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Would Your Risk Assessment Process Impress Your Insurance Company?

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Introduction

Business insurance enables most companies to manage a wide range of risks and their associated losses. The negotiation of insurance and desirable pricing is enhanced when the insurance carrier is familiar with the employer's risk management practices as they apply to common forms of business insurance such as workers compensation, property, general liability, products liability and auto to name a few.

When a company is growing quickly and/or impacted by the economy it is easy to fall into the practice of managing things day-to-day and merely complying with regulations as the modus operandi. Management should take the time to step back and evaluate operational programs, work practices, and company culture as they influence the awareness and control of risk. Economic and operational stress can challenge a company's ability to strategically plan and mitigate risk. A proactive risk management discipline can guide the company to better practices and more thoughtful decisions in spite of challenges posed by existing and emerging hazards. One critical element of an effective risk management program is risk assessment.

Companies that have implemented a risk assessment process should consider how that process and the resulting reduction of risk can influence their insurance carrier. Those companies that have not implemented a risk assessment process should consider the added benefit such practices can offer as part of a sound business case.

A review of the basic risk assessment process will assure understanding of the steps and terminology. This paper will address the benefits and why your insurance company is interested in your process. The last few pages contain examples of several different ways companies have demonstrated their risk assessment processes.

Risk Assessment Basics

A risk assessment process systematically evaluates hazards with the primary goal of eliminating or minimizing potential losses that can adversely affect the organization. Potential losses may include employee injuries, illnesses, fire, property damage, and environmental impairment. Identifying and assessing such risks can help identify as well as prioritize hazards that present the greatest threat to the organization according to their overall risk classification when compared to other hazards evaluated.

Some of the more commonly known risk assessment standards include:

- ANSI/AIHA Z10, Occupational Health and Safety Management Systems (App. F)
- ANSI B11.TR3, Risk Assessment and Risk Reduction- A guide to Estimate, Evaluate and Reduce Risks Associated with Machine Tools
- ANSI/ASSE Z690.1, Vocabulary for Risk Management
- ANSI/ASSE Z690.2, Risk Management - Principles and Guidelines
- ANSI/ASSE Z690.3, Risk Assessment Techniques
- MIL-STD-882E Standard Practice for System Safety

There are 8 basic steps to any risk assessment program:

1. Identify the hazards associated with the scenario being evaluated. Hazards are conditions that have the potential to produce harm under the right circumstances. Hazards that are fully controlled under normal conditions may pose a threat during routine maintenance or during emergency conditions. It is especially important to carefully evaluate new processes and technologies for previously undocumented hazards. A review of compliance requirements should be included in all risk assessments of workplace operations and tasks.
2. Identify the existing controls for each hazard.
3. Assess the severity of the occurrence for each hazard. Existing hazard controls should be considered. It is important to assess the severity independently of the probability (see step 4). A scale (typically 1-5) should be used for consistency. Severity can be categorized by financial loss, injury type, impact on business, etc.
4. Rate the probability for each hazard. Unless you have significant data (quality control documents, years of loss runs, etc.), this tends to be subjective. A scale should also be used for probability to ensure more consistent results. The scale can be categorized by frequency (does the hazard occur continuously or once per year) and exposure (i.e., miles driven per year or number of employees/customers exposed). Again, the existing controls should be considered when assigning a probability rating.
5. Calculate and categorize the risk. Risk = severity x probability. If the scales go from 1-5, the risk will be 1-25, with 1 being a low risk number and 25 being very high. Note that 0 (no risk) is not a possibility... except in MIL STD 882, which now includes an “eliminated”, or zero score, category. The matrix below shows the overall risk rating and the colors emphasize that frequent events with catastrophic severity should be given highest priority.

Risk Rating		Severity of Occurrence				
		Catastrophic Death or permanent total disability **(5)**	**Critical** Disability in excess of 3 months **(4)**	**Substantial** Lost workday case **(3)**	**Marginal** Medical injury **(2)**	**Negligible** First aid or minor medical treatment **(1)**
Probability of Occurrence	**Frequent** Likely to occur repeatedly **(5)**	**High** Risk reduction necessary	**High** Risk reduction necessary	**High** Risk reduction necessary	**Serious** Risk reduction recommended	**Medium** Management review needed
	Probable Likely to occur several times **(4)**	**High** Risk reduction necessary	**High** Risk reduction necessary	**High** Risk reduction necessary	**Medium** Management review needed	**Medium** Management review needed
	Occasional Likely to occur sometime **(3)**	**High** Risk reduction necessary	**Serious** Risk reduction recommended	**Serious** Risk reduction recommended	**Medium** Management review needed	**Low** Acceptable risk
	Remote Not likely to occur **(2)**	**Serious** Risk reduction recommended	**Serious** Risk reduction recommended	**Medium** Management review needed	**Medium** Management review needed	**Low** Acceptable risk
	Improbable Very unlikely – may assume exposure will not happen **(1)**	**Medium** Management review needed	**Medium** Management review needed	**Low** Acceptable risk	**Low** Acceptable risk	**Low** Acceptable risk

