In This Issue

1. Editorial
2. “Are we kidding ourselves?” Response
3. Felicia’s Corner
4. Ask the Lawyer: With the higher temperatures in recent years, does OSHA enforce work hazards associated with the heat?

EDITORIAL

For current CSHMs there is an election in progress for three Board of Director positions. To date only 27% of eligible voters have cast ballots. The election process is a great way to help shape the future of ISHM and we encourage every eligible voter to participate. The Election closes on August 5, 2013 so hurry.

As many have noticed Ashley left ISHM to become a full time college student. Well, did we get lucky when we found Felicia to fill the position. She has quickly grasped the essence of what ISHM does and is a very valuable team member. She has written a column “Felicia’s Corner” for this newsletter.

We are receiving applications for “ISHM Safety Professional Manager” of the year. Make sure you get your application in before the deadline.

“Are we kidding ourselves?” Response

Last Month’s newsletter had an article about a presentation by Dr. Krause at the ASSE Expo.
Pat O’Rourke has offered this in response which we find to be interesting and informative. Maybe you could add your thoughts to the discussion.

I found Dave Johnson’s article in the July ISHM Newsletter regarding Dr. Krause’s presentation called “Are we kidding ourselves?” very interesting. It prompted me to send in my opinions on how to make safety esteemed.

Pat O’Rourke

**Safety and Accident Prevention**

During my 36 years in industrial safety the employees liked me. I was at *Dow* for 7 years, 6 years at *Schering Plough*, 13 years at *Motorola*, and just over 10 years at *Broward Health*. I was the safety guy people seemed glad to see. The supervisors were also glad to see me. No hiding when I came by. I was one of them. I was on their side (which is the company side). I used humor and the word ‘we’ a lot. I asked them what they suggested to make things safer. I was not a policeman. Too many safety guys are full of it, play policeman. Foolish. It must be ‘we’ and ‘how’s it going,’ laugh, smile, and give a pat on the back. Ask employees to help out. I put the big complainers on safety committees. They are valuable in using their dedication to help stop unsafe acts and conditions. Safety and accident prevention is an art, not a science. Safety and accident prevention is all about working safely on the job, making safety equal to production and quality, making it part of the corporate culture, and part of expected performance at every level. I did not make this up. I learned this while at *Dow*. And used this in the subsequent 29 years I was a safety manager.

**Safety Training**

The key to an effective safety program is effective safety training. Training in this regard is done in many ways. It is done in a formal venue such as an auditorium or conference room. It is done ad hoc on the floor, in the factory, or at the work site. It is done during supervisors’ production and staff meetings.

The materials covered are those involving the low hanging fruit, the most frequent and the serious accidents or injuries. It must be presented in a way that captures the audience. You want everyone to pay attention. The only way to do that is not to put anyone to sleep. Use humor, visuals, examples, and some body movements that keep everyone’s interest. More than once I got applause when I completed my safety training. I taught safe lifting and how to save your back; chemical safety, labeling, safe storage of chemicals; how to prevent contaminated needle sticks; how to use a fire extinguisher; how to use ergonomics for yourself and your own comfort; the leading causes of falls and how to prevent them, and more. As a result, these injuries went down at the 4 companies where I worked.

**Safety Performance**

At four companies I showed the total number of injuries, the number of OSHA Recordable cases, the number of lost time/disabling injuries, and the cost of injuries year over year. I measured safety in Six Sigma® terms at *Motorola* for about 10 years and Broward Health for 10 years.

When I first started at *Motorola* in Plantation, Florida in 1989 it was difficult. I heard from the manufacturing manager: “Unless my people are making radios, I don’t want them doing anything else,” when I proposed we assign some forklift truck operators to being responsible for approving operators for licensure per OSHA regulations following my training program. (I proceeded despite his comment).

When I was reporting on safety statistics in the quarterly quality review meetings at *Motorola* the manufacturing manager and others used that time to get up and get another cup of coffee or a bagel. I had shown the data using *National Safety Council* and ANSI, *American National Standards Institute*, formulas. These formulas use the number of injuries X 200,000 divided by the total number of man-hours worked in a year. This shows the percent of the population injured, as 200,000 is the number of man-hours 100 employees work per year. Even though I had explained the rates and compared it to others in our industry, and showed the cost of injuries, it was not engaging to them.

