

Enhancement of a Safety and Risk Control Management Program for University-Based

Disability Services Laboratories

by

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A Research Paper

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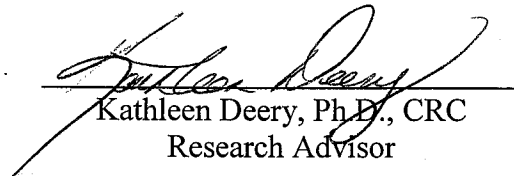
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ABSTRACT

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This study examines the availability and appropriateness of public domain materials to enhance safety and health programs at disability services laboratories, by aligning its unique risk exposures, and its operational characteristics with the most optimal resources. Examples and loss statistics are sought to represent the need for improved safety measures in this type of environment. The facility and staff activities serving the consumers with disabilities may operate on a limited budget, as a small staff group, that is not trained in safety and health matters.

The methodologies employed seek to review literature representing the latest models and best practices in the field. Selected materials are reviewed for their individual attributes, and as applicable program categories.

The results are discussed regarding the numerous materials located. A program model component is recognized for its support of continuous improvement, and materials appropriate for use by committed in-house staff are identified to enhance an existing safety and health program.

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TABLE OF CONTENTS

	Page
.....	
ABSTRACT.....	ii
Chapter I: Introduction.....	1
<i>Purpose of the study</i>	5
<i>Goals of the Study</i>	5
<i>Project Significance</i>	5
<i>Assumptions and Limitations of the Study</i>	6
<i>Definition of Terms</i>	6
<i>Methodology</i>	9
Chapter II: Literature Review.....	10
<i>Significance of Loss</i>	10
<i>Loss Control Models</i>	12
<i>Safety at a Disability Services Laboratory</i>	14
<i>Federal Resources</i>	16
<i>Local and State Resources</i>	22
<i>Associations and Commercial Resources</i>	28
<i>Rehabilitation and University Resources</i>	32
<i>Summary</i>	36
Chapter III: Methodology.....	38
<i>Research Methods</i>	38
<i>Resource Selection</i>	38
<i>Resource Analysis</i>	39

<i>Limitations of the Study</i>	39
Chapter IV: Results and Discussion	41
<i>Results</i>	41
<i>Discussion</i>	45
Chapter V: Conclusions and Recommendations.....	51
<i>Conclusions</i>	52
<i>Recommendations</i>	55
<i>Areas of Further Research</i>	57
<i>Summary</i>	57
References.....	59
Appendix A: OSHA Sample Program	64
Appendix B: Red Cross Disaster Kit	70
Appendix C: Disabilities Disaster Questionnaire	72
Appendix D: CARE Program	77
Appendix E: FEMA Emergency Planning.....	84
Appendix F: Job Safety Analysis.....	89
Appendix G: HAZCOM Checklist	94

Chapter I: Introduction

Every organization is exposed to risk and the potential for loss. History is filled with records of catastrophic losses ranging from casualties and disabling illness to property loss. Anytime a person enters into an activity they are exposed to risk and the potential to experience loss. Loss occurs when there are measurable effects. Loss can be categorized into the two areas of personal loss, and pure loss (Petersen, 1989). Personal loss is associated with life, health, and the related displaced opportunities. Pure loss relates to financial assets, property, and displaced return on investment. Safety and risk control professionals are given the task of minimizing the exposure and potential for loss in work environments through implementation of risk control management systems.

Many large corporate models are developed and administered by formal departments of specialized safety and risk control staff. The charge for these departments and the programs they manage is to operate collaboratively as a component of management within an organization to prevent direct loss incidents and to reduce the losses related to the indirect post-incident costs. Corporate risk management models have evolved from loss histories and the regulatory efforts of numerous government agencies that address the interests of workers, the public and environmental risk exposures. Even with these efforts in place, significant losses still occur.

Deficiencies in the effectiveness of safety and risk control efforts may result in fatal accidents. The recent loss statistics reported by the Center's for Disease Control and Prevention (CDC) indicated that in 2002 there were 5,524 occupational fatalities in the US across all industries, and more than 4.7 million new non-fatal injuries and illnesses reported in private industry alone (CDC, 2004). Numerous similar statistics clearly

illustrate the necessity and responsibility to develop and implement the most effective and high quality safety and risk control programs to further prevent injuries and improve workplace safety and productivity.

Effective safety and risk control should become an integral part of an organization's culture. The standards and regulations related to safety and risk control are generally the same for companies and organizations of any size, big and small. However, the cost for operating an optimal risk control management system (RCMS) for a small organization can be prohibitive. Many sample systems are offered by governmental agencies as models of operation. The Occupational Safety and Health Administration (OSHA) offers a model called Sample Safety and Health Program for Small Business (Appendix A). According to OSHA this model includes four basic program elements: a) management leadership and employee involvement; b) worksite analysis; c) hazard prevention and control and d) training. Each element consists of numerous subsections. Although this model is widely applicable and covers many safety and risk control program issues, by design it has to remain general enough to not be exclusive to a specific area of application. When a small organization is involved with specialized risk exposures, it is necessary to develop an in-house RCMS that adopts and complies with all applicable regulations and specializes on the management of the risk exposures specific to that entity.

Non-profit agencies are typically small to medium sized organizations charged with varied roles and functions. While often operating on very small annual budgets, the management of a small organization may not adequately focus on and manage their risk exposures and the potential for loss. This is exemplified by the fact that 60% of small

companies do not resume operations following a catastrophic loss, and that they many never resume operation because of the devastating financial effects of a significant loss event (Federal Emergency Management Agency, 2004). Non-profit groups continue to operate on shrinking financial resources, often with no staff trained to fully manage safety and risk control programs within their organizations. Although numerous safety and risk control management program resources are available, not all are fully prepared for dissemination and easy application to the settings of small business and non-profit organizations. Regulated by state governments and or accreditation agencies, these small non-profit organizations may also be under the scrutiny of their insurance carriers regarding compliance and risk exposure.

A university-based non-profit disability services laboratory is an example of a small operation that is required to comply with multiple standards, often with few resources or trained staff available to manage risk exposures. A disability services organization's primary function is to develop and provide education, training, and direct services for practitioners and individuals relating to disabilities. These organizations are typically staffed with professionals from a human services background who have little or no formal training on safety or risk control issues. To operate as a business however, they are required to comply with state employment and environmental regulations. Additionally, these organizations often are recipients of federal funding that may impose there own operational regulations. If they are accredited institutions, they are then required to comply with an additional set of operation specific standards.

When an organization has to comply with numerous operational requirements that relate to safety and risk control, it may be assumed that the necessary resources are made

available to satisfy the requirements. In the case where a disability services organization is affiliated with a state university, many of the global safety and risk control issues are managed by the university system. The state university system risk control departments focus on risk control variables that prioritize large loss exposures. Physical plant, waste management, security, and other high-risk exposures are well managed and are strictly enforced. Many departmental level risk control management issues are left up to each operating unit to develop, apply, and enforce. However, without the necessary resources and trained staff, the department property, operations, and employee risk control management issues may not be optimized to reduce loss potential.

A university department level disability services organization that is operating on a limited budget with no trained risk control staff may be involved with some highly specialized activities that create additional risk exposures. Rehabilitation and disability service activities may involve specialized challenges related to facility evacuation, sensory-based communication barriers, fragile clientele, and interpersonal human contact as part of daily activities. Some of the specialized service organizations also operate laboratories that develop and fabricate adaptive equipment for use by their customers involved with a disability. Unique risk exposures may occur when individuals with disabilities are being served in an assessment or materials fabrication environment. A disability services laboratory can be considered a specialized environment that may require investment in, and application of the most optimal safety and risk control management system available.

Purpose of the study

The purpose of this study is to identify resources appropriate to a safety and health risk control program at a university based disability services laboratory.

Goals of the Study

The goals of the study are to:

1. Identify and obtain public domain resources for the purpose of enhancing a safety and health program at a university based disability services laboratory.
2. Evaluate the appropriateness of available materials for efficient and effective integration into university based laboratory environment.

Project Significance

It is assumed that any organization can benefit from working to enhance its safety and health risk control program. Application of conventional safety and risk control management programs to a university-based disability services laboratory may be difficult because they engage in numerous activities with differing populations that represent specialized risk exposures. The success and outcomes of attempts to enhance a safety and health program in this type of environment may be unsatisfactory if the risk control management resources are not readily applicable to a university-based disability services laboratory. Additional barriers may occur due to limited safety and risk control training among staff and limited fiscal and time resources available. It may be found that numerous resources are available although they may only best apply after review and selection for their appropriate variables.

Assumptions and Limitations of the Study

The following assumptions were made concerning this study:

1. Any organization can experience positive outcomes from efforts to enhance its safety and health loss control programs.
2. The size, role, and function of the disability services laboratories used as models for this study may affect the potential for application to other settings with differing affiliations and variables.
3. Non-knowledgeable users of safety and risk control concepts may require considerable information and support regarding direct application or integration of the outcomes of this study.

This study is bound by the following limitations:

1. The study was limited to the review and development of a program for one type of organization with specific loss exposures.
2. No investigation was conducted to obtain resources from outside of the United States of America.
3. The proposed resource variables and application recommendations developed from the findings were not evaluated for validity or reliability.

Definition of Terms

For clarity of understanding, the following terms are defined:

American Red Cross. Helps prepare communities for emergencies and keep people safe everyday by providing the following services: disaster services, community services, volunteer services, health and safety services, youth services, international services, biomedical and nursing services, diversity and government relations services.

American National Standards Institute (ANSI). ANSI is an organization that serves as a clearinghouse for nationally coordinated voluntary safety, engineering, and industrial standards. (Kohn, Friend, & Winterberger, 1996).

Assistive Technology. A field that uses commercial or custom-designed devices, modifications, and/or related technical services to increase, maintain, and/or improve the functional capabilities of individuals with disabilities. This also includes a variety of appropriate accommodation strategies that may assist an organization in accurately assessing the persons served.

Commission on Accreditation for Rehabilitation Facilities (CARF). It is a private, nonprofit organization that develops and maintains current, field driven standards that improve the value and responsiveness of the programs and services delivered to people in need of rehabilitation. It also provides consultation, education, training, and publications that support organizations in achieving and maintaining accreditation of their programs and services.

Center for Disease Control (CDC). “Surveys national disease trends and epidemics and environmental health problems. Promotes national health education programs. Administers block grants to states for preventative medicine and health services programs” (Kohn, Friend, & Winterberger, 1996).

Environmental Protection Agency (EPA). Its mission is to protect human health and the environment.

Ergonomics. “Designing or modifying the workplace based upon an understanding of human physiological/psychological characteristics, abilities, and limitations” (Kohn, Friend, & Winterberger, 1996).

Federal Emergency Management Agency (FEMA). FEMA focuses on preparation and prevention of disasters and emergencies along with managing response and recovery services.

The National Institute of Occupational Safety and Health (NIOSH). NIOSH operates within the Department of Health and Human Services (HHS) under the Center of Disease Control (CDC). It supports and conducts research on occupational safety and health issues. Provides technical assistance and training, and develops recommendations for OSHA.

National Safety Council (NSC). Leads an effort to create a culture of workplace safety and health by reducing a workplace injury.

The Occupational Safety and Health Administration (OSHA). (USA) It sets and revokes health and safety standards, conducts inspections, investigates problems, issues citations, assesses penalties, petitions the courts to take appropriate action against unsafe employer, provides safety training, provides injury prevention consultation, and maintains a database of safety and health statistics (Goetsch, 1999).

Regulatory compliance. Ensures that all mandatory safety and health standards are satisfied.

Safety Professional. Individuals who, by virtue of their specialized knowledge and skill and/or educational accomplishments, have achieved professional status in the safety field. They may also have earned the status of Certified Safety Professional (CSP) from the Board of Certified Safety Professionals (Kohn, Friend & Winterberger, 1996).

Methodology

The main methodologies employed in this study were to identify and review user-friendly low cost resources. Information was collected by direct communication with safety and risk control practitioners, and through extensive library and internet searches. Reviewed materials were selected from what was available in the public domain according to their appropriateness to align with the goals of this study and become references in this document.

Chapter II: Literature Review

The focus of this study was to locate and review available resources for appropriateness in the application of enhancement and continued development of a safety and health program for a university based disability services laboratory. A disability services laboratory, like any environment, is at risk of loss and may benefit from enhancements to its process for safety and risk control management. The process of enhancing an existing safety and health program may benefit from integration of the best available resources found to encourage effective outcomes and full participation of all members.

Significance of Loss

Significant loss is widespread and continuously occurs from a lack of appropriate safety and risk control management. The CDC reported loss statistics of 5,524 occupational fatalities in the US across all industries in 2002 (CDC, 2004). In addition, more than 4.7 million new non-fatal injuries and illnesses were reported in private industry alone, leading to a loss of more than 100 billion dollars in direct cost to Americans. Risk managers work from estimates that adjust direct loss costs with an indirect cost multiplier of four so that the true loss annual costs may be in excess of 400 billion dollars. These losses are viewed as an unacceptable occurrence, although management priorities assigned to address these issues have resulted in minimal reductions in the numbers of death and injury.

Formalized processes exist for managing the risk exposures and reducing the effects when loss occurs. Risk management procedures are a process of reorganizing or controlling the risks and the people that are exposed in ways so that the potential for, and

the effects of loss will be reduced. Risk can be managed or treated either through financing loss or by controlling the risk exposure. Financing of loss primarily involves insurance coverage or payment for the loss through expenditures of available assets. Managing risk requires a significant amount of information or data for the decisions necessary to commit the resources for the trade offs required. Loss can be controlled through administrative or engineering procedures. As examples, an administrative control procedure may involve reducing the amount of time that a worker is exposed to a hazard, or with engineering practices a barrier can be placed between the hazard and a worker.

These formal practices are the results of an evolution of attempts to reduce and manage loss of life, health, and assets, from a historical trial-and-error series of safety and risk control management model developments. Throughout the early centuries of organized labor, there was a propensity to enforce responsibility for the consequences of a worker's poor performance through "eye-for-an-eye" practices. It was the worker who was responsible for both cause and effect. For example, it was not uncommon for shipbuilders to be held financially responsible for ships lost at sea. A physician might have his hands cut off if he lost the life of a patient (Grimaldi and Simonds, 1975). At the beginning of the twentieth century, legislation was enacted in the United States that developed programs for the protection and compensation of workers by employers following catastrophic loss events. These first models of specialized protection for coal miners and factory fire victims initiated the earliest shifts of placing some of the responsibility onto the employer.

Loss Control Models

The early theorists developed the basis for numerous practices to manage the responsibility for the loss and to further understand what might be most effective when attempting to manage loss. In the earlier models, there was study and practice associated with a Causation Model (Heinrich, Roos, & Peterson, 1980). The Causation Model proposed that removal of “unsafe acts” or “unsafe conditions” would eliminate accidental loss. The theory proposed that management held the main responsibility for all loss resulting from flaws in the system or operation that they operated (Manuele, 1998). With some assumed responsibility for loss consequences, management began to seriously study and invest in measures for managing loss.

