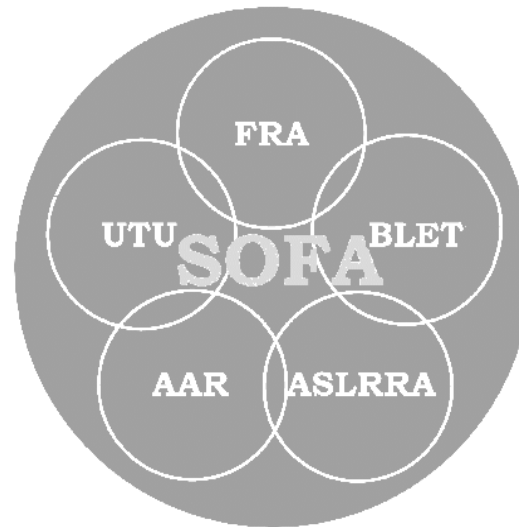


## Please Post Immediately

**Apply SOFA Operating Recommendations. Recognize Special Switching Hazards.**



### October 2005 Switching Fatality and Severe Injury Update

- Since 1992, 13 Switching Fatalities occurred in October. Six of the 13 Fatalities were related to one or more of the Five SOFA Operating Recommendations. Four of the Fatalities involved Operating Recommendation 5: *Mentor less experienced employees to perform service safely.* *page 7*
- Switching Fatalities related to the Operating Recommendations have gone down since October 1999, the date the original *SOFA Report* was released. However, other types of Switching Fatalities have increased. Needed is additional safety emphasis on these other types of Switching Fatalities that involve Special Switching Hazards. *pages 4-5*
- Through June 2005, the 63 Severe Injuries are equal in number to those through June 2004. Severe Injuries include multiple fractures and amputations. *pages 26-28*

## **9 Switching Fatalities in 2005. Most recent August 15.**

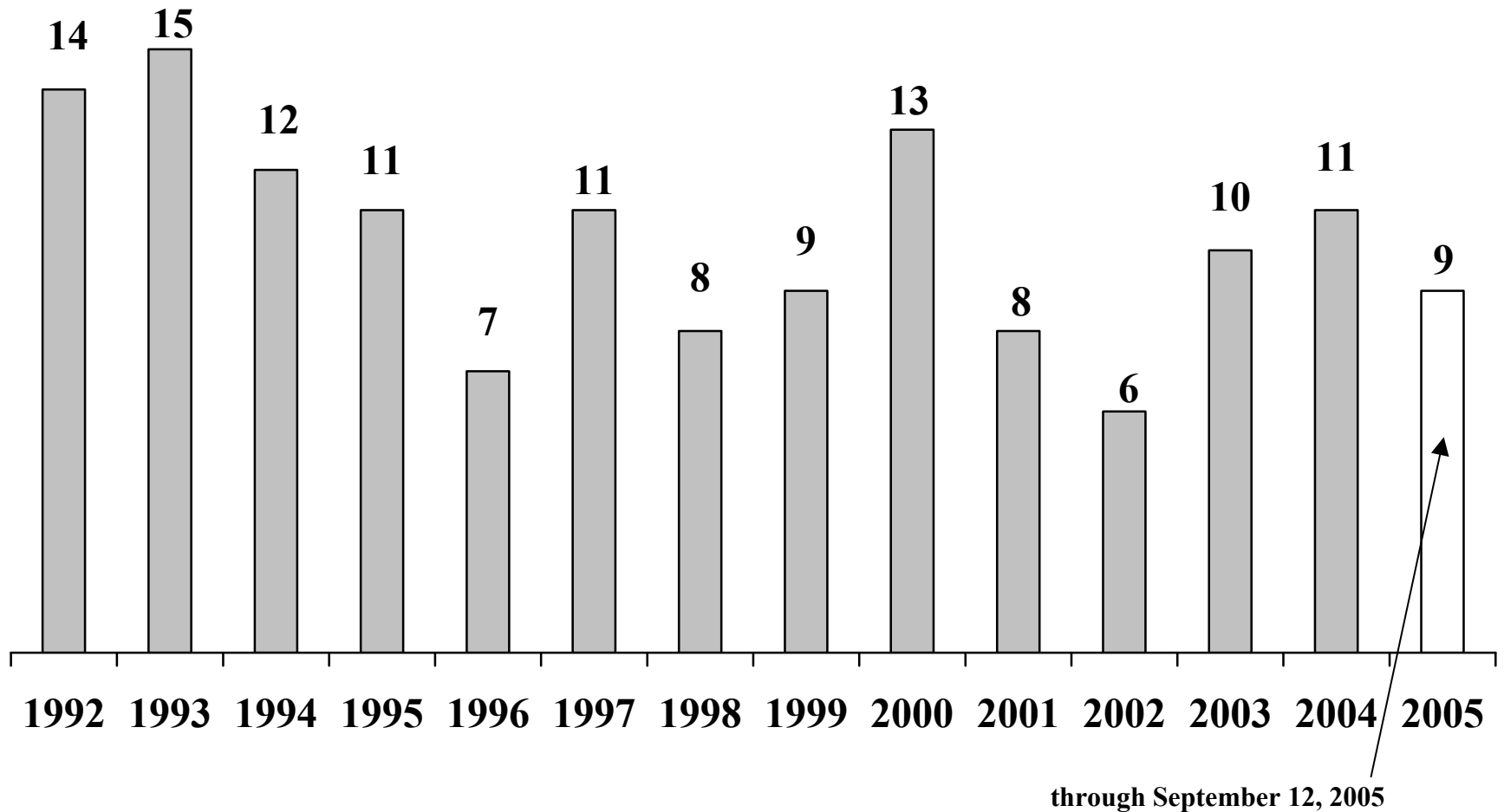
**Information on 2005 Switching Fatalities is preliminary pending formal investigation.**

- 1. JAN 10 at Buena Vista, AR...** A 53-year-old, Union Pacific (UP) 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.
- 2. JAN 26 at Los Angeles, CA ...** A 52-year-old, Pacific Harbor Lines (PHL) 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.
- 3. APR 06 at Selma, AL ...**A Norfolk Southern (NS) brakeman, part of a road crew, was assisting in and working with the local yard assignment in putting his train away. During a shove move, the brakeman was struck and killed by the leading end of a cut of cars the local yard assignment was moving.
- 4. APR 11 at Ogden, UT...**An Union Pacific (UP) switchman was riding on a car that was located at other than the leading end of a shove move and giving radio commands to the RCL operator who was controlling the locomotive being used to shove the cars into a track. Radio communication ceased, the move stopped and the switchman was found dead adjacent to the track being shoved.
- 5. MAY 13 at Detroit, MI...** A 24-year-old, Delray Connecting Railroad (DCRR) conductor died of injuries sustained when the car he was riding derailed. He was crushed between the car and a cement abutment.
- 6. JUL 5 at Emporia, KS...**A 26-year-old, Burlington Northern Santa Fe (BNSF) trainman, with six months experience, was crushed when the car he was riding during a shove move impacted a standing cut of cars.
- 7. JUL 18 at Memphis, TN...**An Union Pacific (UP) conductor died when the car he was riding on the point of a shove move was struck at a private crossing by a semi-tractor trailer truck at an industrial location.
- 8. JUL 22 at Ragland, AL...**An Alabama & Tennessee Railway Company conductor died when crushed against a wall when the car he was riding on the point of a shove move was derailed.
- 9. AUG 15 at Rogers, AR...**An Arkansas & Missouri Railroad Company (AM) conductor died when he was standing on the ground in a plant and was crushed between a car being spotted in the plant by his engineer and brakeman. The brakeman was controlling the shove move.

