AMERICAN SOCIETY OF
SAFETY PROFESSIONALS

THE RETURN ON INVESTMENT FOR SAFETY, HEALTH, AND ENVIRONMENTAL (OSH) MANAGEMENT PROGRAMS

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AMERICAN SOCIETY OF
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SUMMARY ADDRESSING THE RETURN ON INVESTMENT (ROI) FOR SAFETY, HEALTH, AND ENVIRONMENTAL (OSH) MANAGEMENT PROGRAMS

ASSP continues to get a significant number of inquiries addressing the return on investment for the creation and maintenance of occupational health and management safety systems. ASSP is the secretariat of the Z10 Committee, which writes the current Z10 Occupational Health and Safety Management Systems Standard and two outstanding implementation guides. In addition, ASSP also serves as the TAG Administrator (Technical Advisory Group) to ANSI for the ISO TC-283 Committee. TC-283 is the global committee responsible for the ISO 45001 OHSMS Standard and other pending publication. The Society takes great pride in being a global champion advocacy for the relevance and value of occupational health and safety management systems and the importance of effective safety management overall.

There have been a significant number of questions and inquiries from occupational safety and health professionals (OSH) looking for information about the implementation of such systems. Of interest is that ASSP member continue to challenge the Society to show examples of a safety management system having a positive impact. There are many examples, but these specific examples below and attached should assist. There are some research papers, white papers, data, and examples.

The implementation, maintenance, and improvement of OSH programs are of significant importance to this country as the economy of the United States moves toward more of a global perspective. Such programs positively impact all Americans and specifically those who work at all levels of the public and private sectors in technology development, manufacturing, training, financial analysis, personnel, academia as well as the final end user. An effective OSH Program not only benefits and protects the organizations implementing such a program, but also furthers the interests of the United States in a globally competitive environment.

The American Society of Safety Professionals (ASSP) knows from data and anecdotal information that investment in a OSH program is a sound business strategy, for any organization regardless of size, and will lead to having a positive impact on the financial bottom line. ASSP calls on governmental agencies such as Occupational Safety and Health

Administration (OSHA), Mine Safety and Health Administration (MSHA), Environmental Protection Agency (EPA), Consumer Product Safety Commission (CPSC), and the National Highway Traffic Safety Administration (NHTSA), etc…, to do more in regard to showing that OSH management is more than simple compliance. The private and public sector should be encouraged to work together to show American business and industry that OSH is not only required under the law but should become and remain a core business strategy.

RETURN ON INVESTMENT (ROI) FOR OCCUPATIONAL SAFETY AND HEALTH (OSH) MANAGEMENT PROGRAMS

Introduction

The key question asked of many OSH Professionals by financial planners in business and industry is: Do safety and health management programs improve a company's bottom line? The answer is a resounding "YES", although benefits may be somewhat hard to quantify. But in addition to outright savings on worker's compensation benefit claims, civil liability damages[i], and litigation expenses, having a solid safety and health management program with senior management commitment will improve productivity and employee morale. It can also make the difference between winning and losing bids and even government contracts.

ASSP has taken the position that the days are over when companies can view safety and health violations as the status quo, and regard OSH violations and the attendant civil penalties as another "cost of doing business." For one thing, penalties have been increasing in dollar amount. In addition, knowing violations that result in the death or serious injury of a worker may be prosecuted at the state level under criminal laws, or in a referral by a government agency to the U.S. Department of Justice.

The Hidden Costs of Failed Safety and Health Systems

Anyone who has had the misfortune of witnessing or handling the aftermath of a serious or fatal on-the-job injury knows that, without question, the costs go far beyond those that appear in a company's ledger book. For those who survive, or who work with the accident or illness victim, the costs continue with psychological stress that may require years of counseling. Many times, co-workers who witness a serious event find themselves unable to return to the worksite for a significant period of time, which presents additional costs to the company through the abrupt loss of skilled workers. A plant with a singularly bad reputation for safety and health may find itself unable to attract workers at all or may have to pay wages well above market value to do so. These are just a few of the "hidden" costs of a poor safety and health program.

Moreover, as more information concerning a company's compliance and injury/illness experience becomes publicly available over the Internet and from the federal agencies through Freedom of Information Act (FOIA) requests, foes of industrial growth may use

this data to defeat permit applications or zoning change requests. Part of being a "good corporate citizen" - rather than a company that no one wants in their backyard - is offering a safe and healthful work environment to the local residents.