6. Brainstorm mitigation controls that would improve the risk. Improved controls (in order of preference) are:
   a. Elimination of the hazard
   b. Substitution of less hazardous materials, processes, operations, or equipment
   c. Engineering Controls including enclosures, guards, barriers, and ventilation
   d. Administrative Controls such as rules, procedures, training, and warning
   e. Personal Protective Equipment such as respirators and hand protection
7. Rate the new severity, probability, and overall risk (severity x probability) based on implementation of the mitigation controls.
8. Prioritize and implement risk mitigation. Higher-valued initial risks should be given priority for abatement. Using a summary worksheet (example shown below) can also identify the risk differential between the current controls and higher-level controls. It is also common to identify the "low-hanging fruit". These are mitigation controls that can be done quickly with little expense.

Hazard	Statement of Exposure	Current State Description of Controls	Control	Severity	Probability	Overall Risk	Post-Mitigation Description of Controls	Control	Severity	Probability	Overall Risk

Control
a. Elimination
b. Substitution
c. Engineering Controls
d. Administrative Controls
e. Personal Protective Equipment
f. No Controls

Severity Risk Rating
1. Negligible
2. Marginal
3. Substantial
4. Critical
5. Catastrophic

Probability Risk Rating
1. Improbable
2. Remote
3. Occasional
4. Probable
5. Frequent

Overall Risk Rating
1- 3 Low
4- 8 Medium
8 - 12 Serious
12 - 25 High

Benefits of Risk Assessment

A risk assessment process helps management understand that risk reduction is a business function that must be actively managed. The risk assessment process facilitates the identification of hazards and the evaluation of the risk of loss by injury or damage. One of the greatest values of the process is getting people who are knowledgeable about an operation to focus on hazards and controls and to develop solutions to reduce risk. The ultimate value of the risk assessment process is the reduction in the opportunity for accidents and their associated impact on the business and employees. When used correctly, the risk assessment process will help identify previously unknown or little-known hazards as well as the level of exposure to those hazards. The organization will receive the benefits of reduced direct and indirect injury costs, fewer incidents and adverse events, more-efficient operations, and a favorable insured loss experience.

When risk assessment becomes part of the management system, it influences the organization's culture, employee behavior, and operations. The organization can utilize their risk assessment skills to drive continuous improvement and focus on those risks with the greatest business impact. Management systems such as ANSI Z10 recognize that workplaces will never achieve zero risk. Therefore, risk assessment approaches are designed to identify and assess risks and then focus attention and resources on those that can have the greatest negative impact on the business.

The risk assessment process is an opportunity for employee engagement and for departments to better understand the goals/priorities of other departments. As the team works through the risk assessment process, having the different departments involved makes it more likely that impact to the departments, suppliers, customers, etc. will be considered and addressed.

A formal process is an excellent method to show the executive team the thought process and reasons for requesting resource allocation needed to take action based on rational

prioritization criteria. In many cases, the decreased risk can be tied to finances and used to show that reducing the targeted risks can have an impact on operations and the overall competitiveness and sustainability of the business.

A risk assessment process helps an organization prioritize risk and focus the attention of decision makers on those business practices and tasks that exceed risk tolerance of the organization. The process prioritizes those risks that need to be abated in an expedited manner versus those that can be included in the normal planning cycle as part of continuous process improvement. Having objective measures of risk improvement allows for the preparation of a business case to justify the need for any financial resources.

Another benefit of a robust risk assessment culture is an outward and measurable indication to third parties (including insurance companies, regulatory agencies such as OSHA, and other outside stakeholders such as investors) that the organization is serious about managing overall risk to the business, including the safety and health of the workforce as well as other tangible and intangible company assets. Organizations that are risk aware and responsive are favored by insurers.

Why Your Insurance Company Is Interested

Insurance carriers assess the hazards and controls, and consider the probability of loss (frequency) as well as the expected and worst-case loss scenarios (severity). This assessment is considered by the underwriter as they consider the terms and conditions for various insurance products. Many state insurance laws promote the application of scheduled credits or debits which the insurance company can apply to the premium calculation. Those companies with demonstrable risk management practices, evidence of risk reduction, and favorable loss experience tend to receive more favorable terms and conditions.

