars occurred, resulting in his fatal injury.

SOFA Operating Recommendation(s):	**1**
Possible Contributing Factor:	Failure to provide adequate space between equipment
External Circumstances:	Employee on or fouling track
Day of Week:	Tuesday
Time of Fatal Event:	12:01 AM
Time on Duty (hours: minutes):	2:16
Temperature (Fahrenheit):	34
Direction of Movement:	pulled
Crew's Next Move:	CO power
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	industrial/spot/ load and unload/outside
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	1
Deceased Regular Job?	no
Had Deceased Worked There Before?	yes
Crew Size:	4
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 5 of 18: December 11, 1995 – NS – Toledo, OH

A three-person crew was called to switch an industry that all were very familiar with. During the switching moves, the brakeman was inside an area with no clearances between the cars and the hand railings installed on the walls. He was making coupling and, according to the conductor and engineer, upon completion of that work, ordered the engineer to haul out of the building where the conductor would take over the next move to be performed. Subsequently, a plant employee observed the brakeman slumped beside the track, rushed to assistance, call 911 and notified the conductor that his man was down. The brakeman died later on at the hospital of crushing wounds incurred when he was rolled between the cars being pulled out and the railing.

Special Switching Hazard(s):	**Close Clearance**
Possible Contributing Factor:	Snow, ice, mud, gravel, coal etc. on the track
Possible Contributing Factor:	Close or no clearance
Possible Contributing Factor:	Employee on or fouling track
Day of Week:	Monday
Time of Fatal Event:	6:25 PM
Time on Duty (hours: minutes):	2:25
Temperature (Fahrenheit):	12
Direction of Movement:	pulled
Crew's Next Move:	set out cars
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	industrial/spot/load and unload/inside
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	3
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 6 of 18: December 14, 1995 – CSX – Monroe, NC

A three-person crew (engineer, conductor & conductor trainee) was called to operate a local freight train. During a switching operation at a yard, the conductor was riding nine cars down a clear track and directing the shove move by radio. When the engineer did not hear any more radio transmissions from the conductor, he stopped the move and found the conductor dead and lying beside the track he had been shoving down. Post accident investigation revealed that he had been struck by a truck trailer door positioned on a flat car standing on an adjacent track and that had been left open and swinging freely. The investigation revealed that a vandal had broken into the trailer and stolen material from it.

Special Switching Hazard(s):	**Close Clearance**
Possible Contributing Factor:	Vandalism of on-track equipment, i.e. brakes released
Possible Contributing Factor:	Object or equipment on or fouling the tracks (other than above) not vandalism
Day of Week:	Thursday
Time of Fatal Event:	4:30 AM
Time on Duty (hours: minutes):	7:30
Temperature (Fahrenheit):	44
Direction of Movement:	shoved
Crew's Next Move:	cut engine off
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	8
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 7 of 18: December 16, 1996 – UP – Clinton, IA

A three-person crew was in the process of switching a plant when the conductor sent the locomotive and cars out of one track toward the brakeman who was to handle the switches and direct the cars into another track. The conductor stopped the move after the cars had cleared an industry road crossing and the engineer waited to receive instructions from the brakeman. However, the brakeman had mounted the second head car behind the locomotives and had apparently slipped or fell from that position and was found dead by the engineer and conductor lying between and beneath the fourth head car. The brakeman tested positive for THCA & THC.

Special Switching Hazard(s):	**Employee Tripping and Drugs and Alcohol**
Possible Contributing Factor:	Employee falling from moving equipment
Possible Contributing Factor:	Impairment of efficiency or judgment because of drugs or alcohol
Day of Week:	Monday
Time of Fatal Event:	8:40 PM
Time on Duty (hours: minutes):	5:40
Temperature (Fahrenheit):	32
Direction of Movement:	pulled
Crew's Next Move:	CO power
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	outside
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	1
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	yes
Drugs a Factor?	yes

No. 8 of 18: December 18, 1996 – IC – Chicago, IL

A three-person yard crew was in the process of switching a plant. The brakeman was at the plant doors and the conductor and engineer had hauled out to put away a car that had been removed from the plant. After the conductor had tied onto the cars to go into the plant and begun to shove toward the plant, the car that had just been placed on an adjacent track rolled out, fouled the conductor's movement, and crushed him between the leading car and the rolling car.