**Apply SOFA Operating Recommendations. Recognize Special Switching Hazards.**

# 144 Switching Fatalities Since 1992

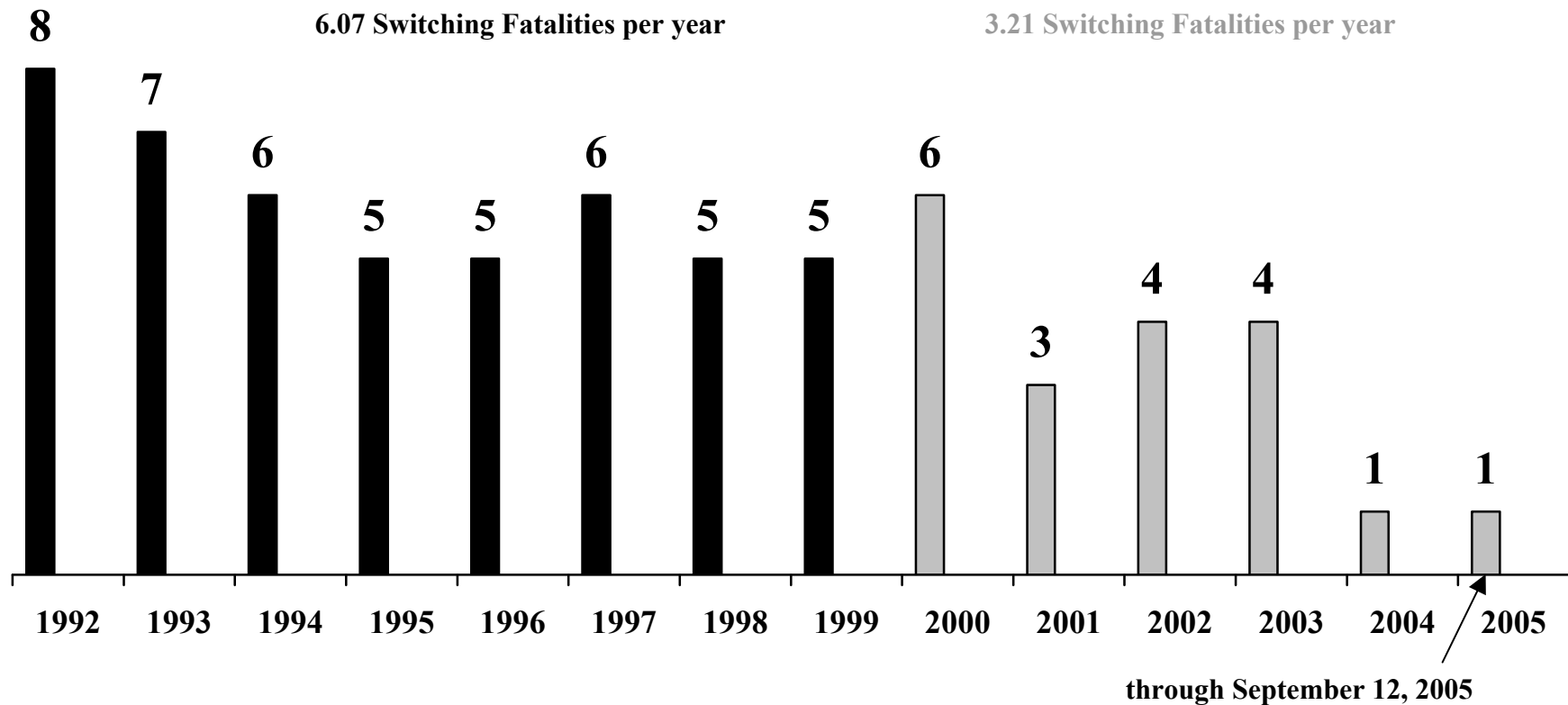
The Switching Operations Fatality Analysis (SOFA) Group reviews each Switching Fatality after the Federal Railroad Administration completes its investigation. There have been 144 Fatalities since 1992. There were 11 Fatalities in 2004. Nine Fatalities have occurred in 2005 through September 12. The last Fatality occurred on August 15.



**10.5 Switching Fatalities occur each year on average**

## 66 of 144 (45.8%) Switching Fatalities Related to Five SOFA Operating Recommendations

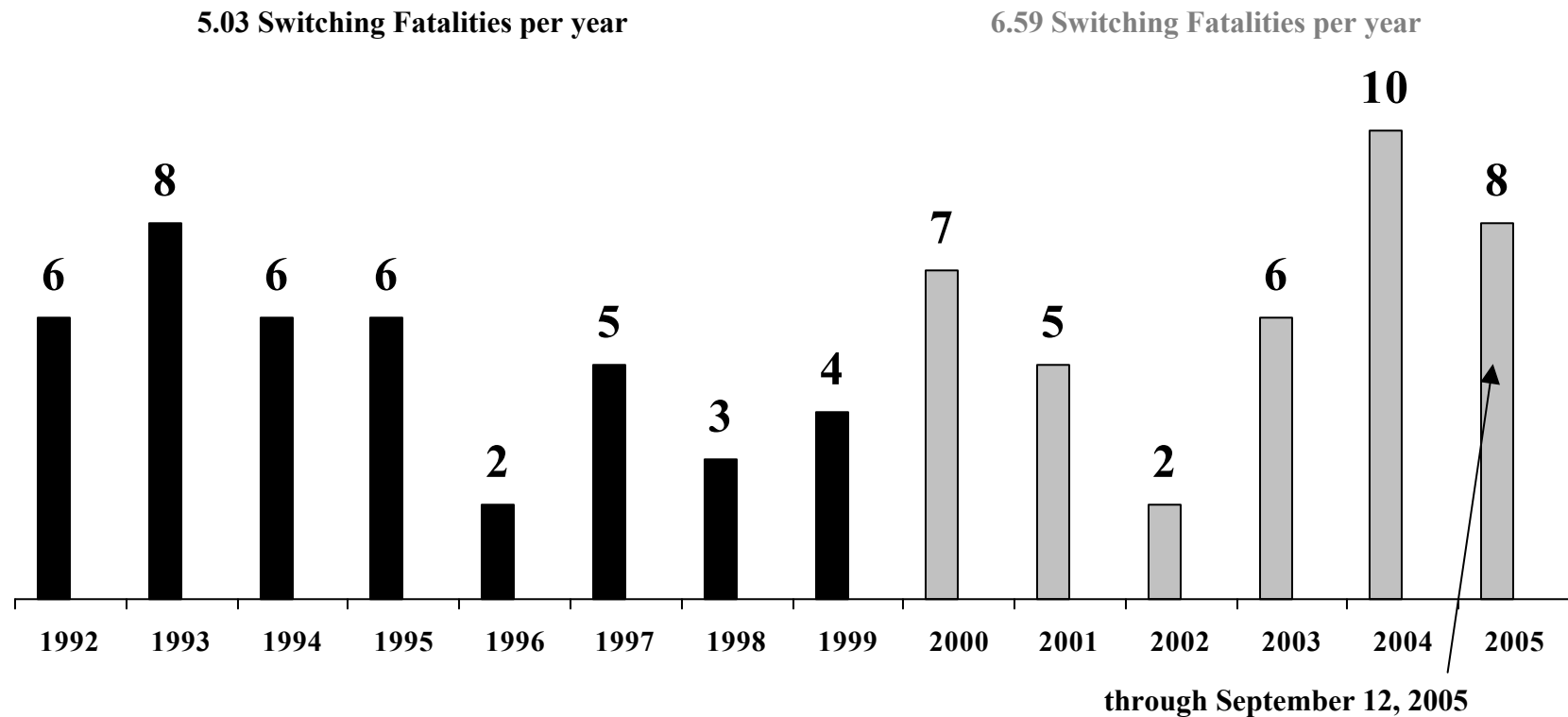
- There were 47 Switching Fatalities related to the Five Operating Recommendations in the pre-SOFA Report period, January 1992 through September 1999 – 7.75 years. The original SOFA Report<sup>1</sup> was released in October 1999.
- There were 19 Switching Fatalities related to the Five Operating Recommendations in the post-SOFA Report period, October 1999 through August 2005 – 5.92 years.
- Expressed as rates per year: 6.07 fatalities per year, pre-SOFA Report v. 3.21 fatalities per year, post-SOFA Report.



