

# BENDING THE SIF CURVE

## American Families Deserve a New OSHA Legacy

By Donald K. Martin and James B. Spigener

Since its establishment in 1970, OSHA has saved the lives of countless U.S. workers through its standards, regulations, inspections and training. Its mission to “assure safe and healthful working conditions for working men and women” remains as relevant today as when President Nixon signed the agency into law 48 years ago.

**Its measure of workplace incidents,** the OSHA recordable, has become a universally recognized measure of workplace safety. Agency administrators are justly proud of the fact that recordables have been declining for 23 consecutive years.

But while recordables decline, the rate of fatal incidents and injuries has remained essentially flat for the past 8 years. The attention focused on the overall rate masks a worrisome lack of progress on a critical component of workplace injuries, those with potential for serious injuries and fatalities (SIFs).

Research led by the authors’ company, DEKRA, along with client partners demonstrates that SIFs often derive from causes and precursors distinct from those of routine incidents and injuries. We believe that it is time for OSHA to undertake a national initiative to track incidents with SIF potential, identify their precursors and take steps to bring these rates down. Doing so can significantly reduce workplace fatalities and life-altering injuries in the U.S. over the next decade.

### OSHA’s Role

Unquestionably, OSHA has played a major constructive role in the evolution of workplace safety in the U.S. Its recordables rate remains a consistent and accepted way to measure safety performance and benchmark improvement. Its standards and programs motivate companies. To have a low OSHA rate is an indicator of a well-run company with an enviable commitment to safety.

However, it is hard to escape the conclusion that the agency has not realized results on the fatality prevention front in recent years. Although its Voluntary Protection Programs (VPP) initiative has created high levels of engagement at the hourly level and remains a source of pride in many organizations, many companies have moved beyond compliance with OSHA standards, taking care of employees not because it is a legal responsibility but because they regard it as an ethical and moral imperative. To these companies, OSHA is enforcing rules of the road

much like a police officer does. Those who drive safely follow the rules because they believe in them; those who do not follow the rules need the police officer to keep them from harming themselves and others through carelessness or negligence.

The bad news in all this has become glaringly obvious from the research done by DEKRA in concert with many of the best companies in the world: The OSHA-recordable rate is highly misleading because it is based on an implicit false assumption that as the rate of incidents and injuries declines, so, proportionately, will the rate of SIFs. In fact, the company’s research and that of others clearly demonstrates that more serious and fatal injuries come from a subset of the causes of the OSHA recordables mix. These precursors and causes are often significantly different from those of routine recordable cases. They demand a different and more aggressive approach to mitigating exposures.

To illustrate this point, look no further than the 2010 *Deepwater Horizon* disaster in the Gulf of Mexico. The oil rig was awarded by company leaders for safety performance based on its OSHA-record-

able rates, which were exemplary. On the same day, an explosion and fire killed 11 crew members (Gerard, 2011).

In this and other instances in which recordables masked hidden hazards, the SIF precursors were hiding in plain sight and went unnoticed in the OSHA-recordable category.

How bad is the problem? Think of this: While U.S. workplace incident and injury rates have continued to decline, we have now seen 3 consecutive years of increasing fatalities (Figure 1, p. 52). According to Bureau of Labor Statistics (BLS, 2017), 5,190 workers lost their lives in workplace incidents in 2016, a 7% increase over 2015. The leading cause of death in the workplace: Over-the-road motor vehicle incidents. They account for 24% of all U.S. worker fatalities and many of them are preventable. The rate of contractor fatalities is also alarming and increasing every year since the BLS started tracking this demographic in 2011 (Figure 2, p. 52). A total of 856 contractor employees lost their lives in 2016, accounting for 16% of all workplace fatalities (BLS, 2017).

Another way to describe the problem: The U.S. fatal workplace incident rate in

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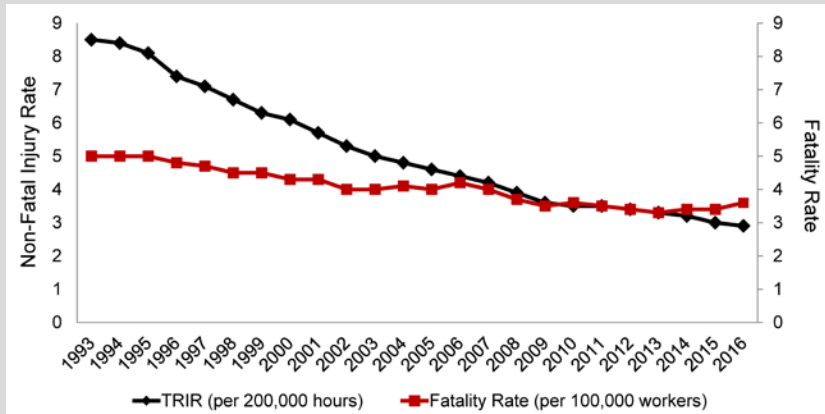
**OSHA's Form 300 (Rev. 01/2004)**  
**Log of Work-Related Injuries and Illnesses**

**Attention:** This form protects the health and safety of employees. It is confidential and should be kept in a secure location. It is not to be used for disciplinary purposes.

