



# Safety & Health TERMINOLOGY MANAGEMENT

By Herman Woessner

**I**N *THROUGH THE LOOKING-GLASS*, Lewis Carroll (1872/1991) wrote:

“When I use a word,” Humpty Dumpty said, in rather a scornful tone, “it means just what I choose it to mean—neither more nor less.”

“The question is,” said Alice, “whether you *can* make words mean so many different things.”

“The question is,” said Humpty Dumpty, “which is to be master—that’s all.”

This article analyzes the reasons for mastering (i.e., systematically managing) an organization’s safety and health concepts and terms, and describes how it is to be accomplished.

For brevity and readability, the term “occupational safety and health” has been shortened to simply “safety.” Thus, “safety management program” is used for “occupational health and safety program,” and “safety management system” is used for “occupational safety and health management system.”

## Safety Terminology Management

All professions and organizations use specialized words and expressions to communicate conceptual meaning and context to stakeholders. These specialized designations are called terms. Terminology is the word designation for the collection and study of terms. Terminology management is the process of identifying, evaluating, organizing, communicating, and

controlling terms and their specialized meanings. The process applied to an organization’s occupational safety and health concepts comprises its safety terminology management program.

Such a program is an essential, yet largely neglected, element of most safety management systems. Since safety and health terms are used daily and in numerous organizational documents, many safety leaders simply assume that their meanings are self-evident and are clearly understood by the workforce. Few leaders recognize the need to verify these assumptions, much less incorporate a safety terminology management program into their organization’s safety management system.

An organization’s specialized terms convey particular import and context for its safety culture and safety management system. No system (natural or created) can function effectively if its operating principles are confounded by unclear, inconsistent or mixed signals. The U.S. response to the COVID-19 pandemic is an example of how the conceptual noise from mixed signals can cause misperceptions and mistrust, leading to unwanted and unhealthy behaviors.

To ensure that safety terminology remains free of conceptual noise, organizational leaders must devote the necessary attention and resources to plan, develop and control relevant performance standards and measures, as they do for other safety and health programs. Without such standards and measures, misunderstandings, miscommunications and misalignments inevitably result, for what is not measured cannot be effectively controlled, and what is not standardized will not be consistently implemented.

A safety program is a subsystem within an organization’s safety management system. It provides guidance for the establishment of one or more processes or procedures for the systematic management of a particular risk, operation or function, as well as for technical and administrative support. Examples of different kinds of safety and health programs may include biological hazard control, engineering design safety, lockout/tagout, safety performance accountability and job safety analysis. These programs and many others, together with an organization’s mission, policy and responsibility statements, comprise the core elements of its safety management system.

## KEY TAKEAWAYS

- The concepts encapsulated in terms that organizations use to convey their safety and health values and systems can be confounded, misunderstood and misapplied by conceptual noise from different sources. Conceptual noise is the ambiguity resulting from unclear, inconsistent, competing, or contradictory verbal and written communications.
- Organizations need to systematically identify, eliminate or control such conceptual noise sources to ensure workforce understanding, acceptance and usage.
- A safety terminology management program is the management system for achieving these objectives.

Program effectiveness requires design clarity, consistency and completeness, for which standardization of terms, format and structure are prerequisite.

### **ANSI/ASSP/ISO 45001-2018 Standard**

The ANSI/ASSP/ISO 45001-2018 international consensus standard provides requirements and guidance for the establishment of an occupational health and safety management system. The standard defines an occupational health and safety management system as the “set of interrelated or interacting elements of an organization to establish policies, objectives and processes to achieve [occupational health and safety] objectives” (p. 3).

The standard includes system specifications, management requirements, performance guidance and recommendations for continual system improvements through implementation of the plan-do-check-act cycle. In addition, it provides definitions of terms, clarifications of selected concepts, references to safety terminology databases, and a source for common terms and core definitions used by the International Organization for Standardization (ISO) for management system standards.

The standard developers clearly recognized the importance of defining key terms and concepts to ensure effective occupational health and safety management system communications. Although the standard does not specifically call for the creation of a safety terminology management program, Section 7.4 requires organizations to “establish, implement and maintain the process(es) needed for the internal and external communications relevant to the [occupational health and safety] management system” (p. 15). In addition, organizations are required to “ensure that [occupational health and safety] information to be communicated is consistent with information generated within the [occupational health and safety] management system, and is reliable” (p. 16).