Companies may also "externalize" costs associated with workplace injuries or illnesses, to the detriment of their safety and health program management. If some other organization (such as worker's compensation, social security, welfare or other insurance) pays the costs, corporate management may have a disincentive to control hazards. ASSP believes here is an excellent example of being "penny wise and pound foolish."

When insurance pays for the immediate costs of employee injuries, ultimately we will all pay either in the form of higher premiums, inability to obtain insurance completely, or passed-through costs to the consumer. Conversely, when there are fewer accidents, society saves as a whole. Fewer hospitals, medical professionals and rehabilitation facilities will be needed, and employee productive capacity will not be reduced as a result of occupational injury, disease, and death.

Past Secretary of the Treasury, Paul O'Neill, who also served as the long-time chairman of Alcoa Steel Corporation, has taken the position that investment in safety, health, and the environment is good for the economy, country, the firm, and its workers. Part of his company's (Alcoa) key business strategy included emphasis on occupational safety, health, and environmental management. His belief is that investment in OSH makes sounds business sense and should be a cornerstone of an organization's goals and objectives. During his nomination, appointment, and confirmation as Secretary of the Treasury, Mr. O'Neill consistently spoke in favor of ongoing investment in OSH as positive generator for organizations2.

Some statistics and examples to consider when reviewing the "Economics of Safety"[ii]:

- Nearly 50 workers are injured every minute of the work week
- Between 15 to 17 workers die on-the-job each day
- Workplace injuries will cost society $128 billion in losses this year, which equals one-quarter of each dollar of pre-tax corporate profits

- Indirect costs of injuries may be 20 times the direct costs -- Indirect costs include: training and compensating replacement workers; repairing damaged property; accident investigation and implementation of corrective action; scheduling delays and lost productivity; administrative expense; low employee morale and increased absenteeism; poor customer and community relations

- To cover the cost of a $500 accident, an employer would have to:

  - ✓ bottle and sell 61,000 cans of soda
  - ✓ bake and sell 235,000 donuts
  - ✓ deliver 20 truckloads of concrete

OSH Investment as a Core Business Strategy

In recent years, encouraging senior management commitment to safety and health program management has become a priority for federal and state agencies involved with safety regulation and enforcement. A survey of employers indicates that the Top Ten motivations for taking actions were:

1. Cost of workers' compensation insurance (59 percent);
2. "Right thing to do" (51 percent);
3. "Increases Profitability" (33 percent);
4. Federal/State safety rules (31 percent);
5. "Too many accidents" (29 percent);
6. Employee morale (26 percent);
7. Productivity (23 percent);
8. OSHA fines (20 percent);
9. Employee concerns (5 percent); and
10. Recommendations of outside experts (13 percent)4.

Examples of Savings Attributable to OSH programs[iii]

- On August 29, 2001, Liberty Mutual Insurance Company released a report titled: A Majority of U.S. Businesses Report Workplace Safety Delivers a Return on Investment. The Liberty Mutual survey shows 61 percent of executives say $3 or more is saved for each $1 invested in workplace safety.

- A OSH Director for an environmental services company in Massachusetts reported that its tracking data indicated $8 saved for each dollar spent on a quality OSH program.

- A coal mining company in Charleston West Virginia has attained a competitive advantage through investment in OSH programs. The company claims its worker compensation rate is $1.28 per $100 in payroll as opposed to its competitor's rate of $13.78.

- Fall protection program implementation reduced one employer's accident costs by 96 percent - from $4.25 to $ 0.18 per person-hour

- Implementation of an OSHA consultation program reduced losses at a forklift manufacturing operation from $70,000 to $7,000 per year

- Participation in OSHA's Voluntary Protection Program has saved one company $930,000 per year and the company had 450 fewer lost-time injuries than its industry average

- A SHARP (Safety & Health Assessment & Research for Prevention Program) participant reduced its lost workday incidence rate from 28.5 to 8.3 and reduced insurance claims from $50,000 to $4,000 through decreases in both direct and indirect losses through a reduction its number of back and shoulder injuries.

- Implementation of an improved safety and health program reduced Servicemaster's worker's compensation costs by $2.4 million over a two-year period

- A manufacturer using a state consultation program reduced its worker's compensation modification rate from 1.7 to .999, and saved $61,000 on its worker's compensation insurance premiums\OSHA VPP sites saved $130 million in direct and indirect injury/illness costs in 1999.

