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What Have We Learned from the BP Catastrophe?

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Introduction

The catastrophic events of 2010 pose serious questions to senior executives about the state of safety performance in their own organizations. The most prominent of recent events, BP's Deepwater Horizon explosion, points to a set of organizational failures common to catastrophic events over the past 20 years. Yet a large part of today's safety management thinking fails to account for the lessons these events have to offer. Instead, many organizations and leaders continue to manage safety through narrowly defined programs, directives and memos, and an unspoken bias that "it can't happen here."

The best way to learn the lessons of the BP event is not to look at it in a vacuum, but rather to examine it as one of a series of catastrophic events that we have seen in recent years. The stakes are great for organizations in any high-hazard industry; safety systems and cultures that are subject to occasional failure are simply unacceptable. This paper reviews the lessons from catastrophic events with a view to understanding the common causes across industries and what leaders must do to prevent them.

Why Haven't We Learned the Lessons of the Past?

Following the 1988 Piper Alpha disaster that killed 167 workers, Occidental Petroleum's CEO was famously quoted as saying, "we have done all we can to prevent catastrophic failures like this one." Two decades later, the CEO of a steel firm responded to recent fatalities in his organization by saying "We don't know where these events are coming from." Despite the number of industrial catastrophic events between 1988 and today, and despite a common pattern of organizational failures revealed by the investigations of these events, many leaders who rightly refuse to explain poor production, low quality, or adverse financial results as "bad luck" continue to accept major safety failures as just that.

In part, the failure to learn the lessons of past events stems from a faulty understanding of injury causation (e.g. it's either "technical failure or "human error") and is often reflected in an over-reliance on lagging indicators (including injury rates) as the measure of safety performance. In many organizations the achievement of low injury rates is assumed to indicate that safety generally (specifically including management of process safety) is well managed. In fact there is not necessarily any connection between good management of process safety and good

management of employee safety. Further, there is not necessarily any connection between injury rates and actual exposure to serious events.

Being able to address potentially catastrophic exposures before they are manifested in disaster requires that organizations become sensitive to "weak signals" that indicate impending problems. The difference between a catastrophic accident and a near-miss or an exposure with no consequences is often random. Often there is more than one protection system in place, and since more than one failure is required, the identical situation, exposure, decision-making, and related behaviors can produce a near-miss today and a catastrophe tomorrow. This has important implications. *It means that serious and unacceptable exposure can exist for days, months and years without an incident.* The fact that an organization has not experienced a catastrophic incident is not reassuring. Conversely, by virtue of a single disastrous event, an organization is not necessarily worse than other organizations that have been catastrophic incident-free.

Knowing what those leading indicators are, routinely monitoring them, and reacting appropriately to the information are critical to assure safe operations. But doing this well requires first a fundamental understanding of how injuries occur. The lessons of BP, Columbia, Challenger, Piper Alpha, Texas City, and many other serious events show us that while there are technical failures involved, virtually all man-made catastrophic events are related to technical failures made possible by organizational failures. Organizations employing highly-advanced technology and investing heavily in development of comprehensive procedures often find that these procedures are not carried out consistently and warnings generated by their own systems are not heeded. In other words, attention to the human sciences has not kept pace with technological development.

Critical Lessons

Reducing exposure to catastrophic events is necessarily an "organizational safety" issue. Distinct from "workplace safety," organizational safety is defined as:

> *Preventing employee injuries and fatalities, process incidents, and the destruction of property, through the application of "human sciences" to assure the effective design, development, implementation, and use of the mechanical and procedural systems that assure safety.*

In other words, the leader's responsibility doesn't end at assuring the development of traditional safety systems: worker training, written procedures, best practices, inspections, operating procedures, and so on. Leaders must also close the gap between written systems/procedures and day-to-day operational activities (the critical things that people actually do, or fail to do). Leaders are tasked with assuring safe decision-making, behavioral reliability, the elimination of hazardous exposures, and overall safe operations. The lessons of catastrophic events point to the principles that can help leaders do this, specifically that:

Safety is a CEO Issue

Most safety technology systems are effective most of the time. But true operational integrity, i.e. operating systems and cultures that produce uniformly safe and reliable behaviors and outcomes, remains uncommon across industry. The unpredictability in many industries presents a problem and an opportunity for C-suite visionaries and their management and operations teams. All must be dedicated to setting and meeting a new standard. Traditionally, safety efforts have required

support or sponsorship from senior leaders. While many leaders are supporters of safety improvement, their commitment does not always translate into an effective vision and personal safety ethic for their organizations. Explained and implemented correctly, however, these attributes establish safety as a value, which is the basis of a strong safety culture.

Organizational Failure Enables Technical Failures

Technical failures in catastrophic events are made possible by failures resulting from the interactions between people and processes and equipment. In many instances, the development of sophisticated technical operating systems capability outpaced leadership's ability to assure behavioral reliability, i.e. the consistent performance of safety-specific activities. In a world where increasingly complex and sophisticated technology is allowing organizations to exceed previous production and operating limits, the need for balancing technical achievement with fluency in the human sciences, e.g. organizational behavior, cognitive psychology, and human factors, becomes even greater.