*Cordis Dow* and *Schering Plough* were familiar with the use of these stats and had included safety in their quality reviews. *Motorola* was not, and my predecessor did not report on safety at the quality reviews.
I asked my director, my boss’s boss, how I could get the managers to listen to the safety report. He said: “You have to speak their language. You have to present the safety data in 6 Sigma terms, and tell them the cost of accidents as a percent of manufacturing costs.” That set a whole new tone. I had to find out how to calculate the safety data in 6 Sigma® terms, and find out the monthly cost of manufacturing.

In Sigma you measure the number of defects per total number of opportunities for error. The opportunities for error in injuries are the number of employees times the number of workdays in a segment, such as month, quarter or year. That data I had already. Now I had to find out how to calculate that information into Sigma terms.

I visited with the quality manager to discuss and get a chart that converted number of defects per number of opportunities for error into Sigma terms and created the Excel worksheet. Subsequently I showed the total number of injuries, OSHA Recordable cases, and lost time injuries in 6 Sigma® terms for the quarter. I also showed the cost of injuries as a percent of manufacturing costs. I showed in the charts the injury data for the previous 5 years and current. All the data was going in the right direction.

Now the managers stayed in their seats and listened. No getting up for another cup of coffee or a bagel.

**Six Sigma®**

At Motorola I learned an immense amount about quality performance and how to present safety performance using 6 Sigma® terms.

I published a paper in 2000, *Using Six Sigma in Safety Metrics 6σ*, that can be found at

http://home.comcast.net/~wongszetai/Using_Six_Sigma_in_Safety_Metrics.pdf

I believe that in order to deliver excellence in safety performance, the safety professional must fully integrate with the business. Working in a silo, as a service organization, with independent initiatives will never provide for your company the outcomes desired. The safety function must prove to be value-added to the business and work toward a world-class safety culture that helps to place the business at a distinct advantage among its competitors.

The best way to do this is through those systems already in place that the managers monitor and constantly review in quality, cycle time and manufacturing costs.

At Motorola, this is the quality review process.

Six Sigma® is a federally registered trademark and service mark of Motorola, Inc. created in 1985. It is a gauge of quality and efficiency, and a measure of excellence. It means delivering top quality services and products while virtually eliminating all internal inefficiencies.

It is a process quality goal that comes out of statistical probability measurement and process capability technique.

In other words, Sigma is a statistical unit of measure that reflects process capability. It is a way to determine or even predict errors or defects in your process, whether it be manufacturing or delivering a service.

In this probability bell curve the standard deviations or sigma ($\sigma$) from the center of the bell curve (mean $\mu$), goes to the desired result and equates to the probable number of defects, errors or mistakes.

Two standard deviations or sigma equates to over 300,000 errors per million opportunities, while six
standard deviations or sigma means only 3.4 defects per million opportunities, as seen in the table below:

<table>
<thead>
<tr>
<th>Sigma Process Capability</th>
<th>Defects per Million Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>5</td>
<td>233</td>
</tr>
<tr>
<td>4</td>
<td>6,210</td>
</tr>
<tr>
<td>3</td>
<td>66,807</td>
</tr>
<tr>
<td>2</td>
<td>308,537</td>
</tr>
</tbody>
</table>

After it has been decided to utilize the Six Sigma® approach to performance excellence in safety, the safety professional will want to put together a team or teams that work together to achieve results by utilizing Motorola's Six Steps to Six Sigma®:

1. Identify the product or service you provide,
2. Identify the customer(s) for your product or service,
3. Identify your needs,
4. Define the process,
5. Mistake proof the process, and
6. Ensure continuous improvement

Charts 1 and 2 above show the cost of injuries, direct, indirect and total, and the cost of injuries as a percent of manufacturing costs, year over year 1990 through 1999 at Motorola, Plantation. $1.4 million was saved in direct costs of injuries year over year, 1990 to 1999, while injuries as a percent of manufacturing costs continually reduced from 2.56% to 0.02%.