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

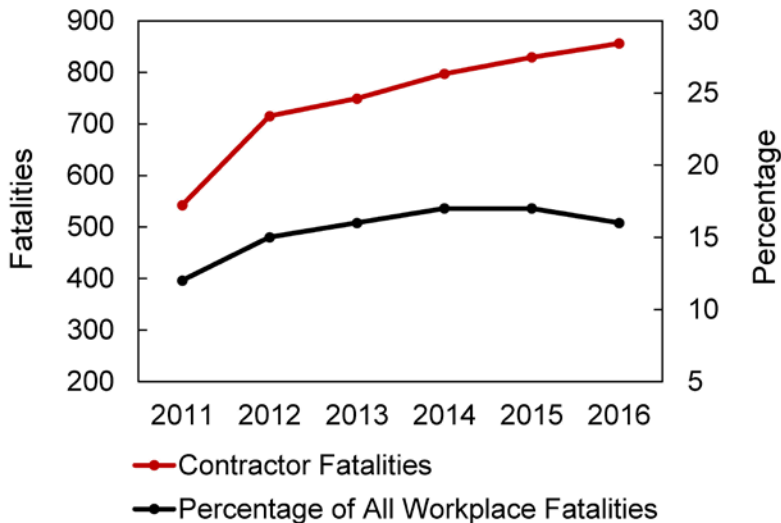
Identify the person		Describe the case			(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g., Second degree burn on right forearm from arcweld torch)
(A) Case no.	(B) Employee's name	(C) Job title (e.g., Welder)	(D) Date of injury or onset of illness	(E) Where the event occurred (e.g., Loading dock north end)	

**FIGURE 1**  
**FATALITY RATE VS. NONFATAL INJURY RATE**



Note. Adapted from Census of Fatal Occupational Injuries Summary, 2016, by BLS, 2017.

**FIGURE 2**  
**TWO SIGNIFICANT TRENDS**



Note. Adapted from Census of Fatal Occupational Injuries Summary, 2016, by BLS, 2017.

2009 was 3.5; in 2016, it was 3.6. In anyone's book, that is zero progress.

OSHA must undergo a structural shift in thinking by emphasizing a new SIF potential metric for fatality prevention. These SIF events are far more consequential to employers, employees and their families than all of the run-of-the-mill OSHA recordables combined.

### Understanding SIF Causes & Correlations

As professionals with a combined 75 years of safety experience, the authors

find these fatal incident trends embarrassing, unacceptable and completely unnecessary. Professionals in the safety community understand the requirements to solve this problem. A serious national effort must be made to address the phenomenon of SIFs. The leadership and influence of OSHA is critical for calling attention to the problem and pointing the way to its solutions.

Much of the spadework has already been done. The authors' experience shows that more rules, regulations and stricter

enforcement actions do not deliver better SIF results. Research shows that focusing on overall incident rates is an inefficient strategy for reducing SIFs.

The combined research and experience has consistently proven that reducing SIFs requires a different strategy than reducing less serious injuries. A strategy for reducing SIFs makes effective use of precursor data derived from exposure situations that lead to severe incidents, injuries and near-hits. An effective strategy focuses on those high-risk situations in which critical safety controls are breaking down, and the effective interventions interrupt the continued persistence of this unmitigated situation.

With the cooperation of seven multinational corporations, DEKRA undertook a study to better understand the causes and correlations of SIFs in 2014 by collecting 2 years of incident data related to SIFs, less-serious recordable injuries and near-hits. The data included 1,028 event cases representing 1 million workers and contractors in numerous countries. Among other conclusions, we found that the percentage of nonserious injuries that had SIF exposure potential ranged from 10% to 36% of all injuries, with an average of 21%.

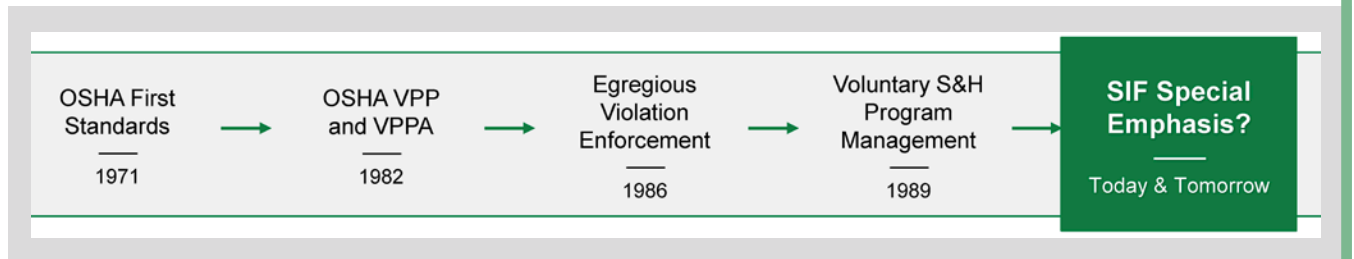
The study confirms what other studies have long suggested. All recordable injuries are not equal. A broken foot caused by stepping on a rock in a company parking lot has significantly less SIF potential, for example, than a foot broken from being driven over by a forklift.