Special Switching Hazard(s):	**Unsecured Cars**
Possible Contributing Factor:	Failure to properly secure hand brake on car(s) railroad employee
Possible Contributing Factor:	Shoving movement, man on or at leading end of movement, failure to control
Possible Contributing Factor:	Broken brake pipe or connections
Day of Week:	Wednesday
Time of Fatal Event:	11:40 AM
Time on Duty (hours: minutes):	5:55
Temperature (Fahrenheit):	15
Direction of Movement:	shoved/free-running
Crew's Next Move:	spot cars
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	outside
Hit by Own Equipment?	yes
Speed of Equipment (mph):	4
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 9 of 18: December 02, 1997 – BNSF – Emporia, KS

The three-person crew had just finished making up their train at the yard. The conductor, for unknown reasons, had positioned himself on the "live" main trackside of his train, near the second and third locomotives. The conductor was struck and killed by a passing main track train that had approached the area from the opposite direction than that the conductor's train was to proceed.

Special Switching Hazard(s):	**Struck by Mainline Trains**
Possible Contributing Factor:	Employee on or fouling track
Day of Week:	Tuesday
Time of Fatal Event:	9:45
Temperature (Fahrenheit):	43
Direction of Movement:	pulled
Crew's Next Move:	couple train
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main/yard
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	54
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 10 of 18: December 26, 1997 – UP – Boise, ID

Conductor was riding equipment while setting hand brakes. Move was being shoved; improper radio communication.

SOFA Operating Recommendation(s):	**4**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Radio communication, improper
External Circumstances:	Grade crossing placement
Day of Week:	Friday
Time of Fatal Event:	5:45 PM
Time on Duty (hours: minutes):	9:30
Temperature (Fahrenheit):	27
Direction of Movement:	shoved
Crew's Next Move:	uncouple cars to spot
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	3
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 11 of 18: December 28, 1998 – IC – Durrant, MS

Shove movement was not properly controlled by radio communication and resulted in a collision with a fallen tree which caused the derailment and death of the conductor.

SOFA Operating Recommendation(s):	**4**
Possible Contributing Factor:	Radio communication, failure to give/receive
Possible Contributing Factor:	Train on main track inside yard limits, excessive speed
Possible Contributing Factor:	Shoving movement, man on or at leading end of movement, failure to control
Possible Contributing Factor:	Object or equipment on or fouling the tracks (other than above) not vandalism
External Circumstances:	Extended shove move and type of equipment
Day of Week:	Monday
Time of Fatal Event:	4:32 PM
Time on Duty (hours: minutes):	0:33
Temperature (Fahrenheit):	36
Direction of Movement:	shoved
Crew's Next Move:	stop at switch
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	22
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 12 of 18: December 28, 2000 – UP – Dupo, IL

A three-person yard switching crew was in the process of pulling cars down a long lead that ran parallel to a main track. The switchman was standing between the cars that were being pulled out onto the lead and the main track. While the cars were being moved, a main line train approached his location. The switchman, with nowhere to go, was struck by the passing main line train and killed by a blow to the head.

Special Switching Hazard(s):	**Struck by Mainline Trains**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Insufficient ballast section
External Circumstances:	Snow and ice
Day of Week:	Thursday
Time of Fatal Event:	8:10 AM
Time on Duty (hours: minutes):	1:40
Temperature (Fahrenheit):	8
Direction of Movement:	pulled
Crew's Next Move:	line switch
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	29
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 13 of 18: December 29, 2000 – BNSF – Gillette, WY

A two-person freight train crew was about to be passed by another freight train at a location on line-of-road. The conductor of the stopped train got up out of his seat, exited the leading locomotive and crossed over the track on which the on-coming train was proceeding. The conductor was struck and killed by the lead locomotive of the passing train.