At Broward Health I was able to show injuries, as defects per million opportunities, going down 49% over 10 years, ending 2011 at 4.83 Sigma.

Charts showing injuries as defects in the system, defects per unit, parts per million in errors and sigma educate all the managers that safety and accident prevention can be managed the same as production and quality.

Six Sigma® organizations produce not only excellent products but maintain highly efficient production and administration systems that work effectively with the company's entire set of processes, including support, purchasing, human resources and customer service.
Hearing the safety manager’s projects presented while showing customer satisfaction, cost reduction, cycle time improvements, as well as accident reduction, the managers understand why and how safety is part of the job, part of expected performance at all levels and equal to operations and business initiatives.

Over time you have created a safety culture. A culture of employees and managers who believe that working safely is esteemed.

Pay back is demonstrated to the business when you show the cost of injuries, direct, hidden and total, and that these costs are, in fact, a percent of manufacturing or business costs.

When you demonstrate continual improvement year over year you are successfully making the safety function value-added to the business.

Felicia’s Corner

I joined the ISHM a little more than a month ago and have learned many new, wonderful and interesting things while here. Although the job description did not list I would interact on a daily basis with so many friendly and welcoming EHS professionals; I am happy to have experienced the pleasant surprise first hand. During staff meetings I hear how ISHM has grown over the years and cannot believe there was a time when we received two applications a month (I get that before my first beak). I hope to see and be a part of the growth of the organization, even if that means opening my email first thing in the morning and having more applications than I can count. It certainly is a great feeling to be a part of an organization that helps EHS professionals enhance the education and experience that they bring to the workforce every day.

Ask the Lawyer

With the higher temperatures in recent years, does OSHA enforce work hazards associated with the heat?

Answer: Although OSHA does not have a specific standard related to heat stress, OSHA enforces heat exposure under its General Duty Clause set forth in section 5(a)(1) of the Occupational Safety and Health Act. Under the General Duty Clause, employers have a general duty to furnish work places free of hazards that are: 1) recognized, and 2) likely to result in death or serious bodily injury. OSHA has documented many cases in which workers have sustained serious illnesses and even deaths related to heat exposure. Heat stress is therefore considered a recognized hazard that is likely to result in death or serious bodily injury which is subject to enforcement under the General Duty Clause.

OSHA has addressed heat stress for years. For example, in 2001, OSHA issued an interpretation letter advising employers about the risks related to heat exposure. https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24008 In this interpretation, OSHA advised employers to allow workers to drink water at liberty, establish provisions for a work/rest regimen, and develop a heat stress program focusing on:

1) Training employees;
2) Monitoring temperatures;
3) Acclimating new employees to the heat;
4) Developing procedures in the event of a heat emergency; and
5) Providing first aid measures for employees who suffer heat stress.
In 2013, OSHA ramped up its efforts by initiating a heat campaign focusing on protecting outdoor workers. OSHA highlighted the dangers associated with heat exposure, advised employers to minimize risks, and recommended that workers take steps to protect themselves, including drinking water every 15 minutes, resting in the shade, wearing a hat and appropriate clothing, learning the signs of heat stress, and watching out for co-workers. https://www.osha.gov/SLTC/heatillness/index.html

Over the years, OSHA has conducted numerous inspections and has issued citations to ensure, among other things, that employers provide sufficient drinking water and protect workers from heat stress.

Darren Hunter is a partner and an experienced OSHA practitioner in the Chicago law firm of Rooney Rippie & Ratnaswamy LLP. This column does not constitute legal advice or the formation or proposal of an attorney-client relationship to or with any person or entity. In addition, this column should not be understood to represent the views of ISHM, the law firm, the individual attorneys at the firm, or of any of the firm’s clients or former clients.

Darren J. Hunter
ROONEY RIPPIE & RATNASWAMY LLP
350 W. Hubbard Street, Suite 600 | Chicago, Illinois 60654
Direct 312.447.2818 | Main 312.447.2800 | Fax 312.447.2899
darren.hunter@r3law.com | www.r3law.com