One model for safety and loss management that became universally adopted and is still the basis for some current practices involves the Theory of the Three E’s: Engineering, Education, and Enforcement (Geller, 1996). Engineering is associated with physically changing the work environment, equipment, and conditions to reduce exposure to hazards. Education relates to drill and practice styles of worker training methods in an attempt to change the choices regarding safety made by the employee. Enforcement is associated with the proliferation of standards and regulatory compliance requirements developed by agencies on behalf of the worker and the environment.

Evolving from the Three Es Model, newer human psychology-based approaches for safety and risk management are operating in conjunction with the latest management theories by incorporating aspects of human behavioral psychology. Behavioral based safety is a modern program being developed and managed as an approach that is reported as achieving the best results when combined with the successful practices for minimizing

the exposure to physical hazards. The National Safety Council (2004) has suggested that the loss control statistics from programs focusing on engineering and enforcement have leveled off in recent years. While this may sound positive, the lack of improvement is identified as a problem. Their suggested solution to improve safety outcomes involves a human psychology approach and what is referred to as a “safety culture”.

The modern safety culture model involves behaviors where all parties establish strong values for safety at work and at home. All of these methodologies and modern practices would appear to minimize loss associated with safety and risk control. The development of, and investment in formal safety and risk control management models and practices would suggest that effective outcomes are the result. Yet, reported loss statistics involving billions of dollars and lost lives indicate that significant loss still occurs daily. This drives the safety practitioners to consider what systems or models are optimal and how we can best realize the outcomes of reduced losses.

To address the question of what models of safety and risk management are most desirable, evaluations of the various practice models were considered. Studies have been completed that examine the use of methodologies in differing applications, however few actual studies were found that compared models. Guastello (1993) examined numerous research studies that had been done about particular models and compared their findings that represented what had been most commonly practiced as compared to their reported success rates. The sample program models were categorized into ten different types and then correlated to the outcome measures associated with the total number and severity of injuries. Guastello indicated that the most frequently used type of loss control model, personnel selection, was associated with the highest loss statistics. In contrast, newer and

lesser used models that focus on comprehensive ergonomics and behavioral psychology were associated with the lowest loss statistics. Other successful models identified in the literature exemplified upper management commitment and involvement with the safety and risk control programs within the organization, along with those that represented a functional safety culture.

The modern models involving human psychology, behavioral based management, and the concepts of a safety culture are implied to enhance the earlier focuses on the proven methods of engineering controls, or eliminating the hazards. In support of these concepts, Geller (1996) noted that although the field of safety may not have the statistical data to reinforce these theories or models, the field of human psychology has a depth of study that can be readily applied when considering human behavior and safety. To accept and apply the recommended current theories on safety that are based in behavioral psychology along with the proven attributes of removing the risks through engineering out the hazards, the options have to be considered in the context of a disability services environment.

Safety at a Disability Services Laboratory

To identify a safety and risk control model appropriate for application to a university-based disability services laboratory setting, there must first be a clarification of the apparent risk exposures. The university-based disability services laboratory models used in this study provide education, training, consultation, and fabrication services involving assistive technology. Assistive technology is formally defined as the use of commercial or custom-designed devices, modifications, and/or related technical services to increase, maintain, and/or improve the functional capabilities of individuals with

disabilities. This also includes a variety of appropriate accommodation strategies that may assist an organization in accurately assessing the persons served (CARF, 2004).

Assistive technology education activities for university students and during the training provided when in-servicing practitioners, activities often involve frequent presence and participation of non-employees in the laboratory environment. A related consultation function primarily involves assessment activities where consumers or clients are evaluated in the laboratory environment through the setup and tryout of specialty disability accommodation equipment. The equipment accommodation scenarios can range from observational demonstration orientations to specialized performance based interaction involving fittings and alterations. Fabrication of custom accommodation equipment is accomplished through materials processing techniques by staff in the laboratory environment. The numerous risks in a university-based disability services laboratory involved with the specialized medical, psychological and technical fabrication activities can involve the physical plant, campus security, staff, students, customers, and clients.

The unique combination of risk exposures resulting from involvement in the highly specialized and rarely repetitive activities of a disability service laboratory did not seem to directly align for comparison to the safety and risk control programs that were available for review and potential adoption. The unique combination of risk exposures and multiple regulatory agencies applicable to a university-based disability services laboratory may represent that some overlap would be apparent regarding requirements and management considerations. Consideration may be necessary for incorporating components from multiple sources to accommodate the variables in this type of

environment. The most closely matched and applicable resources from multiple categories of sources may have to be reviewed for the purposes of this study.

To investigate the available safety and health program resource materials, multiple sources need to be examined. The most probable categories of safety and risk control program resources applicable to this environment may be initially considered to be from those groups that represent the regulatory requirements of the organization. These were determined to include federal government regulatory agencies, state authorities, and the disability services accreditation organizations. The university and other educational related sources were also considered. Further public domain resources representing miscellaneous groups including private business and non profits would also be investigated for potential resource options. During the investigation to search for resources representing attributes of the modern human psychology based approach, it was recognized that the much of the hazard or engineering compliance requirements reside in programs at the federal level.

Federal Resources

The safety variables associated with the multiple practices and risk exposures related to the activities of a disability services laboratory can be identified within the regulatory compliance requirements established and stated in the Code of the Federal Regulations (CFR). The compliance standards for the minimally acceptable operations requirements involving the employment activities, customer services, and environmental issues applicable to this study involve hundreds of pages of references (Brauer, 1990). The CFR document is a dynamic written code in continuous revision that is established to be the final rule for reference in regulation. Effective use and navigation of the CFR

requires that the reader have some familiarity with the format and language used. For the purposes of this study the CFR is recognized as the source for the compliance components for the many other interpretation and application resources developed to implement it.

Numerous federal agencies enforce the regulations within the code, and others operate many specialized functions that work to support its implementation. Many of the federal resources were found to be relevant to this study. The Department of Commerce and the National Institute of Standards and Technology focus primarily on fire research, buildings, and consumer products safety. The department of Health and Human Services administers the Public Health Service (PHS) that houses the National Institute for Occupational Health (NIOSH). One of the resources retrieved from NIOSH was the Safety and Health Resource Guide for Small Business (NIOSH, 2000) that includes a three page article on the *what and why* of safety for small business. The remainder of the document is a reference listing that refers out to other agencies. NIOSH is the government agency that works to promote a safe and healthful workplace by developing standards and conducting research. From its description, the federal department of labor (DOL) involves the majority of application to this study. The DOL administers the agencies of the Occupational Safety and Health Administration (OSHA). The Department of Transportation (DOT) operates eight separate agencies to manage transportation safety issues. Some other government agencies operate independently to avoid conflict and bias with other federal departments (Brauer, 1990).

Other independent agencies that are germane to this study include: a) the Consumer Products Safety Commission (CPSD), b) the Environmental Protection

Agency (EPA), and c) the Federal Emergency Management Agency (FEMA). Many other federal level departments and agencies exist that may provide additional information but were not seen as significant to this study. All documents published by federal agencies intended for public distribution are housed at the National Technical Information Service (NTIS). It was beyond the scope of this study to review much of this multitude of the federal information, although at times it was necessary to refer to the CFR. The OSHA materials were considered to be of great importance and were used as the primary reference at the federal level.

The DOL operates OSHA for the primary purpose of assuring healthful working conditions (Friend & Kohn, 2001). While OSHA has regulatory jurisdiction over most occupational activities, a university-based disability laboratory is considered technically exempt because it is first regulated by the state as a government entity. However it was found that the state level office for regulation operates its programs almost identical to the OSHA requirements. In a detailed discussion of OSHA, and the many regulations that it enforces, Friend and Kohn (2001), describe its origins, structure, and procedural details. OSHA is comprised of multiple categories and the one most applicable to this study are the regulations under CFR 1910, *general industry standards*.

The OSHA occupational standards are described as representative of the three primary sources that were referenced to create them: a) consensus standards from industry-wide standards organizations, b) proprietary standards from experts and associations, c) and some of the pre-existing employment laws in effect at the time when OSHA was enacted. The standards are referred to as either vertical or horizontal, regarding their application. Vertical standards are considered specific to a limited

occupational industry group, whereas horizontal standards are commonly applicable to almost all occupations. Initially, OSHA was primarily focused on enforcement, although today the organization strives to encourage employers to collaborate with the many programs offered to enhance safety and health, and loss reduction outcomes (Goetsch, 1999).

To narrow the investigation of the resources available from OSHA in reference to this study a focus was maintained on investigating the services and materials available in the public domain. OSHA provides consultation services and sends experts to the employer sites to assist with review and advisement of their safety programs. Facilitating an OSHA consultation was not considered an appropriate method to secure resources for this study. The scope of this study does not identify with, or directly impact an individual site. Also the objectives of the study do not involve initiation or implementation of any program enhancement activities. The OSHA references most reviewed were those that are available on their website and those that were selected from their library during a site visit to a federal OSHA office. Almost all of the categories of resources relating to the variables of this study are directly and readily available from OSHA.

There is a recommended OSHA program, Sample Safety and Health Program for Small Business (OSHA, 1989). This model program (Appendix A) includes four basic program elements: Management Leadership and Employee Involvement, Worksite Analysis, Hazard Prevention and Control, and Training. A copy of the full document is provided as Appendix A. Each element of the document is divided into numerous subsections. This model is widely applicable and covers the recommended safety and risk control program issues in eight pages. By its design it remains general enough to be

universally applicable. Another on-line OSHA document comprising 115 pages that was reviewed in detail for this study was the “Guide to Your Written Health Safety and Program” (Wisconsin Bureau of State Risk Management, 1998). This document serves as an excellent example of an optimal resource for this study. It is comprised of detailed categories that would address the majority of risk exposure variables at a university-based disability laboratory setting. It offers interpretation of the regulations, advisement on application, site ready templates, and checklists for some of the processes. Many more OSHA resources are available, both in print and online formats.

Other OSHA publications that were reviewed included the Training requirements in OSHA Standards and Training Guidelines (OSHA, 1987). It offers a sectioned format with a focus on training as a part of an effective program; A Guide for Protecting Workers from Woodworking Hazards (OSHA, 1999), and How to Plan for Workplace Emergencies and Evacuations (OSHA, 2001), references some of OSHA’s newer on-line resources. OSHA reports that it has over 100 documents available. Also it indicates that its on-line resources are viewed by over 1 million visitors per month. They search the provided listings on standards, interpretations, directives, and educational information. The newest internet offerings include e-Tools, called Expert Advisor, and an electronic Compliance Assistance Tool (CAT).

Many of the other agency-based resources that were located and found to be appropriate for the objectives of this study were from on-line sources. The internet resources selected for review comprised information that was seen as directly usable or supplemental to the process of enhancement of a university-based safety and health risk control program. Efforts to locate appropriate resources continued with a focus on other

federal agencies and large organizations. Many of the OSHA regulations are derived from the work of the National Institute for Safety and Health (NIOSH) that has the responsibility under the Center for Disease Control (CDC) to develop occupational safety and health standards and to conduct research and training primarily on toxic exposure hazards.

When browsing the NIOSH website a multitude of resources can be found, including study reports and developed materials on many topics. It was found to be more manageable to search from the display of the topics titled, NIOSH Safety and Health Topics that is arranged in an alphabetical format rather than the frequently found chronologically organized listing. From this list it was possible to open numerous current articles. Many of the articles summarized statistical loss information that was abstracted from the Bureau of Labor Statistics. Further links from the NIOSH home page offered selection and downloading of some sample safety program models that had been generated from a variety of sources. They also sponsor their own materials. Their Safety and Health Resource Guide for Small Business (NIOSH, 2000), offers direct links to the work that has been done by NIOSH on exposure issues as well as directions to many other agencies and experts. As another example, there was an on-line a series of seven fact sheets produced on the topics of managing dust generated by woodworking machinery. One more booklet (NIOSH, 1999) has a four color, eight page manual that offers a curriculum development, and learner performance tools. All materials located at the NIOSH site appeared to be available to the public domain.

Numerous additional on-line federal websites related to safety and health offered available materials. The American National Standards Institute (ANSI) materials also can

be downloaded. Friend and Kohn (2001) define ANSI as an industry-wide standard-developing organization that works through industry consensus to establish standards associated with equipment performance related to safety, and for the specialized study of issues that relate to their field of practice. ANSI might be recognized for example by the Z87.1 symbol of approval found on safety glasses, designating that the glasses conform to the ANSI safety eyewear equipment performance standard. The Federal Emergency Management Agency (FEMA) represents an organization with a focus on disaster preparedness, mitigation, and revitalization responsibilities. Emergency Management Guide for Business and Industry (FEMA, n.d.) addresses emergency management through a four step process that is represented in a bullet list format comprising almost 100 direct hyperlinks. Their materials are also publicly available, although the majority of the materials were found to be focused on the public or community rather than on occupational activities. Many of their materials were prepared for adaptation into another application. They would work well for a rewrite or if it was desired to generate some original materials by following their format. The Vulnerability Analysis Chart (FEMA, 2004) is a checklist style document that focuses on disaster preparedness assessment for either occupational sites or use in other environments. FEMA appears to implement some of its dissemination objectives by offering to link or send a site visitor out to a more local resource.

Local and State Resources

Listings and links to the sites for the American Red Cross offered materials that were designed to be used locally. An option exists to access material focused on local or regional needs. The Red Cross materials demonstrated a more user-friendly format that

was prepared for a direct application to a worksite environment. Appendix B shows an example of a full color poster, Personal Workplace Disaster Supplies Kit (American Red Cross, 2002). Appendix C is an assessment tool associated with disability related risk exposures for individuals with disabilities (Kramer, 1996). Much of the materials available represented application to individuals or community based programs and a format not commonly found available in the public domain.

The Red Cross lists a strong selection of articles on the personal and psychological aspects of disaster and loss. From their home page it is possible to select materials from a heading titled, Publications. Their topics cover many areas from children to pets and the home, to finances and business, and to equipment safety issues. The materials appeared to not have been prepared with a focus on occupational safety and health programs. They were recognized as formally prepared and user-friendly in a way that they may be considered good models for format and design when selecting and adapting the materials into the development of an existing program.

When addressing compliance and enhancement of recommended emergency action plans (EAP), many resources refer a user to the organizations such as FEMA. However some materials also referred to the Local Emergency Planning Commission (LEPC). It was not found stated, although LEPC assistance with EAP exemplifies integrating local fire and emergency responders and understanding regional environmental regulations. It had materials selected from federal resources that are prepared for incorporation into local programs. As agencies, the Red Cross as well as the LEPC represented an alternative approach when accessing safety and health resource materials that were not located otherwise during the research. These local resource

groups may be involved in some capacity during development of a safety program. These materials represent incorporation of the federal regulations and recommendations. State level resources also demonstrated yet another construction of resources for consideration.