Insurers also make recommendations to improve the risk. If the risk is high with low or nonexistent controls the recommendations may require immediate response. In such cases, insurance terms may be adjusted or denied until the risk is adequately mitigated.

Some general characteristics relevant to insurance risk evaluation include the following:

- Risk Awareness
  - Recalls of similar products, pending legislation, industry standards, best practices, emerging hazards, property exposures, hazard assessment
- Risk Measurement
  - Quality assurance metrics, loss analysis, risk rating
- Risk Communication
  - Organizationally, supply chain, distribution chain, contracts, regulators, media
- Risk Management
  - Authorities and responsibilities, tolerance
- Risk Mitigation
  - Active measures to reduce risk

Insurance companies are interested with how management assesses risk across a variety of risk categories including property, products liability, worker safety, business interruption, auto, etc. While insurers may look for specific items that indicate limited compliance with regulations and give insight to the company's culture, they are very interested in management programs, including risk assessment, because this indicates how a company will be able to manage constantly changing risk dynamics and how such risks are prioritized. Practiced risk assessment within a company also tells insurers that the company is committed to managing their operations beyond regulations that often do not address the changing risk dynamic.

Insurers and investors are more aware of the impact of unforeseen hazards and their consequences on a business. The range and nature of emerging hazards has expanded greatly since the turn of this century and continues to grow. Many insurers have teams dedicated to identifying and monitoring developing risk posed by such things as nano materials, pandemics, terrorism, food ingredients, electro-magnetic forces, solar flares, etc. Businesses that practice risk assessment throughout their operations increase their ability to pre-empt the negative consequences of emerging hazards.

Companies aren't usually thinking about their insurance program when they develop a risk assessment program. It's driven by other considerations such as customer requirements (i.e. military requirement for product safety), regulatory (i.e. worker safety in Europe), or a company goal to create a more formal process to reduce accidents and prioritize mitigation actions. It is common for a risk assessment program to start in one department/division, and then grow organically as other managers see the benefit.

It is common to see risk assessments done for products liability (especially life science products and federal government contractors) and many companies have completed the initial steps for worker safety risk assessments in the form of JSAs.

Whether a company has a formal or informal risk assessment process, insurers are interested in all aspects, since any form is able to show that a company is aware of their risk and has a thoughtful process for evaluating the risk and prioritizing where time, energy, and finances should be allocated to reduce their risk.

How Companies Have Demonstrated their Risk Assessment Process to their Insurance Company

Product Liability – Supply Chain

When evaluating a company for products liability coverage, an insurance company considers each product line, how the products are used, customers, lifecycle, design process, manufacturing (supply chain), quality control, installation/maintenance, marketing, recall capability, risk transfer, and potential for bodily injury and property damage. The basic evaluation is done for existing products, but since the product line can change at any time, insurers are looking for indications that risk management programs are in place that verify the company considers more than profit margins when considering a new product line or modification.

Components of risk assessments are common for products liability and include HACCP plans in the food industry and design hazard analyses for industrial equipment. Many first-tier federal government contractors and life science companies do full risk assessments.

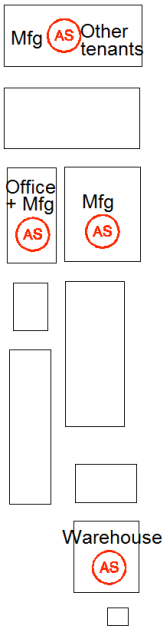
Such practices were demonstrated by a company that distributes art and craft materials. They had an awareness of issues in their industry and took steps to mitigate potential losses and claims. To accommodate customers they regularly consider accessory items. They were aware that they do not have internal expertise so in addition to a market analysis, a risk assessment is done. They were able to describe the process for a small appliance that was being considered for addition to their catalog. The risk assessment identified several issues. As a result, they had the product evaluated by UL and asked the foreign manufacturer to make several design changes.

General Liability

For general liability insurance, an insurance company looks at fire/life safety, security, contractual liability, and unique exposures. This is another area in which insurers expect the company to have a more thoughtful process when considering not only every day operations and exposures but those that are specific to their operations or unusual. As an example, tanning salons are regulated by states and the minimum requirements therefore vary. By checking with industry groups and other information sources, it is easy to identify best practices in the industry, compare those with existing practices, and prioritize items for improvement. Although not required by many states, it is easy to see why privacy practices, customer screening, bed maintenance, hygiene practices, and providing eye protection, lotion and customer education would decrease the likelihood of injuries and claims.

