



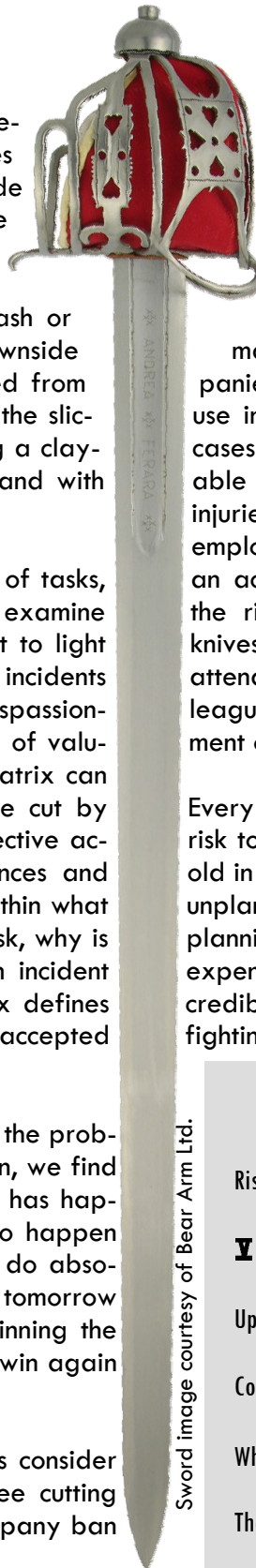
### Risk Matrices Cut Both Ways

The expression "double-edged sword" usually denotes something with positive or beneficial qualities that also carries with it some amount of downside potential. Those who have seen the movie "Braveheart" will know that a double-edged sword can be a handy item for a skilled swordsman to have in hand when involved in a stramash or melee, because it slices both ways. Not much downside is apparent in that situation, except when viewed from the perspective of those on the receiving end of the slicing, of course. Though less dramatic than wielding a claymore, the humble risk matrix can do the same, and with generally beneficial results.

Well established as a tool for forward planning of tasks, the risk matrix may also be used to look back, to examine problems and exposures that have been brought to light as a result of unplanned events such as accidents, incidents or near misses. When examined logically and dispassionately, not all such issues deserve the expenditure of valuable and limited corporate resources. The risk matrix can be used to consistently and defensibly make the cut by considering the residual exposure should no corrective action be taken. If an issue's combined consequences and probability in the event of a reoccurrence falls within what would be the tolerable risk zone in planning a task, why is it necessary to take any action, just because an incident has already happened? After all, the risk matrix defines pain thresholds that have been developed and accepted by the organization.

The main difficulty we have here, as humans, is on the probability side of the risk calculation. For some reason, we find it difficult to accept that, just because something has happened once, it does not mean it is more likely to happen again. If an unlikely event occurs today and we do absolutely nothing, it is still unlikely to happen again tomorrow or next year or ever. We seem to think that winning the lottery this Saturday makes it more likely we will win again next week.

Returning to the slicing and slashing theme, let us consider how an organization might react to an employee cutting herself while using a pocket knife. Does your company ban



Sword image courtesy of Bear Arm Ltd.

knives? Why? If it was as a result of an injury sustained by some unfortunate soul, put that past mishap to the side and refer to your corporate risk matrix. Where does the use of a knife fall?

In the extensive vPSI collection of risk matrices from all kinds of different companies in various parts of the world, knife use invariably falls in the green (or in some cases pastel blue) zone that denotes acceptable risk. Inevitably, some people will sustain injuries while using knives, but we, and our employers, have already decided that this is an acceptable exposure. It is right there on the risk matrix. We accept giving children knives when they are barely old enough to attend school, yet do not trust our adult colleagues with them in the controlled environment of the workplace.

Every organization has an accepted level of risk tolerance. By considering this pain threshold in a consistent and logical fashion after an unplanned event in addition to during task planning, we can significantly cut resource expenditures and improve the efficiency and credibility of the safety function; no sword fighting required.

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## V Reasons We Are Not Getting to Zero

vPSI Group Director Norman Ritchie presented his paper, “Five Reasons We Are Not Getting to Zero,” at the SPE / APPEA International Conference on Health, Safety, and Environment in Oil and Gas Exploration and Production held in Perth, Australia in September 2012. This article provides an overview of the methodology used and a synopsis of the paper’s conclusions. Contact us for the full paper.

Industry has embarked upon the journey to a zero incident workplace. To date, no organization has consistently reached this destination. To examine the reasons why, a systematic examination of 1,968 incident and accident investigation reports was conducted, including both near miss and loss events. These reports originated from 21 different companies involved in the Oil and Gas Exploration and Production Industry, including operators and contractors.

The analysis identified consistent areas where responses to an unplanned event are not effective in terms of reduction in future probability of the event reoccurring. The investigations were determined to be suboptimal in the following respects:

- The ratio of harm events to no harm events was barely above 1:1. This is an area for improvement because it is generally accepted that the actual number of near misses is significantly higher than the number of loss events.
- 33% of the incidents did not generate any actions that would prevent the event from reoccurring. In fact, 18% did not generate any activity whatsoever.
- 13% of the activities labeled as corrective actions were determined not to be corrective actions at all.
- In 23% of the incidents reviewed, investigations were conducted for incidents that were either not preventable or that present little risk of exceeding the organizational pain threshold.



Five significant opportunities have been identified for improvement of common practices that obstruct an organization’s journey to zero.

