

Winter switching safety: weather and extended darkness bring risks!

SOFA Switching Fatality and Severe Injury Update – 2015 Fourth Quarter *PLEASE POST IMMEDIATELY*

Winter switching safety

- Historically, switching fatalities and SOFA-defined severe injuries increase in winter months
- SOFA has associated snow and ice, extended darkness, and clothing that restricts hearing and vision with winter risk. Undoubtedly, there are other risk factors as well
- Winter warrants special consideration in switching operations...think about what might change in switching operations

Three switching fatalities in 2015 through December 01

- September 29 – UP – Kansas City, KS: A RCO operator appears to have been struck by a shoving movement of another RCO assignment in a yard. [based on preliminary information with circumstances subject to change pending investigation]
- August 12 – NS – Hattiesburg, MS: A trainee with three weeks service suffered fatal injuries while working within a local propane industry. The preliminary investigation revealed that the trainee was found coupled between the twenty-fourth (24th), the last car of the cut they were shoving, and the cars they intended to pick up within the industry. [based on preliminary information with circumstances subject to change pending investigation]
- July 25 – CN – Homewood, IL: A yard conductor with 26 months service suffered fatal injuries while working within the CN Markham Yard. The preliminary investigation revealed that the conductor may have attempted to mount moving equipment as the shove move passed his location. It appears his head made contact with the fuel tank of the second locomotive while he was on the ground. [based on preliminary information with circumstances subject to change pending investigation]

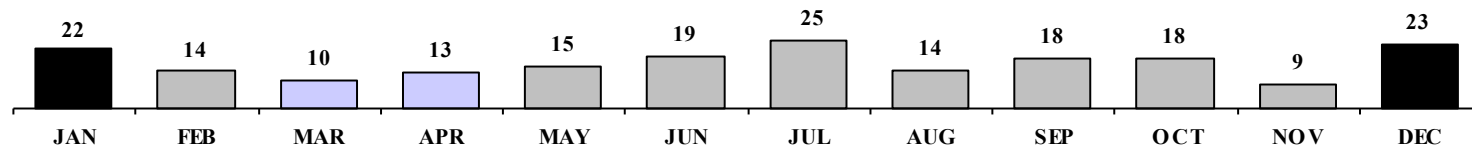
Switching Operations Fatality Analysis (SOFA)

- A voluntary, non-regulatory, railroad-safety partnership comprised of representatives from AAR, ASLRRA, BLET, FRA, and UTU
- Seeks to prevent switching Fatalities through education based on facts about causes
- SOFA is not part of a rulemaking or regulatory process
- Recognizes that all have responsibility for switching safety: employees, managers, and regulators
- SOFA's goal is Zero Switching Fatalities achieved through education and non-punitive interactions among stakeholders
- Find SOFA reports and information at: <http://www.fra.dot.gov/SOFA> [accessed December 01, 2015]

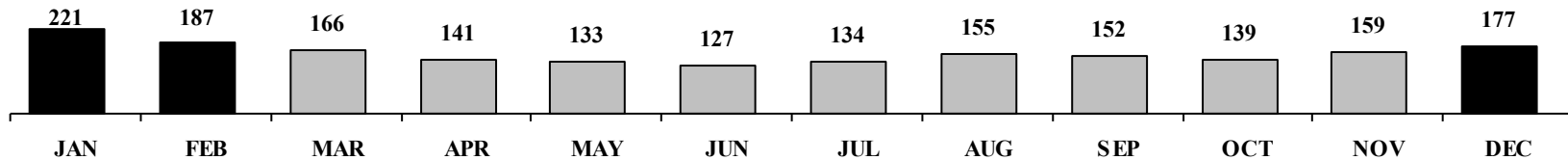
Winter Switching Safety

- SOFA has observed that risk for switching fatalities and SOFA-defined severe injuries increase in winter
- In its *2011 SOFA Report*, SOFA provides some information to help reduce winter risk
- Find this and other SOFA reports at: <http://www.fra.dot.gov/SOFA> [accessed December 01, 2015]
- Winter risk, SOFA believes, involves:
 - weather
 - extended darkness
 - winter clothing affecting hearing and vision
 - housekeeping (e.g., shoveling walkways, pathways)
 - winter preparation
 - working along mainlines (SOFA Advisory 5)