State level resources for safety and health programming also represented a more local and applicable format in its materials. In many cases, the state level materials represent both enforcement and implementation of best practices. For this study however, it was important to distinguish the differences between whether a resource is primarily designed for compliance, or for safety program management. Friend and Kohn (2001) indicate the need for safety and health professionals to understand the responsibility for reducing hazards and protecting the lives that are entrusted to them, by balancing the management of safety with the relevant science and the practical aspects of regulatory compliance. State sponsored resources reflect adoption of federal compliance requirements, as well as leadership for the process of enhancing loss reduction programs.

The two major categories of state level resources included the state managed OSHA or the state department of commerce occupational enforcement programs, and the state supported university system sites that focus on safety and health issues. There are state agencies and offices that mirror federal resources and programs like OSHA. Other state resources are the basis for regulating government operations and some specific industries that are exempt from OSHA. These programs are often very similar to the federal programs that they emulate. They abound with many resources that have resulted from efforts to create materials that will work to enable implementation and preferred outcomes in safety and health. The main state level safety and health compliance office

resources referenced in this study included the State of Washington and State of Wisconsin websites.

The State of Washington has an approved OSHA program that replaces a federal OSHA presence. OSHA encourages states to manage their own programs, and will fund 50% of the program operating cost if these programs are certified as state plan. Goetsch (1999) noted that certification must demonstrate acceptable programming and that it has the legal, administrative, and enforcement means to operate effectively. The Washington program safety resources are readily accessed through the Washington State Department of Labor and Industries website from a link titled Safety (n.d.). The Washington site A-Z Topic Index that alphabetically lists more than 100 items plus a search function. The topics address OSHA regulations and offer interpretation and application resources. They are primarily formatted as guideline style documents. There did not appear to be an emphasis on adoptable checklist style or sample program materials. As an alternate style example reviewed from a different source, the state of Florida (Appendix D) comprised an example of a Safety and Health Program that is formatted as a fill in the blank document that covers the majority of OSHA requirements from policy to training, inspections, and it also includes a job hazard analysis page (Florida Department of Labor and Employment Security, Division of Safety, 2000).

The State of Wisconsin resources also represented a more applicable style. Wisconsin's private businesses are regulated by federal OSHA. The state health and safety program operates as supplementary or in parallel to the federal OSHA. The resources described in this study focus on addressing the needs of the programs that are exempt from federal OSHA jurisdiction. OSHA does not inspect state and local

government employers. However, as Kohn, Friend, and Winterberger (1996) indicated, they are required to have in effect, an equal or better program for regulating safety and health. Some state documents are formatted and read similar to a CFR document. They can start with headings on definitions and scope, add administration and enforcement, and then cover safety and health by adopting OSHA. They may also list some additional categories above and beyond OSHA that are specific to the State. These categories cover some specialty occupations and environmental exposures.

From the Wisconsin Department of Commerce website one can link to *safety* and find a significant collection of applicable resources. They are arranged under a limited category hyperlink list where each takes you into descending lists that intuitively leads you to materials arranged to address your topic of interest. Numerous resources were found that are prepared for immediate application to program development needs. In fact, there is a specialized set of resources structured as a safety and health program development guide. A 115 page document hosted by the Wisconsin Bureau of State Risk Management, *Guide to Your Written Health and Safety Program (1998)* identifies recommended practices and offers sample materials. These state resources appear to be prepared as model programs for small business application assuming that there is commitment and support available for their implementation. State resources can also be located in other areas.

The other category of state safety and health resources reviewed included those prepared and maintained by state universities. There are numerous strong resource sites at universities that specifically study occupational safety as well as public and environmental health. They house extensive sets of resources that are available to the

public. However, to classify them only as state resources requires recognition that federal agencies and programs may be funding and facilitating a portion of the activities and agendas of some of these state-based university activities as safety and health research programs. Stricoff and Walters (1995) discussed a chemistry laboratory, its specific risk exposures, and management of an optimal program in reference to regulations and recommended practices. A chemistry research laboratory may be a good example of an operation that frequently will be housed at a university and be required to comply with extensive regulations while under a state structure. Also it is possible to access the safety and health programs used to operate the university and its many specialized programs

Selected to represent the more common non-specialized university-based resources for this study was the EHS Safety Training Modules available from the Environmental Health and Safety website at Oklahoma State (Oklahoma State University, Environmental Health and Safety. (2004). As a university website it is primarily designed to address the needs of their university environment regarding compliance regulations, and to manage their safety and health issues. Unlike some other fee-required resource sites, Oklahoma State indicates that the resources listed were generated for campus use although they invite any site visitor to take any of the materials posted and adapt them to their own needs. The Oklahoma State site is arranged with four primary headings: Fire Safety, Hazardous Materials, Hazard Communications, and Safety Training. A topic listing in a table format immediately identified whether the available resources are online or presented in a PowerPoint, word document, or other format. Free training materials were widely available and included some unusual links to materials from the military and other university sites. Although the materials cover the necessary

categories, they appear limited in volume. They also offered direct links to many federal agencies and offices, as well as to the state OSHA program resources. Overall, it was found that the university environment safety and health activities can range from compliance activities for its own needs to a significant specialized research and support function that enhances the field of safety and health.

Associations and Commercial Resources

Many of the experts in the field of safety and health are housed at, and operate from the university environment. Additionally the field benefits from a strong involvement by field practitioners. There are expert practitioners working at companies, in government, and with safety and health consulting firms. For this study, private safety services, for-profit companies, and consulting firms were not considered as a source for public domain resources. This is not to say that their materials are not of value. Many excellent program resources are used in private settings; however they are well protected against dissemination for a variety of reasons. Many of the senior practitioners that generate materials are experts in the field of safety and health. They are also members of professional associations that have a significant presence in their field. Peterson (1989) organized the associations under the three categories: Standards and Specification Groups, Fire Protection organizations, and Trade associations. It was through associations that many resources not commonly posted to public sites were found. Available materials demonstrated many characteristics of excellent quality resources. There are materials for regulatory compliance, as well as specialized publications that appear to be developed for high level, knowledgeable practitioners, and large corporate concerns on modern management strategies.

The association materials selected for review were from the National Safety Council (NSC) website and from the Wisconsin Council of Safety (WCS). The NSC website homepage offers a link titled Resources. This link provides a variety of documents that can be viewed. Many documents listed are available for use. Appendix E is an Emergency Management Guide for Business and industry. This document from FEMA serves as an excellent example of its clarity and readiness to incorporate it into a program. In addition, the simple and self-explanatory layout of this document is user-friendly and encourages use by a lay person to engage and become involved with program operation. It uses questions, with a fill in the blank prompting style format that appears appropriate for successful inclusion of all workers. Other downloadable documents, many in a PDF format, were also considered as resources prepared for incorporating into a safety program. The Ten Point Checklist for Emergency Preparedness was developed by the University of Tennessee Safety Center (2001), demonstrates an excellent site assessment format that incorporates a rating scale when following the detailed list of questions. It provides room for comments to be added at each entry. This document finishes with spaces for multiple signatures and dates to record the completion of the checklist. However, there is no reference to the regulation it addresses or any prompts to explain what a lay person would look for, or how to decide on what to enter on the rating scale. This format of this document requires that a user would already be trained as a site evaluator.

The documents reviewed from the Wisconsin Council of Safety (WCS) were hosted by the Wisconsin Chamber of Commerce Foundation website. Access was also linked through the NSC homepage from the Wisconsin Manufacturers and Commerce

website. The WSC site displays numerous high quality materials that could be easily located and considered for incorporation into a safety and health program. The Safety Policies Checklists and Sample Programs are a set of sub-headings that are guideline focused (Wisconsin Chamber of Commerce Foundation, n.d.). Sample programs and checklist formats were chosen as examples in this study. Appendix F is included as an example of a classic Job Safety Analysis (JSA) form with a sample section prepared by Sentry Insurance (Wisconsin Department of Administration, n.d.). Also, a Hazard Communication Compliance Guide and Checklist is included as Appendix G (Hinds, n.d.). Appendix F and G are documents selected directly from the posted list of options. These documents represent examples of formats for materials considered appropriate to apply to a program model. They appear to be designed to engage all workers and management in the process of safety and health program management. Each of these two documents demonstrates a checklist that is enhanced by the inclusion of a user guide.

The Job Safety Analysis offers a simple instructional guide cover page that comprises a definition of a JSA, a listing of hazard types, and suggested user directions. It also includes a fictitious sample page as an example of a completed JSA. The actual JSA document has spaces for entering the analyzer's and reviewer's name, all of the necessary job information, and the findings of the analysis along with the intended follow up. The Hazard Communication Compliance Guide and Checklist is similar in that it also offers a cover page that identifies the scope, with a definition of the regulation, proposed application, and limitations of the document. A glossary is provided that specifically applies to the regulation. The main checklist provides space for identifying the auditor and the site. Each entry line allows a yes or no response to a short question framed for

each category. Comment and completion date spaces are provided for each item. Overall these documents comprise much of the format and variables considered necessary to accept them as candidates for incorporation into the enhancement of a safety and health program upgrade effort.

Another category considered for materials was manufacturer and vendor sponsored materials. The original manufacturer of the equipment that is used at a facility may be considered as one of the primary sources for information on compliance and effective use of their product. Examples can range from the facility ventilation equipment as part of the physical plant, to the disposable dust masks used at the site. There are extensive resources from the manufactures related to the safety and health issues about their products as well as training on its proper use. They are the experts regarding the product safety of their equipment and how it should be integrated into the regulatory structures of where it is used. In example, manufactures must test and prove how their product may affect end users. They prepare the material safety data sheets (MSDS) that are required for the hazard communication right to know regulations. From chemicals to machinery, almost all products sold are backed by their manufacturer with extensive resources regarding their application, use, and the most effective training appropriate to protect their market and offset their liability. Manufacturer prepared safety and health materials are another option for safety resource materials.

Some of the major distributors of equipment disseminate information to their customers as a marketing function. The avenue used in this study to locate and review materials from these sources was through retail vendors of safety equipment and supplies. The Compliance Magazine, (Hintch & Scannell, 2004) was chosen to represent this

option. Unlike trade journals on the field of safety and health, this publication does not provide an extensive selection of peer reviewed published reports. Instead, it publishes simple short articles on the field, primarily on topics of current interest to safety practitioners. The short articles are segmented within commercial advertisements that pay the cost of publishing the monthly magazine. There is also a considerable selection of materials on their website. They can be found from an alphabetical topic list that includes numerous safety and health articles and program resources. None of the pages will open without the requisite product advertisement links accompanying the text. This variety of posted resources was considered as optional materials for possible adoption after some modification for use in a program.

Rehabilitation and University Resources

To match the needs of a disability services safety and health program with the materials available, a review was also conducted of the resources specific to the field. The field of assistive technology and the related services for those involved with disabilities can encompass numerous regulatory groups and their requirements. Common to disability and rehabilitation programs is an accreditation agency called the Commission on Accreditation for Rehabilitation Facilities, (CARF). Its mission description relates to safety and health in that it, promotes quality, value, and optimal outcomes for the people served thorough rehabilitation programs. It surveys organizations that provide rehabilitation services according to an extensive list of operational categories. CARF has a renewed emphasis on the safety and health concerns of rehabilitation programs. This concern relates to the small size of these organizations and that one significant claim could result in program insolvency. In its Employment and

Community Services Standards Manual (CARF, 2004) there is a section that defines the necessary Health and Safety performance requirements of an accredited provider under a main heading titled "Best Practices". The sections related to the health and safety compliance that are required for demonstration during an accreditation site survey read very similar to that of OSHA. It appears that the majority of the safety and health requirements of CARF have been adopted directly from best practices written for general business and industry. Also, there are a few additional specialized conformance categories that focus on the specific priorities associated with a rehabilitation and education service environment.

CARF provides requirements for health and safety within the scope of rehabilitation programs and services and it recommends or refers to others as resources. To meet first aid requirements it recommends the Red Cross or the YMCA as a source for CPR staff training. For emergency preparedness it offers a FEMA website referral and recommends use of their posted publications. Similar emergency preparation websites are also listed along with a reference to a checklist on bomb threat call receiver training. Along with the CARF, other certification groups or affiliated organizations may be resources for appropriate materials.

Other applicable certifying organizations were identified and reviewed. Much like CARF, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) works to review and approve the operations and facilities of practicing organizations. As part of its many departments it has a separate webpage category for laboratories. It displays a table that compares variables about their accreditation requirements with state affiliated licensure certification processes.

Further review of materials with a focus on laboratories maintained the scope and definition of laboratories that relate to educational activities and disability services rather than the chemistry or testing type of facility. Carter, Hayes, and Paul (1995) describe the special risk exposures in a laboratory environment. They examine liability in reference to exposure to litigation. It involves having full responsibility for a student during activities at a laboratory environment. To address this liability exposure they suggest an engaging safety training program concluding with an instructor and student signed contract that documents the training that occurred. They also provide a Liability Checklist formatted for use by the laboratory instructor or supervisor. The checklist is comprised of 12 bulleted entries focusing on hazards and the engineering controls required.

Many of the checklists reviewed that were developed for laboratory safety needs located from educational materials. They often comprised questionnaire formats that provided for yes or no responses on topics ranging from hazards to training. A Machine Guarding Checklist (Southern Illinois University Carbondale, n.d.) has nine category headings comprising a total of 37 questions. There are no indications provided on whether the checklist is part of a larger safety program. It does not include reference to the regulations it addresses, contact information on who generated it, how it is to be used, or space intended for documentation on who completed it, and if or when remediation might be applied following its use. It did however offer an introductory sentence limiting its scope. The formats of these resources were found to represent much of the materials reviewed from educational laboratory environments with a focus on student risk exposures rather than employee occupational safety and health programming. It was found that many references were designed for adolescents rather than adults. Also, there

appeared to be limited involvement represented where the students would engage in the processes of the safety and health program.

The students involved in a laboratory environment may be present in a capacity as members of a class group, involved through school sponsored practicum or field experiences, and in some cases as employees of the laboratory environment. Besides the resources for managing student involvement with the university activities, materials referenced the goals to address the needs of the campus staff as state employees.

From the homepage website for the University of Wisconsin System, a link opens to a page for the Office of Safety and Loss Prevention. There a list that offers categories covering the issues of, environmental health and safety, workers compensation, risk management, and their occupational safety and loss departments.. The campus level offices support and manage the safety and health issues significant to the operation of a university. They manage the major risk exposures related to the environment, security, workers, and the campus facilities. Additionally, they assist the individual educational departments with managing the issues that arise under these same topical headings. There are numerous resources available that address issues through the application of federal regulations in collaboration with the state public employee health and safety programs.

