

PLEASE POST IMMEDIATELY

Make SOFA Advisories and Lifesavers/Recommendations a Routine Part of Operating Practice

SOFA Safety Discussion Items

Discuss these items anytime switching safety is addressed: safety briefings, meetings...even informal conversations

Discussion item: The number of switching Fatalities in 2011 was historically low – four Fatalities. What additional safety efforts are needed to achieve the Zero Switching Fatality goal?

Discussion item: Three of the four switching Fatalities in 2011 involved going between equipment (Lifesaver/Recommendation 1). How can the industry stress the importance of safely working in such situations?

more discussion items, page 11

Review the Five SOFA Safety Advisories

pages 7-8

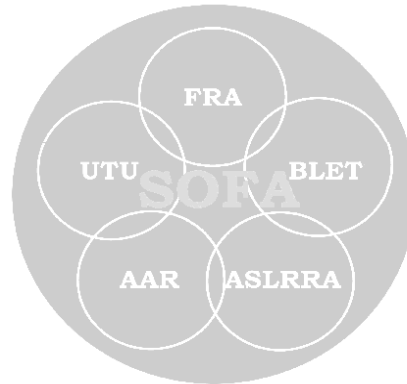
Winter conditions in March and April

Winter may persist in some parts of the country. Melting during the day, and refreezing at night, can cause slippery footing; and difficulties getting on and off equipment. Be careful!

SOFA Education Section

Advisory 4:

23 cases involving inadequate job briefings
pages 16-21



SOFA is a voluntary, non-regulatory, railroad-safety partnership comprised of representatives from AAR, ASLRRRA, 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

One Switching Fatality in 2012 through March 04

Jan 30.....Gary, IN
preliminary summary, page 2

Four Switching Fatalities in 2011

Note: SOFA accounting of annual Fatalities goes back to 1975. Four Fatalities in 2011 is the lowest count in this 37-year period. Previously lows were 6 Fatalities in 2002 and 2007

Feb 08.....Kankakee, IL

Jul 25.....Bedford Park, IL

Aug 15.....Kansas City, KS

Sep 08.....Botkins, OH

preliminary summaries, pages 4-5

Annual Switching Fatality History 1975 through 2011

page 3

SOFA-defined Severe Injury Update All Harm has Concern

- 69 Severe Injuries in 2011 compared to 63 in 2010
- 11 Amputations in 2011 compared to 6 in 2010

pages 12-15

Switching Fatality and Severe Injury Update – 2012 First Quarter

One Switching Fatality in 2012

through March 04, 2012

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:

Fatality involves shoving. In about 50 percent of switching Fatalities involving train movement, shoving is the direction of movement. Inexperience employees may find shove movements particularly challenging. (Based on preliminary information, inexperience is not indicated in this Fatality.) Always a good idea to review shoving procedures, as in safety briefings, or OJT and classroom training.

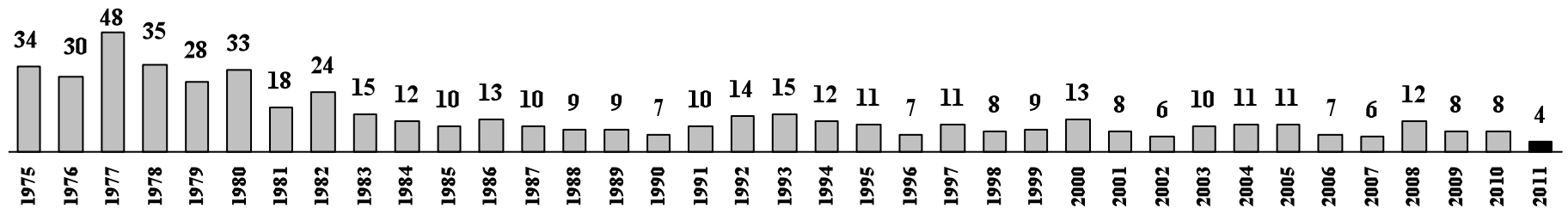
Switching Fatalities

- SOFA believes switching Fatalities occur for a reason. Such tragic events are not just bad luck, or random acts of nature
- By studying these events based on investigations, reasons can be understood, and preventive remedies developed
- But such remedies must be implemented. The remedies must become a routine part of operating practice
- All stakeholders – employees, managers, unions, companies, and FRA – must be involved in the implementation. SOFA believes in a collaborative approach to implementation. An approach based on education, cooperation, and not a blanket policy of discipline
- The number of Fatalities in 2011 was historical low (see next page). What the future will be – no one can predict. There has been one Fatality (January 30, Gary, IN) in 2012 current on this publication. But the low 2011 Fatality number brings encouragement that the Zero Switching Fatality Goal can be achieved. Such achievement depends on successful implementation. Think about how you and your organization can participate in achieving the Zero Switching Fatality Goal