Special Switching Hazard(s):	**Struck by Mainline Trains**
Possible Contributing Factor:	Employee physical condition, other
Possible Contributing Factor:	Employee on or fouling track
External Circumstances:	Using cell phone
Day of Week:	Friday
Time of Fatal Event:	9:28 PM
Time on Duty (hours: minutes):	4:08
Temperature (Fahrenheit):	20
Direction of Movement:	pulled
Crew's Next Move:	inspect train
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	43
Deceased Regular Job?	yes
Crew Size:	2
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 14 of 18: December 22, 2001 – NS – Eden, NC

A three-person, local switching crew that included a conductor in training were in the process of shoving a cut of cars over a highway road crossing at grade. The brakeman was riding one corner of the leading car and the conductor in training was riding the opposite side of the car. All warning devices were in operation when a van struck the leading end of the car knocking the brakeman off the car and under the leading wheels.

Special Switching Hazard(s):	**Struck by Motor Vehicle**
Possible Contributing Factor:	Highway user inattentiveness
External Circumstances:	Employee physical condition, other
Day of Week:	Saturday
Time of Fatal Event:	9:45 AM
Time on Duty (hours: minutes):	3:54
Temperature (Fahrenheit):	45
Direction of Movement:	shoved
Crew's Next Move:	switch plant
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	3
Deceased Regular Job?	yes
Had Deceased Worked There Before?	yes
Crew Size:	4
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 15 of 18: December 24, 2001 – NS – Lynchburg, VA

A conductor, engineer and conductor in training had been transported to an unattended train standing on a siding a portion of which was in a tunnel adjacent to the main track. After storing their equipment, the conductor and the conductor in training left the locomotive to release hand brakes on the train. The conductor was killed when she failed to step in between two boxcars of her train as the conductor in training had done and was subsequently struck by a passing mainline train.

Special Switching Hazard(s):	**Close Clearance and Struck by Mainline Tra**ins
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Other train operation/human factors
Possible Contributing Factor:	Other train operation/human factors
Possible Contributing Factor:	Close or no clearance
Possible Contributing Factor:	Employee physical condition, other
Day of Week:	Monday
Time of Fatal Event:	3:43 AM
Time on Duty (hours: minutes):	4:15
Temperature (Fahrenheit):	35
Direction of Movement:	pulled
Crew's Next Move:	brake test
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	38
Deceased Regular Job?	no
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 16 of 18: December 07, 2003 – UP – San Antonio, TX

A pitch/catch remote control operation was being run by a single operator who was struck and killed during a yard operation by his own locomotive. He stepped in front of its movement as he was headed for the other end of a crossover switch that he intended to line for the route he intended his engine to use.

Special Switching Hazard(s):	**Unexp. Movement of Railcars**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Switch improperly lined
Possible Contributing Factor:	Spring/power switch mechanism malfunction
Possible Contributing Factor:	Other miscellaneous causes
External Circumstances:	Quit offered
Day of Week:	Sunday
Time of Fatal Event:	12:12 AM
Time on Duty (hours: minutes):	1:12
Temperature (Fahrenheit):	39
Direction of Movement:	pulled
Crew's Next Move:	line switch
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	12.65
Deceased Regular Job?	yes
Crew Size:	1
Drugs Present?	yes
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 17 of 18: December 17, 2004 – BNSF – Radium, CO

(*Information preliminary pending review by SOFA Working Group*.)

A conductor, with 25 years of service, was struck by a passing train he was trying to observe.

No. 18 of 18: December 04, 2005 – BNSF – Burlington, IA

(*Information preliminary pending review by SOFA Working Group*.)

A brakeman, riding the side of a car into an area posted as "close clearance," was killed when he was crushed between the car he was riding and a steel walkway support beam.

