SOFA Switching Fatality and Severe Injury Update – 2016 Third Quarter
PLEASE POST IMMEDIATELY

<u>Stay Aware When Switching</u> (see pages 2-8 for more information)
From its inception, SOFA has been concerned with the role of awareness of hazards for those engaged in switching. Although awareness is an issue in many switching fatalities, SOFA felt awareness of hazards was particularly crucial in six situations as indicated by SOFA explicitly mentioning 'awareness' in addressing these situations:

- **Inexperienced employees (a SOFA Advisory)**
- **Unexpected train movements**
- **Intra-crew communication**
- **Safety briefings (a SOFA Advisory)**
- **Industrial hazards (a SOFA Advisory)**
- **Being struck by mainline trains (a SOFA Advisory)**

SOFA also found awareness an issue among highway vehicle users striking trains at public crossings; and truck drivers striking trains at industrial crossings. Additionally, 'awareness' was mentioned in the SOFA Safety Forum[1] in reference to close clearance and being struck by mainline trains.

<u>One switching fatality in 2016 through September 04</u>

- **March 26 – CP – St. Paul, MN: An engineer was struck by a freight train while crossing tracks in a yard at 12:30 am. [based on preliminary information with circumstances subject to change pending investigation]**

<u>Switching Operations Fatality Analysis (SOFA)</u>

- **A voluntary, non-regulatory, railroad-safety partnership of representatives from AAR, ASLRRA, BLET, FRA, and UTU-SMART-TD**
- **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 August 29, 2016]**

[1] Held February 25, 2010. See *2011 SOFA Report*, page 68, section 6.5.5

Stay Aware When Switching

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- Inexperienced employees (a SOFA Advisory)
- Unexpected train movements
- Intra-crew communication
- Safety briefings (a SOFA Advisory)
- Industrial hazards (a SOFA Advisory)
- Being struck by mainline trains (a SOFA Advisory)

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These two switching fatalities involve awareness (taken from the SOFA database):

January 20, 1994 – Fall City NE

Freight conductor riding side of two cars to be kicked, [as] 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.

August 12, 1993 – Evandale, TX

Upon detraining, brakeman was struck and killed by another railroad's yard job working in the same small yard. Members of both crews saw each other but the brakeman apparently did not see the short line crews shove move.

[2] Held February 25, 2010. See *2011 SOFA Report*, page 68, section 6.5.5

Stay Aware When Switching (continued)

Quotes about awareness are from SOFA Reports. Find SOFA reports and information at: http://www.fra.dot.gov/SOFA [accessed August 29, 2016]

Inexperienced Employees (quote below was an SOFA Operating Recommendation which became a SOFA Advisory) – *1999 SOFA Report*, page 4-19, section 4.1.19
"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."

Unexpected Train Movements – *1999 SOFA Report*, page 4-16, section 4.2.1
"Action: The railroad in the industry should review their existing switching operations training programs to assure that no opportunities are being overlooked to heighten safety awareness and to 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.

Rationale: Such FEs [fatality, employees] are preventable if the crew members have proper understanding of all planned movements, take care to be sure that no individuals are exposed to potential hazards at the time movements are initiated and to assure that detached equipment has been properly protected, i.e., locomotive reverser centered or hand brakes applied, to prevent unplanned movement. Safety awareness training can encourage a strong focus on these issues."

Intra-crew Communication – *1999 SOFA Report*, page 3-14, section 3.6
"Intra-crew Communication does not only apply to the situation awareness of crew status, but also to effective job safety briefings that contribute to the teamwork that produces well-coordinated crews who understand the moves to be made. In subsequent reviews, six FEs [fatality, employees] were identified for which job safety briefings were called into question. Four of these FEs were the same ones that were identified as involving both intra-crew communication issues and unexpected movement."

Stay Aware When Switching (continued)

Quotes about awareness are from SOFA Reports. Find SOFA reports and information at: http://www.fra.dot.gov/SOFA [accessed August 29, 2016]

Safety Briefings (a SOFA Advisory) – *2011 SOFA Report*, page 22, section 3.3.5

"Despite considerable efforts within the railroad industry, more than half of SOFA 3 fatalities [refers to SOFA Operating Recommendation 3 which became a SOFA Advisory] in yards and industrial properties occurred when a job task changed and an update to the job briefing did not occur. The SWG [SOFA Working Group] believes more progress can be made in the area of work changes. When work changes occur, the employees involved may not maintain currency with these changes; thus, they may be unaware of the tasks to be performed, and this may place them in peril. The railroad industry must remain vigilant regarding fatalities, and when work changes occur, employees must regroup, take appropriate steps to provide protection, and not proceed until an update to the job briefing is done."