- OSHA's Office of Regulatory Analysis has stated: …our evidence suggests that companies that implement effective safety and health cans expect reductions of 20% or greater in their injury and illness rates and a return of $4 to $6 for every $1 invested...

- In their 9/2001 article titled: Measuring Safety's Return on Investment, Susan Jervis and Terry R. Collins, make the argument that there is a direct correlation between a company's performance in safety and its subsequent performance in productivity and financial results. They pointed out that in the Forbes 1999 Financial Rankings, among those listed ten of the most-successful U.S. businesses were participants in the OSHA VPP program6.

Federal Programs

The original OSHA effort to encourage use of safety and health management programs was the Voluntary Protection Program (VPP) initiative, established in 1982, was restructured in 1996 and is still in effect. The VPP emphasizes the importance of worksite safety and health programs in meeting the goals of the OSH Act, and provides official recognition of excellent safety and health programs, assistance to employers in their efforts, and the benefits of a cooperative approach among labor, management, and government to resolve potential safety and health problems. Recognition in the VPP requires rigorous attention to workplace safety by all personnel. Sites are approved based on their written safety and health program and their overall performance in meeting the standards set by the program.[iv]

The VPP is comprised of program elements that have been demonstrated to reduce the incidence and severity of workplace injuries and illnesses.

- The "STAR" program is the most highly selective program and is for applicants with occupational safety and health programs that are comprehensive and successful in reducing workplace hazards. Lost workday rates are 53 percent below national averages.

- The "Merit" level is for companies with good programs that are looking to improve and proceed to the STAR level. Lost workday rates are 35 percent below national averages.

- The "Demonstration" level is designed for contractors who meet the requirements as STAR-level companies but are not otherwise eligible for the STAR or Merit designations.

VPP participation is strictly voluntary and OSHA keeps application information confidential. Participating employers must still comply with OSHA standards, but they are exempt from programmed OSHA inspections (although not from those prompted by employee complaints or triggered by fatalities, catastrophes or significant leaks and spills). OSHA claims the following ROI for companies participating in VPP[v]:

- Injury Incidence Rates: In 1994, of the 178 companies in the program, 9 sites had no injuries at all. Overall, the sites had only 45% of the injuries expected, or were 55% below the expected average for similar industries.

- Lost Workday Injury Rates: In 1994, of the 178 companies in the program, 31 had no lost workday injuries. Overall, the sites had only 49% of the lost workdays expected, or were 51% below the expected average for similar industries.

- While protecting workers from occupational safety and health hazards, companies following the management guidelines mandated for VPP membership also experience decreased costs in workmen's compensation and lost worktime, and often experience increased production and improved employee morale.

- The lost workday case rate at Thrall Car Manufacturing Company in Winder, Georgia decreased from 17.9 in 1989 when the facility began implementing a VPP

quality safety and health program to 4.6 in 1992 when the plant was ready to qualify for the Star Program. In 1994 the rate was 0.6. From 1989 when Thrall Car's Winder, Georgia plant began implementing its programs to qualify for the VPP and 1992, workers' compensation costs dramatically declined by 85%, from $1,376,000 to $204,000.

- At Monsanto Chemical Company's Pensacola, Florida Plant, which employs 1600 workers, the Lost Workday Case Rates have steadily declined during the period the worksite was implementing effective safety and health programs and in the four years since approval to the VPP. The rates fell from 2.7 in 1986 to 0.1 in 1994.

- Mobil Chemical Company has brought all of existing plants (plastics production and chemical plants) into VPP. OSHA reported that the company's recordable injuries were reduced 32%, lost workday cases were reduced 39%, and the severity of cases was reduced by 24%. Also, the company reduced its workers' compensation costs by 70 per cent, or more than $1.6 million, from 1983 to 1986, during the years it was qualifying its plants for the VPP. This reduction has been sustained through 1993. Mobil Oil Company's Joliet, Illinois refinery experienced a drop of 89 percent in its workers' compensation costs between 1987 and 1993.

- Occidental Chemical Company determined that as their Safety Process Systems Implementation percentage increased company-wide their Injury/ Illness rate decreased from 6.84 in 1987 to 1.84 in 1993, a 73 % decline.

