RESEARCH INTO THE PREPAREDNESS OF COMPANY XYZ FOR THE IMPLEMENETATION OF THE PROPOSED OHSA ERGONOMIC STANDARD

by
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ABSTRACT

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OSHA is proposing an ergonomic standard to help employers address ergonomic hazards in the workplace. Ergonomics is currently, covered under the general duty clause, which stipulates that employers must provide a safe workplace free from recognized hazards. The purpose of this study was to measure the preparedness of Company XYZ for the implementation of the new proposed standard. The significance of this study is that Musculoskeletal Disorders account for one third of the occupational injuries reported to the Bureau of Labor Statistics.

OSHA estimated that ergonomic programs that were developed in house already protect over 50 percent of all employees and 28 percent of the work place in general industry. In this study, Company XYZ had some of the major components of the ergonomic program currently in place. A lot of the current policies were not recognized

as potential ergonomical interventions to the operators and/or management. Company XYZ has several job functions that must be addressed before this standard can be fully implemented. These job functions will pose the greatest impact to the company as far as ergonomics is concerned. This company will need to educate the employees with the impact of ergonomics to the workforce in order to reach full compliance with the standard.

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Chapter 1

Statement of the Problem

Introduction

XYZ reported revenues of $14.0 billion for its fiscal year that ended May 31, 1999. The XYZ Company connects areas that generate 90% of the world's gross domestic product in 24-48 hours with door-to-door, customs-cleared service and a money-back guarantee. The company's unmatched air route authorities and infrastructure make it the world's largest express transportation company, providing fast, reliable and time- definite transportation of more than 3.2 million items to 210 countries each working day.

XYZ employs more than 150,000 employees and has more than 45,000 drop-off locations, 648 aircraft and 44,500 vehicles in its integrated global network. The company maintains electronic connections with more than 2.0 million customers. One of this company's major assets is its' employees. Therefore, it is important that this company maintain a workplace that is free of any recognizable ergonomic hazards.

OSHA is proposing an ergonomic standard to help employers address ergonomic hazards in the workplace. Up until this point, OHSA did not have a specific ergonomics standard for general industry. For the most part, ergonomics is broadly covered under the general duty clause, which stipulates that employers must provide a safe workplace free from recognized hazards.

The proposed ergonomic standard has the capability of influencing the company in areas of incentive programs, performance reviews, methods and standards, compensation, corporate culture, reporting systems, injury tracking, work restrictions,

record keeping and training. It is also equally important that the company follow any new regulations that would increase safety of its workforce.

Musculoskeletal disorders account for one third of the occupational injuries reported to the Bureau of Labor Statistics ("Overview", 2000). OSHA estimated that over 50 percent of all employees and 28 percent of the workplaces in general industry are already protected by ergonomic programs that were developed in house ("Overview" et al., 2000). The reality is that this standard will increase costs for companies that currently do not have an ergonomics program. OSHA believes that the proposed standard is needed to bring the remaining employees under the protection of the auspices of an ergonomic program ("Overview" et al., 2000).

Purpose of the Study

The purpose of this study was to determine the level of preparedness of Company XYZ in the implementation of the proposed OHSA Ergonomics standard.

Goals of the Study

This study will focus on the following objectives:

1. To compare the current ergonomics program of Company XYZ to the proposed standard to determine the potential operational gaps.
2. To determine if the current ergonomic program have the minimum requirements needed to meet the grandfather clause of the new proposed standard.
3. To determine what the process will be for consistent implementation in Company XYZ.

Background and Significance

At this present time, no one has done an analysis of what the introduction of the ergonomic standard into the workplace would have to the bottom line of the corporation. Therefore, the significance of this study to this company is tremendous. Company XYZ emphasis a People and Service principle throughout its' organization. The company is willing to do whatever it needs to do to ensure that employees are not subjected to willful ergonomic exposures.

The proposed ergonomic standard has the capability of touching the company in areas of incentive programs, performance reviews, methods and standards, compensation, corporate culture, reporting systems, injury tracking, work restrictions, record keeping and training. Each of these areas has a cost of compliance associated with the implementation of this standard. This cost could be monetary or strictly an addition of incremental personnel.

OSHA is projecting that the total cost of compliance for the air transportation sector for scheduled travel, SIC 4510, will be $85,079,147. This cost includes $3,141,829 for familiarization and coverage costs, $1,654,817 for a basic program, $45,899,440 for job fixes, and $34, 383,061 for work restriction protection (OSHA et al, 1999).

OHSA's MSDs worker incidences estimates are based on four digit codes SIC codes, which cover very broad industries (Barlas, 2000). Company XYZ is classified in the transportation by air industry sector. The broad two-digit code for this industry is 45. The BLS estimates that the number of LWD MSDS for this sector is 34,150.0 (OSHA et al., 1999). The incidence per 1,000 workers is 36.580 (OSHA et al., 1999). This

incidence rate is among the highest for industry. Using the probability approach, it is expected that 24 per 1,000 to 813 per 1000 workers, depending on the industry sector will have a WSMDS during their lifetime (OSHA et al., 1999).

The parent company of XYZ is in the process of doing major reorganizations within each of its subsidiaries. The parent company needs to have a projection of the possible operational changes. Once these changes are documented new policy and procedural changes can be implemented throughout the effected departments, divisions and subsidiaries. These changes would be felt from top to bottom throughout the organization.

The stock price of Company XYZ has been steadily falling since March when some major announcements were released to the public. In addition to falling revenues the company has had to increase expenditures due to the rise in fuel prices. Therefore, this company is trying to minimize each non-budgetary item as much as possible. The possibility of incurring OSHA fines for non-compliance is not a cost that the company would like to incur.

Limitations

1. This scope of this study is limited by the lack of research specifically targeting the transportation industry.
2. This study is limited to the information on hand about the proposed standard. Since this standard is still in the proposal phase of legislation, any changes to this proposal either during or after the completion of this paper may change the internal validity of the study.

3. This study is limited to the impact of how this standard will approach the ground operations portion of Company XYZ.

Assumptions

It is assumed that all information obtained from Company XYZ is current and correct to the best of the company's knowledge.

Definition of Terms

The following terms used in this study have been adapted from definitions presented in Proposed 29 CFR 1910.900.