200 Switching Fatalities, by month: January 1992 through December 01, 2015
Increases in December and January

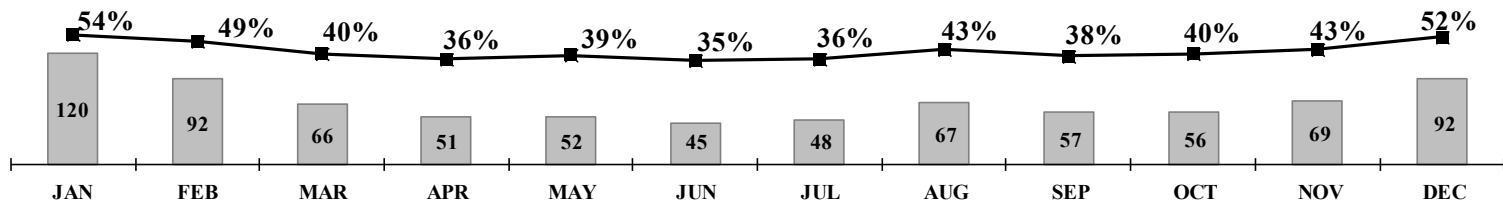


1,891 SOFA-defined Severe Injuries, by month, January 1997 through September 2015
Increases in December, January, and February



'Slipped, Fell, Stumbled, etc.' are a main cause of increase in severe injuries in winter

Severe Injuries Attributable to 'Slipped, Fell, Stumbled, etc.', by month, January 1997 through September 2015
As a percent of all SOFA-defined severe injuries, and absolute counts



Winter Switching Safety (continued)

Quotations below are from the *2011 SOFA Report, Vol. I and II*. Consult the report for the full context

Weather

“...ice can increase the risk of derailment, snow can reduce visibility, and mud can create unsafe footing conditions.”
Vol. II, p. H-6

Extended darkness

“Lack of daylight can compromise visibility and may affect the mood and alertness of the workforce.” *Vol. II, p. H-6*

Winter clothing affecting hearing and vision

“...outer clothing worn during winter months can restrict hearing and peripheral vision; therefore, extra caution should be exercised.” *Vol. I, p. 40*

Housekeeping

[In reference to industrial sites] **“Maintenance of track and walkways...This includes ice and snow removal, clearing of debris alongside the track, and immediate removal of objects or debris blocking the track or walkway. This directly impacts the decision of the ground service employee[s] to walk or ride equipment.”** *Vol. I, p. 36*

Winter safety preparation

“The railroad industry may want to consider additional preparation and education of the workforce on adapting to changing conditions in summer and winter.” *Vol. I, p. 51*

“Make cold weather an issue in upcoming safety awareness campaigns. Increasing workforce awareness of this problem could be an important step in reducing fatalities in cold weather during the winter. Since many fatalities occur right at the beginning of winter, get an early start with a weather awareness campaign. Emphasize the increase risk on main track, particularly the risk of being struck by a passing train. Include alerts about weather conditions and how to operate safely in icy conditions in safety briefings and bulletins. Ensure customers do their part to keep industrial track and walkways clear of mud, ice, and snow. Advise management and crews to think safety first and adjust productivity expectations to suit the challenging conditions which occur in cold weather states in the winter.”

Vol. II, p. H-6

Winter Switching Safety (continued)

Quotations below are from the *2011 SOFA Report, Vol. I and II*. Consult the report for the full context

Working along mainlines (SOFA Advisory 5):

“65% of the Struck by Mainline Trains fatalities occurred from December through February.” *Vol. I, p. 40*

“...communication is essential to eliminating fatalities related to Struck by Mainline Trains. Fatalities occur when employees are unaware of risks associated with doing work along mainline track – particularly at times of darkness and during winter months.” *Vol. I, p. xxii*

SOFA Advisory 5: Struck by Mainline Train – section 3.7.5 of 2011 SOFA Report

“The SWG [SOFA Working Group] reemphasizes that communication is essential to eliminating fatalities related to Struck by Mainline Trains. Fatalities occur when employees are unaware of risks associated with doing work along mainline track – particularly at times of darkness and during winter months. Therefore, the railroad industry should insist upon consistent use of multiple methods to warn employees about oncoming on-track movements. Equally, warnings should be made to the approaching on-track movement of an employee’s location when a crew member is outside of the locomotive cab. In addition, the railroad industry should consider improving employee visibility when performing work on the ground.

Employees must use job briefing procedures before dismounting the locomotive or doing work along mainline track to establish a safe method for performing their work. When possible, employees must dismount to the safe side. Empower employees to establish a safe location when stopping and/or performing work when on or near mainline track. The railroad industry must support employees in the use of individual discretion as part of an effort to determine a safe location to perform work.”

