SIF Prevention Model Definitions and Key Terms

ASTM System for Recording Occupational Injuries and Illnesses: A recognized global standard for reporting serious injuries, illnesses and fatalities. https://www.astm.org/e2920-19.html

Audit: A systematic, independent and documented process for obtaining information and data and evaluating it objectively to determine the extent to which defined audit criteria are fulfilled.

Compliance: Meeting the requirements of local, state, or federal safety and health statutes, standards, or regulations as well as internal standards.

Continuous Improvement: The process of enhancing safety and health management systems to achieve ongoing improvement in overall health and safety performance in line with the organization's health and safety policy and performance objectives.

Contractor: A person or organization providing services to another organization in accordance with agreed upon specifications, terms, and conditions.

Corrective Action (controls): Action taken to eliminate or mitigate the cause of a system deficiency, hazard, or risk (e.g. fix an existing problem). Often referred to as a CAPA (corrective and preventative action plan) or hazard defenses.

Employee: An individual who is employed by the organization or by a contractor to the organization when that person is under the day-to-day control of the organization. Employees include full time equivalents, part time workers, temporary workers, and contractors.

Employee Representative: An individual authorized by other employees to represent them (1) through a union representing the interests of employees in accordance with the provisions of national or state laws and regulations or collective bargaining agreements or (2) through any other selection process allowed by law.

Exposure: Refers to a potentially harmful exposure to hazards chemicals in the workplace. These may be toxic substances, biological hazards, or environmental hazards such as high noise levels.

Exposure Assessment: The process of measuring or estimating the exposure profiles of workers, including the relevant characteristics of the exposures such as the duration and intensity.

Gap Analysis: A gap analysis is a method of assessing the performance of a business unit to determine whether business requirements or objectives are being met and, if not, what steps should be taken to meet them.

Hazard: A condition, set of circumstances, or inherent property that can cause injury, illness, or death.

Incident: An event in which a work-related injury or illness (regardless of severity) or fatality occurred or could have occurred (commonly referred to as a "close call" or "near miss").

Hierarchy of controls: The hierarchy of controls is a way of determining which actions will best control exposures. The hierarchy of controls has five levels of actions to reduce or remove hazards. The preferred order of action based on general effectiveness is:

1. Elimination
2. Substitution
3. Engineering controls
4. Administrative controls
5. Personal protective equipment (PPE)

Using this hierarchy can lower worker exposures and reduce risk of illness or injury. https://www.cdc.gov/niosh/topics/hierarchy/default.html

Human and organizational performance (HOP): HOP is an operating philosophy providing a way of looking at work, people, and the systems in which people get work done. HOP recognizes error is part of the human condition and an organization's processes and systems greatly influence employee's decisions, choices, and actions, and consequently, their likelihood of successful work performance. (Conklin, T. The 5 Principles of Human Performance. PreAccident Medi, Santa Fe, NM (2019).

Learning Team: A facilitated means of examining safety management and human performance by engaging with workers to understand and learn from both incidents and from everyday successful and safe work.

Maturity Model: NSC Safety and Health Advancement Tool often called a Maturity Model - A means to facilitate a gap analysis of key safety and health issues facing an employer.

OSHA Rates – the most commonly used OSHA rates include - Total recordable injury rate (TRIR) – calculates the number of work-related injuries and illnesses per 100 full-time employees. It indicates both minor and major injuries that required medical treatment or resulted in lost workdays. Days away, restricted, or transferred (DART rate) – measures the number of cases that resulted in days away from work, restricted work activity, or job transfers per 100 full-time

workers. It does provide insight into the severity of injuries and their impact on a worker's ability to work. See www.OSHA.gov

pSIF (potential SIFs) – Incidents that have the potential to have resulted in a serious injury or fatality due to the pre-cursors or sources of energy involved (e.g. Work at heights, electrical , rigging, lifting, machine interventiosn, etc.

- pSIF- Controlled- Extent of incident injury mitigated due to controls and defenses that were in place
- pSIF- Uncontrolled- Extent of incident injury mitigated due to chance or luck

Risk: The chance or probability that a person will be harmed or experience an adverse safety or health effect if exposed to a hazard. It may also apply to situations with property or equipment loss, or harmful effects on the environment. Risk is expressed as a probability or likelihood of developing a disease or getting injured, whereas hazard refers to the physical or chemical agent responsible. Factors that influence the degree or likelihood of risk are:

- The nature of the exposure: how much a person is exposed to a hazardous thing or condition (e.g., several times a day or once a year),
- How the person is exposed (e.g., breathing in a vapor, skin contact), and
- The severity of the effect. For example, one substance may cause skin cancer, while another may cause skin irritation. Cancer is a much more serious effect than irritation.
- Risk is also impacted by an organization's culture, management system, process conditions and human factors.

Risk Assessment: Risk assessments leverage information on the strength of controls (the hierarchy of controls) and are used to assess residual risk when existing controls are already in place. The Canadian Center for Occupational Safety and Health document on risk assessment provides details on how to conduct an assessment and establish priorities. Risk assessment is the process where one:

- Identifies hazards and risk factors that have the potential to cause harm (hazard identification).
- Analyzes and evaluates the risk associated with that hazard (risk analysis, and risk evaluation).
- Determines appropriate ways to eliminate the hazard, or control the risk when the hazard cannot be eliminated (risk control).

See - https://www.ccohs.ca/oshanswers/hsprograms/hazard/risk_assessment.html

Hazard Identification vs Risk Assessment:

Hazard Identification: This process involves identifying potential sources of harm or danger in the workplace. Hazards can be anything that has the potential to cause harm, including chemicals, machinery, equipment, work processes, or even workplace layout. Hazard identification is about recognizing what could go wrong.

Risk Assessment: Once hazards are identified, the next step is to assess the risks associated with those hazards. Risk assessment involves evaluating the likelihood and severity of potential harm that could result from exposure to the hazard. It considers factors such as how often someone might be exposed to the hazard, the potential consequences of that exposure, frequency of exposure, and any existing controls or safeguards in place to mitigate the risk.

Safety and Health Management System (SHMS): A safety and health management system (SHMS) is a systematic approach to managing workplace safety and health risks within an organization. It's a comprehensive framework that helps to identify, assess, control, and monitor risks and hazards associated with work activities, with the goal of preventing accidents, injuries, and illnesses among employees. Areas address include: Risk assessment hazard identification and correction, management and worker involvement, training, and opportunities for improvement.

Serious Incident or Fatality: For the purpose of applying this model, these are cases or incidents that are considered life threatening, life altering, or a workplace related death. An incident in the workplace under this model includes serious injuries and illnesses, fatality, environmental issues, workplace fires and explosions, and significant property damage.