Covered MSD is:

(1)An MSD, reported in any job in general industry, that meets these criteria:

(i)It is reported after [the effective date];

(ii)It is an OSHA recordable MSD;

(iii)It occurred in a job in which the physical work activities and conditions are reasonably likely to cause or contribute to the type of MSD reported;

(iv) These activities and conditions are a core element and/or make up a significant amount of the employee's work time.

(2) In a manufacturing or manual handling job, persistent MSD symptoms are also considered a covered MSD if they meet these criteria:

(i)They last for at least 7 consecutive days after they are reported;

(ii)The employer has knowledge that an MSD hazard exists in the job;

(iii)They occurred in a job in which the physical work activities and conditions are reasonably likely to cause or contribute to the type of MSD signs or symptoms reported; and

(iv)These activities and conditions are a core element and/or make up a significant amount of the employee's work time.

Ergonomics is the science of fitting jobs to people. Ergonomics encompasses the body of knowledge about physical abilities and limitations as well as other human characteristics that are relevant to job design. Ergonomic design is the application of this body of knowledge to the design of the workplace (i.e., work tasks, equipment, environment) for safe and efficient use by workers.

OSHA record able MSD is an MSD that meets the occupational injury and illness recording requirements of 29 CFR Part 1904. Under Part 1904, an MSD is recordable when:

(1) Exposure at work caused or contributed to the MSD or aggravated a pre-existing MSD.

(2) The MSD results in at least one of the following:

(i) A diagnosis of an MSD by an HCP.

(ii) A positive physical finding (e.g., an MSD sign or a positive Finkelstein's, Phalen's, or Tinel's test result).

(iii) An MSD symptom plus at least one of these:

(A) Medical treatment;

(B) One or more lost work days;

(C) Restricted work activity;

(D) Transfer or rotation to another job.

Summary

Company XYZ needs to evaluate current ergonomics standards to see if they will be compliant with the new proposed ergonomics standard. The new standard allows companys to be grandfathered into compliance if they can show that several key points are instituted into their current ergonomics program. The proposed ergonomics standard as it will be applied to the workplace will be reviewed in Chapter II.

Chapter II

Review of Literature

Introduction

The purpose of this chapter is to examine and evaluate literature, which is relevant to the proposed ergonomics standard. The literature review is divided into the following sub-parts:

1. OSHA's rule making process
2. Overview of the need for a standard
3. Current ergonomic management systems in place
4. The proposed ergonomics proposal
5. Opposing viewpoints
6. Company XYZ programs and incentives in place

OSHA's Rule Making Process

OSHA can initiate standard setting procedures on its own or in response to petitions from other parties such as the Secretary of Health and Human Services (HHS), the National Institute for Occupational Safety and Health (NIOSH), state and local governments, employer or labor representatives or any other interested party (OSHA, 1995). A standard is necessary if:

1. The standard would reduce or eliminate significant risk of material harm
2. It is technologically and economically feasible
3. It is cost effective
4. It is supported by evidence
5. It is better able to effectuate the purposes of a national consensus standard

Once OSHA determines that a standard is needed it may call upon any of the advisory, standing or ad hoc committees to help develop recommendations. Each committee must have members that represent management, labor and state agencies. The intentions to

propose amend, or revoke a standard is published in the *Federal Register* as a "Notice of Proposed Rulemaking" or "Advance Notice of Proposed Rulemaking". The Notice of Proposed Rulemaking includes the terms of the new rule and gives a specific time period for the public to respond (OSHA, 1995). The Advance Notice of Proposed Rulemaking is used when it is necessary for the agency to solicit information for the draft of the proposal. Decisions on permanent standards are not reached without consideration of the arguments from the public in written submissions and hearings. After the close of the response period and public hearings, OSHA will publish in the Federal Register the full and final text of the standard that is being amended or adopted along with the date that it becomes effective. OSHA may also publish an explanation of the standard and the reasons for implementation.

Temporary standards are set when it is determined by OSHA that employees are in grave danger and an emergency standard is needed to protect them. These standards take effect immediately and are considered a proposed standard until a permanent standard is adopted (OSHA et al., 1995). The final ruling concerning temporary standards is usually made within six months.

If an employer cannot comply with a standard by the effective date they can ask for a variance from a standard. Variances are pursued by companies that believe that their facilities or methods of operation provide protection at least as effective as OSHA's proposed standard (OSHA et al.,1995). Variances will not be given to employers who cannot afford to pay for the necessary alterations, equipment, personnel or make no attempt to comply with the requirements of the standard. Certification must be given to OHSA that workers have been notified of the variance application. Workers must also be

given the opportunity to request a hearing on the application. An employer that has been cited for a standards violation may not seek relief from a citation by applying for a variance. However, the fact that the citation is outstanding does not prevent an employer from filing a variance application. Employers must inform employees of any variance application that they have made to OSHA. The employees of a company that has requested a variance have the right to request a hearing for all variances requested.

Temporary variances are usually granted to an employer who cannot comply with a standard due to the lack of materials, equipment, professional or technical personnel, or necessary construction/alteration of facilities cannot be completed in time. Temporary variances may be granted for whatever time is needed for compliance or up to a year, whichever is shorter. Application for a variance must be made within a reasonable time period before the effective date. Employers must document the efforts taken to comply with the standard and document what is being done in the meantime to ensure employee safety.

Permanent variances may be granted to employers that can show that their work conditions, practices, methods, operations and processes provide a safe workplace that is as effective as the compliance to the standard. OSHA makes a validity determination through employer evidence, inspections and hearings where appropriate.
If a request is found to be valid then OSHA issues the employer a permanent variance from the standard. The employer or employees of a company have six months to petition to OSHA in order to modify or revoke a permanent variance.

Employers may apply for an interim order to continue operation under existing conditions until a variance decision is made. If the interim order is granted, the employer

and other concerned parties are informed of the order. The terms of the order are published in the *Federal Register*.

Experimental variances can be granted to an employer if they are participating in an experiment to demonstrate or validate new job safety and health techniques (OSHA et al., 1999). Experiments must be approved by the Secretary of Labor or the Secretary of HHS.