18 January Switching Fatalities

#	Date	RR	Location	Age	Service (yrs)	Employee's Job	Employee Act	Employee Location	Fatal Event	SOFA Recommendations	Special Switching Hazard
1	01/28/92	BN	Willmar, MN	57	22	yard brakeman	walking	on track	struck by on-track equipment	**4**	
2	01/30/92	AGC	Polk County, FL	32	0.5	yard brakeman	getting on	other location on locomotive	missed handhold, grabiron, step, etc.	**5**	
3	01/04/94	BN	Hastings, NE	46	20	yard conductor	walking	between cars/loc	sudden/unexpected movement of on-track equipment		**Unsecured Cars**
4	01/14/94	BN	Amarillo, TX	57	36	yard conductor	standing	between tracks	derailments		**Equipment**
5	01/18/94	CSXT	Bainbridge, GA	45	25	road conductor	riding	on end of car	sudden/unexpected movement of on-track equipment		**Miscellaneous**
6	01/20/94	UP	Fall City, NE	44	16	road conductor	riding	on side of car	rolled between moving rolling stock and stationary rolling stock	**2**	
7	01/11/95	CR	Indianapolis, IN	51	30	yard conductor	riding	on side of car	struck by on-track equipment		**Equipment**
8	01/12/97	UP	S. Fontana, CA	60	35	road conductor	riding	on side of car	slack action, draft, compressive buff/coupling		**Employee Falling**
9	01/29/97	UP	Mason City, IA	48	28	road conductor	walking	on track	struck by on-track equipment	**4**	
10	01/24/98	BNSF	Omaha, NE	47	26	yard conductor	lining switches	beside track	struck by object		**Drugs and Alcohol**
11	01/12/99	CR	Port Newark, NJ	54	5.5	yard conductor	walking	on track	struck by on-track equipment	**3, 4**	
12	01/22/99	CR	Alexandria, NY	45	1	road conductor	riding	on side of car	derailments		**Environment**
13	01/02/00	CIRR	Cedar Springs, GA	49	21	yard conductor	riding	on side of car	collision between on-track equipment		**Environment**
14	01/10/01	CSX	Chicago, IL	42	1	road conductor	walking	near on-track equipment/on ground	struck by on-track equipment	**5**	
15	01/11/01	NS	South Fork, PA	52	34	road engineer	inspecting	between tracks	struck by on-track equipment	**3**	
16	01/14/04	NS	Kankakee, IL	n/a	n/a	**Being reviewed by SOFA Working Group**					
17	01/10/05	UP	Buena Vista, AR	53	n/a	**Being reviewed by SOFA Working Group**					
18	01/26/05	PHL	Los Angeles, CA	52	n/a	**Being reviewed by SOFA Working Group**					

Apply SOFA Operating Recommendations – Recognize Special Switching Hazards

No. 1 of 18: January 28, 1992 – BN - Willmar, NM

A four-person crew (engineer, switch foreman, 2 switchman) had just shove cars into track 11 and held onto one for track 9. The switch foreman got the switch for 9, noticed his front switchman standing near cars on track 11, and rode the locomotive onto the lead. After the 11th switch was lined for the lead, the switch foreman kicked the single car into track 9. The front switchman was struck and killed by the free rolling car.

SOFA Operating Recommendation(s):	**4**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Employee involved with two movements of separate crews
External Circumstances:	Heavy clothing, hood(s)
Day of Week:	Tuesday
Time of Fatal Event:	5:30 PM
Time on Duty (hours: minutes):	2:00
Direction of Movement:	shoved/free-running
Crew's Next Move:	engine to track #2
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	4
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 2 of 18: January 30, 1992 – AGC – Polk County, FL

Industry switch crew, engineer and two flagmen, both flagmen rode the lower steps of the leading end of the lead locomotive. FE (flagman) was on left side, the other flagman on right side. After 2000 feet into this lite engine movement the surviving flagman noticed the FE stopped talking and he crossed over to the FE's side and saw FE lying next to the track behind movement. Investigation showed FE either slipped off the fireman's side or tripped while dismounting or attempting to remount from the fireman's side. FE had six months experience.

SOFA Operating Recommendation(s):	**5**
Possible Contributing Factor:	Poor intra-crew communication about work in progress
External Circumstances:	Board/dis-board wrong side
Day of Week:	Thursday
Time of Fatal Event:	3:00 PM
Time on Duty (hours: minutes):	0:10
Temperature (Fahrenheit):	75
Direction of Movement:	pulled
Crew's Next Move:	wye engine
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/lead/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	5
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 3 of 18: January 04, 1994 – BN – Hastings, NE

A three-person crew was in the process of pulling a cut of cars out of a track and leaving two additional cuts sitting separately in the track. The helper was riding the cut out of the track and the foreman was last seen walking between the two remaining cuts of cars. Evidence suggests that the foreman attempted to cross over the tracks between the cars being pulled out and the first of two remaining cuts of cars when he was crushed between the cars being pulled out and the second cut of cars after they were impacted by the third, unsecured cut.

