Risk Management and Its Impact on Environmental Health and Safety

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Introduction

The ability to be proactive when it comes to incidents within the Environmental Health and Safety (EHS) industry plays a major part in an organization's safety overall. In the EHS industry, there is a focus on reducing job-related incidents, in order to promote a safer workforce and to maintain compliance with regulatory agencies such as the Occupational Safety and Health Administration (OSHA).

Tackling issues before they have a chance to arise and spread throughout the enterprise helps to ensure that potential events are stopped before they begin. Risk Management is one of the methods for mitigating adverse events.

Incorporating Risk Management into the EHS system will help foster quicker response time to high-risk events, improve safety within the job force, and promote proactive risk mitigation.

This white paper will describe the best practices of Risk Management for EHS systems, look into the technology available to help automate risk mitigation, and outline the benefits of implementing Risk Management in EHS organizations today.

The Need for Risk Management

Risk Management is an effective method of addressing and correcting safety events. It allows an organization to identify risk and take steps to mitigate those risks throughout the process. This systematic approach to addressing adverse safety events helps to mitigate the risk of recurrence and provides visibility into top risks within the EHS. However, in order to be truly effective, Risk Management must be built on a sturdy framework.

The first step to take when implementing Risk Management is to look for a solution that includes processes with the ability to categorize, quantify, and ultimately meet the goal of mitigating risk and preventing recurrence.

To set the stage for successful Risk Management in the EHS, an organization needs a systematic method of handling events.

Look for a system that has the following traits:

- **Repeatability:** Risk Management processes must enable an organization to use the same methodology for categorizing all adverse events within the system, regardless of how and when they occurred. By having a repeatable tool for risk, you are able to apply it to any adverse event within the EHS and expect the same outcome.
- **Objectivity:** An organization needs a tool that systematically quantifies the necessary action to be taken as opposed to more subjective methods, which could differ depending on perceptions, human factors and similar constraints. By quantifying the results, you are able to not only eliminate the subjective factors, but you are also able to increase the efficiency of the decision-making process.
- **Consistency:** Much like having a repeatable process, ensuring the outcome is consistent is key to effective Risk Management. Risk tools are designed to produce an objective and consistent result, each and every time.

Once an organization has set the framework for their Risk Management solution, they must then define risk for the organization. This is no easy task. In the process of looking to identify and quantify risk, a tool known as the Risk Matrix has proven itself to be invaluable.

Defining Risk

What exactly is risk? There is no right answer—it will vary depending on the organization and the idiosyncrasies of those in its chain of command. Everyone views risk differently, which is why an organization will often spend a lot of time and money to define it. The process does not stop there—after an organization has defined risk, they must then determine which of those risks are critical to their business. This is where the Risk Matrix comes in.

The Risk Matrix essentially takes hazards and harms and quantifies them by plotting them on a graph. It accomplishes this by defining verbal scales (e.g. severity and frequency) to represent the "x" and "y" axis of the graph and assign numerical values to the scales.

The resulting calculation of the severity and frequency becomes the organization's risk.

When reading the matrix, some of these calculations have obvious outcomes. For example, a high severity and high frequency is invariably going to result in a high risk. Similarly, a low severity and low frequency will result in low risk. It is in defining the "gray areas" where most organizations are faced with confusion.

In order to define these gray areas, an organization will often use a concept called As Low As Reasonably Practicable (ALARP). In a nutshell, this means that the cost of reducing risk in these gray areas would be grossly disproportionate to any benefit gained. After the gray areas have been identified using ALARP, the organization will then be left with a heat map in which to begin plotting their risk.

Once the risk levels have been defined and the matrix has been vetted for accuracy and effectiveness, it can then be applied to the Risk Management process.

Applying Risk Management to the EHS System

After the Risk Matrix has been honed, an organization can then start to use the integration capabilities of the EHS system to find risk throughout their enterprise.

Integrating Risk Management with the EHS system will have a direct impact on the efficiency of many of the process within the system. Here are just a few areas where risk is typically applied:

- **Incident Management:** EHS systems commonly track any adverse safety incidents across their enterprise. These incidents can happen in the shape of Injuries or Illness, Fires or Explosions, Chemical Spills or Hazardous Materials, and more. To ensure compliance with regulatory agencies such as OSHA, it is necessary to thoroughly document any incidents and collect as much data as possible related to the incident.