Industrial Hazards (a SOFA Advisory) – *2011 SOFA Report*, page 22, section 3.6.4.2

"An employee who is unfamiliar with an industrial property may not be aware of the industrial hazards. Job aids such as maps usually do not exist. Remedy: Prepare employees to identify and avoid industry hazards. Examples include the following:

- Provide job aids, such as maps that highlight industrial hazards.
- Discuss the location and potential for industrial hazards in job briefings.
- Assist employees with little or no familiarity with the physical characteristics at that location, such as working with a person familiar with that location.
- Encourage employees to inspect the work site before acting.
- Share near-miss and close-call experiences with employees."

Being Struck by Mainline Trains (a SOFA Advisory) – *2011 SOFA Report*, page 42, section 3.7.5

"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. "

Stay Aware When Switching (continued)

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SOFA has advocated Train Crew Resource Management as a way of fostering awareness. Since its first report in 1999, SOFA has advocated use of Crew Resource Management (CRM) to foster situational awareness – among other benefits – in switching operations. SOFA made a non-operating recommendation to consider crew resource management (CRM) as practiced in the aviation industry. As stated in the *1999 SOFA Report*, page 4-16, section 4.2.2:

> "The Working Group has also concluded that an important contributing factor to many of the FEs [fatalities, employees] reviewed was incomplete or inadequate communication among crew members. Sometimes this was a failure of, or improper use of communications equipment, but more often it was a failure or reluctance of the crew member to elevate the importance of communications impacting on safety to the level needed to assure successful, safe operations.
>
> Action: The industry (labor, management, FRA) should consider programs that address improving crew coordination and communication such as Crew Resource Management (CRM) that has been used effectively in the aviation industry.
>
> Rationale: The goal of these training procedures in all industries is to promote safe operations through improved crew member proficiency, situational awareness, effective communication and teamwork, and by providing strategies for appropriately challenging and questioning authority where safety could be jeopardized. Training in the importance of and procedures for effective intra-crew communication has the potential to make a major contribution to the safety of switching operations."

Based on a non-operating recommendation made in the *1999 SOFA Report*, a railroad task force adopts CRM from the aviation industry. As stated in the *2004 SOFA Report*, page 4, section 1.6:

> "The railroad industry took the lead in initiating a Task Force to implement an Additional Recommendation1 made in the SOFA Report [*1999 SOFA Report*]. The railroad industry Task Force created a generic program for train and engine employees. This CRM program provides a team-based framework through which to evaluate conditions, apply rules, and safely perform work tasks. Topics covered in the program include decision making, assertiveness, crew coordination, leadership, teamwork, situational awareness, and active practice and feedback."

Train Crew Resource Management (TCRM) – an adoption of CRM in the aviation industry – is contained in Vol. II of the *2011 SOFA Report*.

Stay Aware When Switching (continued)

Examples of switching fatality cases involving awareness. Cases taken from the SOFA database

Inexperienced employees (a SOFA Advisory)

December 04, 2005 – Burlington, IA

A three person switch crew held a job briefing with the intent to deliver 125 car loads of coal onto five (5) industry tracks. Only the engineer was familiar with the industry plant and its tracks. The engineer offered to operate the locomotive into the plant to allow the rest of the crew to become more familiar with the work area; the other crew members declined. The track passes under an overhead walkway with only 5 1/2 inch clearance between the part of the car on which the brakeman was riding, and a support beam of the walkway. The brakeman failed to take heed of this situation and was fatally injured when he was crushed between the car and the support member.

November 13, 1993 – Macon, GA

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

Unexpected train movements

December 05, 1993 – Atlanta, GA

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

August 11, 1993 – Tracy, CA

Crew performing industry switching. Brakeman attempted to couple air hoses while conductor gave engineer instructions to shove the movement. Resulting movement was unexpected to brakeman who was fatally injured.

Stay Aware When Switching (continued)

Examples of switching fatality cases involving awareness. Cases taken from the SOFA database

Intra-crew communication

December 28, 1998 – Durrant, MS

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

November 15, 1994 – Painted Post, NY

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

Safety briefings (a SOFA Advisory)

November 15, 2008 – Laurel, MT

A three person crew, operating a local freight train, moved their locomotives to a make-up track. After a job briefing, the switchman proceeded to make sure the train was together and the air hoses were coupled. The switchman did not observe sixteen cars at the end of the train were not coupled. A few minutes later, he radioed he was going between to make an air hose. The Engineer said: "Set and centered." A few minutes earlier, the Conductor was walking the head-end and found a gap. Without communicating with the Switchman, the Conductor instructed the Engineer to pull forward so that he could open knuckles and prepare for a reverse movement to a coupling. Apparently, when the train moved forward, the 16 cars at the rear of the train began to roll, just as the Switchman was reaching in to connect an air hose. The 16 free-rolling cars struck the standing portion of the train and killed the Switchman.