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

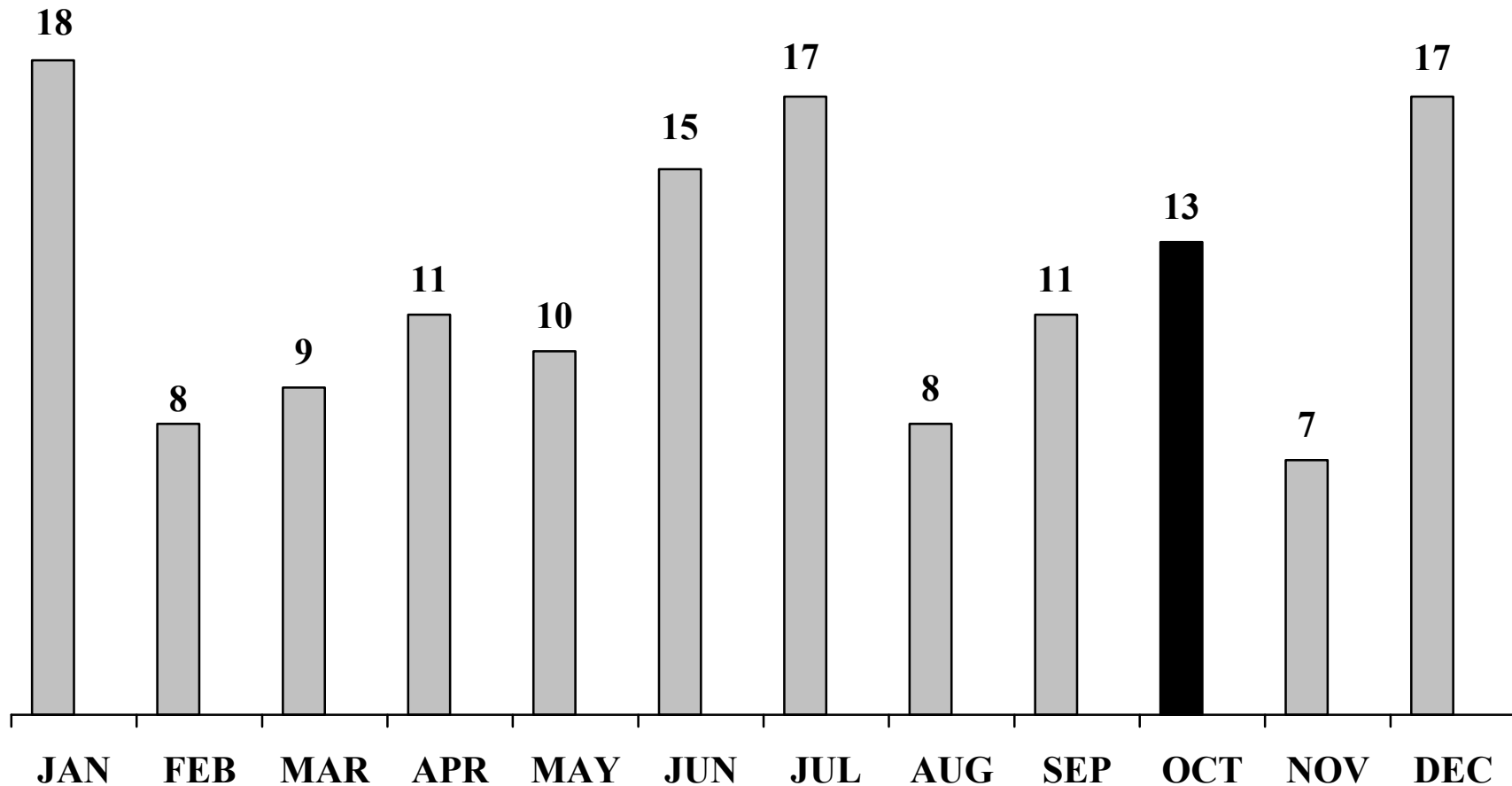
## 78 of 144 (54.2%) Switching Fatalities Not Related to Five SOFA Operating Recommendations

- There were 39 Switching Fatalities not related to the Five Operating Recommendations in the pre-SOFA Report period, January 1992 through September 1999 – 7.75 years. The original SOFA Report<sup>2</sup> was released in October 1999.
- There were 39 Switching Fatalities not related to the Five Operating Recommendations in the post-SOFA Report period, October 1999 through August 2005 – 5.92 years.
- Expressed as rates per year: 5.03 fatalities per year, pre-SOFA Report v. 6.59 fatalities per year, post-SOFA Report.



<sup>2</sup> Findings and Recommendations of the SOFA Working Group, October 1999. Available at <http://www.fra.dot.gov/us/content/102>

## 13 of 144 Switching Fatalities since 1992 Occurred in October



# 13 October Switching Fatalities, January 1992 through August 2004

#	Date	RR	Location	Age	Service (yrs)	Employee's Job	Employee Act	Employee Location	Fatal Event	SOFA Recommendations	Special Switching Hazard
1	10/15/92	BN	Omaha, NE	32	14	yard brakeman	other	other location	caught in or compressed by other machinery		Miscellaneous (fell into pit)
2	10/23/92	GTW	Dearborn, MI	49	28	road brakemen	standing	between tracks	collision between on-track equipment		Free-Rolling Railcars
3	10/19/93	SOO	Leal, ND	43	2	road brakemen	riding	on side of car	derailments	5	
4	10/17/94	UP	Donaldsonville, LA	36	16	road brakemen	crossing between	between cars/loc	sudden/unexpected movement of on-track equipment	1	
5	10/04/95	CSXT	Riverdale, IL	39	0.5	yard conductor	adjusting coupler	between cars/loc	struck by on-track equipment	1,5	
6	10/07/96	UP	Eagle Pass, TX	35	10.08	yard conductor	adjusting coupler	between cars/loc	sudden/unexpected movement of on-track equipment	1,5	
7	10/16/97	MRL	Laurel, MT	22	0.83	yard brakeman	riding	between cars/loc	lost balance	5	
8	10/26/98	CCP	Cicero, IL	42	18	road engineer	standing	beside track	struck by on-track equipment		Miscellaneous (not protecting point of shove move)
9	10/15/00	UP	Houston, TX	47	20	419	getting on	other location on loc	struck against object	3	
10	10/10/01	PAL	Clayburn, KY	38	11	road conductor	riding	on side of car	struck against object		Close Clearance*
11	10/04/04	NS	Harrisburg, PA	Being reviewed by SOFA Working Group							
12	10/07/04	UP	Springfield, IL	Being reviewed by SOFA Working Group							
13	10/07/04	BNSF	Teague, TX	Being reviewed by SOFA Working Group							

\* The SOFA Working Group has broadened the traditional definition of 'close clearances' to include situations "When an employee is passing, or being passed, by an object or equipment and the conditions are such that there is not enough room for the employee to avoid being struck." From *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. p.48-50.

