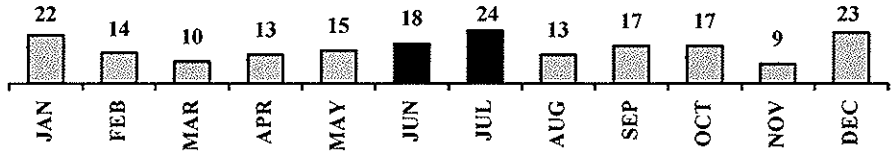
SOFA Switching Fatality and Severe Injury Update – 2014 Second Quarter

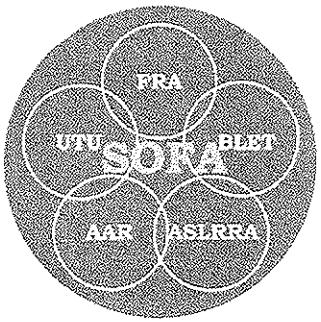
PLEASE POST IMMEDIATELY

470 days since last Switching Fatality on February 16, 2013…
Keep Switching Fatality Free by Working Safely this Summer

- **This *SOFA Update* focuses on switching risk in summer months**
- **Since at least 1992, June and July have high risk for switching Fatalities…42 Fatalities occurred**
- **Fatalities in these two summer months have averaged 21.0 Fatalities vs. 15.3 for other months**
- **Discuss summer risk in safety briefings and training**
- **And work safely in June and July…and all career long**

195 Switching Fatalities, by month,
January 1, 1992 through June 01, 2014





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**

Summer Safety

- **Historically, the risk of a switching fatality increases in summer. Since at least 1992, there have been 18 Fatalities in June; and 24 in July. July has had the most Fatalities of any month. The average number of Fatalities in June and July is 21.0 vs. 15.3 for other months**

195 Switching Fatalities, by month,
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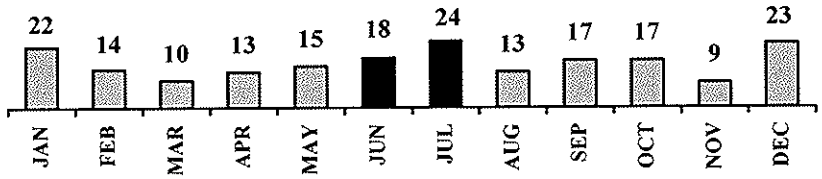


- **The reasons for this increase in June and July are not clear given the available Fatality case information**

- **Special emphasis to reduce risk in these months is warranted. Emphasis should include recognition of any local conditions that change during summer – in yards, out on the mainline, and at industrial sites. Pertinent company policies and SOFA Advisories and Lifesavers/Recommendations should be stressed**

- **While switching Fatalities have dramatically declined in the last four years, it is historically true that risk increases in June and July. It need not be so. Risk can be recognized and remedied. Get the word out: June and July bring additional risk to those engaged in switching. Consider placing special emphasis on summer risk**

- **Work safely this summer…and all career long!**

- **<u>Action Item</u>: Discuss summer safety on your railroad. What are some ways to work safely this summer? Raise awareness about risks that may be summer related**

Summer Safety (continued)

Quotes about summer risk from *Findings and Advisories of the SOFA Working Group, Volume I and II, March 2011 Update*

Hot Summer Weather

Make hot weather an issue upcoming safety awareness campaigns. Increasing workforce awareness of this problem could be an important step in reducing fatalities in hot weather during the summer. Since many fatalities occur right at the beginning of summer, get an early start with a weather awareness campaign. Emphasize the increase risk on industrial properties and shove moves. -*Vol. II, p. H-7*

Educate the workforce on how to prevent heat exhaustion, how to recognize the symptoms, and what to do if it occurs. The symptoms of heat exhaustion include: headache, heavy sweating, intense thirst, dizziness, fatigue, loss of coordination, nausea, impaired judgment, loss of appetite, hyperventilation, tingling in hands or feet, anxiety, cool moist skin, weak and rapid pulse (120-200), and low to normal blood pressure. Employees should not continue work if their judgment, concentration, or reaction time is impaired. -*Vol. II, p. H-7*