Property

When a company is evaluated for property insurance, the insurer looks at the building construction, operations. Protection features, exposures, and values.



Fire Protection

As an example, a company occupied 4 buildings near each other in an old industrial section of the city. The products are primarily made of plastic and there was significant storage in the manufacturing areas as well as the warehouse. The sprinkler systems were not designed to control a fire with the heavy plastic fire loading in the buildings. The company had multiple property recommendations from two insurance companies and got bids to upgrade the sprinkler systems in two of the buildings (one owned, one leased). They applied a risk assessment process to determine priorities and actions. The short and long term options they considered included upgrading the sprinkler systems, creating a program to reduce the storage in the manufacturing areas, and leasing space in another building so they can decrease the storage heights in the warehouse. Priorities were based on the values at risk (building + contents + business interruption) and impact to manufacturing operations.

Combustible Dust

A company that manufactures plastic products, pumps resins from sealed tanks. Additives are manually added to the ribbon blender, then the lid is closed and the blender turned on. A risk assessment identified fire and explosion hazards from the combustible dust generated when the additives are poured. The risk assessment team found several mitigation actions to reduce the

exposure, including upgrading the electrical in the room to Class II Division 1, prohibiting use of non-Class II Division 1 appliances in the room, re-engineering the exhaust system, installing a separate air conditioning system for the room, and sealing the doors to the room.

Information Technology

Electronic Data Processing (EDP) varies widely from a few stand-alone computers at a small business to multi-million dollars' worth of hardware managing critical and real-time systems. For a mid-sized company, a typical system consists of desktop computers, laptops, a local server rack, and accessories such as printers. Backups of the servers and maybe the desktops are done regularly and stored offsite. Maintenance can be handled in-house but is often contracted to a 3rd party.

Similar to the property assessment described above, there are both long-term and short-term improvements that can be done and the price can be minimal or significant enough to require a capital improvement plan spanning several years.

A company created a risk assessment program for their EDP facility and over the last 5 years they have been able to demonstrate their commitment to continuous improvement with all the changes they have made. When the company originally started, all sales were done through catalog (mail & phone orders). Now sales ($300K/day) are 80% through the internet site. A few years ago they installed gaseous suppression for the EDP room (which already had a sprinkler system). They purchased a diesel generator, then a few years later purchased an additional backup propane generator. The next year they installed water detection and last year they did an electrical risk assessment. It should be noted that they had completed all the items suggested by the electrical risk assessment except for lightning protection. They made an informed decision not to install lightning detection for several reasons; the building is not in a lightning prone area, the bid to install detection was significant because of the building footprint, and the next item on the IT department's wish list is to move the internet sales to the cloud.

Workers Compensation

Worker health and safety has been heavily influenced by Federal and State OSHA regulations. These regulations provide specific controls prescribed for specific hazards with limited regard to non-regulated hazards or the level of risk they pose. This is especially true when it comes to non-routine or unplanned situations such as major equipment breakdowns or maintenance. In such cases, the scenario may not have presented itself before and thus the hazards, exposures and controls have not been determined or established.

Such a case occurred at a facility that stored granular bulk material in a silo. The material fed to an auger at the bottom of the silo and into the process. A bridge occurred above the auger that prevented the material from feeding into it. In the past, they had dislodged such bridges by opening a top hatch and breaking the bridge with wooden poles. After that procedure did not work, it was decided they would open a side hatch above the silo floor and break the bridge with the poles. A forklift with a work platform mounted on the forks was used to elevate the worker to the height of the hatch to allow its removal. As the worker was attempting to loosen the bridge of material, it suddenly began to flow and exit the silo via the hatch opening. Instinctively, the forklift operator began to lower the platform before pulling away from the silo. In so doing, it allowed the flowing material to engulf the platform and employee resulting in his suffocation.

This facility had achieved a high level of safety performance and was recognized for OSHA compliance and cooperation. The task cited above had not been performed before and had not been assessed to determine the hazards and controls. We believe the existing knowledge and skills would have enabled them to anticipate the hazards encountered in this situation via a pre-job analysis using a basic risk assessment process and consideration of safer alternatives to the actions taken.

Nanomaterials

More companies are encountering the use of nanomaterials in their products and processes. In such cases, insurers are seeking evidence the company has conducted a risk analysis prior to its determination to use such new materials that may pose a health hazard to the workers exposed to the material or to the consumers using the product. Fortunately NIOSH has been a champion of applying the risk assessment process to nanomaterials in the workplace. The NIOSH publication number 2012-147 "General Safe Practices for Working with Engineered Nanomaterials in Research Laboratories," offers a risk-based approach that can be used by companies considering the use of nanomaterials.

