

PLEASE POST IMMEDIATELY

SOFA Advisories and Lifesavers: Implement into Safe Operating Practice

WORK SAFELY this FALL
 Since 1992, 43 switching Fatalities have occurred in Fall months

194 Switching Fatalities, by month
 January 1, 1992 through September 08, 2012

Month	Fatalities
JAN	22
FEB	13
MAR	10
APR	13
MAY	15
JUN	18
JUL	24
AUG	13
SEP	17
OCT	17
NOV	9
DEC	23

There is always risk in switching operations!

**SOFA Advisories and Lifesavers:
 Implement into Safe Operating Practice**
page 9

7 SOFA Safety Discussion Items
 Discuss these items anytime switching safety is addressed: safety briefings, meetings...even informal conversations

Discussion item: What special switching risks might be helpful to address on your railroad to make Fall months safer? How do SOFA Advisories and Lifesavers help address these risks?
more discussion items, page 10

SOFA Education Section
 Cases similar to the three 2012 Fatalities
pages 15-19



SOFA is a voluntary, non-regulatory, railroad-safety partnership comprised of representatives from AAR, ASLRRR, BLET, FRA, and UTU
SOFA seeks to prevent switching Fatalities through education based on facts about causes. SWG is not part of a rulemaking or regulatory process
SOFA recognizes that all have responsibility for switching safety: employees, managers, and regulators
SOFA's vision is Zero Switching Fatalities achieved through education and non-punitive interactions among stakeholders

3 Switching Fatalities in 2012
 through September 08
Jan 30.....Gary, IN
May 28.....Kenmare, ND
July 31.....Mason City, IA
preliminary summaries, page 2

Switching Fatality History

- 3 Fatalities in 2012 through September 08, compared to 4 Fatalities in 2011 for the same approximate eight-month period
- Since 1992, Fatalities averaged 6.4 for this approximate eight-month period, with a range of 3 to 11 Fatalities
- Implementing SOFA Advisories and Lifesavers into safe operating practice can help reduce risk
- Advisories and Lifesavers are based on reasons why Fatalities have occurred
pages 4-5

Switching Fatality Declines in 2011 and 2012 (through September 08)
pages 6-8

SOFA-defined Severe Injury Update

- 30 Severe Injuries in January through June 2012 compared to 37 in 2011
- 1 Amputation in January through June 2012 compared to 8 in 2011
pages 11-14

Switching Fatality and Severe Injury Update – 2012 Third Quarter

Three Switching Fatalities in 2012 through September 08

Preliminary summaries, not based on investigation

1) January 30 – GRW – Gary, IN

About 6 pm, a three person switching crew (conventional – not RCL) was making a move in an industry with a cut of cars and using two tracks (#2 & 2.5). They shoved 19 East into TK2. The “helper” trainman was watching the cut – protecting the move from the east end. A cut was made and the engine, a slug unit and 4 cars came west out of TK 2 to clear. The switch was then lined for TK 2.5 by the foreman, he mounted the North side of the move (nearest the cars on TK2) and began to shove east down TK2.5. The foreman was killed when his shove came into contact with the cut left on the West end of TK2 – where it merges with TK2.5. Foreman was in his late 50’s and had 10 or so years of seniority. Crew was familiar with the industry site, and had been there the night before making a similar move.

Comment based on preliminary information: Shoving was the direction of movement. Shoving involves special challenges to employees engaged in switching, especially less experienced employees (although apparently not a factor in this case).

2) May 28 – CP – Kenmare, ND

A conductor and engineer of a westward CP Rwy train were in the process of setting off 27 cars into track 2 of a small yard at 2:05 a.m. local time. They had left the remainder of their train on the main track near the west end of the yard. After appropriate switches were lined, and as the conductor – who was riding the point of the leading car – began moving into track 2, he was struck and killed by cars out to foul on track 1. It is reported that the conductor had about 7 years of service with almost 6 as a MOW employee. The move was estimated to be moving at approximately 4 mph. This location is about 52 miles NW of Minot, ND.

Comment based on preliminary information: Appears related in part to SOFA Advisory 2 (close/no clearance): a temporary close clearance, cars left afoul.

3) July 31 – UP – Mason City, IA

A 35 year-old conductor on a conventional switching crew was crushed when two cars he had kicked into a flat switching track rolled back out and into him while he was preparing the next cut of cars to be kicked.

Comment based on preliminary information: Appears related in part to SOFA Recommendation/Lifesaver 1 (going between rolling equipment): cars rolled back after joint was assumed to be made, or cars were not made secure.