Special Switching Hazard(s):	**Unsecured Cars**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Failure to couple
Day of Week:	Tuesday
Time of Fatal Event:	7:00 PM
Time on Duty (hours: minutes):	2:00
Temperature (Fahrenheit):	31
Direction of Movement:	pulled/free-running
Crew's Next Move:	stop to uncouple
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Speed of Equipment (mph):	6
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 4 of 18: January 14, 1994 – BN – Amarillo, TX

A three-person crew reported for duty and later was in the process of shoving cars down a track with the switch foreman riding the point. At the same time, another yard switching job was pulling cars in the opposite direction on an adjacent track and derailed. The foreman immediately told the other crew that they were on the ground and then told his engineer to stop the shove he was riding. The foreman was found crushed between the car he was riding and the car that derailed on the adjacent track.

Special Switching Hazard(s):	**Equipment**
Day of Week:	Friday
Time of Fatal Event:	11:15 AM
Time on Duty (hours: minutes):	4:16
Temperature (Fahrenheit):	48
Direction of Movement:	pulled
Crew's Next Move:	cut engine off
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	yard/flat/classification
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	6
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no

No. 5 of 18: January 18, 1994 – CSX – Bainbridge, GA

A three-person switching crew was in the process of shoving cars down an industrial lead. The conductor and brakeman were riding the end platform of a tank car and, as the move approached a highway/rail grade crossing, the brakeman gave the engineer a car count in which to stop. As a result, there was some "slack action" and the conductor fell from the end platform onto the rail and was pronounced dead at the hospital over five hours later.

Special Switching Hazard(s):	**Miscellaneous**
Possible Contributing Factor:	Employee falling from moving equipment
Possible Contributing Factor:	Slack action
Day of Week:	Tuesday
Time of Fatal Event:	6:10 PM
Time on Duty (hours: minutes):	1:10
Temperature (Fahrenheit):	38
Direction of Movement:	shoved
Crew's Next Move:	spot
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	industrial/spot/(load-unload/outside
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	6
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 6 of 18: January 20, 1994 – UP – Fall City, NE

Conductor riding side of two cars to be kicked, he moves to the opposite side of car to work hand brake and is immediately struck by locomotives standing on adjacent track creating a no-clearance condition. Conductor was not aware that the locomotives had arrived at that location since he had last been there.

SOFA Operating Recommendation(s):	**2**
Possible Contributing Factor:	Close or no clearance
Possible Contributing Factor:	Poor crew utilization
Day of Week:	Thursday
Time of Fatal Event:	8:00 PM
Time on Duty (hours: minutes):	0:30
Temperature (Fahrenheit):	16
Direction of Movement:	free-running
Crew's Next Move:	stop car
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/classification
Hit by Own Equipment?	no
Speed of Equipment (mph):	6
Deceased Regular Job?	yes
Crew Size:	3
Emergency Response Procedures Followed?	yes

No. 7 of 18: January 11, 1995 – CR – Indianapolis, IN

A three-person crew was in the process of switching a plant. The conductor was riding the leading end of the lead car during an eight-car shove. He had notified the engineer that he had mounted the moving car and told him by radio to continue shoving. When the engineer did not hear any more from the conductor, he stopped and the brakeman walked back to find the conductor had been run over by five of the eight cars being shoved. An exception was taken by the FRA for the absence of the "BR" end handhold that could have been used to assist the conductor in moving from the side of the car to the end of the car.

Special Switching Hazard(s):	**Equipment**
Possible Contributing Factor:	Employee falling from moving equipment
Possible Contributing Factor:	Defective BR end hand hold
Day of Week:	Wednesday
Time of Fatal Event:	11:30 PM
Time on Duty (hours: minutes):	8:31
Direction of Movement:	shoved
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	industrial/spot/load-unload/inside/stub track
Hit by Own Equipment?	yes
Striking Train Within Rules?	yes
Speed of Equipment (mph):	3
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 8 of 18: January 12, 1997 – UP – S. Fontana, CA

A three-person road crew arrived at a siding, pulled into the siding and stopped their train. They then cut off their locomotive consist, ran around the 50 loaded cars in their train, and tied onto the opposite end. The conductor and brakeman then positioned themselves on the leading end of the shove move and directed the engineer by radio to begin the shove into the plant. As the move entered a descending grade into the plant, the slack ran out, the conductor lost his hold on the leading car, fell in front of the car he was riding, was run over and died.