### **Sources of Conceptual Noise**

Eliminating work-related hazards and minimizing at-risk exposures are key values and objectives for every employer. Terms such as “safe,” “hazard,” “risk,” “accident” and others are conceptual designations critical for effective communication of these and other interrelated concepts and values. The conceptual noise sources described in this section exemplify how workforce misunderstandings and misperceptions can arise to obstruct applications of safety and health concepts.

### **Competition & Conflict**

Many occupational safety and health terms are familiar to the general public from personal use outside of the workplace and from media reports, nontechnical dictionaries and even other professions, particularly the medical and military professions. Unless carefully managed, connotations derived from these sources can subtly vary from an organization’s intended meanings. Such variations can compete and conflate in the minds of employees, blurring the meanings of an organization’s specialized terms.

The term “accident” is a prime example of a familiar safety-related concept whose generic definition can confound an organization’s safety communications and training. Perhaps, the generally understood meanings and misuses of the term account for the paucity of its usage in the ANSI/ASSP/ISO 45001. The standard only refers to the term “accident” in a note that states “An incident where injury and ill health occurs is sometimes referred to as an ‘accident’” (p. 7).

The Merriam-Webster dictionary defines “accident” as “an unforeseen and unplanned event or circumstance” and as “an unfortunate event resulting especially from carelessness or

ignorance.” News and social media outlets frequently use the term “freak accident” to describe a highly unusual event that is harmful or potentially harmful. If the causes of accidents are unforeseen, unfortunate or highly unusual, the logical inference is that they cannot be anticipated or prevented. And if they result from human carelessness or ignorance, the practical control measures are limited to training and discipline.

Few safety professionals subscribe to such beliefs. Indeed, most train employees to anticipate, recognize and control workplace hazards for the prevention of foreseeable accidents. Safety professionals generally rank training toward the lower end of the hazard control hierarchy for long-term effectiveness because its efficacy inevitably declines over time, so the need for refresher training is constant. For the same reasons and because of the negativity that can result from discipline, safety professionals generally relegate it to the bottom of the effectiveness hierarchy. Moreover, they understand worker training and discipline are ineffective safeguards against hazards such as faulty engineering designs, machinery and material failures, bad management decisions/indecisions, inconsistent communications and organizational misalignments.

### **Complexity & Variance**

“Hazard,” “risk” and “safe” are term designations for interrelated concepts that are central to an understanding of accident causation and prevention. Their definitions, however, can be sources of confusion rather than clarity, as their meanings often vary among employers, professions and employees, including publishers of dictionaries and glossaries. The reason for the variations likely stems from the abstraction and generalization required to define the expansive universe of conditions, behaviors and circumstances they encompass. Abstracted and generalized definitions can be ambiguous to untrained readers. ANSI/ASSP/ISO 45001 defines “hazard” as a “source with a potential to cause injury and ill health” (p. 5) and “risk” as “effect of uncertainty” (p. 5). Several notes are needed below the definitions to clarify their meanings. In addition, the standard makers found it necessary to define the term “occupational health and safety risk,” however, the definition is completely different, although more conventional, than “effect of uncertainty.” The standard’s definition of “occupational health and safety risk” is “combination of the likelihood of occurrence of a work-related hazardous event(s) or exposure(s) and the severity of injury and ill health . . . that can be caused by the event(s) or exposure(s)” (p. 5).

If trained professionals struggle to explain the meanings of core safety and health terms that they routinely use, imagine how likely it would be for untrained employees who are not safety specialists to be confused about them, especially those with literacy and language difficulties. Many more factors can influence employee perceptions and behavior in response to an employer’s use of the term “risk” in its communications and policies. Ropeik (2010) describes 13 risk perception factors that research has shown influence human behavior in response to risk information. These factors are universal, but the degree of their influence depends largely on an individual’s unique experience, education and lifestyle.