The university system offices collaborate with the state departments for health and safety to manage risks, protect people, and comply with federal regulations. A review of the resources available from these groups represented a resource set that addressed the majority of goals of this study. The available materials are prepared for application at a university environment and are supported by many knowledgeable professional safety staff. However, laboratory focused materials were rare. It was assumed that the activities

at many university educational environments encompass variables too specific for direct management by the university level safety offices. It may be that the safety and health practices of these specialized departments are in compliance, although they are not published, or prepared for dissemination by departments that focus on accomplishing their mission rather than sharing their safety experience.

Summary

It can be seen that numerous materials are available from a variety of sources. Federal materials represent the law related to health and safety. Their materials are prepared for general application to broad categories that integrate safety with human rights and environmental issues. Many offices interpret and enforce the laws while some are charged with research and policy development. Often these federal sites appear to refer to local and state representatives for accessing their work.

When examining state generated materials it is can be found that their resources exemplify the federal regulations while offering a more local application. Their materials are more likely prepared for application and adoption by an end user. State materials were examined in the two categories of, state regulation agencies and the state universities.

University based resources represented both, highly specialized research and the more common educational environment materials. University laboratories have a specific set of risk exposures that requires additional control programs. Many educational resources represented safety management strategies with limited direct student involvement. The university workforce resources are extensive regarding application to many categories of risk exposures and are often available to the public domain.

Additional categories where materials are available included associations, private consulting groups, and commercial vendors. These resources often represented the expertise of the professionals that generated the materials. Newer management models and very specialized formats are common to these groups. Unfortunately, their materials were copyright protected and not be readily available for use in other programs.

Chapter III: Methodology

Research Methods

The primary methodologies employed in this study were to identify and review user-friendly low cost resources that can be readily adapted and efficiently applied to meet the need for safety and risk control program enhancement at the department level of a university based disability services laboratories. Information was collected during a two year period as part of attendance in safety and risk control coursework. Further work to locate materials for review involved direct communication with safety and risk control practitioners and extensive library and internet searches.

Resource Selection

Only a small percentage of identified materials were selected from what was available in the public domain. Numerous texts that included sections on safety and health issues, as well as safety specific books were referenced for their author's perspectives and examples. Brochures, manuals, and safety program materials were located and reviewed for their contribution to the overall collection. Extensive online resources from federal and state agencies, safety organizations and associations, and disability laboratory related school based options were considered. From these sources, an initial selection was conducted according to their appropriateness to apply to the goals of this study and become references in this document. The selected materials are identified in the Chapter II Literature Review along with additional resources included in the Appendixes A-G.

Resource Analysis

The resources referenced in this study were reviewed and evaluated for their individual merit and appropriateness to the study, and as a grouping of materials that represent the attributes needed to develop best practices. The criteria considered during the review of the selected materials involved their copyright availability, if they were relatively current, and that they aligned with the appropriate risk exposures. Also reviewed was whether they were in a format for easy adoption, that they were designed for untrained users, and if they were free or low cost.

Limitations of the Study

The greatest limitation of the present study resulted from the specific needs of a disability laboratory environment, and the scarcity of available resources. Without many applicable survey results or subject specific loss statistics, it was necessary to examine a wide range of materials and determine the usability of information from similar operations.

Safety program material resources specific to disability laboratory in the United States of America were found to be very limited. This limitation was anticipated and resulted from the reality that small disability laboratory operations are not commonly involved with dissemination of their safety program information. These operations did not appear to post or publish information. It is not known if relevant information may be available outside of the USA.

In addition to the restricted geographical scope, the significance of the findings from this study remains limited to the outcomes from a stand alone project. No other studies or sets of information were found that directly aligned with the purpose of this study. No

similar work was found that could be used for comparison with other studies that addressed the same content or purpose. Without the necessary comparisons, or any repetition of this work, the study was limited regarding validity and reliability. Therefore, other organizations seeking to reproduce this study should interpret the current information with caution.

Chapter IV: Results and Discussion

The purpose of this study was to investigate the availability of resources that could enhance a university-based safety and health risk control program. The study focused on the goals of identifying available resources and reviewing them for appropriateness in application to a university-based disability services laboratory. The methods employed to locate and evaluate the available resources included study in the field of safety and risk control; a review of texts, model program documents, research reports; and communication with safety and health practitioners. Through these methods, an extensive list of available resources was identified and reviewed.

Results

The results of this study culminated in the identification of numerous published references that emphasized safety and health risk control. There is an abundance of information and data that specifically addresses loss. Loss can impact individuals, organizations, and communities, leading to devastating and long term outcomes. It has been reported that more than half of small to medium sized businesses fail within two years following a loss and that they many never return to operating because the effect on their economic base (National Safety Council, 2004). Yet it is evident from the daily news reports and regulatory agencies that collect and report annual loss statistics that loss continues to occur at high rates. It is concerning that a great volume of loss that occurs daily can be forecasted. In fact, the National Center for Health Statistics estimated that individuals have a 1:1781 chance of dying from an accident (NSC, 2004).

It seems to be a trait of human nature to affect a reactionary style of management to address and remedy the causes and outcomes of loss occurrences. One needs to look no

further than the history of a traffic intersection that was not equipped with traffic management signals until enough loss occurred to prioritize a solution. Pending the prioritizing of control and the implementation of effective methods or programs, loss occurrences continue. It may be that complacency rather than ignorance regarding safe acts and conditions are the cause of continued loss. The passing of time is another significant variable that affects the potential to manage and reduce loss. As time passes, natural change and failure of physical environments will result in new risk exposures even in the best managed systems. The effect of time on the human component as a variable in loss potentials is complicated by memory loss, changing faculties, complacency, and competing priorities. Authors from many different disciplines agree that human behavior models are necessary when pursuing quality performance and loss reductions, once the hazards are removed and a minimum compliance is achieved.

Behaviorists challenge safety practitioners as well as business professionals to incorporate human psychology into loss control efforts to manage the human component in safety. Many of the newer safety and health risk control system models that were identified focused a significant portion of their policies and procedures on the psychological components of their models to enable success. They suggest including upper management into safety program operational tasks to promote the commitment of an organization. There should be a rotation of all staff through multiple rolls and functions of the operations of the safety program. Teams can be formed from administration and worker groups that are charged with performing activities from program development efforts to structured accident investigation procedures. Many of the

programs suggested that the inclusion of multiple levels of stakeholders into the numerous tasks of a safety program operation exercises ownership and accountability.

The commitment and involvement of all parties at all levels appears to be a theme that runs through successful safety and health programs. Accountability for involvement is most frequently addressed through inclusion of a safety component as part of employee performance evaluation. For a performance evaluation variable to be measured it is necessary that a segment of a specific policy and procedure be assigned to the individual. No examples were identified during the course of this study that represented recommended safety program implementation with actual performance evaluation variables in an adoptable format. Also noted was a root cause understanding in that when the required performance results in non-completion, management needs to engage in a review and modification of practices.

Safety and health management systems are inherently dynamic programs that rely on a process for continuous review and revision. The safety and health resources reviewed in this study were analyzed for inclusion of the current trends in human behavior and continuous quality improvement program components. Although, most of the resources located were formatted to address regulatory compliance and did not directly reference or align with a particular management model. A concerted effort was made to identify materials for maximum applicability and inclusion into a full program model format.

Consideration of the potential for application in a full program involved an evaluation of how the reviewed materials matched the previously listed risk exposures, whether the materials were prepared for adoption, and if they were in a checklist format.

Many of the materials identified addressed most of the general risk exposures through their standard regulatory compliance structure. The majority of materials identified as resources for safety and health programs were found in a booklet or manual format that appeared to summarize the regulations. The summarized regulation format rarely offered implementation instructions or examples of preferred user methods. Through a combination of sources, some of the more unique compliance issues required for disability laboratory compliance were located.

Adoptability of available resources was also considered when reviewing the materials. This included examining the format of the materials and determining if they could be immediately incorporated into the subject safety program. Factors that were considered included: (a) whether the material could be released with no copyright, (b) if written or explicit permission was granted to use available materials, or (c) if the documents are in the public domain. Materials were seen as ready for incorporation if they were in an electronic format that allowed for easy editing with minimal modifications. Consideration was also given to materials written in a language that could be readily understood by a layperson. A checklist was suggested as a usable format to engage layperson involvement. Consequently, it may be preferable to adopt materials with a checklist format or an enhanced checklist format.

Appendix G, Hazard Communication Compliance Guide and Checklist is an example of what was considered to be an enhanced checklist. In this format a checklist comprises a document that provides for signature identifiers on who used the material, and who is responsible to record and implement its results. It briefly describes its application with reference to regulatory requirements and recommendations. Also it

offers use instructions along with a sample of completed segments. Appendix F is also a representative example of an enhanced checklist. As described, it may be that an enhanced format checklist structure on the majority of the assessment, inspection, and records portions of safety program materials would maximize efficiencies and successfully engage all affected parties. Few materials were located that represented this style of enhanced checklist format.

The vast majority of all identified resources had a format that summarized and encouraged conformity with the federal regulatory compliance requirements. Many went beyond a compliance focus and attempted to address current trends and strategies, but still comprised a general format not designed for use by the lay person. More resource materials appeared to be prepared for personal and small business application at the state and local levels. The university level materials exemplified an end user format and ease of availability. A combination of these and additional resources enabled this researcher to compile a large group of available materials for review.

Discussion

The opportunity to locate and review the numerous available resources allowed fulfillment of the second objective of this study which was to evaluate the materials for application to a university-based disability services laboratory. To do this, it was necessary to consider the unique combination of risk exposures at this type of facility, and the potential for efficient change and adoption of the located resources. A university-based disability services laboratory that focuses on the provision of assistive technology may encompass risk exposures related to involvement with students, the staff, as well as

the facility operation issues. Additionally, it specializes in services for consumers with disabilities, and the special equipment and processes involved.

Where a disability services laboratory operates as a part of university, it is understood that many of the general risk control management categories and responsibilities are addressed. Yet, at the departmental level it is necessary to overlap some of these categories of risk control with the specialized disability service operation program components. It is within the department using the resources identified, that the appropriateness of the materials will be determined before being implemented. To enable a higher probability for success, use of the most appropriate materials should be identified. However, this is not an easy task. As stated earlier, a university based disability service laboratory may be operating with limited funds and have few staff with training in risk control practices.

With few departmental resources and limited staff knowledge, the materials found had to be usable in many categories beyond regulatory compliance. It was accepted that some of the materials found would incorporate enhanced methods to optimize their effect on loss reduction through motivational or consequence strategies. An understanding of what is already in place and effectively operating as part of the university risk control system was needed. It was also necessary to have an understanding of the nature, performance, and involvement of the existing safety and health program at the department level. Without a survey the study worked on an assumed similarity to a known environment and worked to align materials from a variety of sources.

The federal agencies were first explored because of their representation of regulatory requirements. A collection of materials was identified that were formatted in

the finest detail, offering statements of requirements, legal interpretation, and judicial consequences for non-compliance. Many offered a summary of application recommendations, yet by their very nature they remained generic and formatted to address many risk scenarios or combinations of potential exposures. Regulations from OSHA on behalf of the DOL, FEMA working to apply the EPA, and the recommendations of NIOSH under the CDC all produce valuable resources that can be referred to for rules and interpretation. It was found that all of the necessary regulatory information resides in federal resources designed for labor and the environment.

Although, in general, they were not in a format that could efficiently be used to enhance a laboratory safety operation. Appendix A was included in this study as a model OSHA publication representing a stand alone sample program document that recommends use of some of the modern concepts in safety management. Unfortunately, many of the federal program documents were written to be inclusive of all of their sub-components and ended up reading like the CFR itself.

Some federally agency programs did seem to represent an end user application in their materials. The American Red Cross was selected to represent an agency that had numerous materials readily available and appropriate for enhancing a program. Appendix B and C were not viewed as actual occupational safety and health resources but rather as materials to indirectly enhance a program. With a message on personal and disability disaster preparedness at an occupational site, these materials exemplify an approach aligning with accountability from an angle of personal responsibility. The Red Cross and similar groups address federal recommendations on a personal and community level.

State level resources were investigated by following the federal agency referrals to additional resources on occupational safety and health programming. These were divided into resource sites that mirrored the federal offices at the state level, and the state university programs that specialize in research, as well as the state university safety programs. There are a variety of options, including states managing their own OSHA programs, and programs covering public employee and small businesses. A recognizable difference was noted at the state level in that the materials were generated more for implementation assistance. Numerous model program resources were located that incorporated the federal requirements into a format generated for application by end users. Many state model programs were located also promoted the involvement of key stakeholders. The document in Appendix D is a model program written for use in Florida and enclosed in this study to demonstrate a brief format that a user group could edit and adopt as a structure that may support engaging all stakeholders.

To represent other avenues for involving stakeholders the state resources from universities were considered. Many universities that specifically study safety issues are an excellent source of information. They host websites that offer “best-practices” resources and may include specific databases such as the MSDS. The rehabilitation and disability variable involved in this study, and the educational basis issues were not found to be strongly represented publicly. It is understood that many organizations involved in these types of activities are small and specialized, and are not strongly involved in disseminating information on their safety programs. However, it was found that the university’s own programs for managing their safety and health matters involving its public employees represents a strong set of resources available as needed.

An additional variable for consideration was ease of gaining access to the resources. Although there was a wealth of information available from commercial vendors of safety and health service providers, it was not necessarily free. Manufacturers and distributors of process equipment and safety supplies host sites where you can locate pieces of program materials. Original equipment manufacturers and their representatives are an ideal source for much of the specialized safety and environment issue information that aligns with their product. It was found that regulatory compliance and user training resources are available. This may be because of the manufacturer's product liability. As a customer service marketing function they support the compliance needs of their customer base.

The most potential benefit to engaging all parties in an organization is to increase the usability and involvement of the safety program. The challenge to enhancing a safety program at any environment relates to the limited resources involving time, finances, and buy-in. It has been the focus of this study to identify and review the available resources for effective program enhancement. The format of the program materials used appeared to be an important consideration. The enhanced checklist format evolved as a recognizable theme for further consideration. Additionally, there was a strong emphasis in the literature to incorporate a quality improvement management system in any program enhancement effort.

In summary, there are numerous resources available. It appeared that the majority of materials available are not in a format that would be determined optimal. A cautious strategy for selection and use of the available materials should be exercised to avoid inefficient investment and effort. It is important: a) to determine the most optimal point

of access to obtain resource materials, b) to select materials that are usable by all stakeholders, c) and that the quality management system represented in the materials match the operation in question.