Food

Insurers work with policyholders to assist them in their risk analysis of food flavorings that have been identified by the Flavoring and Extract Manufacturers Association (FEMA) in their 2012 update regarding "Respiratory Health and Safety in the Flavor Manufacturing Workplace." Similar to nanomaterials, some of the cited substances do not have established exposure limits or sampling criteria. Applying the risk assessment process to such scenarios enables the company to more fully consider the risk associated with the use of such materials (and potential substitutes) and determine if the current controls are acceptable. In some cases, a determination was made to eliminate the use of specific food flavorings after completion of a risk assessment. Insurers promote and support such diligence and action.

Auto / Fleet

The world of vehicles, transportation and mobility is on the verge of significant change due to the utilization of technology. More companies are considering the use of alternative fuel vehicles, vehicles with active crash avoidance systems, and telematic systems. As such new technology is added by the manufacturers or after-market providers it may present new and unexpected hazards to vehicle operators, pedestrians, or crash responders. As companies consider the use of such new technologies, insurers promote the use of the risk assessment process to determine the associated risks.

Cell Phones

Perhaps the most significant technology associated risk to present itself in the transportation scenario is the cell phone and the distraction of users of these devices. The response by companies has been mixed, ranging from no action to a total ban of cell phone use while a vehicle is powered (moving or idle). The risk assessment process has enabled many companies to assess the risks of distracted driving to their employees and the public and determine, based on their risk tolerance, how to control the exposure. In some cases the companies have revisited the distracted driving scenario multiple times and have established higher level controls as they have become more familiar with the probability and severity of injury or liability.

Conclusion

Ideally we would wrap all the exposures in non-toxic, noncombustible bubble-wrap, but since that's not an option, we would love for a company to demonstrate that they are aware of the risks posed by their business and have a process throughout the company for identifying and quantifying the hazards and creating action plans to manage the risk.

Insurance companies are in the business of underwriting risks encountered by policyholders. Risk is an ever present and changing element of business. Insurance can provide a backstop for companies to limit the financial impact of losses such as fires, floods, vehicle crashes, faulty products, or employee injuries. Relying only on laws and regulations to lead your safety or loss prevention programs will leave companies vulnerable to emerging hazards as well as known hazards that present themselves in unexpected scenarios.

The basic risk assessment process is a very effective tool that can enable companies to identify their exposure to new or unexpected hazards and take action based on the risk of injury, illness, damage, or liability. Insurance company interests are naturally aligned with the development and mitigation of risk in their policyholders operations. Those companies that actively assess and mitigate the broad range of risks associated with their operations present a favorable business relationship for their insurers that will mutually benefit both parties.

All companies are urged to implement an appropriate risk assessment process or continue to develop their existing process. Utilize the risk assessment skills and services of your insurance company if you need help. They offer great insight into a wide variety of hazards and controls. They also have intimate knowledge of the probability and severity of loss.

Capitalize on your risk assessment process by demonstrating it to your risk manager, insurance broker or agent and your insurer.

Bibliography

American National Standards Institute, *ANSI/AIHA Z10-2012, Occupational Health and Safety management Systems (Appendix F).*

American National Standards Institute, *ANSI B11.TR3-2000, Risk Assessment and Risk Reduction – A Guide to Estimate, Evaluate and Reduce Risks Associated with Machine Tools.*

American National Standards Institute, *ANSI/ASSE/ISO Guide 73 (Z690.1-2011), Vocabulary for Risk Management.*

American National Standards Institute, *ANSI /ASSE/ISO 31000 (Z690.2-2011), Risk Management – Principles and Guidelines.*

American National Standards Institute, *ANSI /ASSE/ISO 31010 (Z690.3-2011), Risk Assessment Techniques.*

Department of Defense *MIL-STD-882E, Standard Practice for System Safety.*

National Institute of Occupational Safety & Health (NIOSH), Publication number 2012-147, "General Safe Practices for Working with Engineered Nanomaterials in Research Laboratories."

Flavoring and Extract Manufacturers Association, "Respiratory Health and Safety in the Flavor Manufacturing Workplace," 2012.

NOTE: This informational paper is necessarily general in content and intended to provide an overview of certain aspects of risk assessment with an edition date of March 11, 2013. This document is advisory in nature and is for informational purposes only. No liability is assumed by reason of the information this document contains. The information provided should not be relied upon as legal advice or a definitive statement of the law in any jurisdiction. For such advice, a listener or reader should consult their own legal counsel.

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