# No. 1 of 13 October Switching Fatalities

## October 15, 1992 – BN – Omaha, NE

A three-person yard crew was in the process of spotting cars over a material unloading pit and after the first of the cars was spotted the switch foreman took the locomotive out of the plant building to get the other car for spotting. The switchman remained in the building, set a handbrake on the spotted car and awaited the return of the foreman with the engine and second car to be spotted. The switchman was killed when he ended up falling into the second pit and was crushed by the industrial machinery located within.

<b>Special Switching Hazard(s):</b>	<b>Miscellaneous</b> (fell into pit)
Possible Contributing Factor:	Unprotected open pit
Possible Contributing Factor:	Grain dust
Day of Week:	Thursday
Time of Fatal Event:	1:25 AM
Time on Duty (hours: minutes):	1:55
Crew's Next Move:	spot load at pit
Death Result of Train Movement?	no
Track Type:	industrial/spot(load/unload)/inside
Hit by Own Equipment?	no
Speed of Equipment (mph):	0
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

Note: The Switching Fatality narrative summaries in this section are from *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. All other information is from the SOFA Matrix, the SOFA Working Group's electronic database.

## No. 2 of 13 October Switching Fatalities

### October 23, 1992 – GTW – Dearborn, MI

A three-person train crew found it necessary to drop a car by and in doing so, the car hung up fouling the switch and blocking the locomotive into the track it had cleared up on. The crew decided to “stake” the car to clear the track in which the locomotive sat. This process requires a board or pole placed between the locomotive and car to move the car when it cannot be coupled to. The brakeman was killed when the board used slipped, the car started to move toward the locomotive and the brakeman was caught between the two pieces of equipment.

#### Special Switching Hazard(s):

Possible Contributing Factor:

External Circumstances:

#### Free-Rolling Railcars

Failure to provide adequate space between equipment

Unsafe commonly accepted operational practice

Day of Week:

Friday

Time of Fatal Event:

10:00 AM

Time on Duty (hours: minutes):

2:30

Direction of Movement:

shoved

Crew's Next Move:

line-up car

Death Result of Train Movement?

yes

Track Type :

yard\flat\lead\storage

Hit by Own Equipment?

yes

Striking Train Within Rules?

no

Speed of Equipment (mph):

1

Deceased Regular Job?

yes

Crew Size:

no

Drugs a Factor?

no

Emergency Response Procedures Followed?

yes

## No. 3 of 13 October Switching Fatalities

### October 19, 1993 – SOO – Leal, ND

A three-person train crew was in the process of picking up 18 cars off a siding. The trainman had 10 weeks of experience, forgot to remove the derail, and was killed when the leading car he was riding derailed on top of him. During the stop, the conductor remained in the cab of the lead locomotive with the engineer.

<b>SOFA Operating Recommendation(s):</b>	<b>5</b>
Possible Contributing Factor:	Derail, failure to apply or remove
Possible Contributing Factor:	Insufficient training
Possible Contributing Factor:	Poor crew utilization
Day of Week:	Tuesday
Time of Fatal Event:	8:11 PM
Time on Duty (hours: minutes):	5:47
Temperature (Fahrenheit):	50
Direction of Movement:	shoved
Crew's Next Move:	make joint
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	siding
Hit by Own Equipment?	yes
Speed of Equipment (mph):	10
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. 4 of 13 October Switching Fatalities

### October 17, 1994 – UP – Donaldsonville, LA

Crew switching in class yard, brakeman attempted to cross between equipment separated by an insufficient distance, and engineer moved locomotive in the wrong direction, coupling him up.

<b>SOFA Operating Recommendation(s):</b>	<b>1</b>
Possible Contributing Factor:	Failure to provide adequate space between equipment
Possible Contributing Factor:	Radio communication, failure to comply
External Circumstances:	Improper reverser position
Day of Week:	Monday
Time of Fatal Event:	12:30 PM
Time on Duty (hours: minutes):	6:30
Temperature (Fahrenheit):	76
Direction of Movement:	shoved
Crew's Next Move:	pull ahead
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):	1
Deceased Regular Job?	no
Had Deceased Worked There Before?	yes
Crew Size:	3
Emergency Response Procedure Followed?	yes

## No. 5 of 13 October Switching Fatalities

### October 04, 1995 – CSX – Riverdale, IL

Crew performing switching in class yard. Switch foreman placed himself between the rails to adjust a misaligned coupler on the fifteenth car after the cut was stretched. Switch foreman was facing the coupler with his back to a cut of seven cars that rolled in on top of him and coupled him up.

<b>SOFA Operating Recommendation(s):</b>	<b>1,5</b>
Possible Contributing Factor:	Failure to provide adequate space between equipment
Possible Contributing Factor:	Insufficient training
External Circumstances:	Other train operation/human factors
Day of Week:	Wednesday
Time of Fatal Event:	12:40 AM
Time on Duty (hours: minutes):	1:10
Temperature (Fahrenheit):	80
Direction of Movement:	free-running
Crew's Next Move:	coupling
Death Result of Train Movement?	yes
Track Type:	yard/flat/classification
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	1
Deceased Regular Job?	no
Crew Size:	4
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

## No. 6 of 13 October Switching Fatalities

### October 07, 1996 – UP – Eagle Pass, TX

Three-person crew was switching in class yard, locomotive failed to couple to cut of seven standing cars. Yard foreman used hand signals to separate the locomotive by twenty feet. While adjusting the locomotive drawbar, the seven cars rolled in and coupled him up.

#### SOFA Operating Recommendation(s):

1,5

Possible Contributing Factor:

Failure to properly secure hand brake on car(s) railroad employee

Possible Contributing Factor:

Inoperable control due to bent rod

Possible Contributing Factor:

Hard to open knuckle on engine

Possible Contributing Factor:

Failure to provide adequate space between equipment

Day of Week:

Monday

Time of Fatal Event:

8:48 PM

Time on Duty (hours: minutes):

2:48

Direction of Movement:

free-running

Crew's Next Move:

shove cars

Death Result of Train Movement?

yes

Other Movements Nearby?

no

Track Type:

classification

Hit by Own Equipment?

yes

Striking Train Within Rules?

no

Speed of Equipment (mph):

1

Crew Size:

3

Drugs Present?

no

Drugs a Factor?

no

## No. 7 of 13 October Switching Fatalities

### October 16, 1997 – MRL – Laurel, MT

Yard switch crew, engineer, switch foreman and switchman, were shoving a cut 41 cars up a grade to a stop. While this was taking place the ground crew boarded the first two cars so they could apply the hand brakes. FE (switchman) fell off the first car while attempting this. This car was found to have a brake platform with a decreasing width. Under the hand brake this platform was found to be 2 inches under the required width over a length of about 30 inches. FE had 10 months experience.