Overview of the Need for a Standard

Ergonomics relates the science and process of structuring the tasks to the worker in a manner that will prevent musculoskeletal disorders. The proposed ergonomic standard specifies what type of obligations an employer would have to meet for their company. However, the standard does not provide specific requirements on how to meet the standard (Verespej, 1999). The proposal includes the main components of management leadership, employee participation, hazard analysis and control, training, medical management and program evaluation (Quayle, 2000).

Repetitive Strain Injuries account for three out of five workplace injuries (Estill & McGlothlin, 1997). According to the Bureau of Labor and Statistics workers suffering for ergonomical injuries lose more than 30 days from work. This time period is longer that that which is usually observed for amputations and fractures (Estilll et al., 1997). High repetition jobs, those jobs with a cycle time of 30 seconds or less have injuries 5.5 times more than job with low repetition (Estilll et al., 1997). In 1996, there were 647,000 lost workday injuries caused by MSDs. It is estimated that these injuries caused 15 to 20 million in worker compensation costs. (Quayle et al., 2000).

OSHA firmly believes there is ample scientific evidence that exposure to physical stresses at work can cause or contribute to the development of MSDs. The reductions in these stresses can lower the number and severity of work-related MSDs. The underlying evidence that OHSA used for this proposal can be divided into three broad categories:

-- Studies of groups of workers showing a positive relationship between the exposure to risk factors in the workplace and an increased prevalence of MSDs;

-- Biomechanical studies that show that adverse tissue reactions and damage can occur when tissues are subjected to high forces and/or a high number of repetitive movements;

-- Case studies that demonstrate that how effective workplace interventions have been in reducing the exposures to risk factors and the incidence and severity of MSDs.

There are hundreds of studies of the incidence or prevalence of MSDs in groups of workers who are exposed to risk factors in their jobs. In most of these studies, the MSD prevalence of a group of exposed workers is compared to that in another worker group that is not exposed to the risk factors of interest. If the exposed group shows a higher MSD prevalence than does the reference group, the study provides evidence of an association between exposure and an increased risk of developing MSDs. This evidence can be seen in studies that are of good quality and adequately controlled for potentially confounding factors (such as age and gender) and biases.

The National Institute for Occupational Safety and Health (NIOSH) recently reviewed epidemiological studies to evaluate the strength of the evidence for a causal relationship between several types of MSDs and workplace risk factors. In this review more than 600 peer-reviewed studies were critically reviewed. NIOSH found in humans

that for most combinations of MSDs and risk factors that a causal relationship existed between workplace exposure and risk factors. In these cases the development of MSDs was either "sufficient" or "strong." There was no single study that fulfilled all of the requirements for causality. However, the results of many studies contributed to the evidence of causality in the relationship between risk factors and MSDs.

The increasing numbers of studies on the biomechanical effects on the body look at how tissues react to mechanical stress and how those reactions are related to disease processes. In addition to the biomechanical risk factors, MSDs can be influenced by individual, organizational, and social factors. The factors that affect individual susceptibility include age, general conditioning, and pre-existing medical conditions. Soft musculoskeletal tissue can tolerate certain physical loads. However, these tissues will respond adversely if the physical load becomes excessive. Repetitive or prolonged loading affects muscles, ligaments, tendons, and tendon sheaths. Sheaths can become inflamed and cartilage can deteriorate when subjected to abnormal loads.

Case studies report the effectiveness of ergonomic interventions in reducing exposures to risk factors. The success of an individual companies' ergonomics programs can be seen in the reduction of the incidence or prevalence of MSDs and the severity of MSDs among their workers. The case studies did not identify a single intervention that could be used in every situation. However, the most successful interventions required significant attention to individual, organizational, and job characteristics. Corrective actions were centered on these characteristics for each intervention.

Several studies have been reported on the association between low back pain and heavy physical work. Examples of these studies are as follows:

Bergenudd and Nilson [1988] followed a Swedish population cohort that was established in 1938 ("NIOSH", 1999). Questionnaires were used to determine the severity of back pain and exposures through self-assessment from 1942 onward. Results demonstrated that those with moderate or heavy physical demands in their jobs had more back pain than those without physical demands (OR 1.76, 95%Confidence Interval [CI] 1.2 – 2.7).

Burdorf and Zondervan [1990] compared 33 male workers who operated cranes with age-matched workers from the same Dutch steel plant who did not operate cranes. Symptoms were assessed by questionnaire. Exposures were assessed by job title and questionnaire ("NIOSH" et al., 1999). Crane operators were significantly more likely to experience lower back pain than their cohorts (OR 3.6, 95% CI 1.2-10.6).

Johansson and Rubenowitz [1994] compared low back symptoms cross sectionally across 450 blue and white-collar workers working in eight Swedish metal companies. Symptom information was accessed by questionnaire. Exposures were accessed by questionnaire and included information on occupational, psychosocial, physical workloads and repetitive movements. The significance of work related lower back pain was significantly higher in blue-collar employees than it was in white-collar employees (RR 1.8, $p<0.05$). The back pain was attributed to extreme work postures for blue-collar workers and monotonous working movements for white-collar workers ("NIOSH" et al., 1999).

The underlying numbers for the statistics of the proposed standard lies in data collected from the Bureau of Labor Statistics (BLS) to estimate the annual incidence of work-related MSDs in different industry sectors and occupations. The annual incidence

rate is broken down by type of injury and exposure. Estimates based on the BLS data are thought to understate the true risk of incurring a work-related MSD posed to employees who are exposed to workplace risk factors for three reasons. The first reason is the BLS data only captures those lost workday (LWD) cases that resulted in at least one day spent away from work and does not capture either non-lost workday MSD cases nor MSD cases that resulted in the employee being temporarily reassigned to another job. Secondly, some LWD MSDs reported to the BLS by employers may have been coded in a category that OSHA omitted from its analysis. Finally, the incidence of MSDs reported by the BLS is the reported incidence of MSDs among all production workers in a particular industry. BLS calculates the incidence for each industry sector as the number of cases reported divided by the total number of production employees in that industry sector. This calculation dilutes the estimated incidence of disorders that are actually occurring among those employees who are routinely exposed to workplace risk factors.