Trust in the risk communicator and risk communications is a key factor that can overcome the background noise every employee brings to the workplace and can positively influence workforce risk perceptions and behaviors. Securing the trust of employees is a critical requirement for establishing an effective safety management system and its subsystems.

ANSI/ASSP/ISO 45001 does not include a definition for the term “safe.” It refers readers to ISO’s terminological database for use in standardization, where “safe” is defined as “capacity to be used at an acceptable level of risk of harm” (ISO, n.d.). It is obvious that without guidance and context, the meaning of this familiar term is open to misinterpretation and misapplication.

For example, for many years tower-industry safety practitioners and experienced climbers considered it safe and the industry standard to free-climb high towers. And, for decades, safety practitioners and linemen in the electric utility industry considered it safe to work on de-energized equipment without personally locking and tagging it out. In fact, in the author’s experience, industry representatives strongly opposed the personal lockout/tagout requirements of OSHA’s control of hazardous energy standard. De-energized work was typically performed under one supervisor, coworker or group tag.

## Literacy & Languages

Different languages and levels of literacy within an organization can inhibit understanding of the meanings and context of safety and health terms and communications. This is the reason OSHA requires employers to ensure that safety materials and communications are presented in a language and manner that employees can comprehend.

However, these objectives cannot be casually accomplished, much less sustained over the long term. They require systematic planning, organization, communication and oversight. Every safety terminology management program should include a plan-do-check-act process to accomplish the following objectives:

- Identify employees for whom English is not their primary language and all primary languages spoken or read by the workforce.
- Assess employee literacy levels and instruction requirements.
- Procure qualified trainers, translators and training materials.
- Evaluate the quality and consistency of safety and health training and communications.

•Locate and correct misinterpreted and misused safety concepts. Unfortunately, many organizations fail to appreciate the benefits of such a systematic approach when compared to the investment costs. Instead, they typically choose coworkers as translators and instructors, and often fail to teach them the meanings of the organization’s specialized safety and health concepts or train them in the use of appropriate instructional methods, materials and equipment. They also fail to regularly evaluate trainer performance and training outcomes. The conceptual noise accompanying such failures is usually revealed only by accident, often literally.

## Abbreviations & Acronyms

Abbreviations shorten complex words and expressions, and allow for more concise verbal and written communications. Acronyms constitute a class of abbreviations commonly used to simplify technical and specialized communications. They comprise two distinct groups: one group is formed from the phrase for which the acronym stands and is pronounced as a word (e.g., OSHA, MSHA, FEMA, NASA); the second group is composed of and pronounced as individual letters (e.g., DOT, EPA, DNA, CPR). Because acronyms are truncated expressions, the meaning of their underlying concepts can be ambiguous, if not obscure, to the uninitiated. Thus, their use in verbal and written communications should be carefully managed to minimize conceptual noise.

The following key rules regarding abbreviations should be established in an organization’s safety management terminology program:

- Minimize abbreviation usage.
- Explain unfamiliar abbreviations.
- Avoid nonstandard abbreviations and internet slang.
- Write the full expression for acronyms on first use and whenever practical thereafter.
- Write acronyms in uppercase.
- On initial use, place an acronym in parentheses next to the word or phrase it represents.
- Define relevant abbreviations in the safety terminology management program’s glossary of safety and health terms and definitions.

## JSA & JHA

JSA and JHA are synonymous acronyms for job safety analysis and job hazard analysis, a multistep process widely utilized across industry and at all levels of government. This section uses the JSA acronym.

The process was introduced in the early 20th century to quickly train inexperienced industrial workers to safely perform assigned work tasks. It may be supervisor guided or employee led, and involves use of a form to guide and record the following steps:

1. work-task selection
2. identification of the main steps of a work task sequence
3. analysis of each step to anticipate and identify inherent hazards
4. development of appropriate hazard control measures
5. use of the completed JSA form to instruct and retrain affected employees

Hazard, at-risk and risk are the key concepts encapsulated in the process of which supervisors and workers must share a common understanding. Risk, because work tasks with a high probability and a higher severity potential are prioritized for selection and analysis before lower risk and lower consequence tasks. At-risk, because a hazard can only cause harm if someone or something of value is exposed or at-risk to it. And hazard, of course, because it is the source of potential harm, and its control is the objective of the JSA process.