<b>SOFA Operating Recommendation(s):</b>	<b>5</b>
Possible Contributing Factor:	Bent cross over platform under hand brake
Possible Contributing Factor:	Employee falling from moving equipment
External Circumstances:	Moving equipment
Day of Week:	Thursday
Time of Fatal Event:	10:20 PM
Time on Duty (hours: minutes):	6:20
Temperature (Fahrenheit):	63
Direction of Movement:	shoved
Crew's Next Move:	stop
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):	1
Deceased Regular Job?	yes
Crew Size:	3
Drugs Present?	no
Drugs a Factor?	no

## No. 8 of 13 October Switching Fatalities

### October 26, 1998 – CCP – Cicero, IL

An engineer, having just gone off duty, was distracted and subsequently struck and killed by a lite engine move being operated by a hostler. The hostler was operating the locomotive consist from the trailing end at the time and did not have anyone on the leading end when the engineer was struck

#### Special Switching Hazard(s):

Possible Contributing Factor:

Possible Contributing Factor:

Possible Contributing Factor:

Possible Contributing Factor:

Possible Contributing Factor:

External Circumstances:

**Miscellaneous** (not protecting point of shove move)

Failure to communicate unsafe condition

Employee on or fouling track

Poor intra-crew communication about work in progress

Other general switching rules

Shoving movement, absence of a man on or at leading end of movement

Momentarily distracted

Day of Week:

Monday

Time of Fatal Event:

8:55 AM

Time on Duty (hours: minutes):

11:55

Temperature (Fahrenheit):

60

Direction of Movement:

shoved

Crew's Next Move:

tie up

Death Result of Train Movement?

yes

Other Movements Nearby?

yes

Track Type:

yard/flat/service

Hit by Own Equipment?

no

Striking Train Within Rules?

no

Speed of Equipment (mph):

5

Deceased Regular Job?

yes

Crew Size:

2

Drugs Present?

no

Drugs a Factor?

no

Emergency Response Procedures Followed? yes

## No. 9 of 13 October Switching Fatalities

### October 15, 2000 – UP – Houston, TX

Employees failed to discuss movement, resulting in employee falling from locomotive platform and being rolled between the locomotive and the elevated walkway.

<b>SOFA Operating Recommendation(s):</b>	<b>3</b>
Possible Contributing Factor:	Poor intra-crew communication about work in progress
Possible Contributing Factor:	Close or no clearance
External Circumstances:	Non-compliance of Federal Hours of Service Regulations
Day of Week:	Sunday
Time of Fatal Event:	4:50 AM
Time on Duty (hours: minutes):	13:50
Temperature (Fahrenheit):	72
Direction of Movement:	shoved
Crew's Next Move:	spot locomotive
Death Result of Train Movement?	yes
Other Movements Nearby?	no
Track Type:	yard/hump/service/inspect
Hit by Own Equipment?	yes
Striking Train Within Rules?	no
Speed of Equipment (mph):	5
Deceased Regular Job?	yes
Crew Size:	2
Drugs Present?	no
Drugs a Factor?	no
Emergency Response Procedures Followed?	yes

## No. 10 of 13 October Switching Fatalities

### October 10, 2001 – PAL – Clayburn, KY

A three-person, local freight train crew was switching a plant and had 2 engines 6 cars and a caboose when they moved over a small bridge and coupled to 5 standing cars in the storage track. The conductor made the coupling and told the engineer to pull the cars out of the track. The conductor got on the side of the trailing end of the second last car in the cut and was knocked off the car by a metal pole adjacent to the storage track. He fell between the car he was riding and the last car in the cut being pulled. He died when the lead wheels of the last car rolled over him.

#### Special Switching Hazard(s):

Possible Contributing Factor:

Possible Contributing Factor:

Possible Contributing Factor:

#### Close Clearance

Close or no clearance

Employee's physical condition (weight)

Other general switching rules

Day of Week:

Wednesday

Time of Fatal Event:

1:05 PM

Time on Duty (hours: minutes):

9:05

Direction of Movement:

pulled

Crew's Next Move:

switch plant

Death Result of Train Movement?

yes

Other Movements Nearby?

no

Track Type:

main/industrial/spot(unload/load)/outside

Hit by Own Equipment?

yes

Striking Train Within Rules?

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

## **Nos. 11, 12, and 13 of 13 October Switching Fatalities**

**11    October 4, 2004 – NS – Harrisburg, PA**

**Being reviewed by SOFA Working Group**

**12    October 7, 2004 – UP – Springfield, IL**

**Being reviewed by SOFA Working Group**

**13    October 7, 2004 – BNSF – Teague, TX**

**Being reviewed by SOFA Working Group**

## **October Switching Fatality(s) Involving Special Switching Hazards**

“In addition to the Five Operating Recommendations, the SWG (SOFA Working Group) wants to make those engaged in switching operations aware of Special Switching Hazards. In its review of each of the 124 fatalities, the SWG identified a number of fatalities involving close clearances (10 fatalities), being struck by mainline trains (8 fatalities), and occurring during shove movements (61 fatalities). The number of fatalities involving close clearance and being struck by mainline trains would be greater if those classified both as a Special Switching Hazard and an Operating Recommendation were included in these fatality counts.” - from *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. p. xiv.

<i>Omaha, NE</i>	<i>Miscellaneous (fell into pit)</i>
<i>Dearborn, MI</i>	<i>Free-Rolling Railcars</i>
<i>Cicero, IL</i>	<i>Miscellaneous (not protecting point of shove move)</i>
<i>Clayburn, NY</i>	<i>Close Clearance</i>

## **Recognize Special Switching Hazards**

- Close Clearances\*
- Free Rolling Railcars
- Exposure to Mainline Trains
- Tripping, Slipping, or Falling Exposures
- Adverse Environmental Conditions
- Shoving Movements
- Unsecured Cars
- Unexpected Movement of Cars
- Equipment Defects
- Motor Vehicles or Loading Devices
- Drugs and Alcohol

\* The SOFA Working Group has broadened the traditional definition of ‘close clearances’ to include situations “When an employee is passing, or being passed, by an object or equipment and the conditions are such that there is not enough room for the employee to avoid being struck.” From *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. p.48-50.

– from *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. Available at: <http://www.fra.dot.gov/us/content/102>

# Two Special Switching Hazards

Below, quoted from *Findings and Recommendations of the SOFA Working Group: August 2004*, are SOFA Working Group comments about two Special Switching Hazards:

## 1) Close Clearance

“The SWG urges safety committees, engineering departments, and other railroad industry stakeholders to address all aspects of Close Clearances: \*

- Where feasible, re-engineer and/or eliminate close clearances.
- Provide safe clearance in future engineering projects.
- Mark all permanent close clearance areas with highly visible signs.
- Expand job briefings (Operating Recommendation 3) to include:
  - emphasis of dangers of equipment left fouling
  - warnings to other crews when placing oversized cars on tracks adjacent to their work
  - discussions of risks of passing trains when working near mainline”

\* The SOFA Working Group has broadened the traditional definition of ‘close clearances’ to include situations “When an employee is passing, or being passed, by an object or equipment and the conditions are such that there is not enough room for the employee to avoid being struck.” From *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. p.48-50.

## 2) Struck by Mainline Trains

“While there have been 13 of 124 cases that involved an employee being struck by a mainline train [during the period January 1, 1992 to December 31, 2003], the SWG believes that 5 of the 13 fatalities were preventable by observing Operating Recommendations. The 8 fatalities not involving an Operating Recommendation did not occur for a single reason or for a few reasons. Other than general vigilance, awareness, and alertness to the switching environment, it is difficult to prescribe a preventive measure.”

# Job Briefings and Mentoring – Operating Recommendations 3 and 5 – Aids in Recognizing Special Switching Hazards

(Material quoted below taken from *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. pages 51-53.)

**Recommendation 3:** *At the beginning of each tour of duty, all crew members will meet and discuss all safety matters and work to be accomplished. Additional briefings will be held any time work changes are made and when necessary to protect their safety during their performance of service.*

“It was apparent to the SWG that many of the diverse events and occurrences that lead to the death of employees may have been mitigated through effective “job safety briefing.” You can never communicate too effectively. It became apparent to the SWG that providing a minimum suggested content for an initial job safety briefing should be made available. It was also evident to the SWG that the perception of “work changes” is very qualitative and should be addressed in specific language that is understandable and comprehensible to all crew members. Job Safety Briefing instructions for *various* carriers are available for review in Appendix F. [of August 2004 Report]

All crew members should receive training in the art of job safety briefings. The initial job safety briefing should provide detailed and specific information on all relevant activities to be performed. The training should help necessitate sufficient conversation and review between every crew member to make everyone feel comfortable about the service to be performed. When practical, a supervisor or other knowledgeable employee should be present during the entire job safety briefing and take part in it when appropriate. Every concern should be addressed to the satisfaction of each crew member. Crew members should engage in active communications sufficient to establish their mutual understanding and safely perform the service required. Successful communication among all parties is essential.