Heat Exhaustion

Heat exhaustion occurs when bodies are unable to compensate and properly cool themselves. Impaired judgment is one of the symptoms of heat exhaustion and can be deadly in a railroad switching environment. It may be possible heat exhaustion can creep up on an employee because he or she can continue on with duties without realizing judgment, concentration, and reaction time may be deteriorating. Employees may not recognize the early symptoms of heat exhaustion or be unwilling to express their concerns to peers who continue to work. -*Vol. II, p. H-6 and H-7*

Outside the railroad industry there is a study of the relationship between hot weather conditions and hospital admissions due to work-related accidents in Tuscany, Italy[5]. It shows hot weather conditions might represent a risk factor for work-related accidents in Italy during summer. In particular, the early warming days during June stood out as a peak period. June is also a peak month for SOFA fatalities.... The early days of summer could be a time when some employees have not acclimated to changing climate conditions and may not have adjusted their clothing and fluid intake for the new conditions. -*Vol. II, p. H-6*

Summer Safety Education

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*

[5] ***Relationship between work-related accidents and hot weather conditions in Tuscany (central Italy).*** **Morabito M, Cecchi L, Crisci A, Modesti PA, Orlandini S. Ind Health. 2006 Jul;44(3):458-64**

The Five SOFA Advisories: Review for Summer Safety

Consult the *2011 SOFA Report, Volume I, March 2011 Update* for a full discussion on each Advisory…particularly Chapter 3

Advisory 1: Inexperienced Employee (also SOFA Lifesaver/Recommendation 5) – section 3.3.4 of *2011 SOFA Report*

Since the 1999 Report, the SWG [SOFA Working Group] emphasis on mentoring has not achieved a substantial reduction in SOFA 5 fatalities. It is critical for the railroad industry to provide the inexperienced employee adequate OJT [on-the-job training]. Without abandoning the commitment to mentoring, the railroad industry should improve OJT to include targeted training for the inexperienced employee. Providing follow-up review of skills, and targeted training by the railroad industry enables an inexperienced employee to meet the demands of the job. Benefits may result from a review of OJT, and improved follow-up with inexperienced employees.

If experienced, share your knowledge. If inexperienced, or not familiar with a site, speak up and ask. Admitting lack of knowledge makes you smart and protects you and crewmembers. On-the-job training for inexperienced employees, along with other ways to gain knowledge before harm results, are critical.

Advisory 2: Close Clearances – section 3.5.6 of *2011 SOFA Report*

The SWG reemphasizes that removing the hazard is the best way to address close/no clearances. Yet, in many cases a railroad or industry will not be able to eliminate the close/no clearance condition. At the minimum, the SWG believes that proper signage should be implemented and be instructive to the employee. Additionally, the sign should be an appropriate distance from the close/no clearance location and on the same side. Signage must: (a) announce the clearance issue and (b) instruct the employee who is controlling the movement to dismount and remain dismounted from the equipment while passing the close/no clearance location. One method to determine the signage design, appropriate distance, and position may be to organize a management-labor working group.

As mentioned, for permanent, the best remedy is removal. Otherwise provide appropriate signage. 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.

The Five SOFA Advisories: Review for Summer Safety (continued)

Consult the *2011 SOFA Report, Volume I, March 2011 Update* for a full discussion on each Advisory…particularly Chapter 3

Advisory 3: Industrial Hazards – section 3.6.5 of *2011 SOFA Report*

Railroads and industries need to have Industry Track Agreements, practices, or policies in place, and these should contain oversight and enforcement of the safety provisions. Railroads must provide employees with the tools and/or assistance to allow them to safely perform their work while within an industry.

Employees need to be empowered to make a decision to stop work when an unsafe condition presents itself. Employees engaged in switching operations must not ride railroad equipment through a grade crossing during a shove movement. Industries need to educate and instruct all vehicle operators concerning separation between their vehicle and railroad equipment by being attentive to movements in the industry. At the minimum, the SWG believes that proper education and instruction should be implemented by the industry. Additionally, signage and lighting should be appropriate for the crossing protection needed. Railroad managers must be educated to encourage employees to make a good faith effort to identify and report hazards at industries. Employees making a good faith effort to identify and report hazards will not be subject to discipline, discrimination, or harassment for doing so.

Report hazards through established channels and procedures. If conditions at an industry change, make others aware. Brief employees who have never, or recently, switched the site. Employees should stop work when hazards present danger. Safety, not task completion, comes first.