This information is not captured by OSHA currently, nor is it captured by most organizations. But it can be captured. Imagine, for example, if a yes/no box were added to OSHA 300 log that required organizations to evaluate the SIF potential of recordable incidents. First, of course, OSHA would have to educate senior leaders and organizational safety officials about SIFs. The agency would need to develop a working definition of SIF exposure and guidelines for how to evaluate exposure.

But if we are serious about reducing SIFs, then recording incidents and spreading awareness of SIFs are only the beginning. The research demonstrates that, without additional regulation, a few critical interventions can drive down fatal incident exposures in as little as 1 to 2 years. These interventions include:

- institution of systems to deal with potential workplace hazards, with easily understood (e.g., pictorial) instructions, where workers find it easier to do right/safe things than wrong/unsafe things;

**FIGURE 3**  
**THE OSHA EVOLUTION CHALLENGE**



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- job plans, job walk-downs and pre-task risk assessments that accurately predict the SIF exposures workers will face and that put needed controls in place to mitigate them;

- periodic samples taken in the field to verify that critical controls are in place and functioning as intended;

- prevention through design and inherently safer design systems that are at the core of exposure control;

- a climate created by management that encourages workers to use stop-work authority and report near-hits, and that supports them when they do so.

It helps immeasurably, of course, if those organizations are run by leaders who are passionate about safety and who focus their organizations on building safer systems, controlling exposure, and making safety part of all decision making. Such leaders also enlist the active participation of their workforce in identifying workplace exposures and behaviors that threaten safety. Companies that make a serious effort to reduce potential SIFs in this way will achieve reductions in SIF events.

### What Can OSHA Do?

First, OSHA must establish a national emphasis program (NEP) focused exclusively on the reduction of fatal incidents in all industry sectors (Figure 3). This program should also deal with over-the-road motor vehicle exposure and include contractors as well as employees.

Secondly, OSHA should drive public awareness of the exposure potential for SIFs. Injuries and near-hits occur every

day; data show that 21% of incidents have the potential for significantly worse outcomes. A finger cut requiring three stitches shows up on the OSHA 300 log as a medical treatment. If the cut resulted from a worker removing his hand from a cutting machine just before it might have been caught, crushed and possibly required amputation, that cut is potentially a much more serious event.

Thirdly, OSHA should add an SIF-exposure potential column to its log to enable flagging of cases that might have had more severe consequences. Recognizing the potential for a life-altering, life-threatening or fatal outcome is a critical step toward recognizing the existence of SIF precursors. This step alone will lead to a reduction in SIF exposure. Decision rules already exist that facilitate the credible and consistent determination of SIF exposure potential and they can be applied in every industry sector.

Wise leaders of government and industry know that proper measurement can drive change. The simple action of tracking those events with SIF exposure potential will lead to better investigations and

improved actions to control and mitigate SIF precursors.

The unfortunate truth is that organizations may comply 100% with the law, but people will still get killed at work. However, championing SIF intervention strategies under the NEP umbrella will give OSHA significantly more leverage and influence in reducing SIFs in the workplace. The critical few interventions noted are a good starting point. If OSHA takes the lead on this initiative, it can muster the support of industry and labor leaders to overcome any political or procedural obstacles.

OSHA must continue its emphasis on recording and reducing all workplace incidents and injuries. But it is time to augment that effort by placing the national spotlight on a much more serious target, one that has the potential to kill or maim workers and devastate their families, with repercussions that impact every community in the nation.

### Conclusion

Today, organizations have the knowledge and the technology to significantly reduce serious injuries and fatalities in the workplace. The big question is, are we willing to help OSHA move into a stronger space for protecting the lives of American workers? **PSJ**

### References

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**James B. Spigener** is senior vice president of DEKRA Insight. He has helped hundreds of companies worldwide design, prepare and implement successful safety solutions at every organizational level, from senior leaders to shop floor personnel. He is a former steward of the United Steelworkers of America. Spigener is a member of ASSP's Gulf Coast Chapter and the Society's Consultant Practice Specialty.

**Donald K. Martin, M.P.H., CSP, CIH**, is vice president of DEKRA Insight and a 33-year veteran of the safety industry. He is also an executive coach who provides personal development and safety leadership training at every level, from the frontlines to the C-suite. He earned a B.S. in Environmental Science from Sam Houston State University, and an M.P.H. in Occupational Health and Aerospace Medicine from the University of Texas School of Public Health. Martin is a professional member of the North Florida Chapter and the Society's Management Practice Specialty.