  Risk Management helps to streamline the incident management process through filtering. Tools such as the Risk Register enable safety managers to filter incident data by level of risk through the use of the Risk Matrix. This filtering provides a systematic and repeatable method to make well-informed decisions on necessary actions to take when handling incidents, as well as prioritizing critical issues.

- **Job Safety Analysis:** Risk Management is able to provide consistent, quantitative benchmarking for Job Safety Analysis (JSA) by taking a proactive approach to the mitigation of job risks. JSA takes a job description and breaks it into individual steps. It then lists the potential hazards that could occur at each of those steps. Once these hazards are made evident, the JSA implements controls for each step in order to prevent the hazard form occurring. This is where Risk Management can help.

  Risk Management is an effective way of assessing the safety of each job step in the JSA. The JSA tool can look at the potential hazards in a job and assign a risk level to those hazards. Then through the use of controls and Personal Protective Equipment (PPE), an organization can begin to reduce the risk level of that job step. This method of review job steps by risk, and mitigating those risks at a granular level, not only improves the safety of each step, but eventually improves the safety of the job overall.

- **Corrective and Preventive Action:** Similar to using Risk Management to manage incidents, the EHS system can also apply Risk to the Corrective and Preventive Action (CAPA) process, to determine whether a corrective action was truly effective.

  During the corrective action process, a root cause analysis is conducted to investigate an incident. Corrective action incorporates measures to correct the issue from the root cause, while verification and effectiveness are used to determine that the corrective action worked.

Risk Management is one of the methods for benchmarking the corrective action's effectiveness.

An organization can use Risk Management to measure the residual risk to determine whether the corrective action reduced the risk to acceptable levels. If a high degree of risk is still present, the corrective action was not effective and the organization must take a different approach to lower the risk. This process is then repeated until a satisfactory level of risk has been achieved.

- **Enterprise Reporting:** Automating and streamlining EHS processes through an integrated EHS system is beneficial; however, an organization also needs the ability to report on data and use that information for continual improvement. A total enterprise EHS system provides important data for all levels of the organization. The challenge here is, while at the operational level EHS metrics prove valuable, these metrics do not translate well in all areas of the organization. Executives and key decision makers within the organization will often level Risk as a benchmark for challenges and improvement areas within the enterprise. Using risk data allows executives to make decisions based on the top risks to the organization—and continual improvement initiatives will take place dependant on this data. In this aspect, Enterprise Risk Management (ERM) proves itself to be a great asset.

    ERM enables trends to be more easily identified because similarities can be uncovered in events that occur in separate departments, allowing an organization to ultimately pinpoint the root cause of adverse events and put preventive measures in place to stop their recurrence. ERM provides a broad look into environmental and safety events across the enterprise, allowing an organization to make strategic decisions based on this overreaching visibility.

The functionality inherent in the EHS does not stop here. EHS systems do not just mitigate risk to employee health and safety. They also have specialized functions designed to manage and track incidents and environmental aspects. The EHS system can control hazardous materials and mitigate environmental risk. Functions such as Emissions tracking; Energy Management; Material Safety Data Sheet (MSDS); Aspects, Objectives and Targets; and Crisis Management help to provide the framework for operating in a safe environment. All these elements within the EHS utilize Risk Management in some form or another; Risk is a key component in the EHS in this respect.

Ultimately, Risk Management is able to effectively translate the EHS data into a common risk element, enabling EHS managers to see where the top risks are and dig deeper into those risks to ultimately get to the root cause, stopping risk before it spreads.

Closing Thoughts

Is it repeatable? Is it consistent? Is it objective? These are the questions to ask when first taking on a Risk Management venture within your EHS system. Once this framework is in place, risk must be defined. The organization can then apply Risk Management to the EHS system and begin to reap the benefits of a solution that will enhance Environmental Health and Safety initiatives across their enterprise.

This paper has discussed the abounding benefits of incorporating Risk Management in EHS Systems. For instance, Risk Management will help to foster faster response to high-risk events and enable an organization to draw correlations between events that happened in one department to events that happened in another, helping to get to the root cause of the risk. It also proves to be an effective method of quantitatively measuring and benchmarking job risks, systematically. Risk tools increase job safety as a whole by breaking the job down into individual steps, targeting the potential hazards that are inherent in individual steps, and mitigating the risk at each job step.

Once an organization has applied Risk Management to their Environmental Health and Safety system, they will begin to reap the benefits of dramatically improved visibility, better informed decision making, and continuous improvement that reaches across the enterprise, taking EHS initiatives beyond compliance.