Advisory 4: Briefings – Job or Safety (also SOFA Lifesaver/Recommendation 3) – section 3.3.5 of *2011 SOFA Report*

The SWG [SOFA Working Group] believes ongoing communication is crucial among employees during the entire time switching operations are being performed, including periods when tasks are changing or when anomalies occur. A job briefing is a two-way exchange of information to reach an understanding of the tasks being performed.

Despite considerable efforts within the railroad industry, more than half of SOFA 3 fatalities in yards and industrial properties occurred when a job task changed and an update to the job briefing did not occur. The SWG 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.

Job brief any time the nature of work changes from what was planned or anticipated. Constant monitoring of work in progress, and constant communication among all crewmembers, are two good ways to determine if a job briefing is needed. When briefing, two-way communication is essential. All crewmembers should feel free to speak and be understood. There is no 'one size fits all' for the content of a briefing, because a job briefing to be effective must address specific tasks and local conditions. However, at a minimum, a job briefing should include: who will act, what act is to be done, where act will occur, when act will occur, and why act is being done.

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

The SWG 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.

Work safely this summer…and all career long!

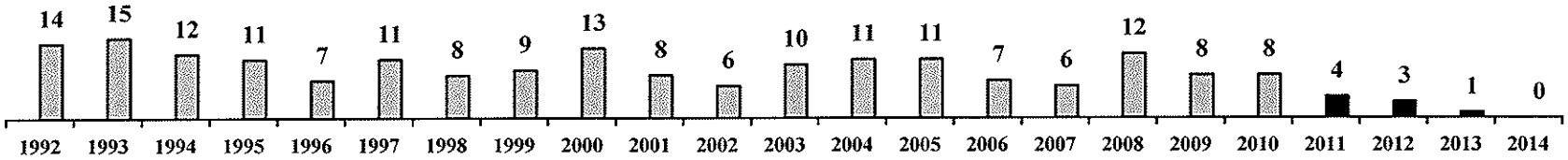
DATA SECTION – 2014 Second Quarter Update

Switching Fatality History

- **0 Fatalities in 2014 through June 01**
- **1 Fatality in 2013…on February 16, at Cleveland, OH**
- **3 Fatalities in 2012**
- **4 Fatalities in 2011**
- **Fatality counts are historically low over the last approximately four years**

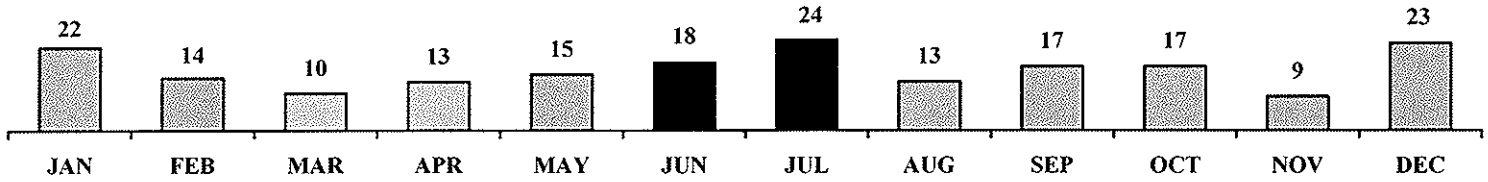
195 Fatalities, by year: 1992 through 2013, full year; 2014, part year through June 01

Fatalities were historically low in 2011 through 2013…and lower counts continue into 2014



195 Switching Fatalities, by month: January 01, 1992 through June 01, 2014

Historically, Switching Fatalities have been high in June and July …but there is risk in all months!



Recent Switching Fatalities

- **Four of last eight Fatalities (January 2011 through June 01, 2014) likely involved going between rolling equipment**
- **This safety issue involves SOFA Lifesaver/Recommendation 1, a safety precaution for fouling track between rolling equipment…and was addressed by *FRA Safety Advisory 2011–02* and *FRA Advisory 2013–03***
- **Perform precautionary safety steps before going between rolling equipment!**

Switching Fatalities, January 2011 through June 01, 2014

Based on preliminary information, four of the last eight Fatalities likely involved going between rolling equipment