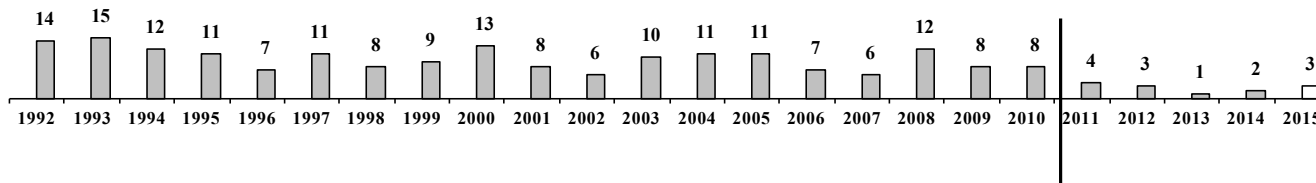
SOFA Advisory 5 (Struck by Mainline Train): Some Basic Points

- **Communication is essential to eliminating fatalities. Fatalities occur when employees are unaware of risks associated with doing work along mainline track, particularly during darkness and winter months**
- **Insist upon consistent use of multiple methods to warn employees about oncoming on-track movements**
- **Warnings should be made to the approaching on-track movement of an employee’s location when a crew member is outside of the locomotive cab**
- **Consider improving employee visibility when performing work on the ground**

DATA SECTION – 2015 Fourth Quarter Update

Lower switching fatality counts since 2011...the goal of zero switching fatalities

200 Fatalities, by year: 1992 through 2014, full year; 2015, part year through December 01



21 Recent Switching Fatality Cases, January 01, 2010 through December 01, 2015

- These 21 fatality cases occurred subsequent to the 179 cases (1992 through 2009) which formed the basis of the *2011 SOFA Report*. The purpose in displaying this information is to identify possible emerging risks in switching:
 - Fourteen of the 21 cases (67 percent) involve three SOFA Lifesavers/Advisories: Close/No Clearance, Going between Rolling Equipment, and Inexperience
 - six cases involve Close/No Clearance. Five of these six cases involve the temporary hazard of cars left afoul
 - five cases involve Going between Rolling Equipment (SOFA Lifesaver 1; and FRA Safety Advisories 2011-02 and 2013-03)
 - four cases involve Inexperience
- (Note: one case (Kenmare, ND) involves two SOFA Lifesavers/Advisories so the number of cases is one less than the number of SOFA Lifesavers/Advisories)

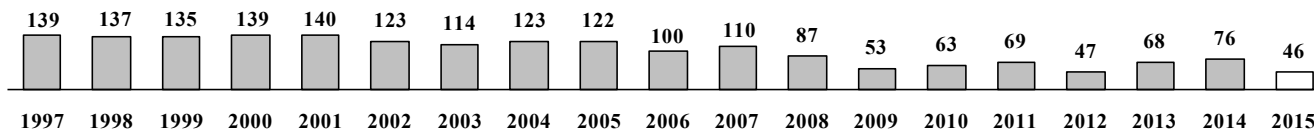
Year	Count	Date	City	State	Reviewed or Preliminary	<u>Fatality Reasons: brief description</u> Risks other than those listed are often involved. Cases marked 'preliminary' are subject to revision of event reasons
2010	1	04/23/10	Riverdale	IL	reviewed	Lack or Inadequate Job Safety Briefing
	2	05/31/10	Kearny	NJ	reviewed	Close/ No Clearance (fueling structure)
	3	06/10/10	Doswell	VA	reviewed	Struck by Mainline Train; and Drugs and Alcohol
	4	07/01/10	Meridian	MS	reviewed	Employee Tripping, Slipping, or Falling
	5	07/13/10	East Deerfield	MA	reviewed	Going between Rolling Equipment
	6	09/02/10	Bridgeport	NJ	reviewed	Close/ No Clearance (cars left afoul)
	7	09/04/10	Mobile	AL	reviewed	Industrial Hazard; and Miscellaneous Causes
	8	10/11/10	Orange	TX	reviewed	Inexperience; and Employee Tripping Slipping, or Falling
2011	9	02/08/11	Kankakee	IL	reviewed	Close/ No Clearance (cars left afoul)
	10	07/25/11	Bedford Park	IL	reviewed	Going between Rolling Equipment; and Unsecured Cars
	11	08/15/11	Kansas City	KS	reviewed	Going between Rolling Equipment; and Miscellaneous Causes
	12	09/08/11	Botkins	OH	reviewed	Going between Rolling Equipment; and Unexpected Movement of Railcars
2012	13	01/30/12	Gary	IN	reviewed	Close/ No Clearance (cars left afoul); and Environment; and Industrial Hazard
	14	05/28/12	Kenmare	ND	reviewed	Close/ No Clearance (cars left afoul); and Inexperience; and Failure to Confirm Route of Movement
	15	07/31/12	Mason City	IA	reviewed	Going between Rolling Equipment; and Lack or Inadequate Job Safety Briefing; and Unexpected Movement of Railcars; and Unsecured Cars
2013	16	02/16/13	Cleveland	OH	reviewed	Inexperience; and Drugs and Alcohol; and Employee Tripping, Slipping, or Falling
2014	17	06/24/14	Birmingham	AL	preliminary	Derailment
	18	10/08/14	Colorado Springs	CO	preliminary	Close/ No Clearance (cars left afoul)
2015	19	07/25/15	Homewood	IL	preliminary	Came in contact with a shove movement
	20	08/12/15	Hattiesburg	MS	preliminary	Inexperience
	21	09/29/15	Kansas City	KS	preliminary	Struck by equipment being operated by RCO