Unfortunately, as noted, risk can be an ambiguous concept to many, as can its derivative, at-risk; what constitutes a hazardous exposure, for example, is open to interpretation.

The term that most often creates conceptual noise in the performance of a JSA is “hazard.” In professional research personally conducted over 5 decades spanning 43 North American Industry Classification System industries, it became evident that the term is imprecisely defined and commonly misunderstood to the detriment of process effectiveness. This research involved observation of JSA training sessions, audits of worker and supervisor-led work task analyses, personnel interviews, evaluation of completed JSA forms, comparison of dictionary and glossary definitions, and surveys of professional online instructions.

OSHA’s booklet “Job Hazard Analysis,” is illustrative of a common finding. It defines a hazard as “the potential for harm” (p. 1), which is a current and common definition for the term. A slip, trip, fall, burn, electrocution, vehicle crash and many other such terms have the potential to cause harm, so they would fall under the definition. However, they are not task-specific hazards, they are hazard types or accident consequences. Other such “hazards” found on JSA forms include struck-by, struck-against, inhalation, high-noise, ergonomic and fire. The term “fire” can designate a hazard, a type of hazard and the consequence of a hazard.

# EXAMPLE WRITTEN SAFETY & HEALTH TERMINOLOGY MANAGEMENT PROGRAM

## I. Program Purpose

The purpose of this program is to establish requirements and guidelines for the systematic identification, organization, evaluation, testing, communication and control of XYZ's safety and health terms and concepts.

## II. Program Objectives

The objectives of the program are:

- Establish conformance with the intent and requirements set forth in the XYZ organization's Five Ps Standard.
- Establish consistent expression of clear, concise and approved safety and health terms and concepts.
- Enhance workforce understanding and usability of safety and health concepts and terms.
- Create a Glossary of Safety and Health Terms and Definitions.
- Establish timely and sustainable control over the quality of program content, application and efficacy.

## III. References

Reference materials used in the preparation of this program are:

- Standard for Policy, Plan, Program, Procedure and Protocol Development (XYZ organization's Five Ps Standard)
- ANSI/ASSP/ISO 45001-2018, Occupational Health and Safety Management Systems—Requirements With Guidance for Use
- *Dictionary of Terms Used in the Safety Profession*, 4th edition, edited by Richard Lack
- *Enterprise Terminology Management—Best Practices* [video], Kaleidoscope, YouTube, Aug. 10, 2020
- ISO Online Browsing Platform: Terms & Definitions, [www.iso.org/obp](http://www.iso.org/obp)

## IV. Program Terms & Definitions

Definitions of key terms used in this program include:

- **term:** word designation for a concept
- **terminology:** collection and study of terms
- **program:** a subsystem
- **system:** a network of interrelating and interactive elements that function in accordance with a set of rules
- **plan:** a proposed course of action to accomplish objectives

## V. Planned Phases

In accordance with XYZ organization's Five Ps Standard, the Executive Safety and Health Committee for each of the company's national and international organizational divisions shall select a qualified employee or contractor to lead the

formation and oversight of the division's Safety and Health Terminology Management Program (STMP).

The leader shall be responsible for forming a cross-functional team whose members shall have the requisite technical and organizational knowledge and experience to competently plan and implement the following phases:

### A. Identification

All safety and health related policies, plans, procedures, protocols, training materials, communications and instructions shall be reviewed to identify their safety and health terms and conceptual definitions.

The identified terms and definitions shall be compared against and harmonized with the same or equivalent terms and definitions published by the International Organization for Standardization and recognized standards-making organizations in each of the countries within which the company operates.

### B. Organization

The STMP team shall organize the harmonized terms and conceptual definitions in alphabetical order forming a glossary of safety and health terms and definitions.

### C. Evaluation

Each term and conceptual definition shall be analyzed and evaluated for accuracy, consistency, clarity and translatability. Inaccurate, inconsistent, unclear, untranslatable terms and definitions are to be revised or eliminated from the glossary.

### D. Testing

The team shall survey a representative sample of organizational leaders, managers, supervisors, frontline workers and their representatives to learn which terms and definitions included in the glossary are understandable, acceptable and translatable, and which need to be revised, added or removed.