Annual Switching Fatality History

1975 through 2011

- SOFA accounting of annual Fatalities goes back to 1975
- Four Fatalities in 2011 is the lowest number in this 37-year period
- Previously lows were six Fatalities in 2002 and 2007
- There has been one Fatality (January 30, Gary, IN) in 2012 through March 04



- Shown in this chart are 540 Fatalities to employees engaged in switching over a 37-year period, 1975 through 2011
- Switching involves risk
- Safe operating practices can reduce this risk
- Safe operating practice includes SOFA Advisories and Lifesavers/Recommendations

Make SOFA Advisories and Lifesavers/Recommendations a Routine Part of Operating Practice

Four Switching Fatalities in 2011

Preliminary summaries not based on investigation
Some material taken from Federal Railroad Administration's Safety Advisory 2011-02

1) February 08 – NS – Kankakee, IL

A NS conductor (age 43) with 5 years of experience died when he was crushed between the car he was riding, and another car left out to foul, at approximately 1:30 pm (local time).

Comment based on preliminary information:

'...car left out to foul...' is classified by SOFA as a *Temporary Close/No Clearance* and is addressed by **Advisory 2**. *Temporary Close/No Clearance* is defined by SOFA as: "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." For a full discussion of **Advisory 2** consult the *2011 SOFA Report, pages 27-33*.

2) July 25 – BRC – Bedford Park, IL

At approximately 12:30 a.m., a two-person RCL operation had shoved into a classification track and coupled to the westernmost car on the track. The RCL conductor on the crew was creating gaps in the cuts of cars (by pulling west) to adjust couplers and/or align drawbars with the intent of coupling the entire track of 28 cars and pulling it from the classification track. The conductor's helper was riding on the locomotive to provide point protection. The grade on the track was descending from east to west. During one such operation, when the conductor opened a gap, the cars standing to the east of him rolled westward into the cars attached to the locomotive, crushing the conductor. The deceased was 33 years old and had approximately 3½ years of railroad experience.

Comment based on preliminary information:

Event involved **SOFA Lifesaver/Recommendation 1**, discussed on *page 6*.

Four Switching Fatalities in 2011 (continued)

Preliminary summaries not based on investigation
Some material taken from Federal Railroad Administration's Safety Advisory 2011-02

3) August 15 – BNSF – Kansas City, KS

At approximately 1:30 p.m., a three-person remote control locomotive (RCL) crew consisting of a foreman, a helper, and a trainee entered a track in a bowl yard from the east and coupled onto a cut of cars. The foreman and the trainee boarded the locomotive to provide point protection and the helper, using his remote control transmitter, began stretching the cars eastward to identify gaps created by uncoupled blocks of cars. As the gaps were revealed, the helper repeatedly entered the space between the blocks of cars and made adjustments to knuckles and/or drawbars. Using his remote control transmitter, he then shoved the cars attached to the locomotive westward to couple the cars before continuing the process. The last time the helper went into a gap to adjust the knuckles and/or drawbars, the cars attached to the locomotive moved west and crushed the helper between the cars being coupled. The deceased was 52 years old and had approximately 17 years of railroad experience.

Comment based on preliminary information:

Event involved **SOFA Lifesaver/Recommendation 1**, discussed on *page 6*.

4) September 08 – CSX – Botkins, OH

At approximately 5:15 a.m., a single helper locomotive had coupled to the rear of a standing 125-car train with the intent of assisting the train's movement up an ascending grade. At some point, the movement stopped and the conductor of the single helper locomotive detrained and separated his locomotive from the train he and his engineer had assisted. After the separation, the conductor of the single helper locomotive reattached the end of train device to the last car of the assisted train, and announced to the crew of that train that he had finished his tasks. He then began to walk back to his locomotive. Shortly thereafter, the slack on the assisted train adjusted and the conductor was crushed between the rear car of the assisted train and his locomotive. The deceased was 59 years old with 5 years of railroad experience.