SOFA-defined Severe Injury Update

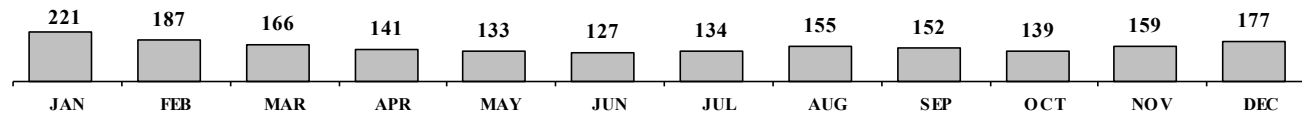
Definition: Based on its interests (i.e., potentially involving the same factors as fatalities), *Severe Injuries* are defined by the SOFA Working Group as (1) potentially life threatening; (2) having a high likelihood of permanent loss of function, permanent occupational limitation, or other permanent 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.

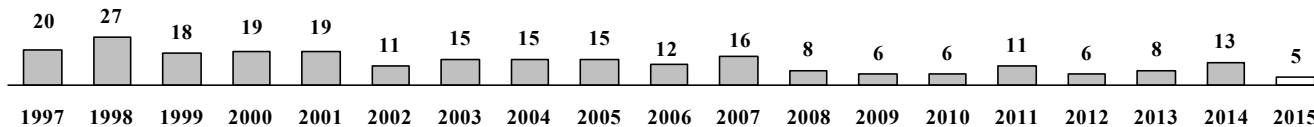
1,891 SOFA-defined Severe Injuries, by year: 1997 through 2014, full year; 2015, through September



1,891 SOFA-defined Severe Injuries, by month: January 1997 through September 2015



250 Amputations (counts are included in Severe Injuries), by year: 1997 through 2014, full year; 2015, through September



SOFA-defined Severe Injuries, January 1997 through September 2015

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. Information used in this table was extracted on November 30, 2015, from FRA's publically available data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	14	13	6	6	8	9	8	6	11	221	11.6
FEB	17	15	9	9	9	13	17	14	10	6	15	12	4	7	9	2	5	10	4	187	9.8
MAR	14	12	17	11	10	10	13	10	9	9	11	5	5	4	5	6	3	5	7	166	8.7
APR	8	10	6	10	12	6	9	13	10	7	8	9	5	7	5	2	4	6	4	141	7.4
MAY	6	12	8	8	12	14	9	6	6	8	3	7	1	7	8	4	5	7	2	133	7.0
JUN	9	10	8	11	8	5	10	9	7	11	5	3	6	4	2	6	2	6	5	127	6.7
JUL	9	14	10	8	10	7	6	10	5	12	8	1	4	4	5	3	7	5	6	134	7.1
AUG	13	10	11	14	8	10	7	14	10	10	13	5	4	5	5	1	5	7	3	155	8.2
SEP	10	11	15	10	20	12	5	4	9	6	10	12	5	3	4	5	4	3	4	152	8.0
to date	97	107	100	96	110	89	87	91	86	79	87	67	40	47	51	38	43	55	46		
OCT	12	12	16	10	5	11	9	7	11	5	11	4	2	4	4	1	6	9		139	7.7
NOV	12	9	12	11	13	14	10	10	13	8	6	8	3	6	9	3	5	7		159	8.8
DEC	18	9	7	22	12	9	8	15	12	8	6	8	8	6	5	5	14	5		177	9.8
totals	139	137	135	139	140	123	114	123	122	100	110	87	53	63	69	47	68	76		1,891	100.2

Amputations (a type of Severe Injury), January 1997 through September 2015

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 (shown on previous page). Information used in this table was extracted on November 30, 2015, from FRA's publically available data.