- In the construction industry, Georgia Power Company brought two large power plant construction sites into the VPP in 1983 and 1984. By 1986, one site had reduced its total recordables by 24 per cent and its lost workday cases by a third. The other site reduced recordables by 56 per cent and its lost workday cases by 62 per cent. At Georgia Power's two power plant construction sites, the direct cost savings from accidents prevented at one site was $4.14 million and was $.5 million at the other for 1986 alone.

- During three years in the VPP, the Ford New Holland Plant noted a 13 per cent increase in productivity and a 16 per cent decrease in scrapped product that had to be reworked.

- During a recent evaluation of the Kerr-McGee Chemical Corporation Mobile, Alabama plant in July 1991, the VPP team found that at the same time, work related injuries continued to decline, production hit an all time high that exceeded the goal by 35 percent.

Additionally, OSHA has received considerable information on improvements in morale, productivity, and product quality. Although anecdotal in nature, these improvements are referred to frequently enough by participants in the VPP to indicate that there is a good possibility of a direct relationship between improved management of safety and health protection and these benefits.

OSHA E-Cat Initiatives

OSHA continues to expand its "e-CAT" initiative, which pushes implementation of a safety culture at every level of an organization. The multi-faceted program has four components: (1) Management System and Safety/Health Integration; (2) Safety and Health Checkups; (3) Creating Change; and (4) Safety and Health Payoffs.

OSHA's e-CAT program consists of electronic Compliance Assistance Tools ("CATs") that provide guidance information for employers to develop a comprehensive safety and health program. Such programs are required by some states, although there is currently no such federal OSHA requirement.

OSHA's safety and health program management rule is under development, and its future will depend on the regulatory priorities of any Administration. The draft rule, released in October 1998, would have covered all general industry employers and applied to hazards covered by the General Duty Clause and existing OSHA standards. The proposal set forth the following core elements:

- Management leadership and employee participation (hold managers accountable for carrying out safety and health responsibilities in the workplace and provide them with the authority to do so; and, provide employees with the opportunity to participate in establishing, implementing and evaluating the program);

- Hazard identification and Assessment (conduct worksite inspections, review safety and health information, evaluate new equipment, materials and processes before they are introduced to the workplace, and ASSPss the severity of hazards);

- Information and training (provide employees with information and training in the safety and health program with respect to the nature of hazards, what is done to control the hazards, and the provisions of applicable standards); and

- Evaluation of program effectiveness (at least once every two years, after the initial program development).

Existing programs would be grandfathered as long as they satisfied the basic obligation for each core element and the employer could demonstrate the effectiveness of its program. The rule would also require employers at multi worksites to provide information about hazards, controls, safety and health rules and emergency procedures for all workers. ASSP commented extensively about this rule in regard to its technical applications, however, the Society remain steadfast in its belief that more needs to be done to encourage the development and implementation of OSH programs.

Finally, OSHA has the "SHARP" program (Safety and Health Achievement Recognition Program), which provides incentives and support to develop, implement and improve effective safety and health programs. Participating employers may be exempted from OSHA programmed inspections for a period of one year. All consultation and visits are conducted at employer request. Typical participants are smaller high-hazard businesses (e.g., with fewer than 250 employees) that do not have serious safety and health problems. Participants undergo a comprehensive site visit and agree to correct all identified safety and health hazards.

Even where not mandated by law, OSH management programs are critical to the safety, health, and environmental performance of an industrial employer. Companies that are truly committed to excellence should consider participation in the VPP or the other consultation and professional development programs offered by OSHA or through professional safety organizations such as ASSP.

State Programs

At the state level, Oklahoma in the past was lauded for its "Safety Pays" program, which offers employers assistance in developing management programs that identify and eliminate workplace hazards and ensure compliance with OSHA regulations. Nine employers were among those receiving the state's Awards of Excellence" and it was noted that the employers had zero lost-time accidents while reducing worker's compensation insurance costs from 47 to 97 percent.

Similar savings were noted in Alberta, Canada, where the Worker's Compensation Board announced last year that over $2 million in premium refunds would be distributed to more than 400 employers who registered in the "Partners in Injury Reduction" (PIR) program. Other PIR program benefits included lower worker's comp premiums, increased worker productivity and minimized accident costs. The average lost-time claim rate at PIR participant worksites dropped more than 20 percent.