The most significant workplace risk factors include exposure to repetitive motions, forceful exertions, vibration, contact stress, awkward or static postures, and cold temperatures. These risk factors are elements of MSD hazards that must be considered since their combined effect can cause or contribute to an MSD. Jobs that have multiple risk factors have a greater likelihood of causing or contributing to MSDs, depending on the duration, frequency and magnitude of employee exposure to each risk factor or to a combination of them. Ergonomic risk factors are also called ergonomic stressors and ergonomic factors. The ergonomic risk factors are evaluated in a job to determine the MSD hazards associated with the covered MSD. The duration, frequency and magnitude of employee exposure to the risk factors need to be evaluated as necessary.

Musculoskeletal disorders (MSDs) are injuries and disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs. Exposure to physical work activities and conditions that involve risk factors may cause or contribute to MSDs. MSDs do not include injuries caused by slips, trips, falls, or other similar accidents.

The Proposed Ergonomics Proposal

In the preamble section of the ergonomics proposal the weight of evidence that substantiates the need for the study is presented in the Health Effects section. This section of the proposal provides a causal relationship between exposure to workplace risk factors and work-related musculoskeletal disorders. This section also demonstrates the risk associated with occupational exposure to risk factors when it is increases with frequent or prolonged exposure.

OHSA estimates that 1.6 million employers need to put in place a basic ergonomic program. The basic program would include a person who would be solely responsible for implementation is terms of providing information on risks, signs and symptoms to look for, and setting up a system to report signs and symptoms (Katz, 2000). These full ergonomic programs would be required only if one or more work related injuries actually occurred.

If a company has not experienced an injury, then OSHA would propose a " quick fix" response to an injury after an MSD injury has occurred (Lee, 2000). The first element of the quick fix response is prompt medical attention for the injured worker and elimination of the hazard within 90 days (Friedman et al.) The second step of a quick fix

is the verification of an effective loss control in 30 days. The last step of the response is documentation of the process.

In addition, a company can be “grandfathered “ if the company can prove that they already have an effective ergonomics program in place and are already working to correct hazards (Keller, 2000). In order for a program to be grandfathered, a company must show that the basics obligation section for each core element and record requirements are meet. The company must also be able to implement and evaluate the program and controls before the date of the final rule. It must be shown that a company has all items functioning properly and is in compliance with the control requirements of the standard (Keller, 2000). If a company were grandfathered in through the ergonomics proposal then this action would be considered a permanent variance from the standard.

The ergonomics proposal breaks the workplace down into two categories for the purpose of compliance. The first category is for the manufacturing of products that relate to the lifting, stacking, and transporting. It is estimated that 60% of all repetitive injuries occur in the manufacturing industry (Anderson, 1999). The proposed regulation would mandate that the employer analyze the workplace and identify possible problems areas that can lead to MSD type injuries (Calderwood, 2000). An employer would be required to involve employees in establishing, implementing, and evaluating compliance programs. (Calderwood et al., 2000). Once a cause has been identified the employer is required to implement engineering, work practice and administrative controls (Flynn, 1999). These controls could add additional capital cost into the operation and/or reduce efficiencies or productivity.

The second category for compliance purposes would relate to situations where there is at least one report of an injury. The injury does not have to be a function related to manufacturing, lifting or transportation. Initially, the decision as to whether or not an injury is an ergonomic one would be left up to the employer (Weiss et al., 2000). However, if a health care professional finds that an injury was caused due to ergonomical deficiencies, then the employer would be required to survey and analyze the workplace for deficiencies (Calderwood et al., 2000). The employer would be required to give the health care professional a description of the employee's job, descriptions of alternative jobs during a specific recovery period, copy of the standard and an opportunity to walk through the workplace (Flynn, 1999).

Industries in manufacturing would need to have prevention plans for ergonomial issues (Weiss, 1999). They would also have to devise a method for employees to report ergonomic issues. Other injuries would only be required to be solved, once a problem is identified.

Under the proposed standard, if an injury is due to a MSD and the worker is unable to return to work, then he/she can be compensated up to 90% of their pay and 100% of benefits. If a person were placed in a light duty job due to the injury, then the employee would be given their full pay and benefits (Calderwood et al., 2000). In today's climate, companies have been required to pay workers at 66 and 2/3s of their pay due to injury (Roberts, 1999). OSHA extended its deadline for comments on its proposed standard until March 2, 2000 (Hoover, 2000).

Current Ergonomic Management Systems in Place

The American National Standards Institute (ANSI) passed a voluntary consensus standard for ergonomics with a committee from management, labor and government in April 1998. Although the standard is voluntary, it represents a consensus that there are steps that an employer can take to eliminate CTDs. The committee concluded the following on Cumulative Trauma Data (CTD) data:

1. CTDs are associated with exposure to one or more risk factors. The magnitude, duration and recovery period from these stressors affect the level of risk
2. Reduction in exposure to these risks will reduce the probability and severity of CTDs
3. Severity of CTDs can be reduced through proper case management and treatment
4. People who are at risk for CTDs can be identified in order to redesign their work and prevent disability
5. Broad principles can be identified for designing new and existing workplaces to reduce the risk of CTDs

Based on the above conclusions, ANSI designed a CTD standard that contains the elements of management responsibilities, training, employee involvement, surveillance, evaluation and management of CTD cases, job analysis, job design and intervention ("ANSI", 1999). The current draft only applies to upper extremities such as the arm, shoulder, hand and wrist. The expectation is that this standard will be modified to include back and lower extremities. The ANSI committee is currently working on comments received on the standard and explanatory chapters that may be published as appendices.

California OSHA adopted an ergonomics regulation on July 3, 1997. Since that time there have been many legal challenges to the regulation. On March 15, 2000 the superior court issued a new judgment and modified peremptory writ of mandate. In response to the court's instructions, the Standards board removed the exemption of the standard of ' employers with 9 or fewer employers' from the original document. On April 28, 2000 the court ordered revision was approved and effective that day. The ergonomics regulation applies to a job, process, or operation were a repetitive motion injury (RMI) has occurred to one or more employee ("Overview", 2000). The conditions that are indicative of the RMI are work related causation, relationship between RMIs are the workplace, medical and time requirements. Under this regulation programs designed to minimize RMIs shall include worksite evaluation, control of exposure that is causing the RMIs and training. California OHSA also has a four-step ergonomics program for employers with video display operators.