September 23, 2008 – Darby, PA

After reaching their destination, a two person crew was instructed to secure their freight train at a location beyond the normal crew change point. The location was on double track on a bridge near a parking lot where a relief crew could reach the train. The conductor left the cab of the locomotive without job-briefing with the Engineer and without his hand-held radio. He crossed in front of the locomotive and walked eastward across the bridge between the two tracks. There was poor footing and almost no clearance between the two tracks. An eastbound approaching train, operating at 26 mph, observed the conductor, sounded the whistle, turned the head lights to bright, and tried to stop. The eastbound train struck and killed the conductor who was walking in the foul.

Stay Aware When Switching (continued)

Examples of switching fatality cases involving awareness. Cases taken from the SOFA database.

Industrial hazards (a SOFA Advisory)

December 03, 2008 – Denver, CO

A two person crew performed a shoving movement with the conductor riding the leading end of a bulkhead flatcar. A tractor-trailer operated over the crossing in front of the movement. The tractor trailer was moving at about 18 mph when it occupied the crossing protected only by cross bucks in front of the train movement. The conductor, who was riding on the crossover platform, radioed the engineer in an attempt to stop the movement, but the leading car of the train struck the side of the trailer at about 5 mph. The impact crushed and killed the conductor.

September 10, 2008 – Terre Haute, IN

The conductor of a two person local freight crew was riding the leading end on the side of a tank car during an industry switching job. The conductor was crushed and killed when the leading car derailed and struck a stack of bundled wood railroad ties adjacent to the track. The car derailed on compacted aggregate which had been placed as an ad hoc crossing on the industry track. The shove movement was proceeding at 7 mph on track with a 5 mph maximum speed.

Being struck by mainline trains (a SOFA Advisory)

February 08, 2009 – Herington, KS

A two person road train crew was doubling back to their train on main track one with the conductor walking between main track one and main track two giving hand signals to the engineer. The conductor was fouling main track two when another train operating on main track two struck and killed the conductor. A van driver located across from the conductor's position attempted to warn the conductor by yelling at him.

January 28, 2009 – Council Bluffs, IA

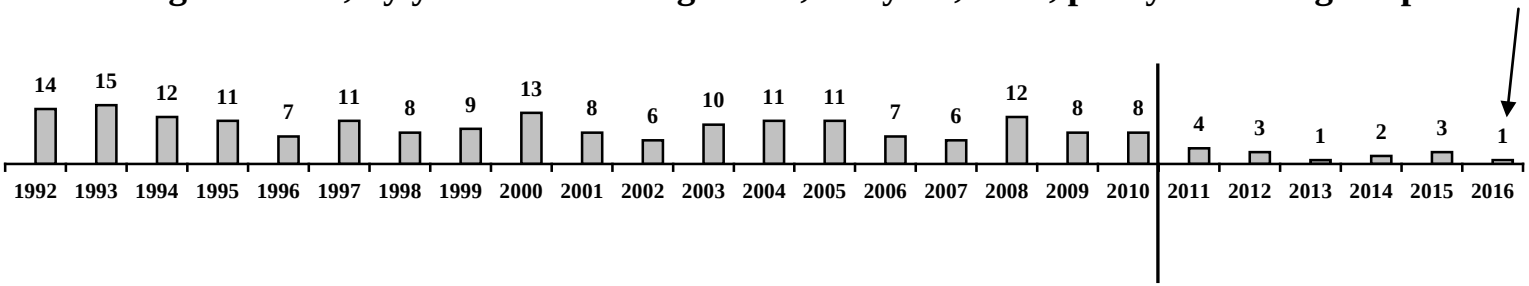
A four person yard switching crew was pulling cars up to make a shoving movement into a yard track, while a road train was approaching in the same direction on the main track adjacent to the switching lead. The conductor riding in the second locomotive of the yard switcher exited the cab and got off on the live side next to the main track, fouling the main track, and was struck by the passing road train.