The team shall utilize the survey findings to finalize the glossary. The glossary shall be appended to the end of the program.

### E. Communication

In accordance with the Five Ps Standard, the final version of the glossary shall be presented to the executive committee for its understanding and approval. The approved program shall be followed by a communication rollout across the organization.

## F. Control

The team shall utilize the plan, do, check, act quality sustainability cycle to ensure that program content and implementation remain current and consistent. This process would require the revision of all safety and health documents with inconsistent, inaccurate or unclear safety and health terms and conceptual definitions.

## VI. Responsibilities

- Every employee is responsible for understanding the meaning of safety and health terms and definitions used in the organization's safety management system and listed in the program's glossary.
- Executive officers, managers and supervisors are responsible for regularly training and monitoring subordinates to understand and properly apply the organization's safety and health terms and definitions.
- All of the corporation's national and international organizations and operating units are responsible for adopting or adapting the requirements and guidance of this program.

## VII. Audits

- The STMP team in each organizational division shall annually audit the content and implementation of its STMP to identify, report and correct any discrepancies or misunderstandings.
- Department managers are to conduct such audits in their areas of their responsibility every 6 months and supervisors shall do so every quarter.
- The audit teams shall include trained frontline workers and program auditors.

## VIII. Training

- Every employee shall receive initial and refresher training covering the requirements of the STMP and its current glossary.
- This training shall be conducted for new hires in their orientation sessions and for existing employees in scheduled meetings within 6 months of program's approval by the organization's executive safety and health committee.
- Instructor-led or computer-based refresher training shall be conducted annually thereafter.

## IX. Reporting

- All program audit reports and training records shall be forwarded to the organization's safety and health department for evaluation and processing.
- The safety and health department shall analyze the audit and

training records to identify any discrepancies with program requirements and term usage.

- The safety and health department shall follow up with the affected parties to ensure timely correction of any discrepancies and shall forward the information to the organization's STMP team.
- The team shall aggregate the findings with those of other reporting organizations to identify any discrepancy trends that may require executive action to correct.

## X. Recordkeeping

All reports, records and documented communications pertaining to the STMP shall be forwarded to the STMP team leader to be kept on file for a minimum of 2 years.

## XI. Glossary of Safety & Health Terms & Definitions

Terms and definitions should be arranged in alphabetical order and digitized to allow for sorting into logical arrangements of their interrelationships. The following are *not* ISO, ANSI or ASSP approved definitions and explanations. They are arranged to illustrate their conceptual connections.

**Accident:** An unplanned and unwanted event with the potential to cause a loss resulting from contact with one or more hazards.

**Mishap:** An unplanned and unwanted event with the potential to cause a loss resulting from contact with one more hazard.

**Incident:** A planned or unplanned event with the potential to cause a loss occurring from contact with one or more hazards.

*An unplanned event with the potential for loss can be termed either an accident, incident or mishap. A planned event with a loss potential cannot be termed an accident or mishap.*

**Loss:** Any injury, illness, property damage, environmental impairment, operations disruption, brand degradation, legal liability, regulatory citation or financial cost resulting from an accident, mishap or incident.

**Hazard:** Any form of matter or energy with the potential to cause a loss.

**Safe:** The condition or state in which hazards have been eliminated or effectively controlled.

**Risk:** A quality estimate of the combined probability and severity of a foreseeable loss.

**Energy:** The capacity to move and accelerate matter and energy.



If not eliminated, the conceptual noise inherent in the term “hazard” can result (and has resulted) in JSA failure to identify specific task-step hazards and their respective hazard control measures. The JSA process aims, as an example, to identify and control the fire hazard associated with performing an electrical task, not its generic class or the burn consequences from contact with it. To overcome this common mistake, some employers train workers to recognize the difference between hazards and their consequences, and include a “consequence” column on the JSA form for guidance.