Any work changes or developments that may impact safety should be immediately addressed to everyone’s satisfaction. Any crew member observing a safety concern should safely stop all activity and thoroughly review the concern with every other crew member. Job safety briefings should offer a comfortable environment for fellow employees to discuss yard and industry switching issues where questions or concerns may exist. Crew members should be afforded the opportunity to resolve any yard and/or industry switching issues. They should seek the advice of knowledgeable and experienced crew members, or proper authority if necessary. No action should be taken until a solution is reached and then communicated to all concerned.”

## **Job Briefings and Mentoring – Operating Recommendations 3 and 5 – Aids in Recognizing Special Switching Hazards**

(Material quoted below taken from *Findings and Recommendations of the SOFA Working Group: August 2004 Update*. pages 51-53.)

“Further, the Working Group recommends that additional advantage be taken of its Recommendation 5 in conjunction with its additional suggested action of Train Crew Resource Management (CRM).

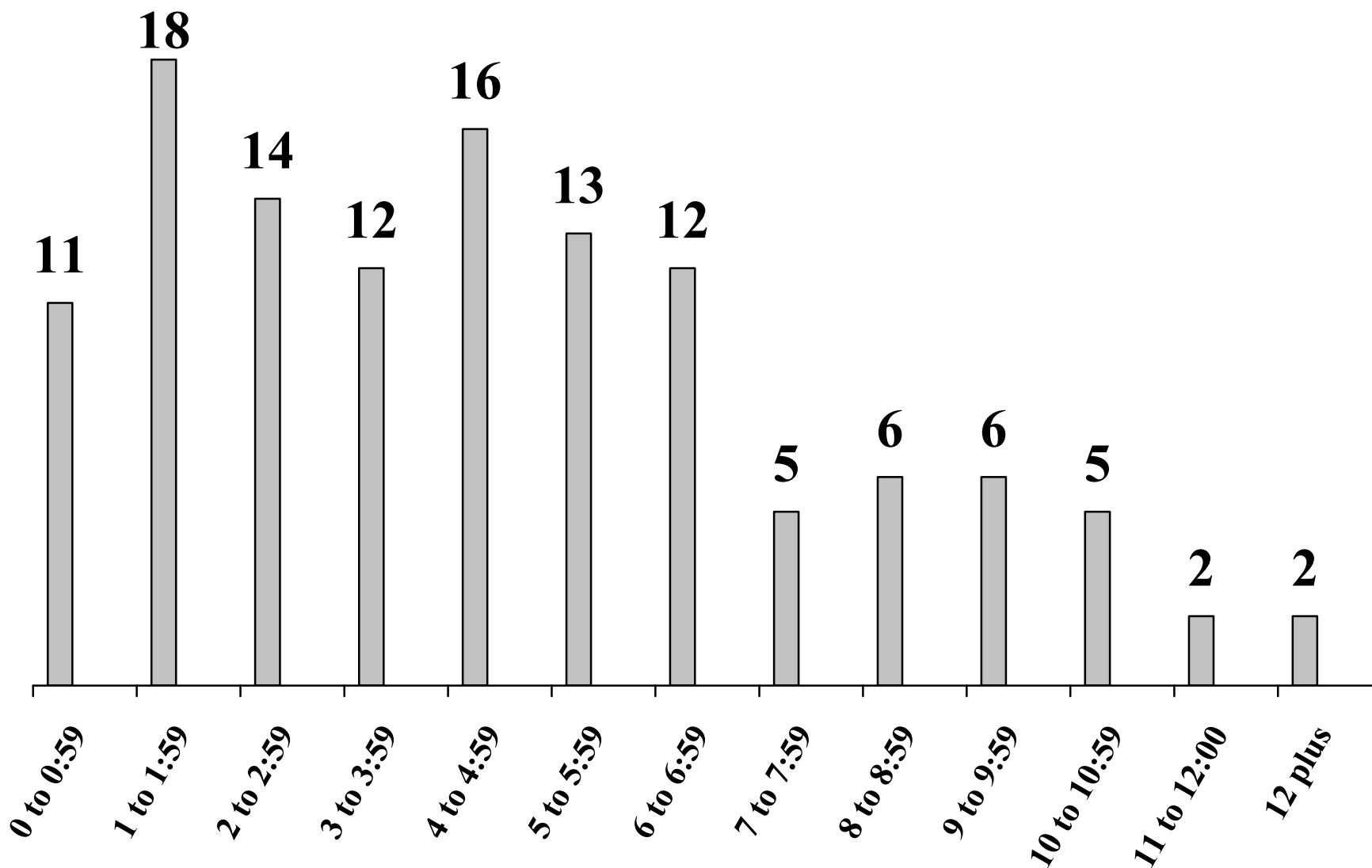
**Recommendation 5:** *Crew members with less than one year of service must have special attention paid to safety awareness, service qualifications, on-the-job training, physical plant familiarity, and overall ability to perform service safely and efficiently. Programs such as peer review, mentoring, and supervisory observation must be utilized to insure employees are able to perform service in a safe manner.*

CRM promotes training in the importance of and procedures for effective intra-crew communications. The Working Group pointed out in its original report that such communications have the potential to make a major contribution to the safety of switching operations. The Working Group again recommends that the railroad industry, i.e., labor, management, and FRA, consider CRM programs that address improving crew coordination and communications. Again, compelling evidence suggests that many fatalities resulted from unexpected train movement, particularly at very low speeds. Switching operations training programs should employ the principles of CRM to assure that no opportunities are overlooked to heighten safety awareness and focus it on the serious implications of unexpected train movement, and on the importance of continual mutual awareness of the location and activities of all crew members. Additionally, the initial on duty and subsequent job safety briefings afford an opportunity to focus the message and further the common goal of a safe working environment.”

**Apply SOFA Operating Recommendations. Recognize Special Switching Hazards.**

# 122<sup>3</sup> Switching Fatalities with Known Time on Duty, January 1, 1992 to December 31, 2003

Hours on duty followed by minutes on duty. 7 to 7:59 is between 7 hours, and 7 hours and 59 minutes, on duty before Fatality occurred.



<sup>3</sup> Time on duty was not available for two Switching Fatality occurring during the period.