DATA SECTION – 2016 Second Quarter Update

Find SOFA reports and information at: http://www.fra.dot.gov/SOFA [accessed August 29, 2016]

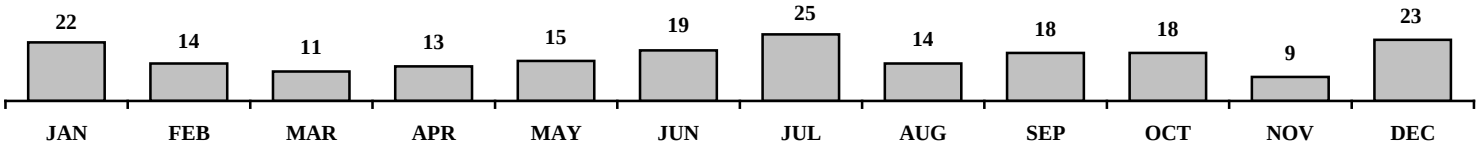
Annual switching fatality counts are lower since 2011…from 1992 through 2010, annual fatality counts averaged 9.8; from 2011 through 2015, counts averaged 2.6

201 Switching Fatalities, by year: 1992 through 2015, full year; 2016, part year through September 04

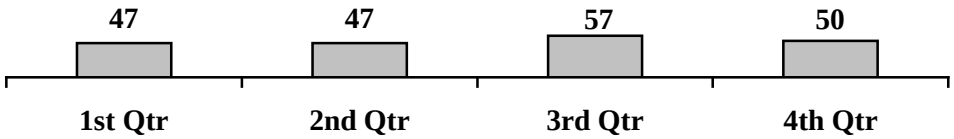


201 Switching Fatalities, by month: January 01, 1992 through September 04, 2016

Switching fatalities occur in every month…always be alert



201 Switching Fatalities, by quarter: January 01, 1992 through September 04, 2016



22 Recent Switching Fatality Cases, January 01, 2010 through September 04, 2016

- **These 22 fatality cases occurred subsequent to the 179 cases (1992 through 2009) which formed the basis of the *2011 SOFA Report*. The purpose of displaying this information is to aid identification of any emerging risks in switching**

- **fourteen of the 22 cases (64 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, addressed by a SOFA Recommendation/Lifesaver; and also *FRA Safety Advisories 2011-02 and 2013-03***
  - **four cases involve Inexperience**

(Note: one case (Kenmare, ND) involves both Close/No Clearance and Inexperience. So the number of reasons is greater than the number of cases)

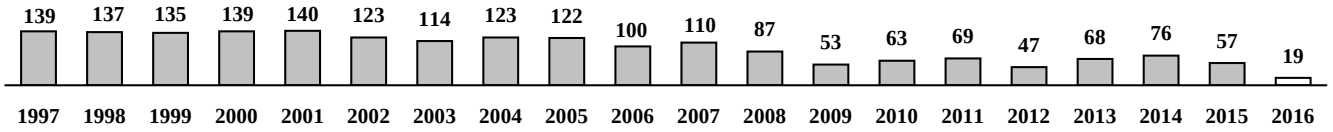
Year	Count	Date	City	State	Reviewed or Preliminary	Fatality Reasons: brief description Risks other than those listed are often involved. Cases marked 'preliminary' are subject to revision of event reasons
2010	1	04/23/10	Riverdale	IL	reviewed	Lack or Inadequate Job Safety Briefing
	2	05/31/10	Kearny	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
2016	22	03/26/16	St. Paul	MN	preliminary	Struck by passing train

SOFA-defined Severe Injury Update

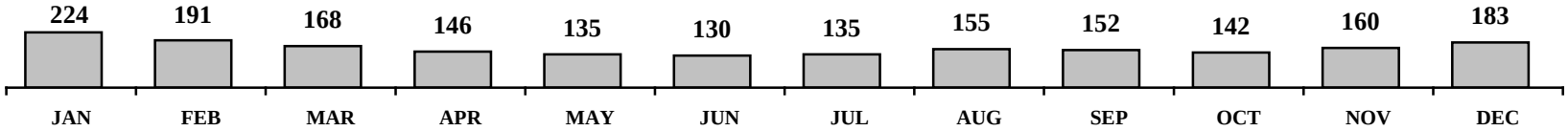
Definition: Based on its interests (i.e., potentially involving the same factors as fatalities), *Severe Injuries* are defined by the SOFA Working Group as (1) potentially life threatening; (2) having a high likelihood of permanent loss of function, permanent occupational limitation, or other permanent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

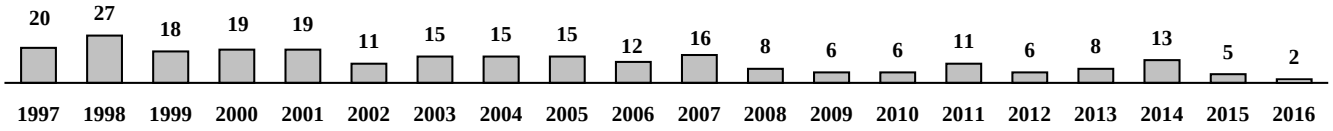
1,921 SOFA-defined Severe Injuries, by year:
full year, 1997 through 2015; part year, 2016 through June