Year	Count	Date	Days between Fatalities	City	State	Reviewed or Preliminary	Brief Description (Risks other than those listed are often involved. Case classification marked 'preliminary' is subject to revision. 'SSH' = Special Switching Hazard)
2011	1	02/08/11	120	Kankakee	IL	reviewed	**Advisory 2:Close Clearances** (cars left afoul)
	2	07/25/11	167	Bedford Park	IL	reviewed	**Lifesaver/Recommendation 1: Going Between Rolling Equipment. SSH: Unsecured Cars**
	3	08/15/11	21	Kansas City	KS	reviewed	**Lifesaver/Recommendation 1: Going Between Rolling Equipment. SSH: Miscellaneous**
	4	09/08/11	24	Botkins	OH	reviewed	**Lifesaver/Recommendation 1: Going Between Rolling Equipment. SSH: Unexpected Movement of Railcars**
2012	5	01/30/12	144	Gary	IN	preliminary	Shoving was direction of movement
	6	05/28/12	119	Kenmare	ND	preliminary	**Advisory 2:Close Clearances** (cars left afoul)
	7	07/31/12	64	Mason City	IA	preliminary	**Lifesaver/Recommendation 1: Going Between Rolling Equipment**
2013	8	02/16/13	200	Cleveland	OH	preliminary	Employee fell from car being shoved
2014	--	--	470	--	--	--	No Fatalities in 2014 through June 01

Last Switching Fatality: February 16 – CWRO – Cleveland, OH

A 50 year-old conductor switching cars inside a steel mill fell from the car he was riding; and was subsequently run over by the equipment. The incident occurred at approximately 5:00 P.M. (local time) on Saturday

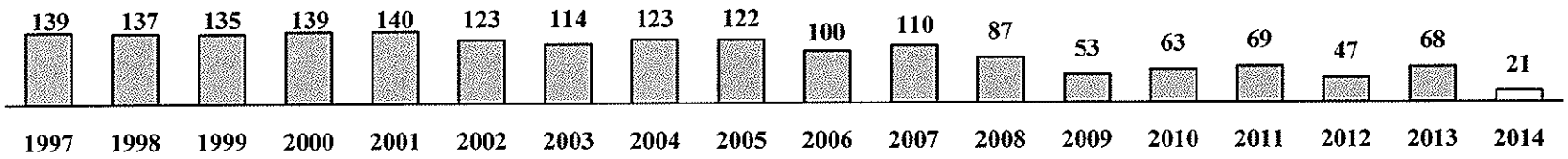
Comment based on preliminary information: Shoving was the direction of movement. Employee fell from car, which is a Special Switching Hazard (SSHET). This SSH, involving slipping, tripping, or falling (not necessarily while riding cars), is involved in about 10 percent of switching Fatalities

SOFA-defined Severe Injury Update

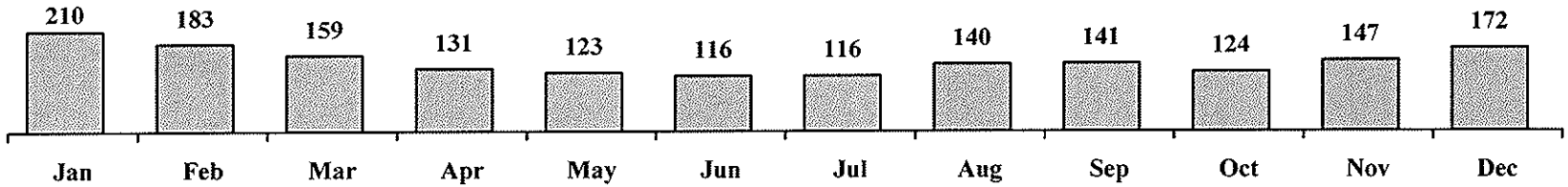
Definition: Based on its interests (i.e., potentially involving the same factors as Fatalities), *Severe Injuries* are defined by the SOFA Working Group as (1) potentially life threatening; (2) having a high likelihood of permanent loss of function, permanent occupational limitation, or other permanent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

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.

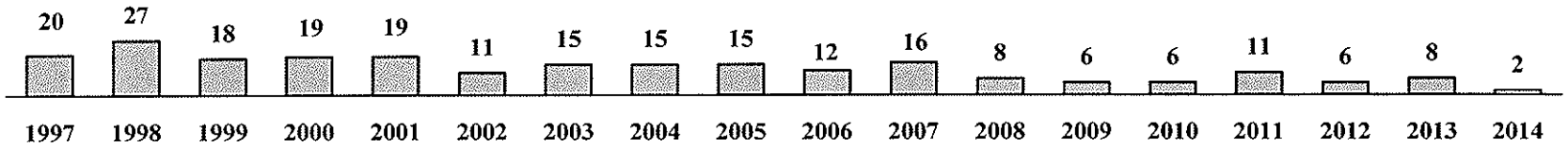
1,790 SOFA-defined Severe Injuries, by year: 1997 through March 2014