Special Switching Hazard(s):	**Employee Falling**
Possible Contributing Factor:	Buffing or slack action excessive, train handling
External Circumstances:	Unfamiliar with territory
Day of Week:	Sunday
Time of Fatal Event:	10:15 PM
Time on Duty (hours: minutes):	4:15
Temperature (Fahrenheit):	42
Direction of Movement:	shoved
Crew's Next Move:	stop
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	siding/lead
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	8
Deceased Regular Job?	no
Had Deceased Worked There Before?	no
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no

No. 9 of 18: January 29, 1997 – UP – Mason City, IA

Conductor and engineer were moving toward engine house area with lite engines and using hand signals. The conductor stopped the movement to line a switch. The engineer while waiting heard and acted upon an unidentified radio transmission "come ahead 21." The engineer initiated the shove movement and eventually, the conductor was struck from behind and killed.

SOFA Operating Recommendation(s):	**4**
Possible Contributing Factor:	Radio communication, improper
Possible Contributing Factor:	Employee on or fouling track
Day of Week:	Wednesday
Time of Fatal Event:	12:55 PM
Time on Duty (hours: minutes):	4:55
Temperature (Fahrenheit):	0
Direction of Movement:	shoved
Crew's Next Move:	switch off power
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/lead
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	1
Crew Size:	2
Drugs Present?	no
Drugs a Factor?	no

No. 10 of 18: January 24, 1998 – BNSF – Omaha, NE

A three-person switching crew was working in close proximity to another switching crew and, after some discussion, but no absolute understanding of the move just made by the other crew, began to pull down the switching lead. As they approached a mis-aligned switch, the foreman jumped off the moving locomotive, ran to the switch and was in the process of "flopping it over" when the leading wheels of the locomotive entered the switch, popped the handle up, striking the foreman in the face and killing him. Post accident testing indicated that drug impairment may have contributed to the fatality.

Special Switching Hazard(s):	**Drugs and Alcohol**
Possible Contributing Factor:	Failure to comply with restricted speed
Possible Contributing Factor:	Poor inter-crew communications
Possible Contributing Factor:	Switch improperly lined
Possible Contributing Factor:	Impairment of efficiency or judgment because of drugs or alcohol
Day of Week:	Saturday
Time of Fatal Event:	10:15 AM
Time on Duty (hours: minutes):	2:45
Temperature (Fahrenheit):	20
Direction of Movement:	pulled
Crew's Next Move:	go to industry
Death Result of Train Movement?	yes
Track Type:	yard/flat/lead
Hit by Own Equipment?	no
Speed of Equipment (mph):	9
Had Deceased Worked There Before?	yes
Crew Size:	3
Drugs Present?	yes
Emergency Response Procedures Followed?	yes

No. 11 of 18: January 12, 1999 – CR – Port Newark, NJ

A three-person industry switching crew was in the process of switching cars back and forth over a private crossing equipped with an in-ground hand throw switch. The brakeman was at the switch and the conductor was going back and forth from one set of cars to another. The conductor shouted to the brakeman that he wanted the next move down one track but the cars started down the other. The brakeman tried to warn the conductor who had his back to the move and then stopped the move but to late to save the conductor who was hit and run over by the leading car of the shove.

SOFA Operating Recommendation(s):	**3, 4**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Radio communication, improper
Possible Contributing Factor:	Shoving movement, man on or at leading end of movement, failure to control
Possible Contributing Factor:	Switch improperly lined
Day of Week:	Tuesday
Time of Fatal Event:	1:03 AM
Time on Duty (hours: minutes):	9:04
Direction of Movement:	shoved/free-running
Crew's Next Move:	couple track
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	flat/lead/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	6
Deceased Regular Job?	no
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 12 of 18: January 22, 1999 – CR – Alexander, NY

A three-person local switching crew was shoving a loaded covered hopper down an industrial lead. The conductor was riding on one side of the car and the brakeman was riding the other. As the car was shoved over a private crossing, the accumulation of ice and snow lifted the car off the rails and it tipped over and onto the conductor who was killed as a result of the derailment.