1,921 SOFA-defined Severe Injuries, by month:
January 1997 through June 2016



252 Amputations (counts are included in Severe Injuries), by year:
full year, 1997 through 2015; part year, 2016 through June



SOFA-defined Severe Injuries
January 1997 through June 2016

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 August 31, 2016, 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	2016	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	14	13	6	6	8	9	8	6	11	3	**224**	**11.2**
FEB	17	15	9	9	9	13	17	14	10	6	15	12	4	7	9	2	5	10	4	4	**191**	**9.6**
MAR	14	12	17	11	10	10	13	10	9	9	11	5	5	4	5	6	3	5	7	2	**168**	**8.4**
APR	8	10	6	10	12	6	9	13	10	7	8	9	5	7	5	2	4	6	4	5	**146**	**7.3**
MAY	6	12	8	8	12	14	9	6	6	8	3	7	1	7	8	4	5	7	2	2	**135**	**6.8**
JUN	9	10	8	11	8	5	10	9	7	11	5	3	6	4	2	6	2	6	5	3	**130**	**6.5**
YTD	**65**	**72**	**64**	**64**	**72**	**60**	**69**	**63**	**62**	**51**	**56**	**49**	**27**	**35**	**37**	**29**	**27**	**40**	**33**	**19**		
JUL	9	14	10	8	10	7	6	10	5	12	8	1	4	4	5	3	7	5	7		**135**	**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**
OCT	12	12	16	10	5	11	9	7	11	5	11	4	2	4	4	1	6	9	3		**142**	**7.5**
NOV	12	9	12	11	13	14	10	10	13	8	6	8	3	6	9	3	5	7	1		**160**	**8.4**
DEC	18	9	7	22	12	9	8	15	12	8	6	8	8	6	5	5	14	5	6		**183**	**9.6**
totals	**139**	**137**	**135**	**139**	**140**	**123**	**114**	**123**	**122**	**100**	**110**	**87**	**53**	**63**	**69**	**47**	**68**	**76**	**57**		**1,921**	**98.0**

Amputations (a type of Severe Injury)
January 1997 through June 2016

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 August 31, 2016, 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	2016	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	1	1	1	0	2	0	0	0	1	1	**17**	**0.8**
FEB	0	1	0	1	0	2	1	2	0	2	1	0	0	1	2	0	1	1	1	0	**16**	**0.8**
MAR	3	4	3	2	1	1	3	1	2	1	0	1	1	0	0	1	0	1	0	0	**25**	**1.2**
APR	1	2	0	1	2	0	1	1	2	2	3	3	1	0	1	0	0	0	1	0	**21**	**1.1**
MAY	1	2	3	0	2	2	2	0	0	1	1	0	0	1	2	0	2	2	0	1	**22**	**1.1**
JUN	2	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	0	1	1	0	**11**	**0.6**
YTD	**8**	**10**	**9**	**5**	**6**	**5**	**9**	**7**	**6**	**6**	**7**	**6**	**3**	**2**	**8**	**1**	**3**	**5**	**4**	**2**		
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**
OCT	2	5	2	2	0	0	2	2	0	0	2	0	0	1	1	1	2	2	0		**24**	**1.3**
NOV	2	2	2	2	3	0	1	1	2	3	1	0	0	0	1	0	0	2	0		**22**	**1.2**
DEC	4	1	0	4	1	1	2	1	1	0	0	0	1	0	1	2	1	0	0		**20**	**1.1**
totals	**20**	**27**	**18**	**19**	**19**	**11**	**15**	**15**	**15**	**12**	**16**	**8**	**6**	**6**	**11**	**6**	**8**	**13**	**5**		**252**	**12.9**

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 September 01, 2016, 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	1,883	1,902	650	2,052	830
2011	4	69	11	17	11	1,735	2,028	751	2,062	766
2012	3	47	6	13	4	1,553	1,765	666	1,987	820
2013	1	68	8	13	2	1,742	1,849	710	2,101	859
2014	2	76	13	8	2	1,912	1,869	735	2,293	894
2015	3	57	5	8	1	1,727	1,906	751	2,067	875
JAN-JUN 2015	0	33	4	7	1	874	1020	369	1,000	417
JAN-JUN 2016	1	19	2	9	5	721	740	272	951	500
change						-17.5%	-27.5%	-26.3%	-4.9%	19.9%

***SOFA-defined Severe Injuries are defined only back to 1997** ****Counts happened to be identical for these successive years**