Opposing Viewpoints

The Independent Insurance Agents of America supports the Workplace Preservation Act which would require OSHA ergonomics to be grounded in science and would stop the agency from expanding its juridisdiction into state based worker compensation systems (Zinkewicz, 2000). Rep Roy Blunt argued that OHSA should not impose new standards on industry without waiting for the 1 million National Academy of Sciences study that the White House and Congress passed as the budget agreement last year (Eilperin, 2000). The opponents in the House of Representatives have been able to pass legislation to stop the proposal until after the NAS study has been completed (Friedman, 2000). The NAS study is suppose to offer clear evidence on whether there is

a casual relationship between repetitive work tasks and Musculoskeletal Disorders (Hoover, 1999). However, the Senate never got around to voting on the issue. Even if the Senate would have voted in favor of the bill, President Clinton had already promised a veto (Hoover, 1999). It has been noted that OHSA probably feels pressure to implement the new standards just in case next president in not regulatory friendly (Friedman et al., 2000).

Jay Power, AFL-CIO representative stipulated that the house appropriators emphasized in 1999 that the study funded by the White house should not hinder the implementation of new ergonomics standards (Eilperin et al., 2000). The Chamber of Commerce suggested that OHSA should abandon the ergonomics proposal due to its vagueness and its potential to provide little or no benefit to the workforce (U.S. Chamber, 2000). The Chamber also suggested that the proposed rule is in direct violation of what OHSA's requirements are for setting standards (U.S. Chamber et al., 2000). Usually OHSA does not require the employers to identify and eliminate alleged hazards that the agency itself has not been able to identify or abate. OHSA has not specifically identified the level of risk that is acceptable or how to eliminate the risk (U.S. Chamber et al., 2000). The U.S. Chamber figures that the science that OHSA used was flat wrong and ignored the scientific debate over the causes of repetitive injuries (U.S. Chamber et al, 2000). History shows that governmental agency overkill can cost businesses millions of dollars in compliance, unnecessary litigations, and drive jobs out of the country into foreign labor (McKerral, 2000).

Critics argue that the proposal is too vague, far reaching, and places too much responsibility on businesses (Christianson, 2000). Another criticism is that the proposal does not take into effect the habits a worker may posses outside of their jobs. OHSA believes that the standard is necessary because MSDs account for 34% of all lost work days (Verespej, 1999). The agency also feels that the vagueness was necessary so that it could give businesses the flexibility to address problems in a practical manner which would allow them to adopt solutions that are best fitted for their workplace (Verespej et al., 1999). OSHA is estimating that delaying the standard for two years would cost the U.S. economy over 100 billion dollars (Nagler, 1999). The requirement for employee participation in the evaluation of job process is in direct violation to the rules of the National Labor Relations Board on teams in nonunion workforces (Verespej et al., 1999). Also the requirement of prompt medical attentions put companies in a precarious situation until it is proven that the injury did occur at work.

The Risk and Insurance Management Society (RIMS) thinks that the proposed standard would undermine the current worker's compensation system (Katz, 2000). RIMS fears that increased compensation for ergonomical injuries would serve as an incentive for employees to report non-work injuries or ordinary workplace injuries as MSDs. Furthermore, the society feels as though the compensation system would serve as a reason for most employees not to return to work. Also, already limited loss control resources will be drained or misallocated on making changes instead of implementing a higher priority safety program based on risk control analysis and loss trend data (Katz, 2000)

John Cheffer, the chairman of the American Society of Safety Engineers

expressed the societies viewpoints on the proposed standard on 4/21/00, the last day of the OSHA's Chicago ergonomic hearings. ASSE supports the development of the standard. However, there were several key points that the society felt needed to be resolved before the proposal moved forward through the approval process. One of the greatest sticking points to the organization was that Safety professionals were not recognized in the standard (Sorrell, 2000). The society was disturbed to know that the use of competent safety and health professionals were not specified in conducting or directing ergonomic programs. There was also great concern that health care professionals would be able to provide ergonomic consultations in the workplace. The proposal does not explicitly state what makes a health care worker competent to do this function within the workplace. Nevertheless, health care workers were singled out as professionals and safety engineers were simply referred to as personnel. The ASSE felt as though this lack of recognition was poor public policy (Sorrell et al., 2000).

The second point was that this proposal leaned away from the previous standard making process. This proposal leans heavily on correcting issues that could have been addressed through a revision of 29 CFR, Part 1904.

ASSE expressed a concern that there probably was an underestimate of cost on OSHA's part in what is involved in the implementation of the standard. Ergonomics interventions are very complex and technical issues to implement. The current proposal is believed to be much to complex for the average employer to use as a tool. The ASSE does not feel, as though there can be a one-size fit all approach applied to cost projections and ergonomic interventions. A one-size fit all approach is not applicable because of the various variables of possibilities that can be introduced in an ergonomic evaluation.

Small companies will have to comply in the same exact manner as larger companies. The only exception is that companies with fewer than 10 employees would not have to follow the same record keeping requirements (Barlas et al., 2000). Under this proposal, small companies would have to comply the same way as large companies. Since the ergonomic rules would kick into effect after one injury, the cost to small businesses could be tremendous. Cheffer, feels as though OSHA has provided insufficient information to enable small business owners to understand the standard. ASSE believes that most small businesses will not be able to learn technical topics such as the NIOSH formula, Snook and Cirello tables, and RULA in the hour that this standard is proposing (Sorrell et al., 2000).

Company XYZ programs and incentives in place

The company has a safety department that is dedicated to making the workplace safe and free from all recognized hazards. The department ensures that programs are developed to reduce the frequency and severity of vehicle accidents, worker injuries/illness and property damage. Each level of management is held responsible for general safety and setting a safety example to all employees. In every location there is team that is comprised of employees that are tasked with monitoring the safety programs application and effectiveness. This team is lead and trained by the safety personnel in the district.

Managers must ensure that all employees are trained in safety. New employees are given a safety orientation, new hire training and on the job training. Experienced workers are trained on an as needed basis. Training is viewed as an ongoing process that needs to be promulgated through all levels of the operation.