Special Switching Hazard(s):	**Environment**
Possible Contributing Factor:	Employee falling from moving equipment
Possible Contributing Factor:	Snow, ice, mud, gravel, coal etc. on the track
External Circumstances:	Build up frozen material in flange way
Day of Week:	Friday
Time of Fatal Event:	6:19 PM
Time on Duty (hours: minutes):	6:49
Temperature (Fahrenheit):	35
Direction of Movement:	shoved
Crew's Next Move:	stop at switch
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	main/industrial
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	7
Deceased Regular Job?	no
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 13 of 18: January 02, 2000 – CIRR – Cedar Springs, GA

A two-person switching crew was in the process of switching cars in a storage yard and the conductor was riding the leading end of a cut of cars being shoved down a track. The move was taking place in dense fog and in darkness when the car he was riding collided with other cars on an adjacent track that were fouling the track he was on. The conductor was killed as a result of the collision.

Special Switching Hazard(s):	**Environment**
Possible Contributing Factor:	Shoving movement, man on or at leading end of movement, failure to control
Possible Contributing Factor:	Failure to comply with restricted speed
Possible Contributing Factor:	Impairment of efficiency or judgment because of drugs or alcohol
Possible Contributing Factor:	Car(s) shoved out and left out of clear
External Circumstances:	Did not have a lantern & no lighting at site
Day of Week:	Sunday
Time of Fatal Event:	4:20 AM
Time on Duty (hours: minutes):	0:50
Temperature (Fahrenheit):	40
Direction of Movement:	shoved
Crew's Next Move:	spot cars
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	9
Deceased Regular Job?	yes
Crew Size:	2
Drugs Present?	yes
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 14 of 18: January 10, 2001 – CSX – Chicago, IL

Conductor with 14-months service was struck and killed by passing mainline train while attempting to board locomotive at crew-change point.

SOFA Operating Recommendation(s):	**5**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Other extreme environmental condition
Possible Contributing Factor:	Other miscellaneous causes
Possible Contributing Factor:	Poor intra-crew communication about work in progress
External Circumstances:	10" snow on the ground
Day of Week:	Wednesday
Time of Fatal Event:	1:05 AM
Time on Duty (hours: minutes):	0:50
Temperature (Fahrenheit):	33
Direction of Movement:	pulled
Crew's Next Move:	depart
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main/siding
Hit by Own Equipment?	no
Striking Train Within Rules?	no
Speed of Equipment (mph):	27
Deceased Regular Job?	no
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 15 of 18: January 11, 2001 – NS – South Fork, PA

The engineer and conductor of a road train were told to stop and check their locomotives for flat spots. Once stopped, and without a job briefing the locomotive engineer left the lead unit and shortly thereafter, was struck and killed by a passing mainline train.

SOFA Operating Recommendation(s):	**3**
Possible Contributing Factor:	Employee on or fouling track
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Failure to communicate unsafe condition
Possible Contributing Factor:	Damaged flange or tread
Day of Week:	Thursday
Time of Fatal Event:	2:37 AM
Time on Duty (hours: minutes):	3:17
Temperature (Fahrenheit):	20
Direction of Movement:	pulled
Crew's Next Move:	inspect flat spots on engine
Death Result of Train Movement?	yes
Other Movements Nearby?	yes
Track Type:	main
Hit by Own Equipment?	no
Striking Train Within Rules?	yes
Speed of Equipment (mph):	36
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

No. 16 of 18: January 14, 2004 – NS – Kankakee, IL

(*Information preliminary pending review by SOFA Working Group*.)

A conductor, with 4-years service, was killed when struck by a train he was switching in Kankakee Yard.

No. 17 of 18: January 10, 2005 – UP – Buena Vista, AR

(*Information preliminary pending review by SOFA Working Group*.)

A 53-year-old conductor was struck and killed by lite engines that were running down the main track to the head-end of his train, which was standing on the siding, to deliver a locomotive unit.

No. 18 of 18: January 26, 2005 – PHL – Los Angeles, CA

(*Information preliminary pending review by SOFA Working Group*.)

A 52-year-old conductor was struck and killed by his own cut of cars when he lined switches, thought the cars were going to one track, turned his back, and the cars came down the track he was fouling.