1,790 SOFA-defined Severe Injuries, by month, January 1997 through March 2014



234 Amputations (counts are included in Severe Injuries), by year: 1997 through March 2014



1,790 SOFA-defined Severe Injuries, by month and year,
January 1997 through March 2014

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 used in this table were accessed on May 30, 2014

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	14	13	6	6	8	9	8	6	**210**	11.7
FEB	17	15	9	9	9	13	17	14	10	6	15	12	4	7	9	2	5	10	**183**	10.2
MAR	14	12	17	11	10	10	13	10	9	9	11	5	5	4	5	6	3	5	**159**	8.8
APR	8	10	6	10	12	6	9	13	10	7	8	9	5	7	5	2	4		**131**	7.7
MAY	6	12	8	8	12	14	9	6	6	8	3	7	1	7	8	4	5		**124**	7.3
JUN	9	10	8	11	8	5	10	9	7	11	5	3	6	4	2	6	2		**116**	6.8
JUL	9	14	10	8	10	7	6	10	5	12	8	1	4	4	5	3	7		**123**	7.2
AUG	13	10	11	14	8	10	7	14	10	10	13	5	4	5	5	1	5		**145**	8.5
SEP	10	11	15	10	20	12	5	4	9	6	10	12	5	3	4	5	4		**145**	8.5
OCT	12	12	16	10	5	11	9	7	11	5	11	4	2	4	4	1	6		**130**	7.6
NOV	12	9	12	11	13	14	10	10	13	8	6	8	3	6	9	3	5		**152**	8.9
DEC	18	9	7	22	12	9	8	15	12	8	6	8	8	6	5	5	14		**172**	10.1
totals	**139**	**137**	**135**	**139**	**140**	**123**	**114**	**123**	**122**	**100**	**110**	**87**	**53**	**63**	**69**	**47**	**68**		**1,790**	**102.9**

234 Amputations (a type of Severe Injury), by month and year,
January 1997 through March 2014

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)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	1	1	1	0	2	0	0	0	**15**	0.8
FEB	0	1	0	1	0	2	1	2	0	2	1	0	0	1	2	0	1	1	**15**	0.8
MAR	3	4	3	2	1	1	3	1	2	1	0	1	1	0	0	1	0	1	**25**	1.4
APR	1	2	0	1	2	0	1	1	2	2	3	3	1	0	1	0	0		**20**	1.2
MAY	1	2	3	0	2	2	2	0	0	1	1	0	0	1	2	0	2		**19**	1.1
JUN	2	1	1	0	1	0	0	1	0	0	1	1	0	0	1	0	0		**9**	0.5
JUL	1	5	1	0	4	0	1	2	1	2	2	0	1	1	0	0	1		**22**	1.3
AUG	1	0	1	4	0	1	0	2	2	0	3	0	1	1	0	0	1		**17**	1.0
SEP	2	4	3	2	5	4	0	0	3	1	1	2	0	1	0	2	0		**30**	1.8
OCT	2	5	2	2	0	0	2	2	0	0	2	0	0	1	1	1	2		**22**	1.3
NOV	2	2	2	2	3	0	1	1	2	3	1	0	0	0	1	0	0		**20**	1.2
DEC	4	1	0	4	1	1	2	1	1	0	0	0	1	0	1	2	1		**20**	1.2
totals	**20**	**27**	**18**	**19**	**19**	**11**	**15**	**15**	**15**	**12**	**16**	**8**	**6**	**6**	**11**	**6**	**8**		**234**	**13.5**

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

Source: Switching Fatalities from *SOFA Database*; all other series from FRA, accessed May 30, 2014

***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	2,482	911	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	1,903	650	2,051	829
2011	4	69	11	17	11	1,732	2,022	746	2,059	773
2012	3	47	6	13	4	1,526	1,753	661	1,975	842
2013	1	68	8	13	2	1,736	1,786	673	2,089	894
Jan-Mar 2013	1	16	1	0	1	399	428	148	545	171
Jan-Mar 2014	0	21	2	1	0	522	438	172	606	203
% change	--	--	--	--	--	30.8%	2.3%	16.2%	11.2%	18.7%

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

****Counts happened to be identical for these successive years**