Once a worker is injured he/she is coordinated to work with a Human Capital Manager. This manager helps facilitate the workers transition back into the workplace through medical management and alternating work assignments. OSHA 200 logs are not filled out manually at each physical location. Management reports injuries and accidents on automated logs that are filled out through computer prompted entries on a personal computer. Vehicle accidents are also reported via the computer. There is only one web site for the company to report injury and accidents for employees.

Incentive Programs

Best Practice Pay is an incentive program that reward all the employees at a locations that perform well each month. Locations must meet or exceed goals for productivity and service. Points are added to a location for safety if the goal is meet for the injury incident rate and vehicle incident rate.

Performance reviews look at standards for each job categories and ranks the employees based on daily job duties, responsibilities and knowledge of their job. Minimal Acceptable Performance standards are set based on this analysis. Currently, safety is a major category on the review. All of the standards developed for the company are based on safe work practices. Compensation of employees is strictly based on performance reviews and length of service. The longer the length of service, the higher the employee is on the scale of pay.

Methods and standards are developed for each position at Company XYZ. Every job function has some type of rate that has been time studied with a sufficient level of fatigue included. Safe work methods and practices are incorporated into each job function.

Summary

OSHA has determined that there was a need for a standard in the area of ergonomics. The majority of the statistical data that was used for this proposal came from the Bureau of Labor Statistics. As evidence of causation for this proposal, OSHA used case, biomechanical, and epidemiological studies. Studies were also used that showed a positive relationship between risk factors and the prevalence of MSDs.

It is estimated that 1.6 million employers need to implement a basic ergonomic program into their organization. Other companies may be able to obtain permanent variances from the standard by being grandfathered into the ergonomics standard. Currently, ANSI has a consensus standard in place. California OHSA has placed approved legislation for ergonomics in their state administered OSHA program.

The ergonomic proposal has many proponents against its existence into legislation. Most critics would like to see OHSA suspend the introduction of the ergonomic standard until after the NAS study has been completed. Other critics feel as though the proposal is too vague and puts to much responsibility on businesses.

Company XYZ has a full time safety department that is dedicated to providing a safe work place to its employees. Several incentive programs are in place, which emphasize safe work practices.

Chapter III

Methodology

Introduction

The purpose of this study was to determine the level of preparedness of Company XYZ in the implementation of the proposed OHSA Ergonomics Standard. The four major objectives were to a) compare the current ergonomics program of Company XYZ to the proposed standard to determine the potential operational gaps, b) determine if the current ergonomic program has the minimum requirements needed to meet the grandfather clause of the new proposed standard, and c) determine what the process will be for consistent implementation in Company XYZ. The methods and procedures used to identify the level of preparedness are explained under the headings of a) method of study, b) data collection techniques, c) procedures followed, and d) method analysis.

Method of Study

A review of literature was completed to identify what the current proposed standard would encompass, ergonomic risk factors, muscoskeletal disorders, the science and statistics behind the standard, the specific industries that would be targeted, and the proposed effect on industry. Information was obtained through the literature presented by OSHA, BLS and various commentaries on the subject matter. This information was used to determine what additional angles needed to be research in Company XYZ. The different types of incentive programs, compensation and performance reviews were evaluated in great detail. Various types of reporting systems and injury tracking systems were also examined. Work restrictions and the Human Capital Management Program (HCMP) were analyzed to determine how work restrictions and job specifications might change with this new legislation.

Data Collection Techniques

Data was collected in the form of procedure and policy manuals from various sources within the company. Best practice manuals were available for major sort operations of Company XYZ.

Procedures Followed

The following steps were followed to conduct this study.

1. Discussed the need of the study over with a regional safety manager.
2. The purpose of the study and it's significance were developed, reviewed, and approved in late February 2000.
3. A review of literature was completed. From this review, emphasis areas were determined that fit the parameters of the study.
4. Detail information was collected from Company XYZ.
5. Data analysis was completed the middle of April 2000.
6. Conclusions and Recommendations were presented to the organization and the University of Wisconsin-Stout.

Method of Analysis

The data collected in the method of the study was analyzed to determine the extent in which the company currently had ergonomical programs in place. The impact for Company XYZ was determined through a synthesis of company knowledge, collection of datum, and engineering experience.

Chapter IV

The Study

Results and Discussion

The primary method that was used to achieve the objectives of this study was a review of literature. Once the review of literature was completed data was synthesized to determine how this ergonomic standard would affect Company XYZ.

Objective One: Comparison of the standard

The first objective was to compare the current ergonomics program of Company XYZ to the proposed standard to determine the potential operational gaps. The main program areas are listed below along with a comparison of where the company is currently today.

Coverage

The first gap is that Company XYZ needs to develop a way to identify problem jobs other than manual handling. Quick fix solutions will need to be put in place to offset the severity of MSDs injuries.

Hazard Information and Reporting

OSHA Proposal

Information must be provided periodically on ergonomic risk factors, signs and symptoms of MSDs, importance of early reporting and the requirements of the standard. The second part of this indice is to set up a system for employees to report signs and symptoms of MSDs.

Company XYZ

Currently MSDs type information is being capture on the injury/illness computer screens along with all the other injury information throughout the company. These screens need to be revamped so that there is a better picture of what is really going on in

the workforce. There will need to be a link between the reporting system and a HCP person that is trained to recognize MSDs symptoms and trends in the workplace.

Job Hazard Analysis and Control

OSHA Proposal

Problems jobs are to be identified for ergonomic risk factors. Engineering, administrative and work practice controls should be used to help eliminate or reduce MSDs hazards.

Company XYZ

All job classes need to be looked at for possible MSDs risk factors. Almost all of the job classes that handle, deliver or provide administrative support have some type of Methods and Standards associated with their job. Each job consists of several tasks that have a designated amount of time allocated for completion. The tasks are separated into subsequent steps and time studied for a rate. The rate is specifically dependent on work process motions. The standards can be looked at for indicators such as repetition, bending motions and fatigue factors.

Training

OSHA Proposal

Training in the recognition of MSDs hazards, the ergonomics program within the company and control measure must be taught to workers in jobs that have MSDs. Training must occur initially, periodically and at least at every 3 years at no cost to the employees.

Company XYZ

Training is given to all employees at some time or another. Most training falls into the class of new hire and recurrent. At this point in time there is no dedicated training program that is specifically set aside for ergonomics.