Comment based on preliminary information:

Event involved **SOFA Lifesaver/Recommendation 1**, discussed on *page 6*.

SOFA Lifesaver/Recommendation 1 (going between rolling equipment)

Based on preliminary information, three of the four Fatalities in 2011 involved Lifesaver/Recommendation 1: Bedford Park, IL, on July 25; Kansas City, KS, on August 15, and Botkins, OH, on September 08

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.

Action Items for Lifesaver/Recommendation 1 (Going between rolling equipment):

- Consult company procedures for going between rolling equipment
- Consult FRA Safety Advisory 2011-02. Available at: <http://www.fra.dot.gov/downloads/safety/SA201102.pdf> , starting at the bottom right column
- Consult SOFA Reports for Lifesaver/Recommendation 1. Available at SOFA website (click on ‘Findings and Advisories’ tab in upper left corner): <http://www.fra.dot.gov/Pages/1781.shtml>

Five SOFA Safety Advisories: review and apply when applicable

Consult the *2011 SOFA Report* for a full discussion on each Advisory. Particularly Chapter 3. Available at the SOFA website (click on the 'Findings and Advisories' tab in upper left corner): <http://www.fra.dot.gov/Pages/1781.shtml>

Advisory 1: Inexperienced Employee (SOFA Lifesaver/Recommendation 5) – from 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.

Advisory 2: Close Clearances – from 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.

Advisory 3: Industrial Hazards – from 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.

Five SOFA Safety Advisories: review and apply when applicable (continued)

Consult the *2011 SOFA Report* for a full discussion on each Advisory. Particularly Chapter 3. Available at the SOFA website (click on the ‘Findings and Advisories’ tab in upper left corner): <http://www.fra.dot.gov/Pages/1781.shtml>

Advisory 4: Briefings – Job or Safety (SOFA Lifesaver/Recommendation 3) – from 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.

Advisory 5: Struck by Mainline Train – from 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.

Five SOFA Advisories: themes from SOFA Safety Forum

Information helpful in developing each Advisory came from the SOFA Safety Forum (SSF) held February 25, 2010, in Washington, D.C. Fifty-five senior safety leaders, representing 19 railroad-industry organizations, participated in the SSF. See the *2011 SOFA Report, Vol. 1* for a discussion of the SSF. Information in the table below was published in the report on page 70.

Finding	Issues	Barriers	Actions
<i>Advisory 1: Inexperience/ Mentoring</i>	<ul style="list-style-type: none"> • Lack of consensus on quality mentor criteria • Influx of new hires with <1.5 yrs experience • Small or one-person crews • Not all experienced employees are candidates to be mentors 	<ul style="list-style-type: none"> • Personality conflicts • Lack of agreements between carrier and labor • Training and education use rote instructional approaches • Disinterest/unwillingness to mentor 	<ul style="list-style-type: none"> • Experiential learning approaches, such as OJT • Positive remedial learning • Carrier-Labor Partnerships • Program monitoring/feedback
<i>Advisory 2: Close Clearance</i>	<ul style="list-style-type: none"> • Influx of new hires with <1.5 yrs experience • Unsafe equipment & working conditions • Changing communications medium and strategies • Too many rules; complex; non-standardization 	<ul style="list-style-type: none"> • Individualism • Lack of teamwork • Practice from habits not education • Lack of or unenforced agreements between carriers and clients • Lack of communication systems 	<ul style="list-style-type: none"> • Situational awareness • Defensive switching • Safety rules revision • Safety site visits • Safety hotlines • Communication with clients
<i>Advisory 3: Industrial Hazards</i>	<ul style="list-style-type: none"> • Influx of new hires with <1.5 yrs experience • Worker disempowered • Unclear management buy-in/support • Inconsistent signage 	<ul style="list-style-type: none"> • Lack of or unenforced agreements between carriers and clients • Lack of communication systems • Lack of education or training 	<ul style="list-style-type: none"> • Safety site visits • Safety hotlines • Communication with clients, employees, and supervisors • Initiate/Enforce industry agreements • Improve signage
<i>Advisory 4: Job Briefing</i>	<ul style="list-style-type: none"> • Term suggests one-way communication • Unclear scope of briefing • Appropriate or best approach in practice not implemented uniformly 	<ul style="list-style-type: none"> • Productivity pressure, “Just get the work done.” • Individualism; individual exception to safety risk, “Can’t happen to me.” 	<ul style="list-style-type: none"> • Need two-way communication • Identify and disseminate best practices
<i>Advisory 5: Struck by Mainline Train</i>	<ul style="list-style-type: none"> • Unsupervised industry • Unclear communication strategies • Punitive environment; employee blame • Variable yard design and equipment 	<ul style="list-style-type: none"> • Seasonal stressors on work duties and relationships • Inadequate communication • Depression in winter months • Inadequate job briefing 	<ul style="list-style-type: none"> • Situational awareness • Defensive switching • Share responsibility • Active supervision • Equipment improvements