SOFA Advisories and Lifesavers: Implement into Safe Operating Practice

Helpful information for review based on the three 2012 Fatalities

Shoving: involved in January 30, Gary, IN, Fatality

- Based on 179 Fatalities: For cases involving train movement, 57 percent had shoving as the direction of movement. Seventy-seven (77) percent of industrial location Fatalities involved shoving. This is not to say that inappropriate shoving procedures were a cause, or even a contributing factor, of each Fatality. Clearly, this is not true. There are many reasons why Fatalities occur. But shoving is very prevalent in switching operations. Performing shove moves safely has importance.
- Based on possible contributing factors (PCFs) for 179 Fatalities: 24 cases involved ‘Shoving movement, man on or at leading end of movement, failure to control (H307)’; 8 cases involved ‘Shoving movement, absence of man on or at leading end of movement (H306)’; 2 cases involved ‘Car(s) shoved out and left out of clear (H301)’; and 1 case involved ‘Failure to stretch cars before shoving (H309)’. To summarize, in the 175 cases involving train movement, 20 percent involved shoving as a PCF.
- “Wherever feasible, efforts should be made to avoid shove movements especially where light engines are involved. Greater use of procedures such as running around cars and changing ends should be utilized.” From *2004 SOFA Report, section 4.5, page 54*. Also cited in the *2011 SOFA Report, section 1.2.6.3, page 5*.
- SOFA Advisory 3 deals with industrial hazards. Relevant to shoving, this Advisory states: “Employees engaged in switching operations must not ride railroad equipment through a grade crossing during a shove movement.” From *2011 SOFA Report, section 3.6.5, page 37*.
- Inexperience employees may find shove moves particularly challenging.

SOFA Advisory 2 (close/no clearance: temporary): involved in May 28, Kenmare, ND, Fatality

Definition of a temporary close/no clearance: A movable object, including equipment on or near one track fouling another track, rolling stock on an adjacent track, stacks of cross ties, construction materials, and doors or gates left open, that passes by an employee or an employee passes. Report close/no clearances through established procedures. Use a job briefing to discuss close/no clearances, both permanent and temporary. When switching, be aware of the situation and surroundings. From *2011 SOFA Report*. Importantly, it is not just the close clearance, but having knowledge of it, and acting accordingly.

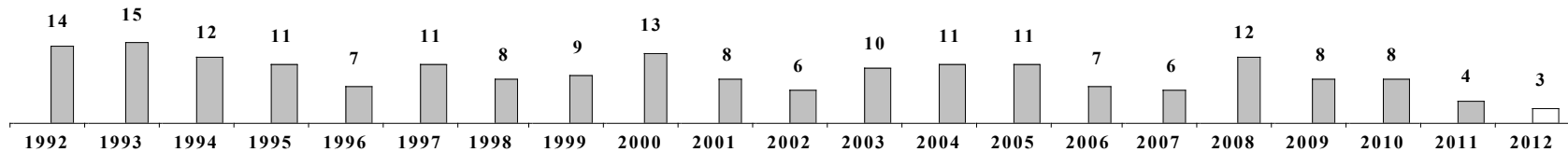
SOFA Lifesaver/Recommendation 1 (going between rolling equipment): involved in July 31, Mason City, IA, Fatality

Recommendation 1: Any crew member intending to foul track or equipment must notify the locomotive engineer before such action can take place. The locomotive engineer must then apply locomotive or train brakes, have the reverser centered, and then confirm this action with the individual on the ground. Additionally, any crew member that intends to adjust knuckles/drawbars, or apply or remove EOT device, must insure that the cut of cars to be coupled into is separated by no less than 50 feet. Also, the person on the ground must physically inspect the cut of cars not attached to the locomotive to insure that they are completely stopped and, if necessary, a sufficient number of hand brakes must be applied to insure the cut of cars will not move. *Lifesaver 1:* Secure equipment before action is taken.

Discussion 1: This recommendation emphasizes the importance of securing the equipment. A thorough understanding by all crew members that the area between cars is a hazardous location, whether equipment is moving or standing, is imperative. From *SOFA Reports. Also addressed by Federal Railroad Administration’s Safety Advisory 2011-02*.

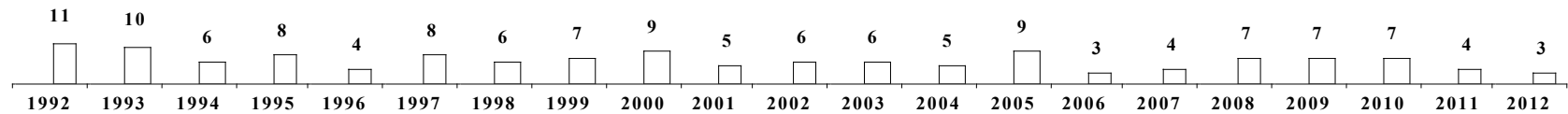
Switching Fatality History

194 Fatalities, by year: 1992 through 2011 full year; 2012, part year through September 08
Fatalities are historically low in 2011 and 2012 (through September 08)

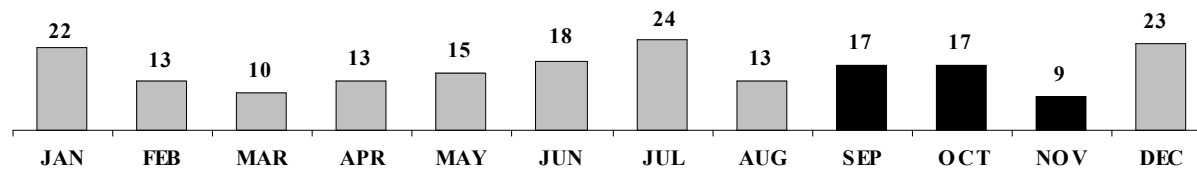


Fatalities through September 08, by year, 1992 through 2012

Fatalities averaged 6.4 for this approximate eight-month period, with a range of 3 to 11 Fatalities, and the most frequent counts of 6s and 7s