Perhaps the most significant research finding is that perceptions and application of the JSA process have largely remained static over its long history. Its design simplicity and effective techniques have obscured and limited the potential for adapting and generalizing its underlying principles. For example, the concepts utilized in the JSA process can be adapted to identify and analyze hazards inherent in equipment, operations, engineering designs, work plans, management decisions and other activities and conditions, but many organizations have not developed programs to systematically structure and implement such adaptations. The static JSA perceptions do not result from sources of conceptual noise, but rather from sources of “conceptual stasis”: the absence or inactivity of a system signal. In the author’s view, the sources of signal silence are tunnel vision and complacency based on “if it ain’t broke don’t fix it” thinking. The missing signal would be “think outside of the box and innovate.”

When not confounded by ambiguous terms and constrained by traditional perceptions, the JSA process can be adapted to teach and hone critical-thinking skills. Critical thinking involves conceptualizing, analyzing, synthesizing, evaluating and applying information. The JSA process trains workers and their supervisors how to analyze a work task sequence. Critical thinking informs them to effectively evaluate analytical findings, synthesize their underlying principles and concepts, and generalize their applications to enhance decision-making. These skills are applicable to every activity, whether it be in the workplace, at home or in the community. Perfecting and building upon them can eventually form an employee mindset that automatically anticipates what can go wrong in any activity or operation, and recognizes what needs to be done to remain safe. This safety mindset is the ultimate objective of a safety management system and safety culture. The principles and concepts inherent in the JSA process can be lead vehicles on the journey to achieving this objective.

## Fatal Accidents

In addition to limiting the effectiveness of accident prevention programs, conceptual noise can be a latent contributing factor of accidents. This point is illustrated by the following analysis of two fatal mishaps.

In the first, a fatality occurred in 1978 at a specialty chemical complex, where three coworkers died inside of a large rotating drum, known as the “breaker,” when it was restarted. The second happened 35 years later on a large transmission and distribution construction project, where two contract workers were killed while being transported by helicopter to the top of a transmission tower. The winch-cable on which they were harnessed below the flying aircraft struck a newly installed transmission line.

During the investigation of the chemical complex accident, it became apparent that the meaning of the red-colored tag assigned to the maintenance department by the site’s written

lockout/tagout program was widely misunderstood and often misapplied. Some employees believed the red tag was the maintenance supervisor’s tag, others viewed it as the maintenance department’s tag. Only supervisors or their trained designees were authorized to apply and remove the supervisor’s tag, while any maintenance worker could remove a department tag upon completion of the maintenance job.

Shortly before the fatal accident, the on-shift maintenance supervisor, who was one of the victims, was told by workers that they were going to remove their locks and tags from the electrical motor disconnect so that the breaker could be operated. Why, then, did he and his two companions enter the drum a few minutes later without the protection of their own locks and tags? The best explanation identified in the investigation was that they believed they were protected by a maintenance department’s red tag that had been applied on the first shift. Unbeknownst to them, someone had removed it—probably at the end of the earlier shift.

In the helicopter accident, two workers were killed. A few weeks earlier, a near-miss incident involving the transport of a tower section occurred on the project with the same pilot. Even though the incident had the potential for serious injury and property damage, an in-depth investigation of the incident was not conducted. Company policy required a root-cause investigation only for “high-risk incidents” that incurred or had the potential to incur a loss of \$400,000 or more. The board of directors, wishing not to delay completion of the project with an unnecessary investigation, rationalized that the potential financial loss for the near-miss incident did not meet the company’s loss-threshold for conducting a root-cause investigation.

The board’s decision may have been influenced by the “framing bias” and fuzzy concepts imbedded in the company’s accident investigation policy. The \$400,000 loss threshold and the anticipated loss of scheduled project time were the reference points through which board members filtered their decision-making information, the actual high risks inherent in the helicopter operations and the possible information gain from a thorough investigation of the near-miss incident notwithstanding.

Tversky and Kahneman (1981) found that people tend to evaluate options in relation to the reference point provided in the proposition statement. In this case, company policy was the proposition statement, and the anchor point was the \$400,000 loss threshold. The scholars also found that framing a choice in terms of the probable loss rather than the probable gain would result in more risk taking on average.