7 SOFA Safety Discussion Items

Discuss these items anytime switching safety is addressed: safety briefings, meetings...even informal conversations
Seek a forum for these items whenever stakeholders gather to discuss switching safety

Discussion item (mentioned on *page 1*): The number of switching Fatalities in 2011 was historically low – four Fatalities. What additional safety efforts are needed to achieve the Zero Switching Fatality goal?

Discussion item (mentioned on *page 1*): Three of the four switching Fatalities in 2011 involved going between equipment (Lifesaver/Recommendation 1). How can the industry stress the importance of safely working in such situations? How can each individual railroad stress this importance? How can you and your crew stress importance?

Discussion item: Advisory 1 deals with inexperienced employees. Training, both classroom and on-the-job (OJT); crew resource management (CRM); exchanging knowledge and wisdom between experienced and inexperienced employees; and mentoring are ways inexperienced employees can learn how to perform work safely. What are some other ways inexperienced employees can learn safe operating practices?

Discussion item: Advisory 2 addresses close/no clearances. For permanent, the best remedy is removal or proper signage if removal is not possible. For temporary, *current* awareness of the switching surroundings is critical. Job briefings are effective in identifying clearance hazards before switching begins. Close clearance concerns often arise when shoving. How else can clearance hazards be controlled on your property?

Discussion item: Advisory 3 speaks to a variety of hazards when switching industrial sites. Hazards at these sites should be reported through established channels. Always make others aware of hazards (e.g., trucks and loading devices, debris, close clearances, cars left afoul, activities of non-railroad employees). How can you reduce risk when switching your industrial sites?

Discussion item: Advisory 4 stresses the importance of a job briefing when the nature of work changes from what was planned or anticipated. Obviously, this implies that first changes must be detected through monitoring work in progress. A job briefing is specific to ongoing or upcoming work, as distinct from a safety briefing which may be more general in nature. It keeps everyone current about work being done. There is ‘no-one-size-fits-all’ approach to an effective job briefing. However, as discussed on *page 17*, there are some guidelines. How can you further refine your job-briefing skills?

Discussion item: Advisory 5 points out the risks associated with working around mainline trains, as in doing a roll-by inspection. Winter and darkness elevate these risks. Job-briefing before exiting the cab to inspect reduces risk. What being-struck-by-mainline-movement risks exist on your property? How can these risks be reduced?

Possible Contributing Factors (PCFs) for 179 Fatality Cases

SOFA assigned 83 different PCF codes to the 179 Fatality cases occurring from 1992 through 2009. On average, each case had about two PCFs assigned. PCF codes are based on the FRA's Train Accident Codes (mostly Train Operation – Human Factors). Additionally, SOFA created 12 new PCF codes to specifically address circumstances of these switching Fatality cases. Shown below are the more frequent PCF codes assigned. Appendix E of the *2011 SOFA Report, Vol. 2*, lists the frequency of the 83 PCFs assigned. In all, the 83 PCFs were assigned 372 times to the 179 cases.