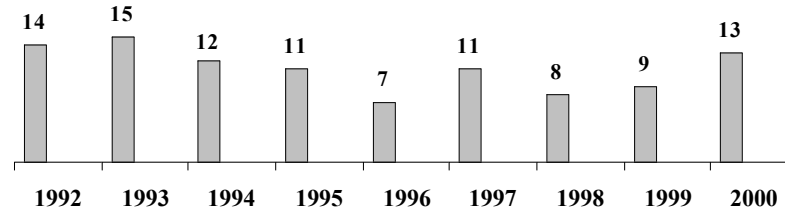


194 Fatalities, by month: 1992 through 2011 full year; 2012, part year through September 08
Since 1992, 43 switching Fatalities have occurred in Fall months

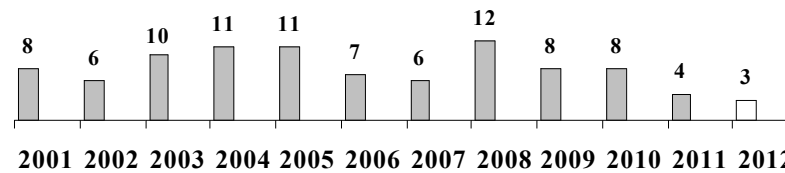


Switching Fatality History (continued)

pre-SOFA Period: 1992 through 2000*

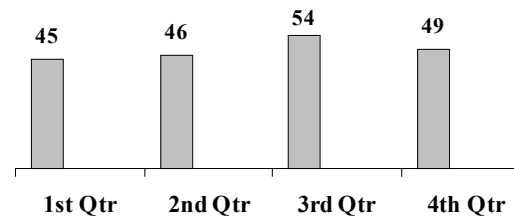


post-SOFA Period: 2001 through 2011, full year; 2012 through September 08*



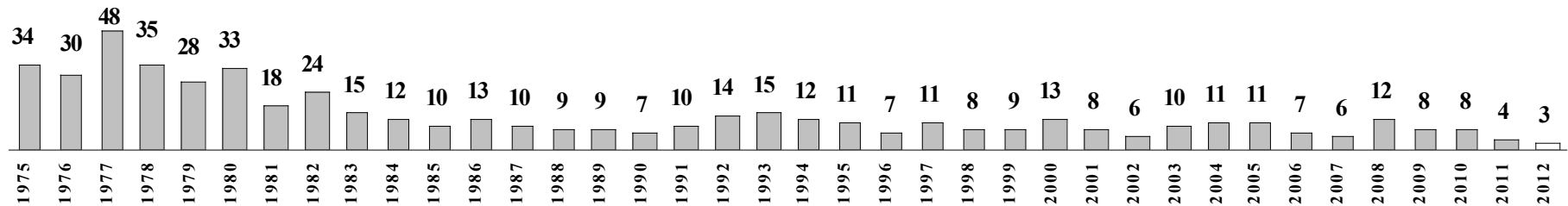
**pre-SOFA Period* (1992-2000) is defined by the first year of cases reviewed (1992), until the release of the first SOFA report (October 1999), plus a full year for implementation. The *post-SOFA Period* (2001 to present) is defined as all years and months after 2000. Defining these periods is helpful to SOFA in assessing progress.

194 Fatalities by quarters of year, January 01, 1997 through September 08, 2012



Switching Fatalities have declined in 2011 and 2012 (through September 08)

Annual Switching Fatality Counts, 1975 through September 08, 2012
539 Fatalities over 37 years and approximately eight months



- Prior to 2011, the lowest annual switching Fatality count was 6, at least back to 1975. (shown above)
- Then in 2011 there were 4 Fatalities.
- There have been 3 Fatalities in 2012 through September 08.
- Thus, the approximate 20-month period (January 01, 2011 through September 08, 2012) has historically low Fatality counts – 7 Fatalities.
- **In fact, since the Fatality at Orange, TX, on October 11, 2010, in approximately 22.5 months, there have been 7 Fatalities. Noteworthy, this 22.5 month period includes 3 Decembers and 3 Januarys. There was only one Fatality (Gary, IN, on January 30, 2012) in these historically high months during this 22.5 month period. (See table on page 8)**
- What counts will be in the future cannot be predicted. The past is not necessarily predictive of the future. But implementing SOFA Advisories and Lifesavers/Recommendations, and identifying other switching hazards and acting accordingly, can reduce risk.

See next two pages for more information on Fatality decline

Switching Fatalities have declined in 2011 and 2012 (through September 08)

Period	Days	Fatalities	Average Days between Fatality Occurrence	Comments <i>(pre-and post SOFA Periods are defined in the text below this table.)</i>
	(1)	(2)	(1) / (2)	
October 12, 2010 through September 08, 2012	698	7	99.7 days	Recent part of the post-SOFA Period. Days and Fatality counts are small relative to the two other periods. More observations are needed to determine if this trend is significant.
January 01, 2001 through October 11, 2010	3,572	87	41.1 days	Earlier part of the post-SOFA Period.
January 01, 1992 through December 31, 2000	3,289	100	32.9 days	pre-SOFA Period.