MSD management

OSHA Proposal

A prompt medical response is required to all injured employees at no cost. Access to a health care worker for evaluation, management and follow up care shall be provided. Necessary work restrictions have to be provided to the worker during the recovery period.

Company XYZ

The Human Capital Managers help employees who are off of work due to a on the job injury. However, at this present time, these managers do not track root causes and symptoms that cause an injury. The managers are simply there to help the injured employee transition back to the workplace. Methods need to be developed for follow up and referral tracking of various injuries.

Program evaluation

OSHA Proposal

The ergonomics program has to be reviewed at least every 3 years. Employees should be consulted with for feedback on program effectiveness and deficiencies. All deficiencies must be corrected.

Company XYZ

Currently, there is no measurement tool in place to determine how well the ergonomics program is doing. This is primarily due to the fact that there is no ergonomics program in place.

Objective Two: Current ergonomic programs

The second objective was to determine if the current ergonomic programs have the minimum requirements needed to meet the grandfather clause of the new proposed standard. In order to be grandfathered, company XYZ will have to show what elements of their current safety program would fit under the auspices of ergonomics. In order to be grandfathered a company would have to meet the following three objectives:

1) The basic obligation and record keeping requirements of the standard must be meet.

2) Implement and evaluate their ergonomic program before the standard became effective.

3) Eliminate or reduce MSDs hazards.

Company XYZ is currently working on additional computer screens that will be used to capture ergonomic information. The projected date of completion is sometime in 2001. Therefore, the first objective will not be meet prior to the passing of the new standard.

Currently, several types of engineering controls, administrative and best practices have been put into place to help ensure a safe workplace free from recognized hazards. Company XYZ has an established safety department who is tasked with providing a safe workplace to all employees. However, there was no documented ergonomics program on file. The safety program that is currently in place covers the auspices of ergonomics.

However, the program does not have a section that is entitled ergonomics. Currently, there is no policy or procedures that specifically state that they deal with ergonomics. The safety department is in the process of setting up a project plan of how an ergonomics program should be implemented across the company. However, the first action items of the plan are not set to transpire until early 2001. Thus, the second objective will not be meet prior to the passing of the standard. The company will not be able to evaluate a program that is not in an implementation stage of development.

Company XYZ is always looking for ways to reduce hazards. However, it will be hard for the company to document the reduction of MSD's without the use of the new tracking system. Therefore, the company may be able to reduce hazards but the improvements will go unrecognized until the new ergonomic reporting system is in place.

Since the three objectives of the grandfathered clause will not be meet prior to the implementation to the standard, Company XYZ will not be grandfathered into the standard. There is always a possibility that there will be a delay with the passing of the standard. However, at this time even with a delay the company is not prepared to show documented progress of a reduction of MSDs hazards in the workplace.

Objective Three: Process for Implementation

The third objective was to determine what the process would be for consistent implementation in Company XYZ. After all of the information on Company XYZ was gathered, the information was synthesized to determine the implementation process that would be best suited for the organization. The major components of the plan are expressed in the paragraphs below.

The company will have to develop a plan centrally that defines ergonomics and prominent risk factors associated with the industry. A manager will need to be hired to provide support to the various project management groups and corporate divisions on regulatory compliance issues.

Corporate policy and procedures will have to be developed for the organization. Once the plan is developed it can be placed on the safety departments web site and sent out as a hardcopy to the field for reference.

Safety personnel will have to be trained on the program elements, ergonomics program, MSDs risk elements, and reduction methods to eliminate hazards. Once they are trained they will have to have mini training sessions with the employees of the station. Professional employees will need to be trained in proper work methods for the office.

Each job class will need to be trained on what the risk factors are for their particular defined class. A hazard information and reporting system will have to be created so that employees may report signs and symptoms of MSDs. Problem jobs will have to be identified based on ergonomic risk factors. Once these risk factors are identified controls will need to be developed and available to the work force.

The medical management program element will need to be addressed in Company XYZ. MSDs hazards need to be eliminated or reduced to extent feasible. The company will need to develop a system of Health Care professionals that will need to be available to respond to employees with MSDs before their condition gets worse. Lastly, there will have to be some type of documentation system developed that includes information that it pertinent to the compliance of this standard.

Summary

The analysis of data for the ergonomic standard as it is applicable to Company XYZ showed that an ergonomics program would have to be instituted across the company. The company will have to develop a plan centrally that defines ergonomics and prominent risk factors associated with the industry. Program elements were reviewed for the applicability of the company's safety program to the proposed standard. In order to be grandfathered, company XYZ will have to show what elements of their current safety program would fit under the auspices of ergonomics. These elements and grandfathered objectives will not be fulfilled until after the proposed standard is passed into legislation. Therefore, in all probability Company XYZ will not be grandfathered into the standard.

Chapter V

Summary, Conclusions & Recommendations

Restatement of the Problem

Musculoskeletal disorders account for one third of the occupational injuries reported to the Bureau of labor Statistics ("Overview", 1999). OSHA estimated that over 50 percent of all employees and 28 percent of the work place in general industry is already protected by ergonomic programs that were developed in house ("Overview" et al., 1999). The reality is that this standard will increase cost for companies, which do not currently have an ergonomics program. OSHA believes that the proposed standard is needed to bring the remaining employees under the protection of the auspices of an ergonomic program ("Overview" et al., 1999).

The purpose of this study was to determine the level of preparedness of Company XYZ in the implementation of the proposed OHSA Ergonomics standard. The objectives of this study was:

1. To compare the current ergonomics program of Company XYZ to the proposed standard to determine the potential operational gaps.
2. To determine if the current ergonomic programs have the minimum requirements needed to meet the grandfather clause of the new proposed standard.
3. To determine what the process will be for consistent implementation in Company XYZ.

Methods and Procedures

The data collected in the method of the study was analyzed to determine the extent in which the company currently had ergonomical programs in place. The impact for

Company XYZ was determined through a synthesis of company knowledge, collection of datum, and engineering experience.

Major Findings

The result of the synthesis of information is presented below as they relate to the objectives of the study.

Objective One: Comparison of the standard

1. Company XYZ needs to develop a way to identify problem jobs other than manual handling.

2. Quick fix solutions will need to be put in place to offset the severity of MSDs injuries.

3. Injury/illness screens will need to be revamped so that there is a better picture of what is really going on in the workforce. MSDs information will need to be extracted separately from this screen.