Chapter V: Conclusions and Recommendations

The purpose of this study was to identify resources appropriate to a safety and health risk control program at a university based disability services laboratory. The primary goal was to locate and review available resources for appropriateness in the application of enhancement and continued development of a safety and health program for a university based disability services laboratory. The specific goals of the study were to:

1. Identify and obtain public domain resources for the purpose of enhancing a safety and health program at a university based disability services laboratory.
2. Evaluate the appropriateness of available materials for efficient and effective integration into a university based laboratory environment.

This study found that a complete set of resources that could be directly applied to a disability services safety program was not readily available. Based on an extensive review of available resources, it was found that numerous materials are available that could be used to enhance a disability services safety program. However, they were designed for use in a variety of environments and comprise numerous formats and would require modifications for adoption into this specific environment.

The primary methodologies employed in this study were identification and review of user-friendly low cost resources that could be readily adapted to enhance a safety and risk control program at a university-based disability services laboratory. Information was collected over a period exceeding two years and early resource screening was accomplished as part of attendance in safety and risk control coursework. Further work to locate materials for review involved direct communication with safety and risk control practitioners and extensive library and internet searches.

Only a small percentage of identified materials were selected from what was identified as available in the public domain. Numerous texts that included sections on safety and health issues, as well as safety specific books were referenced for their author's perspectives and examples. Brochures, manuals, and safety program materials were located and reviewed for their contribution to the overall collection. Extensive online resources from federal and state agencies, safety related organizations and associations, and disability laboratory school based materials were considered. From these sources, an initial selection was conducted according to their appropriateness to apply to the goals of this study and become references in this document. The resources referenced in this study were reviewed and evaluated for their individual merit and appropriateness to the study, and as a grouping of materials for representing the attributes that would allow this researcher to develop a best practices point of reference for the discussion of the findings. The variables focused on during the review of the selected materials involved their legal availability, if they were relatively current, that they aligned with the appropriate risk exposures, that they were in a format for easy adoption, they were designed for untrained users, and that they were free or low cost.

Conclusions

The primary materials located and reviewed in this study included texts, research reports, government publications, agency resources, and state and local materials. There was an abundance of information and data located that addressed loss, and validated the need to further study to improve safety programs in general. Based on a review of work that has been published, it appears that the more recent efforts reflect an emphasis to integrate a behavioral-based safety approach into their programs.

Authors from many disciplines agree on the importance of human behavior factors when pursuing quality performance and loss reductions. Many of the materials that referenced a safety program format recommended the inclusion of multiple levels of stakeholders into the program operation to enhance ownership and accountability. Accountability for involvement appears to be most frequently discussed through inclusion of a safety component as part of employee performance evaluation. Few examples of applicable materials were identified during the course of this study that represented recommended safety program involvement with actual performance evaluation variables, although many safety references referred to their program model.

A review of the literature identified a trend toward management review and program modification as an essential component of program revision and improvement cycles. Safety and health management systems with their multiple operating programs are inherently dynamic systems that rely on a process for continuous review and revision. There were numerous references to behavioral models and systematic management strategies, yet the majority of the resource materials found to be available only reflected the regulatory or compliance requirement.

Most of the resources located were formatted to address regulatory compliance, and did not directly refer to a particular management model. However, materials were identified that not only represented maximum applicability but also an affiliation with a full program model. Many of the materials identified addressed most of the risk exposure criteria through their standard regulatory compliance structure.

Consideration was given to the potential for application in a full safety program whether the materials addressed the subject risk exposures, their affiliation with

recognizable management models, whether the materials were prepared for adoption, and if they were in a checklist format. The vast majority of all located resources had a format that summarized and encouraged compliance with the federal regulatory requirements. Many materials were in a format that was not designed for use by the lay person or could not be readily adapted. State and local level resources tended to emphasize personal and small business applications. A state disability services environment operates much like a small business and may benefit from resources designed from that perspective.

When a small non-profit disability services laboratory operates as a part of university, many of the general risk control management categories and responsibilities are addressed by the university itself. Individuals departments are expected to determine appropriate resources. Some of the university level materials located exemplified a design appropriate to an end user format as well as ease of availability. The university and state resources in combination offered much of the resources necessary for program materials to cover personnel safety and loss control program requirements.

The most preferred sets of identified resources are prepared and disseminated by specialized agencies or associations that charge a fee for their materials. There was an opportunity to access and review some of these well prepared materials without a significant fee, although in most cases there was little independent review or information available regarding the effectiveness of these for-fee resources.

The most evocative finding from this study involves an observation where a few materials were prepared and available for free in the public domain that represented an immediately recognizable user-ready format. Much like a traditional task analysis structure, a topic was broken down into very small components, studied, accomplished,

and reported on within one document. In a few examples, an enhanced checklist format was used to address a compliance necessary topic with a brief introduction, an attached completed sample, a directed questionnaire, follow-up planning, and recording of the event and the stakeholders involved. In this format, it appeared obvious that the compliance or management issue could be immediately understood, examined, evaluated, recorded, and followed up with plans for remediation as needed, and it could be accomplished by almost anyone involved.

Recommendations

A number of recommendations can be made to enhance the findings of the present study, and for further investigation. Many of the recommendations related to this study involve recognition of how some of the available resource sets were understood regarding their applicability to this study.

Many of the federal resources related to safety and loss control were be recognized as a summary of the CFR and that they are generated and disseminated to communicate a minimum acceptable regulatory compliance requirement. The example of OSHA in this study demonstrated that their services focus on information dissemination, interpretation, and enforcement. Besides their posted information they facilitate training programs for a multitude of categories that would work in this application if the time and cost variables are acceptable. They are offering many new services to support implementation yet many of their resources may require knowledge above and beyond a lay person's simple utilization and direct application of the available materials.

The state and local office and agency resources are recognized as offering a regional application with more of a focus on implementation. Their materials are often

very open and available to the public domain. In many cases the materials demonstrated a readily adoptable format that should be considered as a viable resource for incorporation as portions of many of the compliance components of a safety program.

The university based resource sets were represented by actual state university employee safety programs, or specific research/data base references. These were often freely available and appropriate to enhance any safety program development effort. The state university personnel safety programs were closely aligned with what would apply to a disability services environment. The specific research and data collections are materials that are also accessed by consulting groups and safety specialists as references.

The agency and association, and in some cases the manufacturer/vendor resources are those that would be selected as comprising the most closely matched selections to integrate into a program development effort. Although these resource categories veer from the goal to obtain free or low cost options, the required fee associated with access to this group should be considered. Rather than utilizing some of the consulting groups, it seemed feasible to consider the require membership fees to gain access to the materials held by many the safety association most closely matched to the program being enhanced.

The majority of all resources identified comprised summarized regulations with minimal design to support direct implementation especially by those not trained in safety and loss. For the layperson to gain an understanding of the need and utilization of safety resources one might look to a chapter on safety from a text covering a related field, rather than initially working from a full text on safety. Additionally, this study uncovered a small percentage of available resources that represented a format described earlier as an

enhanced checklist. This format represents a resource that may be considered possibly the most preferred style for ease of use, optimal effectiveness, and inclusion of all stakeholders.

Areas of Further Research

Further research could be conducted to align the idea of the enhanced checklist format with previous educational based research regarding learning models and materials formats. Other studies that have focused on outcome measures, the effectiveness of the stakeholders' involvement when utilizing differing material formats, and cognitive retention studies may offer more insight to the actual material format preferences. A review of other studies may validate and work to further develop the concept of the enhanced checklist examples provided in the appendix to this study.

Further study and investigation into resource sets not included during this study may reveal additional information to extend this work. International and specific members-only resource sets are examples of possible sources for areas not covered.

Also, a formal survey could be conducted with a specific focus involving disability services laboratory safety programs to reveal results that might be much different than what was assumed here. A survey based study and offer many opportunities for identifying additional resources and ideas to further develop this work.

Summary

In summary, the findings of this study resulted in a more clear understanding that a paucity of materials exist that are specifically designed for a university-based disability lab. While a multitude of free public domain materials exist, few could be directly adopted in the format that they are published. Future research should include a survey of

existing disability service laboratories to determine resources that are currently in use and gaps in resource availability.

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Appendix A: OSHA Sample Program

Sample Safety and Health Program for Small Business

Introduction

This sample program follows the Occupational Safety and Health Administration's (OSHA) "Safety and Health Program Management Guidelines", published on January 26, 1989 in the *Federal Register*. These guidelines were drawn from the experience obtained enforcing the OSHA Act, from the Voluntary Protection Programs (VPP), OSHA programs to recognize excellence in worksite safety and health, from OSHA's Consultation Program, and from public commentary. This sample program is especially written for the small, independent business owner, but the outline can be applied to any size business.

This management system contains four basic program elements:

- Management Leadership and Employee Involvement;
- Worksite Analysis;
- Hazard Prevention and Control;
- Training.

Under each element are numerous sub-elements. This program contains descriptions of how the program elements and sub-elements are designed and implemented. Specific documents resulting from program implementation will need to be kept in an organized fashion.

WORKSITE GOODFELLOW'S SAFETY AND HEALTH PROGRAM

Management Leadership and Employee Involvement

Management commits the necessary resources of staff, money, and time to ensure that all persons on the worksite are protected from injury and illness hazards. In addition, management visibly leads in the design, implementation, and continuous improvement of the site's safety and health activities. Specifically, the highest level management establishes and reviews annually the site's safety and health policy and ensures that all employees know, understand, and support that policy. All management levels, with input from hourly employees, develop an annual safety and health goal with objectives and action plans to reach that goal. At the end of each year all management levels, with input from hourly employees, evaluate progress in accomplishing the action plans, achieving all objectives, and meeting the annual goal. This evaluation, which also includes an evaluation of the overall safety and health program, results in a written report that includes the next year's goal, objectives, and action plans, including any remaining action needed to accomplish the current year's goal.

Management ensures that all employees, including themselves, have clearly written safety and health responsibilities included within their job description, with appropriate authority to carry out those responsibilities. Also, management ensures that all employees, including all levels of management, receive performance evaluations that include a written evaluation of the accomplishment of assigned safety and health responsibilities.

Management ensures that all visitors to the site, including contract and temporary labor, co-op students, interns, vendors, and sales people, have knowledge of site hazards applicable to them and how to protect themselves against those hazards, including emergency alarms and procedures. Management also ensures that these visitors do not introduce to the site hazards that can be prevented or that are not properly controlled.

Management ensures that at least several avenues exist for employee involvement in safety and health decision making and problem solving. These avenues may include serving on committees and ad hoc problem solving groups, acting as safety observers, assisting in training other employees, analyzing hazards inherent in site jobs and how to protect against those hazards (writing JHAs), and planning activities to heighten safety and health awareness. Management encourages employees' involvement and devises appropriate recognition for outstanding employee participation.

Suggested documents to implement this element.

- Worksite policy (note how this policy is communicated to the work force and visitors);
- Current year's goals, objectives, action plans, and program evaluation;
- Job descriptions that include safety and health responsibilities;
- Performance evaluations that include an evaluation of safety and health responsibilities;
- Budget showing money allocated to safety and health;
- Contractor bidding proposal sheets showing all contractors' prior safety and health record;
- Orientation outline for all site visitors, including contractors;
- Evidence of employee involvement, such as committee minutes or other records of employee participation in safety and health program decisions.

Worksite Analysis

Management hires outside consultants as necessary to conduct baseline surveys that identify all safety and health hazards at the site at the time of the survey. All hazards found during these surveys are eliminated whenever possible or controlled. All employees who may encounter the controlled hazards are trained in appropriate job procedures to follow to protect themselves from these hazards.

Management establishes change procedures to follow whenever the site experiences changes in equipment, material, or processes. To ensure employee protection, these change procedures include consideration of safety and health in the selection of the change, equipment and process shut down procedures, start up procedures, and phase hazard analysis. Appropriate employees are trained to follow these procedures.

Management and employees work together to analyze safety and health hazards inherent in each job site and to find means to eliminate those hazards whenever possible, and otherwise to protect persons against those hazards. These job hazard analyses (JHAs) are revised as appropriate, for example, following a change in the job, the reappearance of a hazard, or an accident at this job.

All employees at this site are trained to recognize hazards and to report any hazard they find to the appropriate person so that the hazard can be corrected as soon as possible. In addition to taking immediate action to report a hazard orally and to provide interim protection, if necessary, including stopping the work causing the hazard, employees may submit a safety work order to the maintenance department, or they may submit a safety suggestion form. Safety work orders take priority over any other work order. Safety suggestions will be considered each week during the site inspection by the site inspection team. All employee reports of hazards must be eventually written, with the correction date recorded. These reports are posted in the lunch room until the hazard is corrected and then are kept on file in the owner's office for three years. During that time they are available for employee review.

Site management, with input from an hourly employee chosen by lot, organizes the monthly site inspection team. Membership on these teams rotates each month with the goal that all site employees serve one month each year. Teams consist of four people, two managers or supervisors and two hourly employees. Each week, at the beginning of work on Wednesday morning, the team inspects the entire worksite, in writing describing all hazards found, including their location. The team assigns appropriate persons responsible for seeing that the hazard is corrected and documenting the date of the correction. These inspection reports are posted in the lunch room, in the maintenance shop, and in the owner's office. A hazard remains on the monthly report until it is corrected.

Any near miss, first aid incident, or accident is investigated by the trained team selected each year by the owner and an hourly employee. The team consists of two managers or supervisors and two hourly employees, each of whom has received training in accident investigation. All investigations have as a goal the identification of the root cause of the accident, rather than assigning blame. All accident reports are posted in the lunch room and are open to comment by any employee. The accident investigation team assigns responsibility to appropriate employees for correcting any hazards found and for assigning a date by which the correction must be completed.

As part of the annual safety and health program evaluation, the site owner, a manager, and an hourly employee review all near misses, first aid incidents, and entries on the OSHA 200 Log, as well as employee reports of hazards, to determine if any pattern exists that can be addressed. The results of this analysis are considered in setting the goal, objectives, and action plans for the next year.

Suggested documents to implement this element.

- Results of baseline safety and health surveys, with notation of hazard correction;
- Forms used for change analyses, including safety and health considerations in the purchase of new equipment, chemical, or materials;
- JHAs;
- Employee reports of hazards;
- Site safety and health inspection results, with hazard corrections noted;
- Accident investigation reports, with hazard corrections noted;
- Trend analyses results.

Hazard Prevention and Control

Management ensures that this priority is followed to protect persons at this site: (1) Hazards will be eliminated when economically feasible, such as replacing a more hazardous chemical with a less hazardous one; (2) Barriers will protect persons from the hazard, such as machine guards and personal protective equipment (PPE); (3) Exposure to hazards will be controlled through administrative procedures, such as more frequent breaks and job rotation.

Management ensures that the worksite and all machinery is cared for properly so that the environment remains safe and healthy. If maintenance needs exceed the capability of the worksite employees, contract employees are hired to do the work and are screened and supervised to ensure they work according to the site's safety and health procedures.