- **Being historically low, the Fatality counts in 2011 attracted attention – 4 switching Fatalities. In 2011 through September 08, Fatality counts remained low – 3 Fatalities. As noted on *page 6*, since the Fatality in Orange, TX, on October 11, 2010, the average rate, as measured in days that Fatalities occur, has slowed.** (note: The word ‘low’ is not to imply desirable. Only Zero Switching Fatalities are desirable.)
- **There were 698 days in the period after the Orange, TX, Fatality (October 11, 2010) and the date of this *Update* (September 08, 2012). And there were 7 Fatalities in this period. Thus, on average a Fatality occurred every 99.7 days (698/7).**
- **The period since the release of the first SOFA Report (October 1999), plus a full year for implementation, is defined as the *post-SOFA Period*. This period starts on January 01, 2001. There are 3,572 days from January 01, 2001, through the Orange, TX, Fatality (October 11, 2010). And there were 87 Fatalities in this period. Thus, on average a Fatality occurred every 41.1 days (3,572/87).**
- **The *pre-SOFA Period* is defined by the first year of cases reviewed (1992), until the release of the first SOFA report (October 1999), plus a full year for implementation. The number of days between the *pre- and post-SOFA Periods* is 3,289 days. And there were 100 Fatalities in this period. Thus, on average a Fatality occurred every 32.9 days (3,289/100).**
- **Summary: The rate which switching Fatalities occur in the three periods compared has declined. The decline since the Orange, TX, Fatality on October 11, 2010, bears watching to see if it continues.**
- **Cautions: The most recent period used is short (698 days) vs. the other comparison periods (3,572 and 3,289 days). Obviously, what Fatality counts will be in the future cannot be predicted. Historically, Fatality occurrence tends to cluster in time. In pointing out the Fatality decline, SOFA is not addressing reasons for the decline in this *Update*.**

23 Recent Switching Fatalities, 2009 through September 08, 2012

This display also illustrates that fewer Fatalities have occurred in the recent months (basically since the Orange, TX Fatality on October 11, 2010). Whether lower counts will continue cannot be predicted. But implementing SOFA Advisories and Lifesavers/Recommendations into operating practice can help reduce risk...as well as identifying all other hazards affecting risk in switching operations, and acting accordingly. The goal is safe operating practice that returns employees home safely when work is done.

Year	Count	Date	Days between Fatalities	City	State	Information Reviewed or Preliminary?	Brief Description (Risks other than those listed are often involved. Classification of cases marked 'preliminary' in the previous column are subject to revision.)
2009	1	01/16/09	--	Fort Sumner	NM	reviewed	Lack of, or inadequate job safety briefing (Advisory 4); and slipping, tripping, or falling
	2	01/28/09	12	Council Bluffs	IA	reviewed	Struck by mainline train (Advisory 5); and permanent close clearance (Advisory 2), space between rail centers
	3	02/07/09	10	Holbrook	AZ	reviewed	Struck by mainline train (Advisory 5)
	4	02/08/09	1	Harrington	KS	reviewed	Struck by mainline train (Advisory 5)
	5	02/28/09	20	Buchanan	NM	reviewed	Temporary close clearance (Advisory 2), a tie bundle positioned near track
	6	05/10/09	71	Selkirk	NY	reviewed	Going between rolling equipment (Lifesaver/Recommendation 1); and known mechanical defect (knuckle)
	7	06/24/09	45	Albertville	AL	reviewed	Temporary close clearance (Advisory 2), a car containing scrape metal at industrial site (Advisory 3); and a derailment
	8	12/29/09	188	Minneapolis	MN	reviewed	Permanent close clearance (Advisory 2), an industrial building hazard (Advisory 3); and a derailment caused by ice build up on track
2010	1	04/23/10	--	Riverdale	IL	reviewed	Struck by moving locomotive; and lack of, or inadequate job briefing (Advisory 4)
	2	05/31/10	38	Kearny	NJ	reviewed	Close clearance (Advisory 2) in a well lighted and well marked fueling facility
	3	06/10/10	10	Doswell	VA	reviewed	Struck by mainline train (Advisory 5); and drugs
	4	07/01/10	21	Meridian	MS	reviewed	Slipping, tripping, or falling
	5	07/13/10	12	East Deerfield	MA	reviewed	Going between rolling equipment (Lifesaver/Recommendation 1)
	6	09/02/10	51	Bridgeport	NJ	reviewed	Temporary close clearance (Advisory 2), cars left afoul
	7	09/04/10	2	Mobile	AL	reviewed	Industrial hazard (Advisory 3), a rotary coal dumper
	8	10/11/10	37	Orange	TX	reviewed	Inexperience (Advisory 1); and slipping, tripping, or falling
2011	1	02/08/11	--	Kankakee	IL	preliminary	Temporary close clearance (Advisory 2), cars left afoul
	2	07/25/11	167	Bedford Park	IL	preliminary	Going between rolling equipment (Lifesaver/Recommendation 1)
	3	08/15/11	21	Kansas City	KS	preliminary	Going between rolling equipment (Lifesaver/Recommendation 1)
	4	09/08/11	24	Botkins	OH	preliminary	Going between rolling equipment (Lifesaver/Recommendation 1)
2012	1	01/30/12	--	Gary	IN	preliminary	Shoving was direction of movement
through	2	05/28/12	119	Kenmare	ND	preliminary	Temporary close clearance (Advisory 2), cars left afoul
Sep 08	3	07/31/12	64	Mason City	IA	preliminary	Going between rolling equipment (Lifesaver/Recommendation 1)