Private Sector Initiatives

At the private sector level, the American Textile Manufacturers Institute (ATMI) instituted the "Quest for the Best in Safety and Health" program in 1993 to help its members identify strategies for continuous improvements in safety and health. Approximately 50 companies participated and had impressive results. At one company, Springs Industries, 45 percent of its plants worked 1 million manhours or more without a single lost-time accident and some exceeded 10 million manhours. What was the secret of their success? The following elements were responsible for a 25 percent decrease in overall injuries in the program's first year:

- Guaranteeing management commitment,
- Publicizing the company's commitment to safety throughout the community,
- Including discussions of safety issues during employee interviews,
- Offering employee wellness programs (healthier employees are less likely to be injured on the job),

- Training employees thoroughly, with new hire orientation and use of Job Safety Analysis (a blueprint for carrying out each step of a job safely),

- Conducting accident investigations and creating a case management program, and

- Implementing an effective OSH program that involves total commitment from employees and management based on a "team" approach.

Environmental ROI

It has become generally accepted and understood that there is a significant and growing correlation between industrial companies' investment in their environmental programs and their overall competitiveness and financial performance. For example, Innovest Strategic Value Advisors has consistently reported that some researchers claim that the "sustainability premium" can regularly exceed 200 basis points annually for broadly diversified portfolios. There have even been instances where it can surpass 500 in sectors with a particularly acute risk exposure8.

Innovest Strategic Value Advisors, in an annual investment research report on the Global Auto Parts market, reported that its results indicated that firms investing in environmental management posted accumulated returns over 48.8% higher than environmental laggards over a 3-year period, and 6% higher returns over 1-year. The report further indicated that Denso Corporation and Snap-On Tools emerged as the top ranked companies in this annual survey, which surpassed the performance of 18 of the world's leading automotive parts and supply companies in areas such as environmental management, resource usage, climate change, product life cycle analysis and sustainability-related profit opportunities in new markets9.

In addition, a subsequent study of the electric utility industry, found that portfolio managers who screen out companies with poor environmental records can outperform others by more than 7% annually. Finally, a news report shows that the top environmental performers in the computer sector have outperformed their industry rivals financially by 25% since the beginning of 1998. The report, The Computer Industry -- Hidden Risks and Value Potential for Strategic Investors, calls into question the view of the environment as a cost center and

presents evidence linking superior environmental performance with competitiveness and profitability. Citing Dell Computer Corp. as one example, the report says the company's energy-efficiency initiatives already have generated cost savings of 37%.[vi]

Value of Company/Organizational Reputation

Most of text is taken or based upon a report titled: The Benefits of Reputation Management. The Reputation Institute is a private research organization founded by Professor Charles Fombrun Stern School of Business, New York University, and Prof. Cees van Riel, Rotterdam School of Management, Erasmus University. The Institute's mission and core purpose is to build thought leadership about corporate reputations, their management, measurement and valuation. It brings together a global network of academic institutions and leading edge practitioners interested in advancing knowledge about corporate reputations. OSH is part of the reputation analysis process.

It has long been recognized that a Company's reputation is of significant value in generating a favorable ROI. For example, a company or organization will benefit from a favorable reputation by becoming the first choice of customers, investors, suppliers, and employees. A favorable reputation with customers creates a degree of brand equity with them that enhances loyalty, encourages repeat sales, and grows revenues. Similarly, a favorable reputation with employees can help attract better employees, spur productivity, and enhance profitability. Comparing book values with market valuations suggests that the intangible ASSP's of public companies in the US and the UK constitute on average some 55 per cent of their market valuations - a proportion that has grown steadily over the past 40 years. These intangibles are made up of intellectual capital such as patents and reputational capital (the strength of the company's stakeholder relationships).

Update Reference and Supporting Materials Below

Articles Embedded:

- ✓ A Research paper on SMS Safety Culture and effectiveness

research paper investigation-sms-sa

- ✓ So You're a Systems Type, Eh? (Article – File #062)

062_063_VP_0517z.pdf

- ✓ The original ASSP White Paper on Safety and return on investment

ROI Paper 2008 - Reaffirmed 2010.pdf

- ✓ Maximizing audit impact using management systems (Article – File #025547)

025547um.pdf

- ✓ An Overview of the Occupational Health & Safety Management Systems Standard (Article – F3 - Manuele)

F3_Manuele_0414.pdf

- ✓ Safety Management Systems (Article – File Haight)

F1Haight_0514.pdf

- ✓ GRI 403-2018: Health and Safety Standard (Article – GRI OHSMS)

GRI_OSHMS_45001_Z10_0918.pdf

Other Websites and Supporting Materials

The materials below should also be of interest. These are additional articles and studies looking at management systems. Several are specific to management systems and some are talking about management systems overall. The sites are from colleges, governmental agencies, and other non-commercial sites. Hopefully, these materials though should be of assistance when looking at ROI and implementing a management system.