All employees, including all levels of management, are held accountable for obeying site safety and health rules. The following four step disciplinary policy will be applied to everyone by the appropriate level of supervisor:

- oral warning;
- written reprimand;
- three day's away from work;
- dismissal.

Visitors, including contractors who violate safety and health rules and procedures, will be escorted from the site. Should the disciplined person request a review of the disciplinary action, an ad hoc committee of six people, three managers and three hourly workers, chosen by their respective colleagues, will review the situation and make a recommendation to the owner, who reserves the right for final decision. If his decision differs from the committee, he may, within confidentiality strictures, make public his reasons.

The site works with appropriate outside agencies, such as the fire department, the police department, and the hospital to write emergency plans for all potential emergencies, including fire, explosion, accident, severe weather, loss of power and/or water, and violence from an outside source. Desk top drills are conducted monthly so that all employees experience a drill on each type of emergency once a year. A total site evacuation drill focusing on one emergency type, with all work shut down, and coordinated with the appropriate agency, is conducted once a year. Each drill, whether table top or actual evacuation, is evaluated by the drill planning committee, constituted each year with two managers or supervisors and two hourly employees who volunteer. This committee's written report is posted in the lunch room, and supervisors ensure that all employees know the results. When necessary, the emergency procedures are revised as a result of the evaluation report.

Persons needing emergency care are transported by company van or community ambulance to the hospital, located five miles from the site. Usually that trip can be made in less than ten minutes. Onsite during all shifts designated persons fully trained in cardiac pulmonary resuscitation (CPR), first aid, and the requirements of OSHA's Bloodborne Pathogen Standard, are the first responders to any emergency. These persons are trained by qualified Red Cross instructors. One of these designated persons' safety and health responsibilities is to ensure that first aid kits are stocked and readily accessible in the marked locations throughout the plant. Appropriate personal protective equipment (PPE) is provided for the different types of accidents possible at the site. All emergency responders have been offered the Hepatitis B vaccine.

Management maintains a proactive occupational health program that provides for occupational health professionals from the local hospital to participate in worksite analyses to find and protect employees against all health hazards. This plan provides initial health screening for each employee, appropriate to the hazards with which each employee will be working, and for tracking of any health changes in each employee through periodic physical examinations, post-exposure exams, and exit exam. Certified industrial hygienists conduct periodic air and noise monitoring.

The doctor and occupational health nurse, working on contract for the site, examine health surveillance data to discern changes in overall employee health screening results to discern any trends that need to be addressed. Health professionals, appropriately trained and knowledgeable about site hazards, immediately treat employees for occupational health problems and follow each case until the individual can return full-time to all aspects of his assigned job. These professionals ensure that employee medical records are kept confidentially so that diagnosis and treatment are not divulged, but management does have information about the employee under treatment as to:

- ability to perform job tasks;
- job limitations or accommodations needed;
- length of time the limitations must be implemented.

Management ensures that supervisors honor these restrictions. This health care is provided free of charge for all employees. The total plan is reviewed annually to assess its effectiveness.

Through consultants, management has assessed all work at this site and determined that the following OSHA standards apply to the site's work. Individual safety and health programs for each of these standards have been written and implemented. Employees affected by these standards have been trained to understand them and to follow the programs' directions. These standards are:

Hazard Communication	Confined Space Program
Hearing Conservation	Lockout/Tagout
Bloodborne Pathogens Program	Emergency Evacuation Program
Required PPE, Including Respiratory Protection	

Suggested documents to implement this element.

- | | |
|--|--|
| <ul style="list-style-type: none"> ▪ Preventive Maintenance Schedule ▪ Disciplinary program and records ▪ Site Rules ▪ Written Programs mandated by OSHA | <ul style="list-style-type: none"> ▪ Maintenance records ▪ Emergency drill procedures and critiques ▪ Health surveillance and monitoring records ▪ Reports and investigations of near misses, first aid, and OSHA 200 logs |
|--|--|

Training

Management believes that employee involvement in the site's safety and health program can only be successful when everyone on the site receives sufficient training to understand what their safety and health responsibilities and opportunities are and how to fulfill them. Therefore, training is a high priority to ensure a safe and healthy workplace. Finding time and knowledgeable personnel to do effective training is vital. Each year management pays special attention to the evaluation of the year's training efforts to look for methods of improvement.

Currently, all new employees receive two hours of safety and health orientation before they begin work. When they have learned this material, they begin their assigned job with a trained buddy. For the first day the employee only observes the buddy doing the job and reads the appropriate JHAs. The second day the new employee does the job, while the buddy observes him/her. For the first six months on the job a new employee is considered a probationer and may not work beyond the line of vision of another employee. Supervisors are strictly charged to ensure that this training process is followed for all new employees and for any employee beginning a new job at the worksite.

All employees are paid for one full day's work (eight hours) beyond their production schedule each pay period. This time is usually split into several sections to attend training classes. A list of training topics, by week, is published each year. Each topic is offered at least twice. Each employee is responsible for ensuring that he/she masters the year's training topics. Completing the year's training is a significant portion of each employee's performance evaluation, including all levels of management. Training records are kept by the personnel manager and are available for employee review, upon request.

All employees are encouraged to suggest qualified trainers, including themselves. Management is responsible for ensuring that all training offered at the site is conducted by qualified persons.

Suggested documents to implement this element.

- List of yearly training topics with name of trainer and his/her qualifications;
- Yearly training class schedule with attendance lists;

Individual employee training records with evidence of subject mastery.

Appendix B: Red Cross Disaster Kit

Personal Workplace Disaster Supplies Kit

For the workplace, where you might be confined for several hours, or perhaps overnight, the following supplies are recommended. More information is at: <http://www.redcross.org/services/disaster/beprepared/>



**American
Red Cross**

Together, we can save a life

Flashlight with extra batteries

Use the flashlight to find your way if the power is out. Do not use candles or any other open flame for emergency lighting.

Battery-powered radio

News about the emergency may change rapidly as events unfold. You also will be concerned about family and friends in the area. Radio reports will give information about the areas most affected.

Food

Enough non-perishable food to sustain you for at least one day (three meals), is suggested. Select foods that require no refrigeration, preparation or cooking, and little or no water. The following items are suggested:

- Ready-to-eat canned meals, meats, fruits, and vegetables.
- Canned juices.
- High-energy foods (granola bars, energy bars, etc.).

Water

Keep at least one gallon of water available, or more if you are on medications that require water or that increase thirst. Store water in plastic containers such as soft drink bottles. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

Medications

Include usual non-prescription medications that you take, including pain relievers, stomach remedies, etc.

If you use prescription medications, keep at least three-day's supply of these medications at your workplace. Consult with your physician or pharmacist how these medications should be stored, and your employer about storage concerns.

First Aid Supplies

If your employer does not provide first aid supplies, have the following essentials:

- (20) adhesive bandages, various sizes.
- (1) 5" x 9" sterile dressing.
- (1) conforming roller gauze bandage.
- (2) triangular bandages.
- (2) 3 x 3 sterile gauze pads.
- (2) 4 x 4 sterile gauze pads.
- (1) roll 3" cohesive bandage.
- (2) germicidal hand wipes or waterless alcohol-based hand sanitizer.
- (6) antiseptic wipes.
- (2) pair large medical grade non-latex gloves
- Adhesive tape, 2" width.
- Anti-bacterial ointment.
- Cold pack.
- Scissors (small, personal).
- Tweezers.
- CPR breathing barrier, such as a face shield

Tools and Supplies

- Emergency "space" blanket (mylar).
- Paper plates and cups, plastic utensils
- Non-electric can opener.
- Personal hygiene items, including a toothbrush, toothpaste, comb, brush, soap, contact lens supplies, and feminine supplies.
- Plastic garbage bags, ties (for personal sanitation uses) .
- Include at least one complete change of clothing and footwear, including a long sleeved shirt and long pants, as well as closed-toed shoes or boots.
- If you wear glasses, keep an extra pair with your workplace disaster supplies.

General Information

- Your kit should be adjusted based on your own personal needs.
- Do not include candles, weapons, toxic chemicals, or controlled drugs unless prescribed by a physician.

Appendix C: Disabilities Disaster Questionnaire

Disaster Preparedness for People with Disabilities

Completing a Personal Assessment

You should decide what you will be able to do for yourself and what assistance you may need before, during, and after a disaster. This will be based on the environment after the disaster, your capabilities, and your limitations. To complete a personal assessment, make a list of your personal needs and your resources for meeting them in a disaster environment. Consider the following information as you make your personal assessment.

Think about the following questions and note your answers in writing or record them on a tape cassette that you will share with your network. These answers should describe both your physical capabilities right now and the assistance you will need during the time that the disaster disrupts your normal routine. Base your plan on your lowest anticipated level of functioning.

Daily Living

Personal Care

Do you need assistance with personal care, such as bathing and grooming? Do you use adaptive equipment to help you get dressed?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Water Service

What will you do if water service is cut off for several days, or if you are unable to heat water?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Personal Care Equipment

Do you use a shower chair, tub-transfer bench, or other similar equipment?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Adaptive Feeding Devices

Do you use special utensils that help you prepare or eat food independently?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Electricity-Dependent Equipment

How will you continue to use equipment that runs on electricity, such as dialysis, electrical lifts, etc. ?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Getting Around

Disaster Debris

How will you cope with the debris in your home following the disaster?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Transportation

Do you need a specially-equipped vehicle or accessible transportation?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Errands

Do you need to get groceries, medications, and medical supplies? Think about what you will do if you depend on only one person to shop or run errands for you. What if your assistant cannot reach you because roads are blocked or because the disaster has affected him or her as well?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Evacuating

Building Evacuation

Do you need help to leave your home or office?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Building Exits

If the elevator is not working or cannot be used, are there other exits? (Include using a window as an alternate escape.)

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Getting Help

How will you call for the help you will need to leave the building?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Mobility Aids

What will you do if you cannot find your mobility aids, or cannot find or use equipment necessary for your service animal?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Ramp Access

What will you do if your ramps are shaken loose or become separated from the building?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Service Animals/Pets

Will you be able to care for your animal (provide food, shelter, veterinary attention, etc.) during and after a disaster? Do you have another caregiver for your animal if you are unable to meet its needs?

- My Capabilities Today:

- Assistance I Need Because of Disaster:

Appendix D: CARE Program

Safety & Health Program

Division of Safety, Florida Department of Labor and Employment Security
FDLES/CARE

These materials were produced by the Division of Safety, Florida Department of Labor and Employment Services, as part of a special OSHA program to reduce work-related deaths in construction in California, Florida, and Texas. Because Florida's funding for the program - CARE, or Construction Accident Reduction Emphasis - ended in June 2000, the materials will not be updated. The materials should be reviewed yearly for any needed changes.

Safety and health programs for construction are mentioned in the OSHA standard; see 29 CFR 1926, Subpart C. This sample program was developed for general industry, but can easily be adapted for use by a construction company.

NOTE: THIS SAMPLE PROGRAM IS PROVIDED TO ASSIST IN ESTABLISHING A SAFE WORK ENVIRONMENT. IT IS NOT INTENDED TO SUPERSEDE THE REQUIREMENTS DETAILED IN 29CFR 1910. EMPLOYERS SHOULD REVIEW THE STANDARD FOR PARTICULAR REQUIREMENTS WHICH ARE APPLICABLE TO THEIR SPECIFIC SITUATION AND TO MAKE THE NECESSARY CHANGES. EMPLOYERS WILL NEED TO ADD INFORMATION RELEVANT TO THEIR PARTICULAR FACILITY IN ORDER TO DEVELOP AN EFFECTIVE, COMPREHENSIVE PROGRAM.

1. POLICY

It is the Safety and Health Policy of (Company Name) _____ to comply with the standards of the Occupational Safety and Health Administration (OSHA) and the State of Florida Health and Safety Standards, and to endeavor to have injury free jobs.

Compliance with the following Safety Policy and all items contained therein, is mandatory for all employees of (Company Name) _____, The authorization and responsibility for enforcement has been given primarily to (Responsible person) _____.

It is also the company policy that accident prevention be a prime concern to all of us. It includes, not only prevention of wasteful and inefficient operations, damage to property and equipment, but foremost, the safety and well being of all our employees.

2. APPLICABILITY

This policy applies to all employees of (Company Name) _____, regardless of position with the company. The safety rules apply to anyone who is on a (Company Name) _____ site or premises.

3. IMPLEMENTATION

The company safety program has been designed for maximum employee involvement in four fundamental ways:

- A. Management's commitment to safety and health.
- B. Quarterly in-depth safety meetings.
- C. Effective job safety training for all categories of employees.
- D. Various incentive awards for exemplary safety performance.

4. ADMINISTRATION

The safety and health program will be carried out according to guidelines established and published in this manual. Specific instructions and assistance will be provided by (Responsible person) _____. Each manager will be responsible for meeting all requirements of the Safety and Health Program and for maintaining an effective accident prevention effort within his/her area of responsibility. It will be the manager's responsibility to see that all accidents are thoroughly investigated and reported to (Responsible person) _____ on the same day of the occurrence. (Responsible person) _____ will review and update this program annually.

5. REPORTING OF INJURIES

A. All employees will be held accountable for failing to report an on-the-job injury immediately. Immediately means at or near the time of the injury and on the same day of the injury. Employees must report the injury, in detail, to their immediate supervisor, i.e. Foreman, Superintendent, or Manager, etc. The employee must let their supervisor know:

1. How they hurt themselves.
2. What they were doing at the time.
3. Who they were working with at the time.
4. When and where it happened.
5. Other pertinent information that will aid in the supervisor's investigation of the accident.

B. Anyone failing to report an on-the-job injury according to the above instructions is in violation of the (Company Name) _____ Safety and Health Policy and may be subject to termination. Every employee of (Company Name) _____, their subcontractors and suppliers are expected to comply with the company policy and to comply with OSHA and Florida State Health and Safety standards.

6. NOTIFICATIONS

A. IN CASE OF SERIOUS INJURY OR DEATH

After the injured has been taken to the hospital, notify the manager immediately. Fill out the accident report form and send it to the main office. Get statements from witnesses and make certain statements are signed by witnesses, dated and time noted. Take photographs of the area and anything relevant.

B. IN CASE OF INSPECTION BY FEDERAL, STATE OR LOCAL INSPECTORS

Notify the manager that the OSHA, Federal, State or Local inspectors are on the jobsite and be cooperative. The manager should immediately notify the (Responsible person) _____.

7. GENERAL SAFETY RULES

A. Compliance with applicable Federal, State, County, City, Client and (Company Name) _____ safety rules and regulations is a condition of employment.

B. All injuries, regardless of how minor, must be reported to your supervisor and the office immediately. An employee that fails to report an injury immediately will be issued a safety violation notice and may be subject to termination.