4. There needs to be a dedicated training program that is specifically for ergonomics.

Objective Two: Current ergonomic programs

1. Company XYZ will have to show what elements of their current safety program would fit under the auspices of ergonomics.

2. There is no policy or procedure that specifically state that the safety program consist of ergonomics.

Objective Three: Process for implementation

1. The company will have to develop a plan centrally that defines ergonomics and prominent risk factors associated with the industry.

2. A manager will need to be hired to provide support to the various project management groups and corporate divisions on regulatory compliance issues.

3. Corporate policy and procedures will have to be developed for the organization.

4. A hazard information and reporting system will have to be created so that employees may report signs and symptoms of MSDs.

5. The company will need to develop a system of Health Care professionals that will need to be available to respond to employees with MSDs before their condition gets worse

Conclusions

Company XYZ will have to implement a full basic program in order to comply with the new ergonomics proposal. Safety personnel will have to be trained in ergonomics. Ergonomics will have to be used in its proper context for manuals, reference materials and communication. The conclusions of this study will be discussed as they relate to the major findings.

Standard

If the ergonomic proposal is passed in the current format, then Company XYZ will need to revamp the current safety program in place. Based on the findings, the company will have to investigate problem jobs outside the realm of manual handling. Safety professionals and HCMP managers will need to be trained in ergonomics so that they can recognize ergonomic risk factors. Once a the new computer reporting systems are in place, the company will have an accurate starting point of where MSDs hazards exist within the company. Quick fix solutions will need to be developed to offset MSDs injuries.

Current ergonomic programs

Company XYZ will have to go through their current safety program with a fine toothcomb. Areas that deal with ergonomics will need to be extracted from the current program and placed into a program called ergonomics. This will be a necessary step for the company, since currently there are no policies or procedures in place that specifically address ergonomics. Very few safety professionals within the company are aware of what comprises the field of ergonomics. Based on my findings, it may be feasible for Company XYZ to hire outside consultants to assist with the extrapolation of an ergonomic program from the current safety program.

Implementation

The department will need to hire personnel strictly for the implementation and management of the ergonomic program within the company. A plan will have to be developed centrally so that the company can implement the program in other divisions and subsidiaries. Based on my findings corporate policy and procedures will have to be developed to give to all employees so that can be informed about ergonomic risk factors in the workplace. Reporting systems will need to be put in place to address the additional requirements that will be needed with this proposal. The current network of health care professionals will need to be screened to determine their level of preparedness to handle ergonomical issues. If the current systems of professionals are not able to identify ergonomics hazards, then Company XYZ will need to develop a new network that will be up to date with the current requirements of the ergonomics standard.

Recommendations

The recommendation for this study is that Company XYZ implement a basic

ergonomic program throughout the company. The standard is merely in a proposed stage at this moment. However, if the company has a documented program they could be grandfatherd in once the proposed standard becomes a permanent standard.

Recommendations Related to this Study

Recommendations related to this study are:

1. Determine how long it would take for the company to implement an ergonomic program from its current safety program. Since the proposal is merely in the proposed stage, it is highly possible that Company XYZ could extrapolate an ergonomics program before the current proposal is adopted into legislation. The company has resources and personnel that could be dedicated to making the company achieve a grandfathered status a reality. The company should concentrate on the three basic objectives needed for grandfathering. The overall goal of the safety program is to eliminate and reduce hazards in the workplace. Therefore, the company could make an argument on the applicability of the current safety program to the ergonomics proposal.
2. Setting up a computer reporting system to report any symptoms that may relate to MSDs in the workplace needs to be a priority for Company XYZ. Once a system is put in place for reporting, there can be some type of trend analysis performed on the data to help further identify MSDs in the workplace. The company and the employees would realize the benefit of early reporting of MSDs once employees are educated on what constitutes a work related MSDs.
3. The injury and illness screen need to be updated to reflect the different types of injuries that transpire in the workplace. Results obtained from the injury/illness

tracking system could help determine what percentage MSDs constitute of the injuries currently being reported.

4. Employees and HCP personnel need to be trained on what MSDs are and how to identify them. Safety specialist should also be trained in ergonomics so that they could recognize risk factors and problem jobs on a daily basis. These professionals could be used to identify jobs other manual handling that cause MSDs in this particular industry. The safety specialist could work together with the engineers who develop the Method and Standard procedures for each position. Together they could help develop a proactive stance that would target MSDs prone work areas.
5. There needs to be a measurement in tool put into place to measure the effectiveness of the ergonomics program. Even though there is no formal program in place, a tool of measurement can be put into place in conjunction with the new ergonomics program.
6. The company needs to hire a manger to oversee the development of the ergonomics program as quickly as possible. An experienced individual needs to be put into place that can guide the company to the road of compliance. There needs to be an experienced person placed in the position that will help implement an ergonomic program company wide.
7. Determine the impact on the ergonomics proposal on the others divisions and subsidiaries of the company. It may be possible that other divisions and subsidiaries have documentation that would qualify those organizations for a

grandfather status. Since the company is so large, it may be possible for some departments to be more proactive in the area of ergonomics.

Recommendations for Further Study

Recommendations for further study are:

1. Identify the number of MSDs associated with professional or exempt employees in the transportation industry. A lot times it is assumed that MSDs are issues that only affect the blue-collar worker. It is highly possible that work related MSDs could be experienced by professional and salaried personnel.

2. Case study a group of employees who utilize back belts and proper work methods as compared to those employees who choose not to wear them. This would be an interesting study due to the controvesary surrounding the effectiveness of back belts in the workplace.

3. Case study a group of employees who have been injured on the job to determine if their risk factors are the same over time. Many times employees return to work and are placed on a work rotation. However, most return to their original position in time. It would be interesting to note how many re-injury themselves due to the same risk factors.

4. Determine the number of personal medical claims that may be related to work related MSDs. In my research, several authors speculated that many employees use personal insurance to cover injuries that occurred at work. It would be interesting to investigate whether workers deliberately use their personal insurance for injuries that should be covered at work. On the other hand, workers may truly not be trained to recognize the risk factors that they experience at work.

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