SOFA Advisories and Lifesavers: Implement into Safe Operating Practice

- ***Advisories and Lifesavers/Recommendations* were developed by SOFA to remedy reasons why switching Fatalities occur. The content is based on 179 actual Fatalities.**
- **There are five Advisories and five Lifesavers/Recommendations. Two of the more recent Advisories (published in March 2011) address issues contained in the older Lifesavers (published as Recommendations in October 1999): inexperience employees and job briefings. Some of the content of the Advisories and Lifesavers/Recommendations are also contained in company rulebooks. Thus in part, the Advisories and Lifesavers focus on issues long identified as associated with switching risk. But there is new content as well.**
- **Advisories and Lifesavers do not address all reasons why employees are harmed. Basically, just the most common reasons. Reading SOFA reports – particularly the short narrative case summaries and associated information – provides one way of understanding these other reasons.**
- **Thus, it is necessary to identify and act on any condition or situation posing potential risk. There will always be unique factors specific to the task or move being made.**
- **And further, to develop a safe operating practice that considers the Advisories and Lifesavers when appropriate, and all applicable company procedures; but also goes beyond just a rule-based approach. Continually monitoring work in progress is one way to implement this practice. And particularly to be alert to situations where the work has not gone as planned. Always remember, there is no ‘do over’ once harm has occurred.**
- **Finally, SOFA believes that implementing the Advisories and Lifesavers/Recommendations into safe operating practice should occur in a positive, nurturing, and educational manner.**

7 SOFA Safety Discussion Items

Discuss these items anytime switching safety is addressed: safety briefings, meetings...even informal conversations. Consider bringing up these items whenever employees and stakeholders gather to discuss switching safety

Discussion item (mentioned on *page 1*): What special switching risks might be helpful to address on your railroad to make Fall months safer? How do SOFA Advisories and Lifesavers/Recommendations help address these risks?

Discussion item: What are the reasons SOFA Advisories and Lifesavers/Recommendations were developed? What are the Advisories and Lifesavers/Recommendations based on? Why is it important to implement these procedures into operating practice? SOFA believes that implementation of the Advisories and Lifesavers/Recommendations should occur in a positive, nurturing, and educational manner. How can this be accomplished? (see ‘SOFA Advisories and Lifesavers: Implement into Safe Operating Practice,’ *page 9*)

Discussion item: The Advisories and Lifesavers/Recommendations do not address all reasons why Fatalities have occurred. Or how future Fatalities may occur. At times other switching hazards occur or combine with Advisories and Lifesavers/Recommendations to elevate switching risk. What are some other switching hazards that might lead to harm, particularly on your railroad?

Discussion item: Read on *page 2* the short narratives of the three switching Fatalities that occurred in 2012 through September 08. What Advisories and Lifesavers/Recommendations might apply based on this preliminary information? What other risk factors might be involved? How would you have handled the switching tasks being conducted during each Fatality event?

Discussion item: Shoving as the direction of movement is common in switching operations. For 179 Fatality cases involving train movement, 57 percent involved shoving. Clearly, improper shoving was not the cause of the vast majority of these Fatalities. But when shoving, unanticipated objects can be encountered: temporary close/no clearances as equipment left afoul; and permanent close/no clearance as structures at industrial sites. How can prior planning of the switching tasks be used to avoid such hazards?

Discussion item: SOFA Lifesaver/Recommendation 1 addresses going between rolling equipment. *Federal Railroad Administration’s Safety Advisory 2011-02* also addresses this procedure not uncommon to switching operations. And so, too, company procedures. Several recent Fatalities have involved going between rolling equipment: Mason City, IA, on July 31, 2012; Botkins, OH, on September 08, 2011; Kansas City, KS, on August 15, 2011; and Bedford Park, IL, on July 25, 2011. Discuss ways that going between rolling equipment can be made safer.

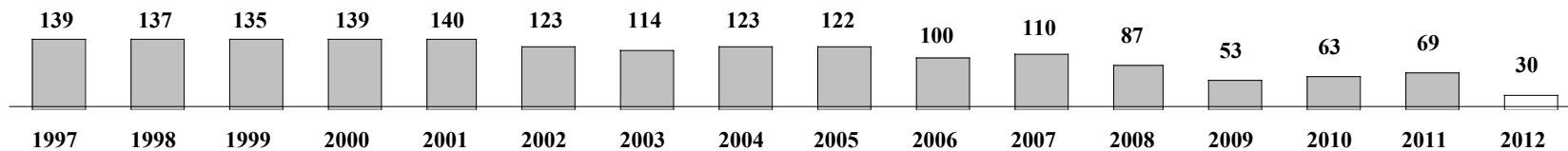
Discussion item: Not all harm to employees in switching operations is a Fatality. There are Severe Injuries of the type defined by SOFA on *page 11*. And other injuries as well. All harm to employees has concern. How are the causes of injuries similar or different from Fatalities? What are some of the ways these injuries can be prevented?