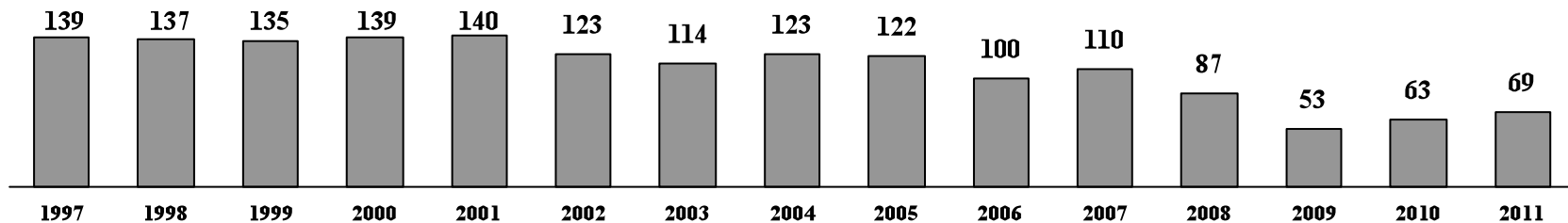
PCF Code	Description	Number of Cases among 179 Cases	Percent of Cases among 179 Cases
H990	Employee on or fouling track	80	44.7%
H316	Poor intra-crew communication about work in progress	31	17.3%
M411	Close or no clearance	27	15.1%
H307	Shoving movement, man on or at leading end of movement, failure to control	24	13.4%
H998	Employee falling from moving equipment	15	8.4%
H399	Other general switching rules (Provide detailed description in narrative)	14	7.8%
H997	Failure to provide adequate space between equipment	14	7.8%
H317	Failure to communicate unsafe condition	13	7.3%
H702	Switch improperly lined	12	6.7%
H199	Employee physical condition, other (Provide detailed description in narrative)	10	5.6%
M599	Other miscellaneous causes (Provide detailed description in narrative)	9	5.0%
H210	Radio communication, failure to comply	9	5.0%
H211	Radio communication, improper	8	4.5%
H021	Failure to apply hand brakes on car(s) (railroad employee)	8	4.5%
H996	Insufficient training	8	4.5%
H306	Shoving movement, absence of man on or at leading end of movement	8	4.5%
M101	Snow, ice, mud, gravel, coal, etc. on track	7	3.9%
H310	Failure to couple	7	3.9%
H989	Lack of skill or practical wisdom gained by personal knowledge or action. (Provide description in narrative.)	7	3.9%
H305	Instruction to train/yard crew improper	7	3.9%
M302	Highway user inattentiveness	7	3.9%
H302	Cars left foul	6	3.4%
H999	Other train operation/human factors (Provide detailed description in narrative)	6	3.4%
H018	Failure to properly secure hand brake on car(s) (railroad employee)	6	3.4%

SOFA-defined Severe Injuries...All Harm to Employees has Concern

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.

SOFA-defined Severe Injuries by year, 1997 through 2011
(1997 is the first year these injuries can be defined based on the SOFA definition)



SOFA-defined Severe Injuries, by month and year, 1997 through 2011

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

All Harm to Employees has Concern

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	totals	average
JAN	11	13	16	15	21	12	11	11	20	10	14	13	6	6	8	187	12.5
FEB	17	15	9	9	9	13	17	14	10	6	15	12	4	7	9	166	11.1
MAR	14	12	17	11	10	10	13	10	9	9	11	5	5	4	5	145	9.7
APR	8	10	6	10	12	6	9	13	10	7	8	9	5	7	5	125	8.3
MAY	6	12	8	8	12	14	9	6	6	8	3	7	1	7	8	115	7.7
JUN	9	10	8	11	8	5	10	9	7	11	5	3	6	4	2	108	7.2
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	1,654	110.3

Amputations (a type of Severe Injury), by month and year, 1997 through 2011

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	totals	average
JAN	1	0	2	1	0	0	2	2	2	0	1	1	1	0	2	15	1.0
FEB	0	1	0	1	0	2	1	2	0	2	1	0	0	1	2	13	0.9
MAR	3	4	3	2	1	1	3	1	2	1	0	1	1	0	0	23	1.5
APR	1	2	0	1	2	0	1	1	2	2	3	3	1	0	1	20	1.3
MAY	1	2	3	0	2	2	2	0	0	1	1	0	0	1	2	17	1.1
JUN	2	1	1	0	1	0	0	1	0	0	1	1	0	0	1	9	0.6
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	218	14.5

Switching Fatalities, SOFA-defined Severe Injuries, and Other Reportable Events, 1992 through 2011

Source: Switching Fatalities from *SOFA Database*; all other series from FRA, accessed March 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	3,000	1,068	2,942	992
2007	6	110	16	2,520	2,693	1,046	2,778	877
2008	12	87	8	2,215	2,478	909	2,430	890
2009	8	53	6	1,963	1,907	655	1,931	760
2010	8	63	6	1,871	1,897	643	2,017	822
2011	4	69	11	1,684	1,939	702	1,956	774

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

**Counts happened to be identical for these successive years

SOFA Education Section

Fatality Cases involving Inadequate Job Briefing (Advisory 4)

Education Section Purpose

SOFA places emphasis on education about the reasons and remedies for switching Fatalities. This section presents selective Fatality cases – captured in short narratives – that emphasize particular reasons and remedies. Studying past cases may prevent future Fatalities.