- I** Improve reporting and resolution of problems pre-loss to take advantage of the risk reduction opportunities they afford. Measure and reward based on this activity.
- II** Refocus application of corporate resources only on problems of a significant nature.
- III** Require that all loss events and near misses of a significant or potentially significant nature necessitate the development and implementation of real corrective actions. Measure and reward based on this process.
- IV** Quantitatively assess the output from incident investigations (see “Who is Checking Your Homework?” on page 4).
- V** Utilize implementation of proposed corrective actions as a Key Performance Indicator.

While the aim of “zero” is fine as a philosophical goal, in reality vPSI Group does not recommend that organizations adopt it as a specific, measurable target against which bonuses and incentives are in jeopardy. As illustrated in our article, “Number Crunching,” in the Spring 2012 issue of *H-E-A-R Say*, “zero” is an unsustainable ideal as long as humans are involved in any aspect of operations.

## Upcoming Training Classes

**Fundamentals of vPSI Problem Solving and Accident Prevention** is vPSI Group’s core class. It provides attendees with tools necessary for a critical analysis of their corrective actions and problem solving efforts. We have monthly workshops scheduled in Houston. For more information, visit our Eventbrite page or contact us.

## Combining Business with Pleasure

vPSI consultants travel extensively in the course of their work and, wherever possible, try to fit in some pleasure alongside their serious business.

Bakersfield, California is said to contain the largest number of Basque restaurants in the USA. While conducting incident investigation training for Halliburton, our consultants visited several, but are not brave enough to pick a favorite after the storm of controversy raised by a previous issue of *H-E-A-R Say* that declared a winning gumbo in Lafayette, Louisiana. Our less-than-intrepid colleagues are willing to recommend the fare and ambiance at Buck Owen's Crystal Palace in Bakersfield. Where else can you look behind the bartender and find an entire Cadillac complete with a hood ornament of horns from a genuine Texas longhorn?



It is always exciting to encounter something new in a familiar location. So it was recently while working with long-standing customer CHS, Inc in beautiful Laurel, Montana, that our consultants happened upon Emma's Kitchen, a bakery and deli. Run by Chef Elizabeth, a Cordon Bleu trained chef, the food is home cooking with a flair, and the baked goods are truly out of this world delicious.



Although vPSI Group is largely comprised of self-confessed foodies, they do find non-edible ways to combine business with pleasure, such as spending time at local attractions in the areas they visit, and even occasionally exposing themselves to art. At the Los Angeles County Museum of Art, several of our consultants took the opportunity to stand underneath the Levitated Mass. The Engineers in the group believed that too much design contingency was allowed for in the support system and that the Levitated Mass could easily have been much more precariously perched. The less-technically minded thought the amount of precariousness was just right.

After a recent training class at Southwestern Energy's facility in Conway, Arkansas, our consultants enjoyed a visit to the William J. Clinton Center & Park in Little Rock, which houses the Presidential Library and

Museum. Visitors to the center are able to view reflections of the work, past and present, of the 42nd President of the United States. Also at the Center are the historic Choctaw Station and a railroad bridge over the Arkansas River.

While training ConocoPhillips employees above the Arctic Circle in Alaska, two of our consultants enjoyed the local fauna, like this red fox seen on the road from Kuparuk to Deadhorse.



More vPSI travel photos can be found on our [Facebook](#) page.



## Who is Checking Your Homework?

Studies show that humans make an average of 5 to 10 mistakes per hour. Unless the human element can be completely removed from all work functions, which is both unrealistic and undesirable, a percentage of those mistakes will inevitably result in some degree of harm to the individual or the organization. Once an organization has an established injury and illness prevention program, there may be little or no correlation between what a safety department does and the number of incidents the organization suffers.

In evaluating empirical data, it becomes clear that this is because organizations typically don't check their homework. When something goes wrong and an incident investigation is conducted, most organizations do not make the effort to evaluate whether or not their corrective actions actually solved the problem revealed by the incident. Just like in school, work that gets a completion grade tends to be lower quality than work that is actually graded.

When an accident occurs, regardless of the injury or harm involved, vPSI provides a framework that focuses on the organizational response or output of the incident investigation. Since the ultimate goal of any incident investigation is to prevent the unplanned event from happening again, the corrective actions that are generated as a result of the investigation can be evaluated to check the organizational homework. By quantifying these responses, vPSI measures how well the solutions eliminate the problem. Instead of

receiving a passing grade for having done something, vPSI Metrics™ delineate how well the organization identified the problem, analyze the effectiveness of solutions, and measure whether those solutions were actually implemented. Checking homework based on these components encourages the organization as a whole to make improvements that are achievable, effective and realistic.

Management theory encourages organizations to measure what they want more of. vPSI philosophy is aligned with this as the vPSI System™ encourages discovery of real problems and implementation of real solutions to those problems.

Traditionally, TRIR and other consequence-based measures, when low or decreasing, are considered evidence that organizational safety is improving. In reality, traditional frequency rates do not measure safety.

The original intent of such statistics was to compare safety between industries, not to compare organizations within an industry. This is especially true now that many industries have TRIRs below 1.0. For example, based on 2011 data, the United States Oil and Gas Industry had a TRIR of 0.9. Within this sector there are many players that are approaching zero.

Some other quantifiable measures, such as the vPSI Metrics™, are needed to compare how well organizations are effectively improving their safety function.



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### The Journey to Zero, Re-examined

The next technical paper in the pipeline at vPSI Group is "Journey to Zero: Aspiration Versus Reality," to be presented in April 2013 at the SPE European Conference and Exhibition in London, United Kingdom.

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