SOFA-defined Severe Injury Update

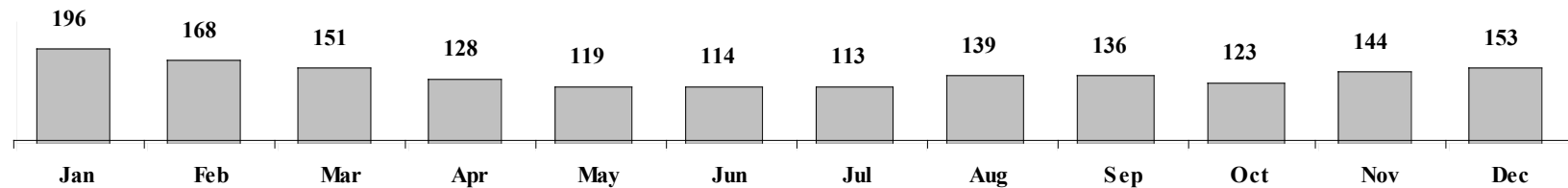
Definition: Based on its interests (i.e., potentially involving the same factors as Fatalities), *Severe Injuries* are defined by the SOFA Working Group as (1) potentially life threatening; (2) having a high likelihood of permanent loss of function, permanent occupational limitation, or other permanent disability; (3) likely to result in significant work restrictions; and (4) resulting 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. 1997 is the first year these Injuries to train and engine service employees can be determined as defined by the interest of the SOFA Working Group. For more information, see *Severe Injuries to Train and Engine Service Employees: Data Description and Injury Characteristics*. July 2001.

Note: The definition of SOFA-defined *Severe Injuries* is not to suggest that other injuries and illnesses resulting from operations are not also ‘severe’ and/or cause hardship to employees.

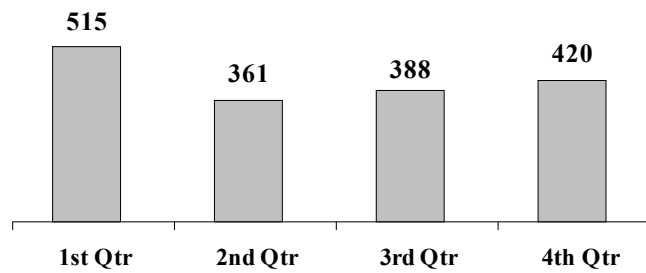
1,684 SOFA-defined Severe Injuries, 1997 through 2011 full year; 2012, part year January through June 2012



1,684 SOFA-defined Severe Injuries by month, January 1997 through June 2012



1,684 SOFA-defined Severe Injuries by quarters of year, January 1997 through June 2012



SOFA-defined Severe Injuries, by month and year, January 1997 through June 2012

Among *SOFA Updates*, counts previously presented may change based on revisions to FRA data. The latest month available from the FRA lags the calendar month of this *Update* by three months. FRA data were accessed on September 01, 2012

All Harm to Employees has Concern

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	14	13	6	6	8	9	196	12.3
FEB	17	15	9	9	9	13	17	14	10	6	15	12	4	7	9	2	168	10.5
MAR	14	12	17	11	10	10	13	10	9	9	11	5	5	4	5	6	151	9.4
APR	8	10	6	10	12	6	9	13	10	7	8	9	5	7	5	3	128	8.0
MAY	6	12	8	8	12	14	9	6	6	8	3	7	1	7	8	4	119	7.4
JUN	9	10	8	11	8	5	10	9	7	11	5	3	6	4	2	6	114	7.1
to date	65	72	64	64	72	60	69	63	62	51	56	49	27	35	37	30		54.4
JUL	9	14	10	8	10	7	6	10	5	12	8	1	4	4	5		113	7.5
AUG	13	10	11	14	8	10	7	14	10	10	13	5	4	5	5		139	9.3
SEP	10	11	15	10	20	12	5	4	9	6	10	12	5	3	4		136	9.1
OCT	12	12	16	10	5	11	9	7	11	5	11	4	2	4	4		123	8.2
NOV	12	9	12	11	13	14	10	10	13	8	6	8	3	6	9		144	9.6
DEC	18	9	7	22	12	9	8	15	12	8	6	8	8	6	5		153	10.2
totals	139	137	135	139	140	123	114	123	122	100	110	87	53	63	69		1,684	110.3

Amputations (a type of Severe Injury), by month and year, January 1997 through June 2012

A type of SOFA-defined Severe Injury, Amputations are displayed separately because of the extreme trauma to employees engaged in switching, and the likelihood of permanent occupational and lifestyle limitations. Counts for Amputations are contained in the counts of SOFA-defined Severe Injuries