How ISO 45001 and Z10 Safety Management System Standards Fit With GRI Standard on Occupational Health and Safety

A systematic review of the effectiveness of safety management systems

Safety management systems- Audit tools and reliability of auditing

A Human Factors Perspective on Safety Management Systems

Effectiveness of occupational health and safety management system interventions: A systematic review
Safety Management System

Planning and Implementing Safety Management Systems

An empirical analysis of the effectiveness of occupational health and safety management systems in SMEs

Return on Investment of Safety Risk Management System in Construction

Return on Investment Tool for Assessing Safety Interventions

Safety Management System SMS Explained

Safety Management Systems (SMS): Information, Approaches and Best Practices

Paradoxes, Challenges and Opportunities in the Implementation of Safety Management Systems

MIOSHA Fact Sheet - Safety & Health Management System

U.S. Department of Energy – Safety Management System Policy

One of the other questions with ASSP members and OSH Professionals deals with GRI (Global Reporting Initiative) since it has the requirement for inclusion of a management system. A fast history that should assist:

- GRI produced a standard in 2018 that is an update of an existing standard and address management systems, (Article Embedded). This standard probably will not be updated for several years.

- Both ASSE/ASSP and the U.S. TAG to ISO TC283 wrote letters on the GRI Standard since we wanted the document to recognize Z10 and ISO 45001, (Article Attached).

- The GRI Standard to review: is attached – it is also available on their site so I am including the link to the document: :

  https://www.globalreporting.org/standards/gri-standards-download-center/gri-403-occupational-health-and-safety-2018/

  https://www.assp.org/news-and-articles/2018/09/24/how-iso-45001-and-z10-fit-with-gri-standard-403-on-occupational-health-and-safety

If/when an OSH Professionals decides to work with an organization to pursue implementation of a management system, ASSP will be pleased to offer additional information. ASSP can offer applicable management system standards, books and publications, and high caliber applicable training. We look forward to working with our members and OSH stakeholders in the future on such implementations.

Conclusion

Workplace injuries and illnesses are costly in financial and human terms. More than $40 billion are paid each year by employers and their insurers in worker's compensation benefits, or nearly $500 per covered employee. This figure is simply unacceptable. The data and citations referenced throughout this paper support the ASSP finding that there is a direct positive correlation between investment in OSH and its subsequent ROI. Ultimately, company executives must recognize that they have a duty to provide a safe and healthful workplace to those who work for the company or visit the worksite. It is unethical to risk someone's life and health in order to save money. A sound safety and health management program can help companies fulfill their moral obligation.

Endnotes:

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[i] Negligent or willful injury and wrongful death suits can be brought where contractors or worksite visitors may be involved, as well as under certain state laws (Maryland, West Virginia and Ohio are some examples), which permit employees or their survivors to sue employers in tort where egregious or intentional behavior, or ultra-hazardous activities are involved.

[ii] Based upon a speech given by then Alcoa Chairman Paul O'Neill to the Council for Excellence in Government on May 10, 1999 titled: Excellence in Government-How do We Get It

From an article titled: Do You Know How Much Accidents Are Really Cutting Your Business?, Lee Smith Colorado State University Health&Safety Consultation Program, 1996.

[iii] Survey by the National Federation of Independent Business, Motivating Safety in the Workplace (June 1995).

Article by Adele L. Abrams, Safety Management Programs Make Dollars and Sense, ASSP Management Practice Specialty Newsletter, The Compass, Volume Number 2, Winter 2001-2002.

[iv] From the article: Measuring Safety's Return on Investment, Susan Jervis and Terry R. Collins, ASSP Professional Safety Journal, September 2001.

[v] Taken from the U.S. Occupational Safety and Health Administration (OSHA) publication, The Benefits of Participating in VPP, 2001

[vi] 8 Most of this text is taken or based upon a study conducted by Innovest Strategic Value Advisors, New York, NY, 2001.