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	1	1	1	0	2	0	0	0	1	16	0.8
FEB	0	1	0	1	0	2	1	2	0	2	1	0	0	1	2	0	1	1	1	16	0.8
MAR	3	4	3	2	1	1	3	1	2	1	0	1	1	0	0	1	0	1	0	25	1.3
APR	1	2	0	1	2	0	1	1	2	2	3	3	1	0	1	0	0	0	1	21	1.1
MAY	1	2	3	0	2	2	2	0	0	1	1	0	0	1	2	0	2	2	0	21	1.1
JUN	2	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	0	1	1	11	0.6
JUL	1	5	1	0	4	0	1	2	1	2	2	0	1	1	0	0	1	2	0	24	1.3
AUG	1	0	1	4	0	1	0	2	2	0	3	0	1	1	0	0	1	1	0	18	0.9
SEP	2	4	3	2	5	4	0	0	3	1	1	2	0	1	0	2	0	1	1	32	1.7
to date	12	19	14	11	15	10	10	11	12	9	13	8	5	5	8	3	5	9	5		
OCT	2	5	2	2	0	0	2	2	0	0	2	0	0	1	1	1	2	2		24	1.3
NOV	2	2	2	2	3	0	1	1	2	3	1	0	0	0	1	0	0	2		22	1.2
DEC	4	1	0	4	1	1	2	1	1	0	0	0	1	0	1	2	1	0		20	1.1
totals	20	27	18	19	19	11	15	15	15	12	16	8	6	6	11	6	8	13		250	13.3

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

Source: Switching fatalities from SOFA Database; all other information used in this table was extracted on November 30, 2015, from FRA's publically available data. 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 Employee On-duty Fatalities less SOFA Switching Fatalities	T&E Employee On-duty Fatalities less SOFA Switching Fatalities	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	*	*	20	6	6,648	2,359	864	4,910	1,049
1993	15	*	*	32	16	5,649	2,611	865	4,892	1,032
1994	12	*	*	19	9	5,026	2,504	911	4,979	981
1995	11	*	*	23	10	4,215	2,459	944	4,633	955
1996	7	*	*	26	15	3,726	2,443	783	4,257	945
1997	11	139	20	26	10	3,489	2,397	855	3,865	**1,049
1998	8	137	27	19	8	3,642	2,575	971	3,508	**1,049
1999	9	135	18	22	12	3,835	2,768	1,031	3,489	924
2000	13	139	19	11	2	3,893	2,983	1,147	3,502	877
2001	8	140	19	14	6	3,561	3,023	1,035	3,237	915
2002	6	123	11	14	3	3,022	2,738	1,050	3,077	935
2003	10	114	15	9	3	2,935	3,019	1,230	2,977	896
2004	11	123	15	14	9	2,910	3,385	1,353	3,085	**878
2005	11	122	15	14	7	2,817	3,266	1,270	3,066	**878
2006	7	100	12	9	0	2,483	2,998	1,068	2,942	992
2007	6	110	16	11	4	2,520	2,693	1,047	2,778	877
2008	12	87	8	14	4	2,217	2,481	910	2,429	889
2009	8	53	6	8	2	1,972	1,912	656	1,933	760
2010	8	63	6	12	5	1,882	1,902	650	2,052	830
2011	4	69	11	17	11	1,734	2,029	751	2,061	733
2012	3	47	6	13	4	1,549	1,764	666	1,985	823
2013	1	68	8	13	2	1,771	1,846	709	2,102	861
2014	2	76	13	8	2	1,910	1,811	706	2,290	895
JAN-SEP 2014	1	55	9	7	2	1,441	1,386	534	1,688	672
JAN-SEP 2015	3	46	5	7	0	1,306	1,435	541	1,538	692
<i>change</i>	--	--	--	--	--	-9.4%	3.5%	1.3%	-8.9%	3.0%

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

**Counts happened to be identical for these successive years