All Harm to Employees has Concern

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	1	1	1	0	2	0	15	0.9
FEB	0	1	0	1	0	2	1	2	0	2	1	0	0	1	2	0	13	0.8
MAR	3	4	3	2	1	1	3	1	2	1	0	1	1	0	0	1	24	1.5
APR	1	2	0	1	2	0	1	1	2	2	3	3	1	0	1	0	20	1.3
MAY	1	2	3	0	2	2	2	0	0	1	1	0	0	1	2	0	17	1.1
JUN	2	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	9	0.6
to date	8	10	9	5	6	5	9	7	6	6	7	6	3	2	8	1		6.1
JUL	1	5	1	0	4	0	1	2	1	2	2	0	1	1	0		21	1.4
AUG	1	0	1	4	0	1	0	2	2	0	3	0	1	1	0		16	1.1
SEP	2	4	3	2	5	4	0	0	3	1	1	2	0	1	0		28	1.9
OCT	2	5	2	2	0	0	2	2	0	0	2	0	0	1	1		19	1.3
NOV	2	2	2	2	3	0	1	1	2	3	1	0	0	0	1		20	1.3
DEC	4	1	0	4	1	1	2	1	1	0	0	0	1	0	1		17	1.1
totals	20	27	18	19	19	11	15	15	15	12	16	8	6	6	11		219	14.5

Switching Fatalities, SOFA-defined Severe Injuries, and Other Reportable Events

Source: Switching Fatalities from *SOFA Database*; all other series from FRA, accessed September 01, 2012

Note: Among *SOFA Updates*, counts previously presented may change based on revisions to FRA data

Year	SOFA Switching Fatalities	SOFA-defined Severe Injuries	Amputations (counts are included in SOFA-defined Severe Injuries)	All Reportable Employee Casualty to T&E Employees (includes Fatalities and Severe Injuries)	All Accidents	Human Factor Accidents	Highway-Rail Crossing Incidents	Trespasser Incidents (not at crossings)
1992	14	*	*	6,648	2,359	864	4,910	1,049
1993	15	*	*	5,649	2,611	865	4,892	1,032
1994	12	*	*	5,026	2,504	911	4,979	981
1995	11	*	*	4,215	2,459	944	4,633	955
1996	7	*	*	3,726	2,443	783	4,257	945
1997	11	139	20	3,489	2,397	855	3,865	**1,049
1998	8	137	27	3,642	2,575	971	3,508	**1,049
1999	9	135	18	3,835	2,768	1,031	3,489	924
2000	13	139	19	3,893	2,983	1,147	3,502	877
2001	8	140	19	3,561	3,023	1,035	3,237	915
2002	6	123	11	3,022	2,738	1,050	3,077	935
2003	10	114	15	2,935	3,019	1,230	2,977	896
2004	11	123	15	2,910	3,385	1,353	3,085	**878
2005	11	122	15	2,817	3,266	1,270	3,066	**878
2006	7	100	12	2,483	2,998	1,068	2,942	992
2007	6	110	16	2,520	2,693	1,047	2,778	877
2008	12	87	8	2,216	2,481	911	2,429	889
2009	8	53	6	1,967	1,910	655	1,932	760
2010	8	63	6	1,875	1,902	646	2,027	830
2011	4	69	11	1,724	2,003	731	2,011	772
through June 2011	1	37	8	891	1,051	386	947	346
through June 2012	2	30	1	706	811	293	952	438
% change, 2012 vs. 2011 (through June)	--	-18.9%	--	-20.8%	-22.8%	-24.1%	0.01%	26.6%

*SOFA-defined Severe Injuries are defined only back to 1997

**Counts happened to be identical for these successive years

SOFA Education Section

Fatality Cases Similar to the Three 2012 Fatalities

Education Section Purpose

SOFA places emphasis on education about **why switching Fatalities occur and how such Fatalities can be prevented**. This section presents selective Fatality cases – captured in short narratives – to emphasize particular events where employees lost their lives. SOFA believes knowledge about past cases will lead to safer operating practice – and prevent future Fatalities.

Prepare for Case Review

Before reviewing the actual cases in detail, gain some background. Become familiar with the SOFA Advisories and Lifesavers/Recommendations. And first skim through the cases and review all applicable procedures on your railroad pertaining to the cases presented.

Case Review

- **Recreate Event:** After reading the short case narrative, recreate the switching environment before the task began. Describe how the environment may have changed as the switching task progressed. Describe how the final event occurred. Clearly, some narratives may not contain all the needed information. You may need to make some assumptions.
- **Relate Event to Your Experience:** Relate your recreation to situations you and your crew have encountered.
- **Develop Your Reasons and Remedies:** Now, think of what may have caused the event. Develop a remedy that would have reduced risk.

Recognition and Respect

Intent is that case-based education will prove preventive. In reviewing, please be mindful that these employees lost their lives in railroad service, and that their families will forever bear the burden.

Information Sources

The switching Fatality narrative summaries were taken from the *SOFA Database*, which contains specifics about each case as developed by SWG in its review of on-duty fatality investigations (These investigations are required by *49 U.S.C. Section 20903*). The *2011 SOFA Report* contains information about Advisories, Lifesavers/Recommendations, and Special Switching Hazards. This and previous SOFA Reports are available at: <http://www.fra.dot.gov/Pages/1781.shtml> (click on ‘Findings and Advisories’ tab in upper left corner for the *2011 Report*; click on ‘Findings and Recommendations’ for earlier reports). Link was accessed on September 01, 2012, for the purpose of being up-to-date.

Fatality Cases Similar to the Three 2012 Fatalities

Cases below have similarities to the three switching Fatalities occurring in 2012 through September 08. (While similarities exist, probably no two cases among 194 Fatalities since 1992 are exactly the same.) Operational issues involve (1) shoving, (2) riding cars and striking rolling equipment, and (3) going between cars to adjust/align drawbars and couplers. There may be other issues as well.