The term “high-risk incident” also may have been a source of conceptual noise confusing the decision-making of some of the board members. The term is an oxymoron, for it contains contradictory concepts. “Risk” is the term for a probability estimate of a foreseeable future occurrence, and “incident” is the term for actualization of a probability estimate. The former is a notion about the future, while the latter is a statement about the past. Once a risk has been actualized (i.e., the probable event has occurred), it is no longer a probability; it is an incident, mishap or accident. Thus, the \$400,000 loss threshold applied to the incident and not to the risk.

The probability of risk actualization is largely a function of the frequency and duration of exposure to one or more hazards. The helicopter’s operations on the day of the near-miss incident were typical, involving flying, hovering and transporting people and equipment during daylight hours. Since the helicopter performed these operations over an 8-hr shift, 6 days a week,

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the probability of a harmful occurrence should have been estimated to be high, particularly when the variables of wind speed, weather conditions, multitasking and possible mechanical failure are factored into the probability estimate.

Risk severity is largely dependent on the amount and form of energy that can be transferred to or from a hazard upon exposure or contact. (Energy is defined as the capacity to move and accelerate matter and energy.) The amount of harmful energy inherent in a flying helicopter, particularly when carrying a heavy load, was very high. Thus, the near-miss incident was a high consequence, high probability event, which should have been recognized as a high-risk incident.

In confusing the concept of "high-consequence incident" with the term "high-risk incident," the accident investigation policy created conceptual noise for decision-makers, particularly the Spanish members. The company was a partnership between two global corporations from two countries with different languages, cultures and histories. The accident investigation policy was adopted from the safety management system of the English-speaking partner. The primary language of the board members representing the other partner was Spanish. They spoke and understood English adequately, but much less fluently than their native language. Judging from the board's deliberations, the non-English members were unfamiliar with the adopted accident investigation policy and its terms and concepts.

It never will be known if findings from a root-cause investigation of the near-miss incident would have led to the prevention of the fatal mishap, but, as it turned out, the root-cause investigation conducted after the fatal helicopter accident revealed a pattern of relevant unsafe operating practices that predated the near-miss incident and may have been involved in both events. It is certain that corrective actions would have been taken to prevent future occurrence of the unsafe operating practices had they been revealed in an investigation of the near-miss incident.

Analysis of the two fatal accidents illustrate how terminological confusion can subtly enter the conceptual body of a safety policy or program and lay hidden, like a pathogen, until disease symptoms appear in the form of misinterpretation and misapplication.

## Accident Causation Philosophy

The efficacy of a safety management system depends upon clear and consistent definition and communication of an organization's core beliefs, values, principles and norms. These core elements comprise an organization's safety culture and are the foundation for its safety management system. The responsibility of organizational leaders is to ensure that all employees (especially themselves) understand, appreciate, share and support the same cultural beliefs and values.

Implied and utilized throughout a safety management system, but rarely articulated as a coherent accident causation philosophy, is the set of cultural beliefs and values that explain why accidents occur and how their proximate, enabling and root-causal factors are to be understood. Few organizational leaders systematically analyze and define the set of accident causation ideas that comprise their own accident causation philosophy, much less determine the extent to which they are understood, appreciated and supported within their organizations. As a result, consistent understanding and application of shared accident causation and prevention beliefs cannot be ensured, and neither can the effectiveness of the safety policies, programs and processes upon which they are based.

## Conclusion

The wisdom of the common expression "if it ain't broke, don't fix it" requires first knowing whether something is not broken. This can only be ensured through continual investigation and analysis.

An organization that does not recognize the need to commit resources to clearly and consistently define its safety and health terms and specialized concepts and to validate their understanding and usage cannot be certain that conceptual noise will not enter the mindset of employees. Nor can it know the adverse effects on other elements of its safety management system and safety culture and where and how to counteract them.

This article includes several examples of conceptual noise that can confound understanding safety terms, concepts and communications, and recommends a sustainable fix in the form of a safety terminology management program. To illustrate what a written program may comprise, an example is included in the sidebar on p. 21.

As a prominent logician and author, Lewis Carroll understood the conceptual pitfalls of unclear and inconsistent terms and definitions, thus, he had Humpty Dumpty assert the need to "master" the meaning of words. He knew, otherwise, inventive minds would provide their own meanings. **PSJ**

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