Prepare for Case Review

Before reviewing actual cases, gain some background. Read ‘Tips for Holding an Effective Job Briefing (Advisory 4)’ on the next page. Consult Chapter 3 of the *2011 SOFA Report* for more job-briefing information. And discuss how you conduct job briefings, including the decision to hold one based on monitoring of work in progress.

Case Review

For the cases presented, SOFA believes risk may have been reduced by an effective job briefing. These 23 cases occurred from 1992 to 2009. Be aware that for an effective briefing to occur, detection must first be made that the nature of work has changed from what was planned.

- **Recreate Event:** After reading a short case narrative, recreate the switching environment before the task began. Describe how the environment may have changed as the switching task progressed, prompting the possible need for a job briefing. Describe how the final event occurred. Note: 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 an effective job briefing that would have reduced risk. Be sure all crew members are of the same understanding.

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)

Tips for Holding an Effective Job Briefing (Advisory 4)

- **First, a job briefing is different from a safety briefing**
- A job briefing is specific to upcoming work, and its interrelated and independent tasks. A safety briefing is more general, often occurring at the beginning of a shift
- 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. Thus, it is important to always monitor work-in-progress, especially for anomalies. 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. All crew members should be empowered to stop work and request a job briefing
- A job briefing is a two-way exchange of information to reach an understanding of the tasks being performed. All should participate in the job briefing, regardless of seniority. All should be heard about concerns of upcoming work. All should understand the exact nature of work to be performed
- A job briefing cannot be standardized, generalized, or simply rule based. Switching acts can be unique to circumstances and location. A briefing must be adequate, specific to the acts. Fatalities have resulted even after a job briefing because the briefing was not adequate
- 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
 - Why act is being done
- **Finally, an effective job briefing can prevent harm to employees...monitoring switching operations for anomalies from what was planned, stopping work when appropriate, and holding an effective job briefing are part of safe operating practice**

Please consult the *2011 SOFA Report* for more job-briefing information: <http://www.fra.dot.gov/Pages/1781.shtml>

23 Fatality Cases involving Inadequate Job Briefings (Advisory 4)

July 24, 1992 Wisconsin Rapids, WI Freight Brakeman/Flagman age: 34

The road job's brakeman was trying to help the switch crew make up his train. The brakeman was in between cars on an active track being used by the switch crew and was killed when the cars he was between moved upon being struck by a cut of free rolling cars.

June 07, 1993 Fulton, KY Yard Brakeman/Helper age: 49

Crew performing switching duties in class yard failed to have a clear understanding of movements being made. Results were that the rear brakeman was run over by moving equipment. There were no witnesses, but a hand brake was applied. It was thought that the brakeman had gone between the equipment on the ground to release the low hand brake.

August 11, 1993 Tracy, CA Freight Brakeman/Flagman age: 47

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.

November 13, 1993 Macon, GA Yard Conductor/Foreman age: 47

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.

December 05, 1993 Atlanta, GA Freight Conductor age: 59

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.

November 15, 1994 Painted Post, NY Freight Brakeman/Flagman age: 57

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.

February 17, 1995 St. James, OH Conductor age: 48

Arbitrary change in switching operations by conductor resulted in him being unexpectedly struck and fatally injured by approaching cars while he was fouling the track.

March 02, 1995 Aiken, SC Brakeman age: 46

Switch crew was pulling a cut of cars out of an industry. Brakeman stepped in track gauge to open knuckle on the rear car at the same time crew shoved back to kick two cars that ran over the brakeman.

23 Fatality Cases involving Inadequate Job Briefings (Advisory 4) (continued)

January 12, 1999 Port Newark, NJ Conductor age: 54

A three person industry switching crew was in the process of switching cars back and forth over a private crossing equipped with an in-ground hand throw switch. The brakeman was at the switch and the conductor was going back and forth from one set of cars to another. The conductor shouted to the brakeman that he wanted the next move down one track but the cars started down the other. The brakeman tried to warn the conductor who had his back to the move and then stopped the move but too late to save the conductor who was hit and run over by the leading car of the shove.