Selective cases involving riding cars and striking rolling equipment

January 20, 1994 **Fall City, NE** **Freight Conductor** **age 44**

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.

Possible Contributing Factors (PCFs)

H318: Poor crew utilization

M411: Close or no clearance

H301: Car(s) shoved out and left out of clear

August 08, 2002 **Cleveland, OH** **Switchman** **age 53**

A two person crew was switching cars in a yard and, without the trainman's knowledge, another switching crew had set cars into a track adjacent to the one being used by the first crew. The set out included a wide ladle car and it created a clearance issue on the adjacent track. Some time later, the trainman was riding the lead car down the track adjacent to the wide ladle car and was killed when he was rolled between the car he was riding and the wide ladle car sitting on the adjacent track.

Possible Contributing Factors (PCFs)

H317: Failure to communicate unsafe condition

H398: Poor inter-crew communication

M411: Close or no clearance

SOFA Advisories and Lifesavers: Implement into Safe Operating Practice

Fatality Cases Similar to the Three 2012 Fatalities (continued)

September 10, 2006 East St. Louis, IL Conductor age 44

A two person crew was in the process of making up a locomotive consist using two adjacent tracks. After setting over one of the locomotives, the conductor rode 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 crushed between the locomotive they set out and the locomotive he was riding.

Possible Contributing Factors (PCFs)

H302: Cars left foul. FE shoved twice and failed to leave equipment in the clear

M411: Close or no clearance

H307: Shoving movement, man on or at leading end of movement, failure to control

H316: Poor intra-crew communication about work in progress. If job briefing was conducted hand/radio signal use should have been discussed and clear understanding amongst the crew

March 05, 2008 Random Lake, WI Freight Conductor age 55

A three-person crew (engineer, conductor, and student conductor) arrived at an industrial spot where they were required to spot 2 loads. This industry had not been spotted for about a month and three inches of accumulated snow was covering packed ice on the spur track. The conductor rode the leading end of the first car adjacent to the standing train on the main track and the student conductor rode the opposite side of the same car, controlling the movement by radio. Due to the build-up of packed ice and mud in the flange-way the car derailed into the side of cars left standing on the main track, and the conductor was crushed between the cars.

Possible Contributing Factors (PCFs)

M101: Snow, ice, mud, gravel, coal, etc. on track. One month since last spot at this industry. Ice and snow build up

SOFA Advisories and Lifesavers: Implement into Safe Operating Practice

Fatality Cases Similar to the Three 2012 Fatalities (continued)

Selective cases involving going between rolling equipment (Lifesaver/Recommendation 1)

September 20, 2004 Saline, MI Conductor age 46

A conductor while engaged in switching operations attempted to uncouple freight cars from the locomotive, and was caught between the locomotive and these cars. The cars had not had their brakes secured as operating rules dictated they should. The conductor was killed.

Possible Contributing Factors (PCFs)

H990: Employee on or fouling track. Stepped between car and locomotive before movement had settled

March 09, 2000 Riverdale, IL Engine Foreman age 43

The employee was struck by an unsecured cut of cars that rolled into him while he was attempting to adjust the coupler or drawbar.

Possible Contributing Factors (PCFs)

H021: Failure to apply hand brakes on car(s)

H990: Employee on or fouling track

H997: Failure to provide adequate space between equipment

March 03, 2001 Willmar, MN Switchman age 36

The switchman of a three person yard switching crew made a cut on a block of cars sitting on a yard track and told the engineer to pull the cars out. Apparently, as the cars were being pulled out, the switchman stepped between the gauge of the track and was struck and killed by the remaining cars on the track that had begun to roll in the same direction as the cars being pulled out of the track.

Possible Contributing Factors (PCFs)

H990: Employee on or fouling track

M101: Snow, ice, mud, gravel, coal, etc. on track. 3' of snow

Fatality Cases Similar to the Three 2012 Fatalities (continued)

May 14, 2002 **Pine Bluff, AR** **Switchman** **age 53**

The switchman of a three-person yard switching crew asked the engineer to stretch a track. Noticing that there was a separation between the fourth and fifth head cars, the switchman went in to align the couplers. The switchman was coupled up when unsecured cars rolled in on him.

Possible Contributing Factors (PCFs)

H021: Failure to apply hand brakes on car(s)

H318: Poor crew utilization

H990: Employee on or fouling track

H997: Failure to provide adequate space between equipment

June 16, 2002 **Memphis, TN** **Engine Foreman** **age 20**

A yard foreman, with 18-months of service, along with his helper, engineer and a utility employee had just finished making up a train in the yard. However, the crossover from the track on which the train had been made had to be cut. This last minute instruction led to an increased level of conversation among the crew, yard foreman, utility employee and the yardmaster. The yard foreman jumped on an ATV, rode it to the cut point, separated the train; and, when the cut not attached to the locomotive rolled, he was caught between the two sections of the train and killed.

Possible Contributing Factors (PCFs)

H099: Use of brakes, other

H316: Poor intra-crew communication about work in progress

H500: Slack action

H990: Employee on or fouling track

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