C. Safety glasses, meeting the requirements of ANSI Z87.1, will be worn as the minimum required eye protection. Additional eye and face protection such as mono-goggles and face shields are required for such operations as grinding, jack hammering, utilizing compressed air or handling of chemicals, acid and caustic materials. Burning goggles for cutting, burning or brazing and welding hoods for welding are required.

D. Fall protection

1. Safety belts/harnesses and lanyards shall be worn and secured at any time there is a fall hazard of more than six (6) feet.
2. Lifelines shall be erected to provide fall protection where work is required in areas where permanent protection is not in place. Horizontal lifelines shall be minimum of ½ inch diameter wire rope. Vertical lifelines shall be ¾ inch diameter manila rope or equivalent and shall be used in conjunction with an approved type rope grab.

- E. Clothing must provide adequate protection for the body. Shirt tails must be worn inside the trousers. Sturdy work boots with rigid, slip-resistant soles which give adequate protection to the feet and ankles are required. Sneakers, sandals and other light-weight footwear are prohibited.
- F. Cameras, firearms, alcoholic beverages or illegal drugs are not allowed at the office or onsite. Drugs prescribed by a physician must be registered with the supervisor. The use or possession of illegal drugs or alcoholic beverages will result in immediate termination.
- G. Housekeeping shall be an integral part of every job. Supervisors and employees are responsible for keeping their work areas clean and hazard free. Clean up is required when you finish a job, at the end of the day or as needed to maintain a safe work place.
- H. Burning and cutting equipment shall be checked daily before being used. All gas shall be shut off and hoses disconnected from bottles or manifolds at the end of each day. Caps shall be replaced on bottles when gauges are removed. All repairs shall be made in the tool room at the shop. Makeshift field repairs will not be allowed. Two sets of flashback arresters shall be installed on oxyacetylene outfits; one set at the regulators and one set at the torch handle.
- I. All tools, whether company owned or personal, must be in good working condition. Defective tools must not be used. Examples are: chisels with mushroomed heads; hammers with loose or split handles; and guards missing on saws or grinders, etc.
- J. All electrical tools shall be checked and color coded by a designated competent person each month. This shall be part of our assured grounding program.
- K. The speed limit is 10 miles per hour (MPH) within the plant area. No one is permitted to ride on a truck while standing up. Sitting on the outside edges is prohibited. You must be down inside the truck. Riding as a passenger on equipment is prohibited unless the equipment has the safe capability of transporting personnel.
- L. Adequate precautions must be taken to protect employees and equipment from hot work such as welding or burning. Fire extinguishing equipment shall be not further away than 50 feet from all hot work. Return used extinguishers to the office for recharging immediately.
- M. All scaffolding and work platforms must be in accordance with OSHA specifications. All ladders must be in a safe condition with no broken rungs or split side rails. Damaged ladders shall be removed from service. Ladders shall be secured at the top and bottom and extend three (3) feet above the working surface. Metal ladders around electrical work are prohibited.
- N. Report all unsafe conditions and near accidents to your supervisor so corrective action can be taken.
- O. All floor openings or excavations shall be barricaded on all sides to ensure that employees are aware of the hazard. Floor holes shall be covered with a secure cover and clearly marked.
- P. Warning signs, barricades and tags will be used to the fullest extent and shall be obeyed.
- Q. Respiratory protection is required for employees exposed to dust hazards or to other air contaminants that may be encountered.

8. ENFORCEMENT OF SAFETY POLICY

A. Safety violation notices shall be issued to any (Company Name) _____ employee, subcontractor or anyone on a (Company Name) _____ site violating the safety rules or regulations.

1. Any violation of a safety rule can result in suspension or immediate termination.
2. Any employee receiving three (3) written, general violations within a six (6) month period shall be terminated.
3. Issuance of a safety violation notice for failure to use fall protection or for failure to report a job injury (at the time of injury) will result in immediate termination.

B. It is understood that (Company Name) _____ is not restricting itself to the above rules and regulations. Additional rules and regulations as dictated by the job will be issued and posted as needed.

RECORD KEEPING

- A. OSHA poster "Safety and Health Protection on the Job" will be posted at all job sites.
- B. OSHA "Log of Occupational Injuries and Illnesses" will be maintained and posted during the month of February following the year it is completed for.
- C. Insurance poster, "Notice to Employees" indicating State Worker's Compensation coverage will be posted on all job sites.
- D. Safety Meetings weekly and followed by sign-in log.

9. HOUSEKEEPING AND SANITATION

- A. General neatness.
- B. Regular disposal of trash.
- C. Passageways, driveways and walkways clear.
- D. Adequate lighting.
- E. Oil and grease removed.
- F. Waste containers provided and used.
- G. Sanitary facilities adequate and clean.
- H. Adequate ventilation.

10. PERSONAL PROTECTIVE EQUIPMENT

- A. Hearing Protection.
- B. Eye and Face Protection.
 - a. Goggles where flying particles exist.
 - b. Face shields for dust.
 - c. Welding masks for welder and helper.
- C. Respirator Protection.
- D. Safety belts and lifelines
- E. Gloves, where required.

11. FIRE PROTECTION

- A. Fire safety orientation to employees.
- B. Fire extinguishers - in proper location and charged.
- C. No smoking areas posted.
- D. Flammable and combustible material storage areas.
- E. Safety cans (containers) for gasoline or other flammable liquids.

12. HAND AND POWER TOOLS

- A. Inspect all tools for the proper operating condition.
- B. All tools stored properly and neatly.
- C. All power tools properly grounded.
- D. Inspect all tools for proper safety guards.

13. WELDING AND CUTTING

- A. Gas and oxygen cylinders secured in a vertical position.
- B. Hoses inspected regularly.
- C. Cylinders, caps, valves, couplings, regulators and hoses kept free of oil and grease.
- D. Cylinder caps shall be in place when ever cylinder is not being used.
- E. Maintain gauge pressures - oxygen 30-40 pounds, acetylene 5-10 pounds, when in use, small tip uses less.
- F. Two (2) sets of flash arresters (for oxyacetylene outfits). One (1) set at torch handle and one (1) set at regulators.

14. ELECTRICAL

- A. All portable tools and cords will be properly grounded.
- B. Daily visual inspection of caps, ends and cords for deformed or missing pins, insulation damage and internal damage.
- C. Tests of cords, tools and equipment for continuity and correct attachment of the equipment grounding connector to the proper terminal shall be made every three months and:

- 1. Prior to first use.
- 2. Prior to return to service after repairs.
- 3. Prior to return to service after incident which may have caused damage to cord or equipment.

D. Cords and equipment which do not meet requirements shall be removed from service until repairs have been made.

E. Maintain a written log of all test on cords, tool and equipment unless there are G.F.C.I.s installed.

15. LADDERS

- A. Inspect at regular intervals.
- B. No broken or missing rungs or steps.
- C. No broken or split side rails.
- D. Extend at least 36 inches above landing and secure.
- E. Side rails of 2 X 4 up to 16 feet. Above 16 feet, side rails need to be at least 3 X 6s.
- F. Cleats of 2 X 4 lumber and spaced 12 inches top to top.

16. SCAFFOLDING

- A. Inspect at regular intervals.
- B. Footings shall be sound and rigid and capable of carrying the maximum intended load.
- C. Tied into buildings vertically and horizontally at 14 foot intervals.
- D. Properly cross braced.
- E. Proper guard rails and toeboards installed.

17. GUARDRAILS, HANDRAILS AND COVERS

- A. Guardrails, handrails and covers shall be installed where ever there is danger of employees or materials falling through floor, roof or wall openings and shall be guarded on all exposed sides.
- B. Posts shall be of at least 2 X 4 stock spaced not more than eight (8) feet apart.
- C. Top rail shall be 42 inches above the floor and of 2 X 4 stock.
- D. The intermediate (mid) rail shall be approximately 21 inches above the floor and of at least 1 X 4 stock.
- E. Guardrail assemblies around floor openings shall be equipped with toe boards. The toe boards shall be a minimum of four (4) inches above the floor and shall not have more than ¼ inch clearance above the floor level, if there are employees below and conditions dictate.
- F. Guardrails must be capable of supporting 200 pounds in any direction.

18. MATERIAL HOISTS

- A. Inspect at regular intervals.
- B. Operating rules shall be posted at operator's station.
- C. "No Rider" signs posted at all stations.
- D. All entrances shall be properly protected.
- E. All entrance bars and grates shall be painted with diagonal contrasting stripes.
- F. Operator is experienced.
- G. Current crane certification inspection sticker and papers on rig.

19. MOTOR VEHICLES

- A. Inspect all lights, brakes, tires, horn, etc at regular intervals.
- B. Do not overload vehicles.
- C. Trash trucks shall have covers.
- D. No riding on edge of pickup truck bed.
- E. No riding on concrete trucks, loaders, backhoes, etc.
- F. Back-up alarms on loaders, tractors, backhoes, etc.

20. MATERIAL STORAGE AND HANDLING

- A. Designate material storage area.
- B. Keep material, including spoil, at least two (2) feet from edge of excavation.
- C. Control water.
- D. Inspect frequently.

21. SAFETY MEETING REPORT

(Company Name) _____ has a Safety Meeting form. This form shall be filled out for each safety meeting that is held. After filling out the form, you shall return it to the office.

22. OSHA POSTER

(Company Name) _____ has a job safety and health poster from OSHA. This poster must be posted on location in a conspicuous place, preferably on the employee bulletin.

23. LOG AND SUMMARY OF OCCUPATIONAL INJURIES AND ILLNESSES

(Company Name) _____ has an OSHA log for injuries and illnesses. This must be posted in a conspicuous place and kept up to date as all illnesses and injuries occur. Preferably these are to be posted on the bulletin board at the office.

24. EMERGENCY TELEPHONE NUMBERS

- A. (Company Name) _____ has a listing of emergency room and walk-in clinic phone numbers for each location.
- B. All employees must be made aware of the locations of the Emergency Rooms and Walk-in Clinics.

25. SAFETY INSPECTION PROCESS

Periodic inspections, at least semi-annually, will be made of the area by the responsible supervisor.

26. JOB HAZARD ANALYSIS

A. Job hazard analysis will be performed on each job to determine the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.;

1. It is the responsibility of (Responsible person) _____ to assess the workplace hazard situation, by identifying and evaluating equipment and processes.
2. In order to assess the need for PPE, a walk-through survey of the areas in question will be conducted. The purpose of the survey is to identify sources of hazards to workers and co-workers. Consideration should be given to the basic hazard categories: Impact; Penetration; Compression (roll-over); Chemical; Heat; Harmful dust; Light (optical) radiation.

3. During the walk-through survey the safety officer should observe:

- (a) sources of motion; where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects;
- (b) sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.;
- (c) types of chemical exposures;
- (d) sources of harmful dust;
- (e) sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.;
- (f) sources of falling objects or potential for dropping objects;
- (g) sources of sharp objects which might pierce the feet or cut the hands;
- (h) sources of rolling or pinching objects which could crush the feet;
- (i) layout of workplace and location of co-workers; and
- (j) any electrical hazards. In addition, injury/accident data should be reviewed to help identify problem areas.

B. Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.

C. Having gathered and organized data on a workplace, an estimate of the potential for injuries should be made. Each of the basic hazards should be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury from each of the hazards found in the area. The possibility of exposure to several hazards simultaneously should be considered.

D. After completing the assessment, (Responsible person) _____ selects the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards. F. It is the responsibility of (Responsible person) _____ to reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

27. TRAINING

All employees of the (Company Name) _____ will be trained on the requirements of this program.

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Appendix E: FEMA Emergency Planning

Emergency Management Guide For Business & Industry

 This document in PDF format -- 2290 KB

A step-by-step approach to emergency planning, response and recovery for companies of all sizes. Sponsored by a Public-Private Partnership with the Federal Emergency Management Agency. Special thanks to the following organizations for supporting the development, promotion and distribution of the Emergency Management Guide for Business & Industry:

- American Red Cross
- American Insurance Association
- American Textile Manufacturers Institute
- Building Owners and Managers Association International
- Chemical Manufacturers Association
- Fertilizer Institute
- National Association of Manufacturers
- National Commercial Builders Council of the National Association of Home Builders
- National Coordinating Council on Emergency Management
- National Emergency Management Association
- National Industrial Council -- State Associations Group
- New Jersey Business & Industry Association
- Pacific Bell
- Pennsylvania Emergency Management Agency

PREFACE

The Emergency Management Guide for Business & Industry was produced by the Federal Emergency Management Agency (FEMA) and supported by a number of private companies and associations representing business and industry.

The approaches described in this guide are recommendations, not regulations. There are no reporting requirements, nor will following these principles ensure compliance with any Federal, State or local codes or regulations that may apply to your facility.

FEMA is not a regulatory agency. Specific regulatory issues should be addressed with the appropriate agencies such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA).

Prepared under FEMA Contract EMW-90-C-3348 by:

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TABLE OF CONTENTS

INTRODUCTION

- About This Guide
- What Is an Emergency?
- What Is Emergency Management?
- Making the "Case" for Emergency Management

SECTION 1: 4 STEPS IN THE PLANNING PROCESS

STEP 1 - ESTABLISH A PLANNING TEAM

- Form the Team
- Establish Authority
- Issue a Mission Statement
- Establish a Schedule and Budget

STEP 2 - ANALYZE CAPABILITIES AND HAZARDS

- Where Do You Stand Right Now?
- Review Internal Plans and Policies
- Meet with Outside Groups
- Identify Codes and Regulations
- Identify Critical Products, Services and Operations
- Identify Internal Resources and Capabilities
- Identify External Resources
- Do an Insurance Review

- Conduct a Vulnerability Analysis
- List Potential Emergencies
- Estimate Probability
- Assess the Potential Human Impact
- Assess the Potential Property Impact
- Assess the Potential Business Impact
- Assess Internal and External Resources
- Add the Columns

STEP 3 - DEVELOP THE PLAN

- Plan Components
- Executive Summary
- Emergency Management Elements
- Emergency Response Procedures
- Support Documents

- The Development Process
- Identify Challenges and Prioritize Activities
- Write the Plan
- Establish a Training Schedule
- Continue to Coordinate with Outside Organizations
- Maintain Contact with other Corporate Offices
- Review, Conduct Training and Revise
- Seek Final Approval
- Distribute the Plan

STEP 4 - IMPLEMENT THE PLAN

- Integrate the Plan into Company Operations
- Conduct Training
- Planning Considerations
- Training Activities
- Employee Training
- Evaluate and Modify the Plan

SECTION 2: EMERGENCY MANAGEMENT CONSIDERATIONS

- Direction and Control
- Emergency Management Group (EMG)
- Incident Command System (ICS)
- Emergency Operations Center (EOC)
- Planning Considerations
- Security
- Coordination of Outside Response
- Communications
- Contingency Planning
- Emergency Communications
- Family Communications
- Notification
- Warning
- Life Safety
- Evacuation Planning
- Evacuation Routes and Exits
- Assembly Areas and Accountability
- Shelter
- Training and Information
- Family Preparedness

- Property Protection
 - Planning Considerations
 - Protection Systems
 - Mitigation
 - Facility Shutdown
 - Records Preservation
-
- Community Outreach
 - Involving the Community
 - Mutual Aid Agreements
 - Community Service
 - Public Information
 - Media Relations
 - Recovery and Restoration
 - Planning Considerations
 - Continuity of Management
 - Insurance
 - Employee Support
 - Resuming Operations
-
- Administration and Logistics
 - Administrative Actions
 - Logistics

SECTION 3: HAZARD-SPECIFIC INFORMATION

- Fire
- Hazardous Materials Incidents
- Floods and Flash floods
- Hurricanes
- Tornadoes
- Severe Winter Storms
- Earthquakes
- Technological Emergencies

SECTION 4: INFORMATION SOURCES

- Additional Readings from FEMA
- Ready-to-Print Brochures
- Emergency Management Offices

APPENDIX

- [Vulnerability Analysis Chart](#)
- [Training Drills and Exercises Chart](#)

<http://www.fema.gov/graphics/library/vulanal.gif>
vulnerability

<http://www.fema.gov/graphics/library/drills.gif>

training drills

Appendix F: Job Safety Analysis

Job Safety Analysis (JSA)*

Definition:

A Job Safety Analysis (JSA) is a method that can be used to identify, analyze and record **1)** the steps involved in performing a specific job, **2)** the existing or potential safety and health hazards associated with each step, and **3)** the recommended action(s)/procedure(s) that will eliminate or reduce these hazards and the risk of a workplace injury or illness.