April 02, 1999 Waseca, MN Brakeman age: 54

A three person yard switching crew was switching and the conductor was pulling pins while the brakeman was taking orders from him and working the yard tracks during a flat switching operation. The conductor cut off three cars that rolled into other cars on the track. The brakeman was run over by these cars.

October 15, 2000 Houston, TX Fireman age: 47

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

January 11, 2001 South Fork, PA Engineer age: 52

The engineer and conductor of a road train were told to stop and check their locomotives for flat spots. Once stopped, and without a job briefing the locomotive engineer left the lead unit and shortly thereafter, was struck and killed by a passing mainline train.

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.

April 11, 2003 Pocatello, ID Conductor age: 55

A road conductor was riding the point of a 122-car shove down a track that was partially out of service. The out of service portion was marked by a red flag and derail. The crew was not able to stop the movement before the car being ridden by the conductor went over the derail, landed on its side and crushed the conductor to death.

23 Fatality Cases involving Inadequate Job Briefing (Advisory 4) (continued)

October 07, 2004 Teague, TX Yard Brakeman age: 60

A four person yard crew moving cars from the south end of the yard and lacing air hoses after each cut had the brakeman working alone at the north end of the yard. During the job briefing the crew agreed not to switch cars into track 102 where the brakeman was working. Brakeman was found between cars on track 103 at the time of the incident with leg severed below the groin, and died eight later.

November 01, 2004 Bowdoin, MT Conductor age: 45

An eastbound train stopped on the siding waiting the passage of a westbound train. The engineer saw the headlight of the approaching train, and observed his conductor get up and exit on the live track side of the locomotive, contrary to rules. While attempting to cross to the other side of the track to conduct an inspection, the conductor paused in the middle of the track and the approaching train, sounding the horn and with headlight on bright, struck the conductor still standing on the track.

December 17, 2004 Radium, CO Conductor age: 44

An eastbound train was stopped on the siding waiting for the passage of two westbound trains. The first train, approaching at a speed of 20 -23 mph, was observed by the engineer and heard the train sounding its whistle and bell. The conductor on the standing train got up and without a word, departed the locomotive's cab to conduct a roll-by inspection and stepped off the standing train locomotive on the live side between tracks. The approaching train struck the conductor, killing the conductor.

April 11, 2005 Ogden, UT Switchman age: 38

A remote control assignment was switching on the east end of the yard. While making a shove movement into a yard track with a helper riding on the leading end of a tank car, the movement struck 28 standing cars in the track causing the helper to fall from the tank car, which then ran over helper.

November 16, 2005 Lugoff, SC Conductor age: 48

A three person crew shoving into an industry track found cars left foul of an adjacent track by industry employees. The conductor held a job briefing with the brakeman on the moves to be made, and the brakeman understood he would control the switching and car movements. After shoving the cars to make the coupling, the conductor told the brakeman the cars were coupled and he was in the clear. The brakeman attempted to uncouple from the cars, but failed. He then requested the engineer make a second move to create slack between the cars so they could be uncoupled. The engineer complied and the conductor who was in the foul of track and equipment suffered fatal injuries.

August 30, 2007 Stockton, CA Yard Brakeman age: 50

A remote control operator controlling a shoving movement was riding the leading end of the two car move when he struck the side of another standing car. The standing car fouled the crossover switch which the movement was lined to operate through, killing the operator.

23 Fatality Cases involving Inadequate Job Briefing (Advisory 4) (continued)

September 23, 2008 Darby, PA Freight Conductor age: 46

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 fowl.

November 15, 2008 Laurel, MT Yard Brakeman age: 39

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.

January 16, 2009 Fort Sumner, NM Freight Engineer age: 59

A two person road freight train crew was operating on the main track westbound when the engineer exited the cab of the controlling locomotive to get to the trailing locomotive. The conductor, a qualified locomotive engineer, took over operation of the locomotive and train. After several minutes when the engineer had not returned, the conductor stopped the train and went in search of the engineer and notified the dispatcher. A following westbound train found the engineer on a parallel road where he had fallen from the train. The engineer died as a result of injuries sustained in the fall.

Make SOFA Advisories and Lifesavers/Recommendations a Routine Part of Operating Practice