# 144 Switching Fatalities by Month and Day, January 1, 1992 to August 31, 2005

Month & Day of Fatality	Number of Fatalities	Year Fatality Occurred	Month & Day of Fatality	Number of Fatalities	Year Fatality Occurred	Month & Day of Fatality	Number of Fatalities	Year Fatality Occurred	Month & Day of Fatality	Number of Fatalities	Year Fatality Occurred
<b>Quarter I</b>			<b>Quarter II</b>			<b>Quarter III</b>			<b>Quarter IV</b>		
JAN 2	1	2000	APR 2	1	1999	JUL 1	1	1998	OCT 4	2	1995, 2004
JAN 4	1	1994	APR 6	2	1995, 2005	JUL 5	2	1994, 2005	OCT 7	3	1996, 2004, 2004
JAN 10	2	2001, 2005	APR 8	1	2001	JUL 7	3	1992, 1996, 2000	OCT 10	1	2001
JAN 11	2	1995, 2001	APR 9	2	1992, 1999	JUL 13	1	2001	OCT 15	2	1992, 2000
JAN 12	2	1997, 1999	APR 11	2	2003, 2005	JUL 15	1	1993	OCT 16	1	1997
JAN 14	2	1994, 2004	APR 12	1	1994	JUL 16	1	2002	OCT 17	1	1994
JAN 18	1	1994	APR 13	1	1993	JUL 18	2	1997, 2005	OCT 19	1	1993
JAN 20	1	1994	APR 21	1	2000	JUL 21	1	1995	OCT 23	1	1992
JAN 22	1	1999	MAY 3	1	1995	JUL 22	1	2005	OCT 26	1	1998
JAN 24	1	1998	MAY 13	2	2004, 2005	JUL 24	2	1992, 2000	NOV 1	1	2004
JAN 26	1	2005	MAY 14	1	2002	JUL 25	1	1992	NOV 10	1	1994
JAN 28	1	1992	MAY 18	1	2004	JUL 28	1	2000	NOV 12	1	1993
JAN 29	1	1997	MAY 19	1	1999	AUG 4	1	1993	NOV 13	1	1993
JAN 30	1	1992	MAY 22	2	1993, 2000	AUG 8	1	2002	NOV 15	1	1994
FEB 2	1	1997	MAY 26	1	1998	AUG 11	2	1993, 2000	NOV 16	1	1992
FEB 4	1	1998	MAY 31	1	2000	AUG 12	1	1993	NOV 17	1	1999
FEB 11	1	2003	JUN 1	3	1992, 1992, 1998	AUG 15	2	1997, 2005	DEC 2	1	1997
FEB 16	1	2003	JUN 2	1	1992	AUG 26	1	2003	DEC 5	1	1993
FEB 17	2	1995, 1999	JUN 4	1	1993	SEP 2	3	1993, 2002, 2004	DEC 6	1	1994
FEB 18	1	2003	JUN 5	1	1998	SEP 3	1	1996	DEC 7	1	2003
FEB 24	1	1995	JUN 6	2	1997, 2003	SEP 9	1	2000	DEC 11	1	1995
MAR 2	1	1995	JUN 7	1	1993	SEP 12	1	2003	DEC 13	1	1994
MAR 3	1	2001	JUN 15	1	1996	SEP 14	2	1999, 2003	DEC 14	1	1995
MAR 9	1	2000	JUN 16	1	2002	SEP 20	2	1994, 2004	DEC 16	1	1996
MAR 10	1	2004	JUN 20	1	1992	SEP 24	1	2003	DEC 17	1	2004
MAR 11	1	1992	JUN 23	1	1999				DEC 18	1	1996
MAR 20	1	1996	JUN 24	2	1997, 1997				DEC 22	1	2001
MAR 21	2	1995, 2002							DEC 24	1	2001
MAR 27	1	1993							DEC 26	1	1997
									DEC 28	2	1998, 2000
									DEC 29	1	2000
									DEC 30	1	1993
<b>totals</b>	<b>35</b>			<b>36</b>			<b>36</b>			<b>37</b>	

Although variation exists among the days of occurrence, total Switching Fatalities for consecutive three-month periods are similar in number over the nearly 14-year period, indicating – **there is always risk to employees engaged in switching operations.**

## Switching Fatalities Involving SOFA Operating Recommendations and Special Switching Hazards January 1, 1992 to August 31, 2005

66 of 144 Switching Fatalities occurring from January 1, 1992 through August 31, 2005 involved one or more SOFA Operating Recommendations. For the remaining 78 Switching Fatalities, the SOFA Working Group assigned involvement to one or more Special Switching Hazards. Below, this breakdown into Operating Recommendations and Special Switching Hazards is shown by day-of-week and month.

### Day-of-Week: Switching Fatalities by SOFA Operating Recommendations and Special Switching Hazards

Day-of-Week	Operating Recommendations		Special Switching Hazard	
	Count	Percent	Count	Percent
Sunday	5	7.6	6	7.6
Monday	9	13.6	13	16.7
Tuesday	14	21.2	13	16.7
Wednesday	12	18.1	12	15.4
Thursday	11	16.7	12	15.4
Friday	10	15.2	18	23.1
Saturday	5	7.6	4	5.1
<b>total</b>	<b>66</b>	<b>100.0%</b>	<b>78</b>	<b>100.0%</b>

### Month: Switching Fatalities by SOFA Operating Recommendations and Special Switching Hazards

Month	Operating Recommendations		Special Switching Hazards	
	Count	Percent	Count	Percent
JAN	7	10.6	11	14.1
FEB	5	7.6	3	3.9
MAR	6	9.1	3	3.9
APR	2	3.0	9	11.5
MAY	4	6.1	6	7.7
JUN	10	15.1	5	6.4
JUL	7	10.6	10	12.8
AUG	7	10.6	1	1.3
SEP	4	6.1	7	9.0
OCT	6	9.1	7	9.0
NOV	3	4.5	4	5.1
DEC	5	7.6	12	15.4
<b>total</b>	<b>66</b>	<b>100.0%</b>	<b>78</b>	<b>100.0%</b>

Note: Switching Fatalities occurring March 10, 2004 in Stamford, CT, and August 15, 2005 in Rogers, AR, has not been fully reviewed by the SOFA Working Group. A pre-review indicates, however, these Fatalities each involve at least one Operating Recommendation.

# SOFA-defined Severe Injuries <sup>1</sup>

## Injuries

## Amputations <sup>2</sup>

### January 1992 to June 2005

	1997	1998	1999	2000	2001	2002	2003	2004	2005		1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>JAN</b>	11	13	16	15	21	12	11	11	21		1	0	2	1	0	0	2	2	2
<b>FEB</b>	17	15	9	9	9	13	17	14	10		0	1	0	1	0	2	1	2	0
<b>MAR</b>	14	12	17	11	10	10	13	10	9		3	4	3	2	1	1	3	1	2
<b>APR</b>	8	10	6	10	12	6	9	13	10		1	2	0	1	2	0	1	1	2
<b>MAY</b>	6	12	8	8	12	14	9	6	5		1	2	3	0	2	2	2	0	0
<b>JUN</b>	9	10	8	11	8	5	10	9	8		2	1	1	0	1	0	0	1	0
<b>YEAR-TO-DATE</b>	<b>65</b>	<b>72</b>	<b>64</b>	<b>64</b>	<b>72</b>	<b>60</b>	<b>69</b>	<b>63</b>	<b>63</b>		<b>8</b>	<b>10</b>	<b>9</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>9</b>	<b>7</b>	<b>6</b>
<b>JUL</b>	9	14	10	8	10	7	6	10			1	5	1	0	4	0	1	2	
<b>AUG</b>	13	10	11	14	8	10	7	14			1	0	1	4	0	1	0	2	
<b>SEP</b>	10	11	15	10	20	12	5	4			2	4	3	2	5	4	0	0	
<b>OCT</b>	12	12	16	10	5	11	9	7			2	5	2	2	0	0	2	2	
<b>NOV</b>	12	9	12	11	13	14	10	10			2	2	2	2	3	0	1	1	
<b>DEC</b>	18	9	7	22	12	9	8	15			4	1	0	4	1	1	2	1	
<b>totals</b>	<b>139</b>	<b>137</b>	<b>135</b>	<b>139</b>	<b>140</b>	<b>123</b>	<b>114</b>	<b>123</b>			<b>20</b>	<b>27</b>	<b>18</b>	<b>19</b>	<b>19</b>	<b>11</b>	<b>15</b>	<b>15</b>	