Confusion Between Process Safety and Employee Safety is a Serious Hazard

The objective of employee safety is to prevent injuries and fatalities on the job. Process safety's objective is to prevent fires, explosions, and uncontrolled releases of hazardous materials. The two categories overlap when a serious process failure injures or kills employees. Many senior executive leaders mistakenly assume that good performance in employee safety means there is good control of process safety. However, the failure to distinguish between employee safety and process safety can give organizations with low injury rates a false sense of security. In the case of the Deepwater Horizon, a group of BP leaders were visiting the platform to celebrate a good employee safety record on the day it exploded.

The vast majority of employee injuries are not associated with major process incidents. Managing these two areas requires complementary but different approaches. The highly visible and ubiquitous tracking and reporting of employee injury rates along with the assumption that this indicates good process safety management can divert attention from the need to strengthen the systems and processes that protect against process safety events.

Host-Contractor Relations Are a Serious Hazard if Not Managed Properly

Misalignment and poor communication between BP, Transocean, and Halliburton were among the contributing factors to the Deepwater Horizon disaster. While not every poorly managed engagement will lead to catastrophe, the use of contractors in any organization makes having a consistently strong safety culture difficult. The difficulty increases as the work contractors do becomes more integrated with the work of the company's employees, and where multiple contractors are present and their work is integrated with each other's. Leaders of host organizations need to assure that there is alignment of safety standards with and among contractors and that they establish sound roles and responsibilities, accountability, and procedural clarity.

Safety Leadership and Safety Culture Are Foundational to Effectiveness

The effectiveness of safety enabling systems and organizational sustaining systems is dependent on having leadership and an organizational culture that supports safety. Consider that the risk-management processes of most major oil companies are structurally almost identical. Yet the occurrence of fatal and serious incidents among the top five oil companies varies greatly. The

patterns are similar in other industries. This variation relates to how the technical risk management systems are implemented—via human interactions, communications, teamwork, etc. –not what they are.

Fixing the Problem: A New Vision for Safety

The way to safety excellence has been well established by leading organizations such as Alcoa, Exxon Mobil and DuPont. Many times, a catastrophic event serves as the impetus for improvement. At Exxon, for example, the Valdez incident triggered a learning process that led to the realization that safety and operational integrity are essentially the same thing. More than 100 years ago, an accident that killed members of the DuPont family catalyzed a safety culture that endures. In other cases, fortunately, leadership sees safety excellence as a business advantage and an employee-motivation and -retention strategy.

We already know the component parts of safety and that organizations have failed to execute them well enough and deep enough. The problem underlying catastrophic failures lies not with safety processes themselves, but with the execution of them in a comprehensive and consistent way. Assuring operational integrity, and addressing the gap between intention and execution, requires starting with a new and serious vision of safety that embraces the three core elements of organizational safety, for example:

> *Our goal is to create sustainable processes that focus on **asset integrity**, **behavioral reliability** and **leadership capability** to continually reduce exposure to all employees and the organization.*

Further, it is not enough simply to embrace a new vision and begin the change process. Senior leaders must also approach this vision with bold, decisive, visionary action. They must act in a way that starts to reduce exposures to catastrophic events immediately. At a minimum, leaders need to:

Radically accelerate the safety improvement process.

Rather than allow the potential for another catastrophic event to persist until the organization catches up, it is imperative that senior leaders make the safety improvement process a priority. Organizations tend to filter innovative safety ideas slowly to the top by analyzing, rethinking and subjecting them to budget constraints, slow reviews and continual revisions. The result is frequent delay or outright rejection. In this type of culture, safety improvements are considered along with other organizational initiatives and ranked according to "strategic" priority. While this practice is suitable for most aspects of organizational performance, safety cannot be an on-again, off-again priority. Treating it as such for a quarter or a year generates a culture of mediocrity and increases exposure to catastrophe.

Start assessing leading indicators.

Most organizations have clean, visible outcome metrics for safety performance. But these measures -- including injury rates and related data -- are lagging indicators. Safety visionaries know that leading indicators are needed to assess exposures before accidents happen. Many organizations use surveys as a proxy for measuring culture, but they make matters worse if they are not supported by valid methodology and do not generate actionable data. Leading indicators

such as the frequency of safety observations and feedback, and the amount of time it takes for a safety issue to be addressed, are better day-to-day measures. Near-misses, when received in the C-suite as an opportunity to improve rather than simply bad news that could have been worse except for a twist of fate, can lead to significant improvement in downstream outcomes.

Develop a comprehensive safety strategy, with short- and long-term objectives, immediate action plans and specific accountabilities.

In industry, safety management is often embodied in programs or engineered in fits and starts. While discrete programs are preferable to firefighting, neither approach assures sustainable operational integrity. Senior leaders need to develop an overarching strategy that addresses the gaps between the current safety state and the desired state and execute that strategy through programs and processes aligned to address the gaps with action plans for both the short and long term. Specific accountabilities and outcomes then can be defined in measurable terms and tracked.

Applying the Lessons

The chief lesson of BP’s Deepwater Horizon tragedy is that the contributing factors to the tragedy are not exclusive to any one organization or industry. Like the other events in 2010, and those before, it shows us that our ability to prevent catastrophic events is dependent finally on our ability to assure operational integrity across the organization. Recognizing this fact should trigger leadership vision and long-term drive for safety and operational excellence in 2011 and beyond. The time for learning, reflection and action is now; the time for just hoping "it can't happen here" has long passed.