Hazard Types:

The following hazards should be considered when completing a JSA:

- ◆ Impact with a falling or flying object.
- ◆ Penetration of sharp objects.
- ◆ Caught in or between a stationary/moving object.
- ◆ Falls from an elevated work platform, ladders or stairs.
- ◆ Excessive lifting, twisting, pushing, pulling, reaching, or bending.
- ◆ Exposure to vibrating power tools, excessive noise, cold or heat, or harmful levels of gases, vapors, liquids, fumes, or dusts.
- ◆ Repetitive motion.
- ◆ Electrical hazards.
- ◆ Light (optical) radiation (i.e. welding operations, etc.).
- ◆ Water (potential for drowning or fungal infections caused by wetness).

Conducting the analysis:

1. Select jobs with the highest risk for a workplace injury or illness.
2. Select an experienced employee who is willing to be observed. Involve the employee and his/her immediate supervisor in the process.
3. Identify and record each step necessary to accomplish the task. Use an action verb (i.e. pick up, turn on) to describe each step.
4. Identify all actual or potential safety and health hazards associated with each task.

- Determine and record the recommended action(s) or procedure(s) for performing each step that will eliminate or reduce the hazard (i.e. engineering changes, job rotation, PPE, etc.).

Note: A sample JSA developed by Sentry Insurance for the Wisconsin State Fair Park is included on the Bureau of State Risk Management's web site. For further information about how to complete a JSA, refer to OSHA's Publication #3071.

Trash Compacting

Wisconsin State Fair Park

Trash compacting is accomplished at the Wisconsin State Fair Park by an assigned multi-person grounds crew. Each full dumpster is rolled into the liftgate and secured in position. The operator then activates the liftgate to lift/tip the dumpster, which is sprayed clean. After being lowered, the dumpster is rolled to a designated area for placement on the grounds.

When performing this activity, always remember to take the following safety precautions:

Steps

1. Push/pull full dumpster into hydraulic lift gate.

Pull to steer/guide the dumpster.

Always Remember to...

Use your body weight by pushing the dumpsters to move them.

Wear protective canvas or leather gloves.

Drain water from dumpster, if possible, to reduce the weight.

2. Raise hydraulic lift gate to "UP" position, dumping contents.
3. Spray remaining trash residue from raised dumpster with water hose. Wear eye or face protection when spraying/cleaning the dumpster.
4. Lower hydraulic lift gate and emptied dumpster back to ground level. Stay clear from the lowering area.
5. Pull the empty dumpster from the lift gate to the designated area for placement on grounds. Push dumpsters to move, pull to steer/guide.

Wear protective canvas or leather gloves.

JOB SAFETY ANALYSIS	<p>JOB TITLE: Compactor Operator</p> <p>Page 1 of 1</p>	<p>JSA No. _____</p>	<p>DATE: 8/23/99</p> <p>NEW ○ REVISED ○</p>
ORGANIZATION: State Fair Park	LOCATION: Refuse Collection	DEPARTMENT: Grounds	REVIEWED BY:
SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE	ANALYSIS PERFORMED BY: Troy Tepp, Sentry Insurance
<p>1. Pull/push full dumpster into hydraulic lift gate.</p>	<ul style="list-style-type: none"> • Lower back, arm, and shoulder strain. • Pinched hand between gate and rolling dumpster. • Hitting head on horizontal gate member. 	<ul style="list-style-type: none"> • Repair/improve condition of lot pavement. • Install larger wheels or properly inflate existing wheels. • Push dumpster to move, pull to steer/guide. • Wear protective canvas or leather gloves. • Install plugs to drain water from dumpster. • Use a tugger or other motorized cart to move dumpsters. 	
<p>2. Raise hydraulic lift gate to "UP" position, dumping contents.</p>	<ul style="list-style-type: none"> • None observed. 	<ul style="list-style-type: none"> • None observed. 	
<p>3. Spray remaining trash residue from raised dumpster with water.</p>	<ul style="list-style-type: none"> • Trash particles and water spray into eyes. 	<ul style="list-style-type: none"> • ANSI approved eye or face protection when spraying/cleaning the dumpster. 	
<p>4. Lower hydraulic lift gate and emptied dumpster back to ground level.</p>	<ul style="list-style-type: none"> • Crushing injury if a person is under the lowering gate. 	<ul style="list-style-type: none"> • Install an automatic lowering alarm. • Install an emergency-stop button on gate frame. • Install a physical barrier across entrance of gate frame to prevent entry. 	
<p>5. Pull empty dumpster from the gate to the designated area for placement on the grounds.</p>	<ul style="list-style-type: none"> • Lower back, arm, and shoulder strain. 	<ul style="list-style-type: none"> • Repair/improve condition of lot pavement. • Install larger wheels or properly inflate existing wheels. • Push dumpsters to move, pull to steer/guide. • Wear protective canvas or leather gloves. • Use a tugger or other motorized cart to move dumpsters. 	

Appendix G: HAZCOM Checklist

Hazard Communication Compliance Guide and Checklist

Hazard Communication Compliance Guide (Key Requirements)

Scope: The OSHA Hazard Communication Standard (29 CFR 1910.1200) requires employers to provide employees with information about the hazardous chemicals to which they are exposed by means of a written Hazard Communication Program which includes labels, material safety data sheets (MSDS), information and training, and personal protective equipment.

Application: This standard applies to any hazardous chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.

Applications not Covered:

- 1) Any hazardous waste as defined by the Solid Waste Disposal Act and Resource Conservation and Recovery Act (RCRA).
- 2) Tobacco and tobacco products.
- 3) Articles (see Definition Section).
- 4) Wood and wood products.
- 5) Food, drugs, cosmetics or alcoholic beverages in a retail establishment which are packaged for sale to consumers.
- 6) Food, drugs or cosmetics intended for personal consumption by employees while in the workplace.
- 7) Any consumer product or hazardous substance as defined in the Consumer Product Safety Act and Federal Hazardous Substances Act when used in the same manner as normal consumer use.

- 8) Any drug as defined in the Federal Food, Drug and Cosmetic Act when it is solid final form for direct administration to the patient.

Training Requirements: Employers must provide information and training to all employees who are routinely exposed to hazardous chemical in the work area or who may be exposed in a foreseeable emergency.

Labeling Requirements: Employers must ensure that each container of hazardous chemicals is labeled marked or tagged with the identity of the hazardous chemical and appropriate hazard warning as soon as the chemical is present in the workplace.

Labeling is not required on the following chemicals:

- 1) Any pesticide as such term is defined in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).
- 2) Any Chemical substance or mixture as such terms are defined in the Toxic Substances Control Act (TSCA).
- 3) Any food, food additive, color additive, drug, cosmetic, or medical or veterinary device or product, including materials intended for use as ingredients in such products, as such terms are defined in the Federal Food, Drug, and Cosmetic Act.
- 4) Any distilled spirits (beverage alcohol), wine or malt beverage intended for non-industrial use, as such terms are defined in the Federal Alcohol Administration Act.
- 5) Any consumer product or hazardous substance as those terms are defined in the Consumer Product Safety Act.

Personal Protective Equipment: Employers must provide appropriate PPE to protect employees from chemical hazards.

Written Program: Employers must to develop and keep on file a written program that describes all aspects of their Hazard Communication Program. The written program must be assessable to employees and updated to reflect any changes in the workplace.

Material Safety Data Sheets: Employers must obtain and retain on file a Material Safety Data Sheet (MSDS) for each hazardous chemical used in the workplace. MSDSs must be made accessible to employees during the work shift

Definitions:

Article - A manufactured item which has an end function and which does not release or otherwise result in an exposure to a hazardous substance under normal conditions of use.

Chemical - Any element, chemical compound or mixture of elements and/or compounds.

Chemical manufacturer - An employer with a workplace where chemical(s) are produced for use or distribution.

Chemical name - The scientific designation of a chemical in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry (IUPAC) or the Chemical Abstracts Service (CAS) rules of nomenclature or a name which will clearly identify the chemical for the purpose of conducting a hazard evaluation.

Common name - Any designation or identification such as code name, code number, trade name, brand name or generic name used to identify a chemical other than by its chemical name.

Container - Means bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks or other operating systems in a vehicle, are not considered to be containers.

Distributor - A business, other than a chemical manufacturer or importer, which chemicals to other distributors or to employers.

Exposure or exposed - That an employee is subjected in the course of employment to a chemical that is a physical or health hazard and includes potential (e.g. accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, contact or absorption.)

Hazardous chemical - Any chemical which is a physical hazard or a health hazard.

Hazard warning - Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s).

Health Hazard - A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees.

Importer - The first business with employees within the Customs Territory of the United States which receives hazardous chemicals produced in other countries for the purpose of supplying them to distributors or employer within the United States.

Label - Any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material Safety Data Sheet (MSDS) - Written or printed material concerning a hazardous chemical.

Mixture - Any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Physical hazard - A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Specific chemical identity - The chemical name, Chemical Abstracts Service (CAS) Registry Number or any other information that reveals the precise chemical designation of the substance.

Trade secret - Any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

Use - To package, handle, react, emit, extract, generate as a byproduct, or transfer.

Work area - A room or defined space in a workplace where hazardous chemicals are produced or used and where employees are present.

Workplace - An establishment, job site or project, at one geographical location containing one or more work areas.

Hazard Communication Compliance Checklist

Date: _____ Location: _____
 Auditor: _____ Phone Number: _____

	YES	NO	Comments/Completion date
1. CHEMICAL INVENTORY			
A . A chemical inventory is completed.			
B. The inventory includes the identity, quantity and location of each chemical used in the workplace.			
2.MATERIAL SAFETY DATA SHEETS (MSDS)			
A . A current MSDS is on file for each hazardous chemical.			
B. The MSDSs are in written in English.			
C. All MSDSs include:			
1. The chemical and common name of a single substance.			
2. The chemical and common name (s) of the ingredients if the substance is a mixture.			
3. The physical and chemical characteristics of the hazardous chemical (vapor pressure, flash point, etc.).			
4. The physical hazards of the hazardous chemical (potential for fire, explosion, and reactivity).			
5. The health hazards of the			

hazardous chemical (signs and symptoms, medical conditions aggravated).			
6. The primary routes of entry.			
7. The OSHA Permissible Exposure Limit (PEL), or the ACGIH Threshold Limit Value (TLV).			
8. Carcinogenicity information.			
9. Safe handling procedures (hygienic practices, maintenance and spill procedures).			
10. Control measures (engineering controls, work practices, or personal protective equipment).			
11. Emergency and first-aid procedures.			
12. The date the MSDS was prepared or last changed.			
13. The name, address and telephone number of the party preparing or distributing the MSDS.			
3. LABELING			
A. Labels are prominently displayed on all containers.			
B. All labels are legible.			
C. Labels are written in English and the language spoken by employees.			
D. Labels contain the identity of the hazardous chemical (chemical name)			
E. Labels contain appropriate hazard			

warnings (i.e. health & physical hazards, PPE, labeling, etc.).			
4. EMPLOYEE INFORMATION AND TRAINING			
A . Training is provided to all employees exposed to hazardous chemicals.			
1 . Upon initial assignment.			
2. After introduction of a new hazard.			
B. A training log is maintained that contains the name of the employee, the instructor and the date of training.			
C. The training program covers:			
The requirements of the Hazard Communication Standard.			
The location of the written Hazard Communication Program and the MSDS's.			
The methods or observations that may be used to detect the presence or release of a hazardous chemical.			
The physical and health hazards of the chemical used.			
The measures taken to protect employees from the hazards (work practices, PPE, etc.)			
The employer's labeling system.			
How to read and interpret a MSDS			

How to obtain and use hazard information.			
The methods and observation techniques to determine the presence or release of hazardous chemicals.			
The work practices that may result in exposure.			
How to prevent or reduce exposure to hazardous substances.			
Personal protective equipment requirements.			
The procedures to follow if exposure occurs.			
Emergency response procedures for hazardous chemical spills.			
5. WRITTEN PROGRAM			
A. A written Hazard Communication Program is completed.			
B. The program is accessible to employees.			
C. The written program includes			
1. The name/position of the person responsible for administering the Hazard Communication Program			
2. Name of person responsible for all chemical labels.			
3. Type of labeling system used by the employer.			
4. Name of person responsible for			

obtaining MSDSs.			
5. Procedure if the MSDS is not received with initial shipment.			
6. Procedure for receiving and updating the master MSDS file.			
7. The location of the MSDS s.			
8. Provisions for employee access to MSDS in the work area.			
9. The methods used to inform employees of the hazards of non-routine tasks.			
10. The hazards associated with chemicals contained in unlabeled pipes.			
11. The methods used for notifying contractors of the Hazard Communication Program.			
12. A list of the hazardous chemicals used in the workplace (chemical inventory).			

Source: This compliance guide and checklist was developed by Joyce Hinds, Safety and Health Manager for the Wisconsin Department of Transportation. This resource was adapted for use by public and private employers by the Bureau of State Risk Management and is available on the Bureau's Internet web site. The address is <http://www.doa.state.wi.us/dsas/risk/>