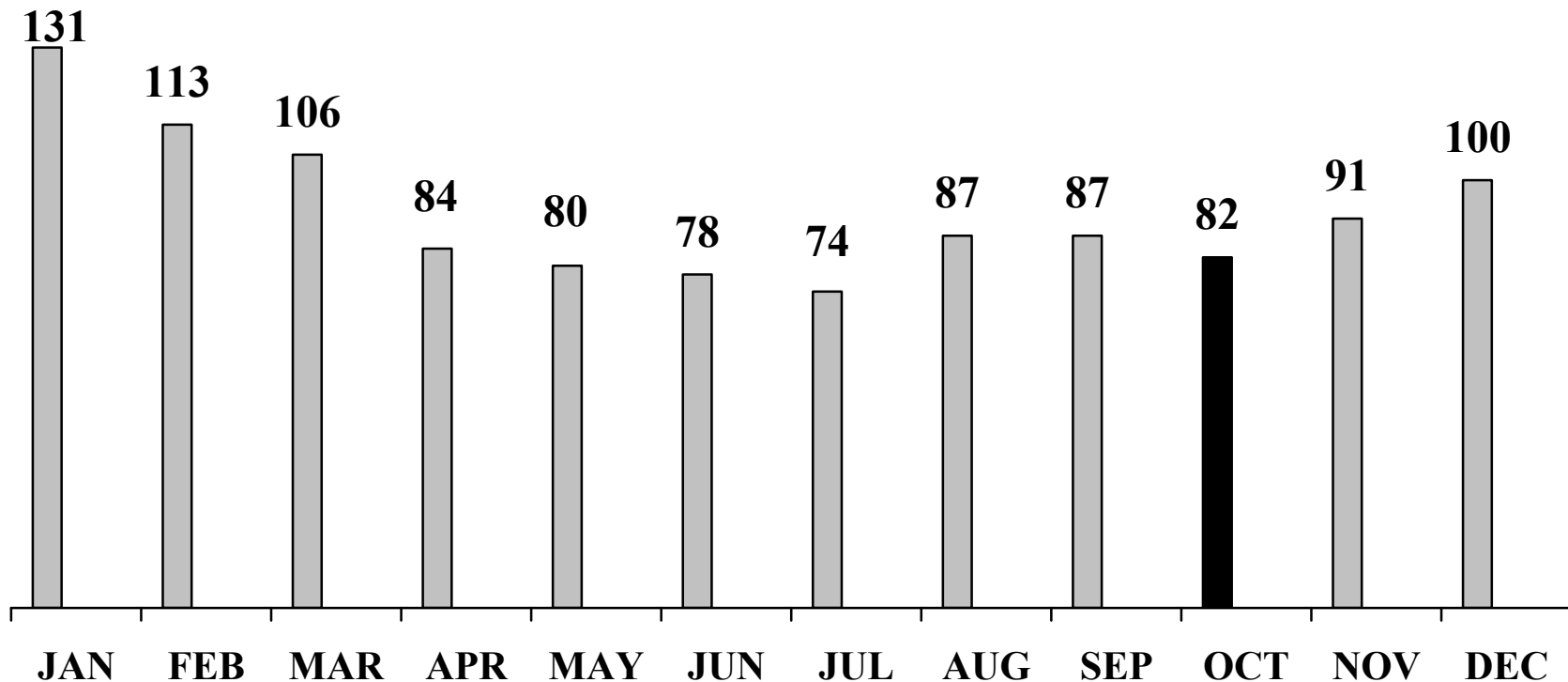
<sup>1</sup> *Severe Injuries* were defined by the SOFA Working Group as (1) potentially life threatening; (2) high likelihood of permanent loss of function, permanent occupational limitation, or other permanent disability; (3) likely to result in significant work restrictions; and (4) result from a 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. This report may be found on the FRA's website.

<sup>2</sup> Amputations are a type of SOFA-defined Severe Injury and are counted in 'Injuries'. Amputations are broken out separately because of the extreme nature of trauma to employees engaged in switching operations, and the potential for permanent occupational limitation.

## 82 SOFA-defined Severe Injuries (including amputations) in October since 1997

*Severe Injuries* were 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. This report is on the FRA's website.

(January to June represent 9 years of Severe Injuries. All other months are 8 years.)



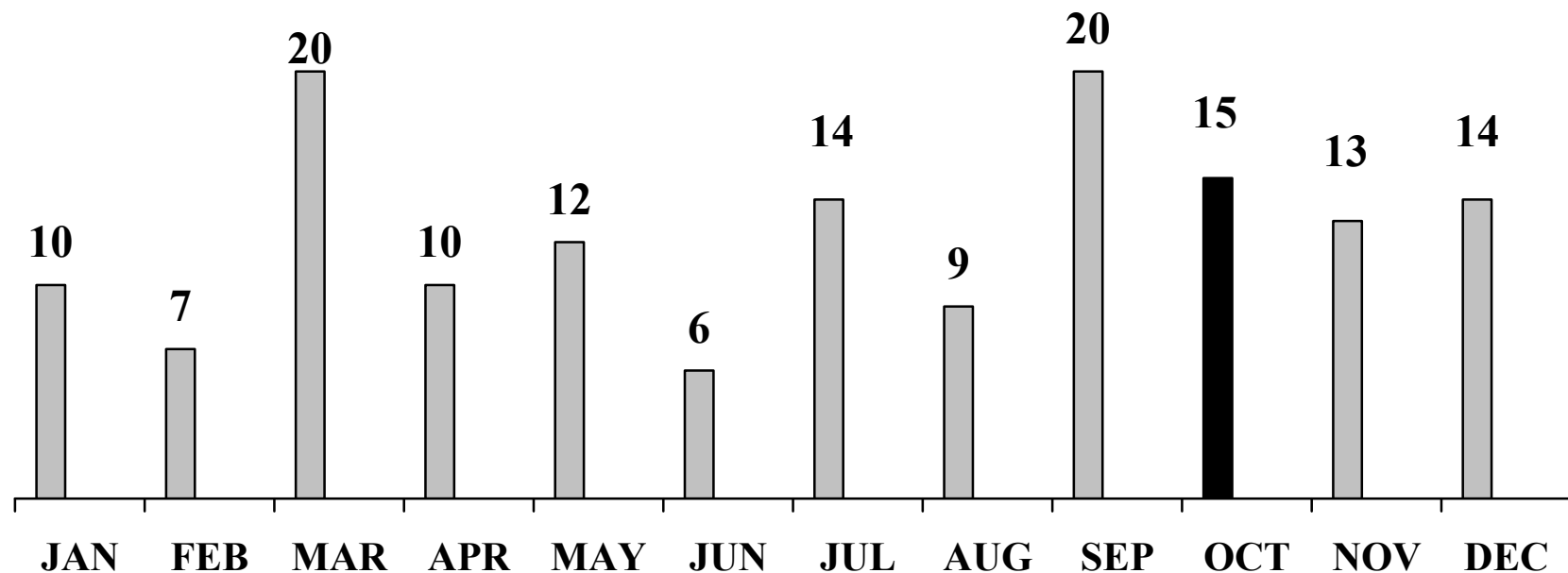
**1,113 Severe Injuries occurred from January 1997 through June 2005**

**131.3 SOFA-defined Severe Injuries occur each year on average**

## 15 Amputations (a type of Severe Injury) in October since 1997

- Amputations are a type of SOFA-defined Severe Injury and are counted in Severe Injuries.
- Amputations are displayed separately because of the extreme nature of trauma to employees engaged in switching operations, and the likelihood of occupational limitations.

(January to June represent 9 years of Severe Injuries. All other months are 8 years.)



**150 Amputations occurred from January 1997 through June 2005**

**18.0 Amputations occur each year on average**